

APPENDIX B:
HEALTH RISK ASSESSMENT

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1. Health Risk Assessment

1.1 CONSTRUCTION HEALTH RISK ASSESSMENT

The City of Cupertino (City) proposes to redevelop the project site with a residential development located at 22690 Stevens Creek Boulevard in Cupertino, California. The proposed project would involve demolishing the existing commercial building on an approximately 0.68-acre site and construction of a nine-unit, single-family attached residential, with one accessory dwelling unit. The site is currently developed with a convenience store and associated paved surface parking. A portion of the site is an undeveloped and unpaved lot. The following provides the background methodology used for the construction health risk assessment for the proposed project.

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 January 2022 and be completed by November 2022 (approximately 218 workdays). The nearest sensitive receptors to the project site include the adjacent single-family residences to the south. Additional sensitive receptors within 1,000 feet of the site are senior living residents at Sunny View Bay Area Retirement Community, approximately 525 feet to the northeast. 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 receptors 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 the proposed project. This HRA considers the health impact to off-site sensitive receptors (i.e., children at the nearby residences and senior living residents) 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).

For senior living residents, the following conservative assumptions were used:

- It was assumed that maximum exposed receptor (senior living resident) stood outside and are subject to DPM at the retirement community for 8 hours per weekday and approximately 260 construction days per year.

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 µg/m³

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 PM₁₀ 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 10 months years (218 work days) from January 2022 to November 2022. The average daily emission rates from construction equipment used during the proposed project 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., 2022). The off-site hauling emission rates were adjusted to evaluate localized emissions from the 0.42-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 (Moffett Federal Airfield 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 receptors) 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 receptors 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 receptors (MER). The off-site MER is a single-family residence immediately south of the site. The MER 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 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 (10×10^{-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 ($\mu\text{g}/\text{m}^3$) 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 ($\text{mg}/\text{kg}/\text{day}$)⁻¹ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

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

Where:

- Dose_{AIR} = dose by inhalation (mg/kg-day), per age group
- C_{air} = concentration of contaminant in air ($\mu\text{g}/\text{m}^3$)
- 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 (1×10^{-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:

<u>Age Groups</u>	<u>BR/BW (L/kg-day)</u>	<u>ED</u>	<u>ASF</u>	<u>FAH</u>
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. 218 work days, approximately 0.84 year). As the length of construction is less than 2 years, only the third trimester and 0-2 age bins apply to the construction analysis for the off-site residential receptors.

To represent the unique characteristics of senior living 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. To assess senior living residential risk, exposures were adjusted to account for an employment period of 365 days per year for 30 years. This timeline is considered appropriate for potential senior living exposures established by OEHHA.

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

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

Where:

Dose _{AIR}	=	dose by inhalation (mg/kg-day), per age group
CPF	=	cancer potency factor, chemical-specific (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 1x10⁶ (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 µg/m³ 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} (µg/m ³)
Maximum Exposed Receptor – Off-site Resident	59.4	0.133	0.63
Maximum Exposed Receptor – Senior Living Resident	0.009	0.002	0.001
BAAQMD Threshold	10	1.0	0.30
Exceeds Threshold?	Yes	No	Yes

Note: Cancer risk calculated using 2015 OEHHA HRA guidance.

Cancer risk for the residential MER from project-related construction emissions was calculated to be 59.4 in a million, which exceeds 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 MER consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 10-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, 260-261 construction days per year and exposed to all of the daily construction emissions. The cancer risk for the maximum exposed senior living residential receptor 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 within acceptable limits. For the residential MER, the maximum annual PM_{2.5} concentration of 0.63 µg/m³ exceeds the BAAQMD significance threshold of 0.3 micrograms per cubic meter (µg/m³). However, the maximum annual PM_{2.5} concentration for the maximum exposed senior living residential receptor does not exceed the threshold.

The following mitigation measure to project construction equipment is proposed because the incremental cancer risk and maximum annual PM_{2.5} concentration at the residential MER would exceed BAAQMD's significance thresholds:

Mitigation Measure AQ-2: During construction, the construction contractor(s) shall:

- Use construction equipment that meets the United States Environmental Protection Agency's (EPA) Tier 4 Interim emissions standards for off-road diesel-powered construction equipment with more than 25 horsepower, unless it can be demonstrated to the City of Cupertino Building Division that such equipment is not available. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by Tier 4 Interim emissions standards for a similarly sized engine, as defined by the California Air Resources Board's regulations.

- Prior to issuance of any construction permit, ensure that all construction plans submitted to the City of Cupertino Planning Department and/or Building Division clearly show the requirement for EPA Tier 4 Interim emissions standards for construction equipment over 25 horsepower.
- Maintain a list of all operating equipment in use on the project site for verification by the City of Cupertino Building Division official or his/her designee. The construction equipment list shall state the makes, models, and number of construction equipment on-site.
- Ensure that all equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations.
- Communicate with all sub-contractors in contracts and construction documents that all nonessential idling of construction equipment is restricted to 5 minutes or less in compliance with California Air Resources Board Rule 2449 and is responsible for ensuring that this requirement is met.

Mitigation Measure AQ-2 would reduce the project's localized construction emissions, as shown in Table 2. The results indicate that, with mitigation, cancer risks and annual PM_{2.5} concentrations would be less than 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} (µg/m ³) ^a
Maximum Exposed Receptor – Off-site Resident	4.9	0.011	0.05
Maximum Exposed Receptor – Senior Living Resident	<0.001	<0.001	<0.001
BAAQMD Threshold	10	1.0	0.3
Exceeds Threshold?	No	No	No

Risks incorporate Mitigation Measure AQ-2, which requires all equipment of 25 horsepower or more be fitted with engines that meet the EPA's Tier 4 Interim emissions standards.

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 Metro Oakland International 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

Appendix B. Air Dispersion Model Output

Appendix C. Construction Risk Calculations



Source: Google Earth Pro, 2020; PlaceWorks, 2020.

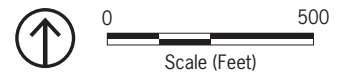
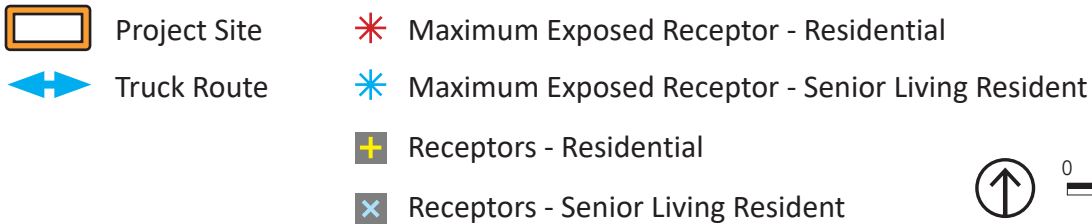


Figure 1
Site and Off-Site Receptor Locations

Appendix A. Emission Rate Calculations

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

Average Daily Emissions and Emission Rates

Onsite Construction PM10 Exhaust Emissions ¹			
Year	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
2022	0.42	5.26E-02	6.63E-03

Onsite Construction PM2.5 Exhaust Emissions ²		
Year	Average Daily Emissions (lbs/day)	Emission Rate (g/s)
2022	0.40	6.29E-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)
2022	1.38E-03	2.89E-05	3.61E-06	4.55E-07

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)
2022	1.38E-03	2.89E-05	3.61E-06	4.55E-07

Note: Emissions evenly distributed over 55 modeled volume sources.

	Year	Workdays	Risk Scalar ⁵
Hauling Length (miles)			
Haul Length within 1,000 ft of Site (mile) ³	2022	218	0.84
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) ⁴			

¹ DPM emissions taken as PM₁₀ 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 0.42-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. > 25 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)
2022	0.03	4.36E-03	5.49E-04

Onsite Construction PM2.5 Exhaust Emissions ²		
Year	Average Daily Emissions (lbs/day)	Emission Rate (g/s)
2022	0.03	5.49E-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)
2022	1.38E-03	2.89E-05	3.61E-06	4.55E-07

Offsite Construction PM2.5 Exhaust Emissions ²			
Year	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) ³	Emission Rate (g/s)
2022	1.38E-03	2.89E-05	4.55E-07

Note: Emissions evenly distributed over 55 modeled volume sources.

	Year	Workdays	Risk Scalar ⁵
Hauling Length (miles)			
Haul Length within 1,000 ft of Site (mile) ³	2022	218	0.84
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) ⁴			

¹ DPM emissions taken as PM₁₀ 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 0.42-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

Model Output

Unit Emission Rates (1 g/s)

*** AERMOD - VERSION 19191 *** *** 22690 Stevens Creek Blvd, Cupertino *** 07/21/20
*** AERMET - VERSION 14134 *** *** Construction HRA, Residential Receptors *** 09:29:47
*** MODELOPTS: RegDEFAULT CONC ELEV FLGPOL URBAN *** PAGE 1

*** 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 56 Source(s),
for Total of 1 Urban Area(s):

Urban Population = 1928000.0 ; 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: 56 Source(s); 2 Source Group(s); and 391 Receptor(s)

with: 0 POINT(s), including
 0 POINTCAP(s) and 0 POINTHOR(s)
and: 55 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.

Model Output Unit Emission Rates (1 g/s)

**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) = 11.90 ; 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: COCU18.err
**File for Summary of Results: COCU18.sum

Model Output

Unit Emission Rates (1 g/s)

*** AERMOD - VERSION 19191 *** *** 22690 Stevens Creek Blvd, Cupertino
 *** AERMET - VERSION 14134 *** *** Construction HRA, Residential Receptors

*** 07/21/20
 *** 09:29:47
 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	0.18182E-01	582491.5	4131335.0	114.4	4.15	5.67	3.26	YES	HRDOW
L0000002	0	0.18182E-01	582493.1	4131322.9	114.8	4.15	5.67	3.26	YES	HRDOW
L0000003	0	0.18182E-01	582494.6	4131310.8	115.2	4.15	5.67	3.26	YES	HRDOW
L0000004	0	0.18182E-01	582496.2	4131298.8	115.7	4.15	5.67	3.26	YES	HRDOW
L0000005	0	0.18182E-01	582497.8	4131286.7	116.1	4.15	5.67	3.26	YES	HRDOW
L0000006	0	0.18182E-01	582499.3	4131274.6	116.2	4.15	5.67	3.26	YES	HRDOW
L0000007	0	0.18182E-01	582500.9	4131262.5	116.4	4.15	5.67	3.26	YES	HRDOW
L0000008	0	0.18182E-01	582502.2	4131250.4	116.3	4.15	5.67	3.26	YES	HRDOW
L0000009	0	0.18182E-01	582503.6	4131238.2	116.0	4.15	5.67	3.26	YES	HRDOW
L0000010	0	0.18182E-01	582504.9	4131226.1	115.8	4.15	5.67	3.26	YES	HRDOW
L0000011	0	0.18182E-01	582506.2	4131214.0	115.7	4.15	5.67	3.26	YES	HRDOW
L0000012	0	0.18182E-01	582507.5	4131201.9	115.7	4.15	5.67	3.26	YES	HRDOW
L0000013	0	0.18182E-01	582508.7	4131189.8	115.8	4.15	5.67	3.26	YES	HRDOW
L0000014	0	0.18182E-01	582509.7	4131177.6	115.9	4.15	5.67	3.26	YES	HRDOW
L0000015	0	0.18182E-01	582510.6	4131165.4	115.9	4.15	5.67	3.26	YES	HRDOW
L0000016	0	0.18182E-01	582511.6	4131153.3	116.0	4.15	5.67	3.26	YES	HRDOW
L0000017	0	0.18182E-01	582512.5	4131141.1	116.1	4.15	5.67	3.26	YES	HRDOW
L0000018	0	0.18182E-01	582513.5	4131129.0	116.2	4.15	5.67	3.26	YES	HRDOW
L0000019	0	0.18182E-01	582514.4	4131116.8	116.3	4.15	5.67	3.26	YES	HRDOW
L0000020	0	0.18182E-01	582514.8	4131104.6	116.5	4.15	5.67	3.26	YES	HRDOW
L0000021	0	0.18182E-01	582515.2	4131092.4	116.6	4.15	5.67	3.26	YES	HRDOW
L0000022	0	0.18182E-01	582515.7	4131080.3	116.7	4.15	5.67	3.26	YES	HRDOW
L0000023	0	0.18182E-01	582516.1	4131068.1	116.8	4.15	5.67	3.26	YES	HRDOW
L0000024	0	0.18182E-01	582516.5	4131055.9	117.0	4.15	5.67	3.26	YES	HRDOW
L0000025	0	0.18182E-01	582517.0	4131043.7	117.2	4.15	5.67	3.26	YES	HRDOW
L0000026	0	0.18182E-01	582517.4	4131031.5	117.5	4.15	5.67	3.26	YES	HRDOW
L0000027	0	0.18182E-01	582517.8	4131019.3	117.8	4.15	5.67	3.26	YES	HRDOW
L0000028	0	0.18182E-01	582518.3	4131007.2	118.0	4.15	5.67	3.26	YES	HRDOW
L0000029	0	0.18182E-01	582518.7	4130995.0	118.1	4.15	5.67	3.26	YES	HRDOW
L0000030	0	0.18182E-01	582530.6	4130995.2	117.8	4.15	5.67	3.26	YES	HRDOW
L0000031	0	0.18182E-01	582542.8	4130995.8	117.8	4.15	5.67	3.26	YES	HRDOW
L0000032	0	0.18182E-01	582555.0	4130996.4	117.7	4.15	5.67	3.26	YES	HRDOW
L0000033	0	0.18182E-01	582567.1	4130996.9	117.8	4.15	5.67	3.26	YES	HRDOW
L0000034	0	0.18182E-01	582579.3	4130997.5	117.8	4.15	5.67	3.26	YES	HRDOW
L0000035	0	0.18182E-01	582591.5	4130998.0	118.1	4.15	5.67	3.26	YES	HRDOW
L0000036	0	0.18182E-01	582603.7	4130998.6	118.3	4.15	5.67	3.26	YES	HRDOW
L0000037	0	0.18182E-01	582615.8	4130999.2	118.5	4.15	5.67	3.26	YES	HRDOW
L0000038	0	0.18182E-01	582628.0	4130999.7	118.6	4.15	5.67	3.26	YES	HRDOW

Model Output Unit Emission Rates (1 g/s)

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L0000039      0  0.18182E-01  582640.2  4131000.3  118.7    4.15    5.67    3.26    YES  HRDOW
L0000040      0  0.18182E-01  582652.4  4131000.9  118.7    4.15    5.67    3.26    YES  HRDOW
*** AERMOD - VERSION 19191 ***    *** 22690 Stevens Creek Blvd, Cupertino    ***    07/21/20
*** AERMET - VERSION 14134 ***    *** Construction HRA, Residential Receptors    ***    09:29:47
*** MODELOPTs:   RegDFAULT  CONC  ELEV  FLGPOL  URBAN                                     PAGE  3
  
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*** 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	0.18182E-01	582664.6	4131001.4	118.6	4.15	5.67	3.26	YES	HRDOW
L0000042	0	0.18182E-01	582676.7	4131002.0	118.5	4.15	5.67	3.26	YES	HRDOW
L0000043	0	0.18182E-01	582688.9	4131001.9	118.6	4.15	5.67	3.26	YES	HRDOW
L0000044	0	0.18182E-01	582701.1	4131001.7	118.8	4.15	5.67	3.26	YES	HRDOW
L0000045	0	0.18182E-01	582713.3	4131001.5	119.0	4.15	5.67	3.26	YES	HRDOW
L0000046	0	0.18182E-01	582725.5	4131001.3	119.1	4.15	5.67	3.26	YES	HRDOW
L0000047	0	0.18182E-01	582737.7	4131001.1	119.3	4.15	5.67	3.26	YES	HRDOW
L0000048	0	0.18182E-01	582749.9	4131000.9	119.5	4.15	5.67	3.26	YES	HRDOW
L0000049	0	0.18182E-01	582762.1	4131000.7	119.6	4.15	5.67	3.26	YES	HRDOW
L0000050	0	0.18182E-01	582774.2	4131001.3	119.5	4.15	5.67	3.26	YES	HRDOW
L0000051	0	0.18182E-01	582786.3	4131003.2	119.5	4.15	5.67	3.26	YES	HRDOW
L0000052	0	0.18182E-01	582798.3	4131005.0	119.5	4.15	5.67	3.26	YES	HRDOW
L0000053	0	0.18182E-01	582810.4	4131006.9	119.5	4.15	5.67	3.26	YES	HRDOW
L0000054	0	0.18182E-01	582822.4	4131008.7	119.5	4.15	5.67	3.26	YES	HRDOW
L0000055	0	0.18182E-01	582834.5	4131010.6	119.5	4.15	5.67	3.26	YES	HRDOW

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*** AERMOD - VERSION 19191 ***    *** 22690 Stevens Creek Blvd, Cupertino    ***    07/21/20
*** AERMET - VERSION 14134 ***    *** Construction HRA, Residential Receptors    ***    09:29:47
*** MODELOPTs:   RegDFAULT  CONC  ELEV  FLGPOL  URBAN                                     PAGE  4
  
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*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	LOCATION OF AREA Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
1	0	0.32580E-03	582509.2	4130943.0	118.2	4.15	11	1.93	YES	HRDOW

Model Output Unit Emission Rates (1 g/s)

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*** AERMOD - VERSION 19191 ***   *** 22690 Stevens Creek Blvd, Cupertino
*** AERMET - VERSION 14134 ***   *** Construction HRA, Residential Receptors

*** MODELOPTs:   RegDFAULT  CONC  ELEV  FLGPOL  URBAN
  
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***   07/21/20
***   09:29:47
***   PAGE 5
  
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*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs																
-----	-----																
ONSITE	1	,															
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	,			

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*** AERMOD - VERSION 19191 ***   *** 22690 Stevens Creek Blvd, Cupertino
*** AERMET - VERSION 14134 ***   *** Construction HRA, Residential Receptors

*** MODELOPTs:   RegDFAULT  CONC  ELEV  FLGPOL  URBAN
  
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***   09:29:47
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*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs																
-----	-----	-----																
L0000007	1928000.	1	,	L0000001	,	L0000002	,	L0000003	,	L0000004	,	L0000005	,	L0000006	,			
				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

Model Output Unit Emission Rates (1 g/s)

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*** AERMOD - VERSION 19191 ***   *** 22690 Stevens Creek Blvd, Cupertino   ***   07/21/20
*** AERMET - VERSION 14134 ***   *** Construction HRA, Residential Receptors ***   09:29:47
*** MODELOPTs:   RegDFAULT CONC ELEV FLGPOL URBAN   ***   PAGE 7
  
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = ALL SOURCES ; SOURCE TYPE = AREAPOLY and 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	.1000E+01	13	.0000E+00	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

Model Output

Unit Emission Rates (1 g/s)

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*** AERMOD - VERSION 19191 ***   *** 22690 Stevens Creek Blvd, Cupertino   ***   07/21/20
*** AERMET - VERSION 14134 ***   *** Construction HRA, Residential Receptors ***   09:29:47
                                                                                                     ***   PAGE 70

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*** MODELOPTs: RegDEFAULT CONC ELEV FLGPOL URBAN

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

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Surface file:  ..\MetData\745090.SFC           Met Version: 14134
Profile file:  ..\MetData\745090.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 23244           Upper air station no.: 23230
Name: UNKNOWN                       Name: OAKLAND/WSO_AP
Year: 2009                           Year: 2009

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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	-12.1	0.213	-9.000	-9.000	-999.	236.	72.6	0.09	0.54	1.00	2.86	1.	10.0	282.5	2.0			
09	01	01	1	02	-14.9	0.261	-9.000	-9.000	-999.	321.	109.2	0.09	0.54	1.00	3.36	18.	10.0	282.0	2.0			
09	01	01	1	03	-9.1	0.160	-9.000	-9.000	-999.	158.	40.7	0.09	0.54	1.00	2.36	24.	10.0	282.0	2.0			
09	01	01	1	04	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	281.4	2.0			
09	01	01	1	05	-3.9	0.075	-9.000	-9.000	-999.	49.	9.8	0.09	0.54	1.00	1.76	23.	10.0	281.4	2.0			
09	01	01	1	06	-9.1	0.159	-9.000	-9.000	-999.	153.	40.5	0.09	0.54	1.00	2.36	2.	10.0	280.9	2.0			
09	01	01	1	07	-9.1	0.159	-9.000	-9.000	-999.	153.	40.5	0.09	0.54	1.00	2.36	15.	10.0	280.9	2.0			
09	01	01	1	08	-4.7	0.084	-9.000	-9.000	-999.	61.	11.7	0.15	0.54	0.73	1.76	323.	10.0	280.9	2.0			
09	01	01	1	09	-4.9	0.212	-9.000	-9.000	-999.	234.	179.0	0.15	0.54	0.38	2.36	357.	10.0	280.4	2.0			
09	01	01	1	10	5.7	0.163	0.241	0.014	89.	159.	-69.3	0.09	0.54	0.25	1.76	11.	10.0	280.9	2.0			
09	01	01	1	11	12.2	-9.000	-9.000	-9.000	158.	-999.	-99999.0	0.24	0.54	0.21	0.00	0.	10.0	280.9	2.0			
09	01	01	1	12	16.0	0.426	0.456	0.016	216.	668.	-442.4	0.15	0.54	0.19	4.36	346.	10.0	281.4	2.0			
09	01	01	1	13	16.6	0.236	0.493	0.015	263.	305.	-71.8	0.36	0.54	0.19	1.76	253.	10.0	281.4	2.0			
09	01	01	1	14	14.2	-9.000	-9.000	-9.000	297.	-999.	-99999.0	0.24	0.54	0.20	0.00	0.	10.0	282.0	2.0			
09	01	01	1	15	44.9	-9.000	-9.000	-9.000	387.	-999.	-99999.0	0.24	0.54	0.23	0.00	0.	10.0	283.8	2.0			
09	01	01	1	16	13.2	-9.000	-9.000	-9.000	410.	-999.	-99999.0	0.24	0.54	0.31	0.00	0.	10.0	284.1	2.0			
09	01	01	1	17	-12.3	0.130	-9.000	-9.000	-999.	112.	16.2	0.15	0.54	0.55	2.36	351.	10.0	282.1	2.0			
09	01	01	1	18	-9.3	0.106	-9.000	-9.000	-999.	83.	11.6	0.36	0.54	1.00	1.76	297.	10.0	282.1	2.0			
09	01	01	1	19	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	281.1	2.0			
09	01	01	1	20	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	281.1	2.0			
09	01	01	1	21	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	281.1	2.0			
09	01	01	1	22	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	281.1	2.0			
09	01	01	1	23	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	281.1	2.0			
09	01	01	1	24	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.54	1.00	0.00	0.	10.0	280.1	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	1.	2.86	282.6	99.0	-99.00	-99.00	

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

Model Output

Unit Emission Rates (1 g/s)

*** AERMOD - VERSION 19191 *** *** 22690 Stevens Creek Blvd, Cupertino *** 07/21/20
*** AERMET - VERSION 14134 *** *** Construction HRA, Residential Receptors *** 09:29:47
*** MODELPTS: RegDEFAULT CONC ELEV FLGPOL URBAN *** PAGE 71

*** 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
582111.53	4130697.09	0.05189	582151.53	4130697.09	0.07355
582191.53	4130697.09	0.11089	582231.53	4130697.09	0.17458
582271.53	4130697.09	0.28405	582311.53	4130697.09	0.47641
582351.53	4130697.09	0.81880	582391.53	4130697.09	1.40788
582431.53	4130697.09	2.30141	582471.53	4130697.09	3.32345
582511.53	4130697.09	3.99311	582551.53	4130697.09	3.94542
582591.53	4130697.09	3.26933	582631.53	4130697.09	2.38250
582671.53	4130697.09	1.60654	582711.53	4130697.09	1.06612
582751.53	4130697.09	0.72524	582791.53	4130697.09	0.50365
582831.53	4130697.09	0.36942	582111.53	4130727.09	0.04952
582151.53	4130727.09	0.06999	582191.53	4130727.09	0.10432
582231.53	4130727.09	0.16687	582271.53	4130727.09	0.28133
582311.53	4130727.09	0.48998	582351.53	4130727.09	0.88966
582391.53	4130727.09	1.63663	582431.53	4130727.09	2.82829
582471.53	4130727.09	4.21964	582511.53	4130727.09	5.07564
582551.53	4130727.09	4.82709	582591.53	4130727.09	3.75293
582631.53	4130727.09	2.55915	582671.53	4130727.09	1.63694
582711.53	4130727.09	1.04707	582751.53	4130727.09	0.69840
582791.53	4130727.09	0.48244	582831.53	4130727.09	0.35241
582111.53	4130757.09	0.04771	582151.53	4130757.09	0.06665
582191.53	4130757.09	0.09885	582231.53	4130757.09	0.15697
582271.53	4130757.09	0.27029	582311.53	4130757.09	0.50033
582351.53	4130757.09	0.96869	582391.53	4130757.09	1.91856
582431.53	4130757.09	3.55198	582471.53	4130757.09	5.52092
582511.53	4130757.09	6.61787	582551.53	4130757.09	5.96909
582591.53	4130757.09	4.28447	582631.53	4130757.09	2.68401
582671.53	4130757.09	1.61156	582711.53	4130757.09	0.99565
582751.53	4130757.09	0.66169	582791.53	4130757.09	0.45952
582831.53	4130757.09	0.33672	582111.53	4130787.09	0.04610
582151.53	4130787.09	0.06314	582191.53	4130787.09	0.09220
582231.53	4130787.09	0.14623	582271.53	4130787.09	0.25486
582311.53	4130787.09	0.49388	582351.53	4130787.09	1.02153
582391.53	4130787.09	2.24565	582431.53	4130787.09	4.57734
582471.53	4130787.09	7.49411	582511.53	4130787.09	8.89340
582551.53	4130787.09	7.44053	582591.53	4130787.09	4.77933
582631.53	4130787.09	2.71167	582671.53	4130787.09	1.53764
582711.53	4130787.09	0.93253	582751.53	4130787.09	0.62012

Model Output Unit Emission Rates (1 g/s)

582791.53	4130787.09	0.43549	582831.53	4130787.09	0.32200	
582111.53	4130817.09	0.04577	582151.53	4130817.09	0.06132	
582191.53	4130817.09	0.08694	582231.53	4130817.09	0.13549	
*** AERMOD - VERSION	19191 ***	*** 22690 Stevens Creek Blvd, Cupertino				*** 07/21/20
*** AERMET - VERSION	14134 ***	*** Construction HRA, Residential Receptors				*** 09:29:47
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*** 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
582271.53	4130817.09	0.23558	582311.53	4130817.09	0.46890
582351.53	4130817.09	1.05415	582391.53	4130817.09	2.63392
582431.53	4130817.09	6.04365	582471.53	4130817.09	10.62496
582511.53	4130817.09	12.42714	582551.53	4130817.09	9.31481
582591.53	4130817.09	5.18312	582631.53	4130817.09	2.63745
582671.53	4130817.09	1.42584	582711.53	4130817.09	0.86979
582751.53	4130817.09	0.57752	582791.53	4130817.09	0.41270
582831.53	4130817.09	0.30963	582111.53	4130847.09	0.04705
582151.53	4130847.09	0.06131	582191.53	4130847.09	0.08443
582231.53	4130847.09	0.12732	582271.53	4130847.09	0.21588
582311.53	4130847.09	0.43081	582351.53	4130847.09	1.02414
582391.53	4130847.09	3.01469	582431.53	4130847.09	8.23465
582471.53	4130847.09	16.01141	582511.53	4130847.09	18.27891
582551.53	4130847.09	11.55991	582591.53	4130847.09	5.34022
582631.53	4130847.09	2.44792	582671.53	4130847.09	1.29038
582711.53	4130847.09	0.79329	582751.53	4130847.09	0.53716
582791.53	4130847.09	0.39246	582831.53	4130847.09	0.29926
582111.53	4130877.09	0.05020	582151.53	4130877.09	0.06442
582191.53	4130877.09	0.08617	582231.53	4130877.09	0.12472
582271.53	4130877.09	0.20059	582311.53	4130877.09	0.38597
582351.53	4130877.09	0.94648	582391.53	4130877.09	3.35059
582431.53	4130877.09	11.79760	582471.53	4130877.09	26.20561
582511.53	4130877.09	28.81194	582551.53	4130877.09	13.59630
582591.53	4130877.09	4.96884	582631.53	4130877.09	2.14041
582671.53	4130877.09	1.14880	582711.53	4130877.09	0.72485
582751.53	4130877.09	0.50483	582791.53	4130877.09	0.37574
582831.53	4130877.09	0.29007	582111.53	4130907.09	0.05579
582151.53	4130907.09	0.07130	582191.53	4130907.09	0.09367
582231.53	4130907.09	0.13185	582271.53	4130907.09	0.20049
582311.53	4130907.09	0.36494	582351.53	4130907.09	0.83355
582391.53	4130907.09	3.37559	582431.53	4130907.09	18.27494
582471.53	4130907.09	47.59861	582511.53	4130907.09	49.39619
582551.53	4130907.09	13.60759	582591.53	4130907.09	4.07477
582631.53	4130907.09	1.80554	582671.53	4130907.09	1.02630

Model Output Unit Emission Rates (1 g/s)

582711.53	4130907.09	0.67270	582751.53	4130907.09	0.47952
582791.53	4130907.09	0.36197	582831.53	4130907.09	0.28218
582111.53	4130937.09	0.06519	582151.53	4130937.09	0.08381
582191.53	4130937.09	0.11147	582231.53	4130937.09	0.15502
582351.53	4130937.09	0.79028	582391.53	4130937.09	2.78391
582431.53	4130937.09	34.50093	582471.53	4130937.09	100.09548 Residential MER
*** AERMOD - VERSION	19191 ***	*** 22690 Stevens Creek Blvd, Cupertino			*** 07/21/20
*** AERMET - VERSION	14134 ***	*** Construction HRA, Residential Receptors			*** 09:29:47
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*** MODELOPTs: RegDEFAULT 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
582511.53	4130937.09	82.87908	582551.53	4130937.09	10.03204
582591.53	4130937.09	3.11132	582631.53	4130937.09	1.53411
582671.53	4130937.09	0.93244	582711.53	4130937.09	0.63124
582751.53	4130937.09	0.45748	582791.53	4130937.09	0.34873
582831.53	4130937.09	0.27389	582111.53	4130967.09	0.08051
582151.53	4130967.09	0.10516	582191.53	4130967.09	0.14347
582231.53	4130967.09	0.20338	582346.84	4130955.96	0.85895
582432.70	4130954.20	63.76270	582591.53	4130967.09	2.44773
582631.53	4130967.09	1.33224	582671.53	4130967.09	0.84815
582711.53	4130967.09	0.58825	582751.53	4130967.09	0.43211
582791.53	4130967.09	0.33208	582831.53	4130967.09	0.26319
582791.53	4130997.09	0.31055	582831.53	4130997.09	0.24894
582111.53	4131027.09	0.13618	582151.53	4131027.09	0.18690
582191.53	4131027.09	0.28764	582231.53	4131027.09	0.43190
582271.53	4131027.09	0.70203	582311.53	4131027.09	1.26051
582351.53	4131027.09	2.61908	582391.53	4131027.09	5.80612
582431.53	4131027.09	8.86529	582551.53	4131027.09	1.87406
582591.53	4131027.09	1.26219	582631.53	4131027.09	0.86566
582671.53	4131027.09	0.61821	582711.53	4131027.09	0.46207
582751.53	4131027.09	0.35649	582791.53	4131027.09	0.28340
582831.53	4131027.09	0.23097	582111.53	4131057.09	0.18496
582151.53	4131057.09	0.25401	582191.53	4131057.09	0.36403
582231.53	4131057.09	0.54775	582271.53	4131057.09	0.87426
582311.53	4131057.09	1.48729	582351.53	4131057.09	2.62758
582391.53	4131057.09	4.17865	582431.53	4131057.09	4.65023
582551.53	4131057.09	1.07905	582591.53	4131057.09	0.82318
582631.53	4131057.09	0.63545	582671.53	4131057.09	0.49180
582711.53	4131057.09	0.38700	582751.53	4131057.09	0.30892
582791.53	4131057.09	0.25148	582831.53	4131057.09	0.20952
582111.53	4131087.09	0.22281	582151.53	4131087.09	0.30569
582191.53	4131087.09	0.43406	582231.53	4131087.09	0.64013

Model Output Unit Emission Rates (1 g/s)

582271.53	4131087.09	0.97725	582311.53	4131087.09	1.50923
582351.53	4131087.09	2.24413	582391.53	4131087.09	2.84264
582431.53	4131087.09	2.64266	582551.53	4131087.09	0.68446
582591.53	4131087.09	0.55723	582631.53	4131087.09	0.46111
582671.53	4131087.09	0.38214	582711.53	4131087.09	0.31667
582751.53	4131087.09	0.26128	582791.53	4131087.09	0.21848
582831.53	4131087.09	0.18631	582111.53	4131117.09	0.25874
582151.53	4131117.09	0.35121	582191.53	4131117.09	0.48792
582231.53	4131117.09	0.69163	582271.53	4131117.09	0.98900

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*** 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
582311.53	4131117.09	1.38063	582351.53	4131117.09	1.78228
582391.53	4131117.09	1.94068	582431.53	4131117.09	1.63066
582471.53	4131117.09	1.06596	582551.53	4131117.09	0.47546
582591.53	4131117.09	0.39693	582631.53	4131117.09	0.34144
582671.53	4131117.09	0.29512	582711.53	4131117.09	0.25477
582751.53	4131117.09	0.21816	582791.53	4131117.09	0.18724
582831.53	4131117.09	0.16369	582111.53	4131147.09	0.28920
582151.53	4131147.09	0.38420	582191.53	4131147.09	0.51711
582231.53	4131147.09	0.69943	582271.53	4131147.09	0.93330
582311.53	4131147.09	1.18975	582351.53	4131147.09	1.37674
582391.53	4131147.09	1.35359	582431.53	4131147.09	1.07509
582471.53	4131147.09	0.73475	582551.53	4131147.09	0.35128 Senior Living MER
582591.53	4131147.09	0.29613	582631.53	4131147.09	0.26066
582671.53	4131147.09	0.23117	582711.53	4131147.09	0.20513
582751.53	4131147.09	0.18133	582791.53	4131147.09	0.15919
582831.53	4131147.09	0.14238	582191.53	4131177.09	0.52245
582231.53	4131177.09	0.67294	582271.53	4131177.09	0.84153
582311.53	4131177.09	0.99177	582351.53	4131177.09	1.05745
582391.53	4131177.09	0.96851	582431.53	4131177.09	0.74691
582471.53	4131177.09	0.53006	582551.53	4131177.09	0.27049
582591.53	4131177.09	0.22966	582631.53	4131177.09	0.20512
582671.53	4131177.09	0.18481	582711.53	4131177.09	0.16720
582751.53	4131177.09	0.15120	582791.53	4131177.09	0.13508
582831.53	4131177.09	0.12319	582191.53	4131207.09	0.50886
582231.53	4131207.09	0.62482	582271.53	4131207.09	0.73702
582311.53	4131207.09	0.81443	582351.53	4131207.09	0.81501
582391.53	4131207.09	0.71201	582431.53	4131207.09	0.54578
582471.53	4131207.09	0.39239	582551.53	4131207.09	0.21524

Model Output
Unit Emission Rates (1 g/s)

582591.53	4131207.09	0.18420	582631.53	4131207.09	0.16575
582671.53	4131207.09	0.15099	582711.53	4131207.09	0.13822
582751.53	4131207.09	0.12710	582791.53	4131207.09	0.11511
582831.53	4131207.09	0.10693	582191.53	4131237.09	0.48155
582231.53	4131237.09	0.56590	582271.53	4131237.09	0.63460
582311.53	4131237.09	0.66528	582351.53	4131237.09	0.63328
582391.53	4131237.09	0.53726	582431.53	4131237.09	0.41256
582471.53	4131237.09	0.30158	582551.53	4131237.09	0.17565
582591.53	4131237.09	0.15125	582631.53	4131237.09	0.13683
582671.53	4131237.09	0.12562	582711.53	4131237.09	0.11591
582751.53	4131237.09	0.10769	582791.53	4131237.09	0.09844
582831.53	4131237.09	0.09265	582191.53	4131267.09	0.44593

Model Output

Unit Emission Rates (1 g/s)

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*** AERMOD - VERSION 19191 ***   *** 22690 Stevens Creek Blvd, Cupertino   ***   07/21/20
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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

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*** 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 , . . .
  
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*** 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
582111.53	4130697.09	0.05167	582151.53	4130697.09	0.06331
582191.53	4130697.09	0.07974	582231.53	4130697.09	0.10132
582271.53	4130697.09	0.13072	582311.53	4130697.09	0.17310
582351.53	4130697.09	0.23498	582391.53	4130697.09	0.32612
582431.53	4130697.09	0.46467	582471.53	4130697.09	0.66271
582511.53	4130697.09	0.91001	582551.53	4130697.09	1.16888
582591.53	4130697.09	1.38560	582631.53	4130697.09	1.51096
582671.53	4130697.09	1.54037	582711.53	4130697.09	1.49919
582751.53	4130697.09	1.41292	582791.53	4130697.09	1.28713
582831.53	4130697.09	1.13567	582111.53	4130727.09	0.05304
582151.53	4130727.09	0.06530	582191.53	4130727.09	0.08140
582231.53	4130727.09	0.10448	582271.53	4130727.09	0.13651
582311.53	4130727.09	0.18076	582351.53	4130727.09	0.24873
582391.53	4130727.09	0.35357	582431.53	4130727.09	0.51553
582471.53	4130727.09	0.75512	582511.53	4130727.09	1.06432
582551.53	4130727.09	1.38424	582591.53	4130727.09	1.63707
582631.53	4130727.09	1.76723	582671.53	4130727.09	1.77899
582711.53	4130727.09	1.71214	582751.53	4130727.09	1.60006
582791.53	4130727.09	1.44895	582831.53	4130727.09	1.26482
582111.53	4130757.09	0.05503	582151.53	4130757.09	0.06765
582191.53	4130757.09	0.08473	582231.53	4130757.09	0.10774
582271.53	4130757.09	0.14117	582311.53	4130757.09	0.19170
582351.53	4130757.09	0.26672	582391.53	4130757.09	0.38865
582431.53	4130757.09	0.57920	582471.53	4130757.09	0.87133
582511.53	4130757.09	1.26118	582551.53	4130757.09	1.66597
582591.53	4130757.09	1.96289	582631.53	4130757.09	2.08739
582671.53	4130757.09	2.06739	582711.53	4130757.09	1.96458
582751.53	4130757.09	1.82865	582791.53	4130757.09	1.64930
582831.53	4130757.09	1.42469	582111.53	4130787.09	0.05636
582151.53	4130787.09	0.06905	582191.53	4130787.09	0.08659
582231.53	4130787.09	0.11153	582271.53	4130787.09	0.14709
582311.53	4130787.09	0.20189	582351.53	4130787.09	0.28329
582391.53	4130787.09	0.42628	582431.53	4130787.09	0.65277
582471.53	4130787.09	1.01510	582511.53	4130787.09	1.51837

Model Output

Unit Emission Rates (1 g/s)

582551.53	4130787.09	2.03749	582591.53	4130787.09	2.38798	
582631.53	4130787.09	2.49246	582671.53	4130787.09	2.42283	
582711.53	4130787.09	2.27891	582751.53	4130787.09	2.11582	
582791.53	4130787.09	1.90475	582831.53	4130787.09	1.62696	
582111.53	4130817.09	0.05820	582151.53	4130817.09	0.07145	
582191.53	4130817.09	0.08888	582231.53	4130817.09	0.11539	
*** AERMOD - VERSION	19191 ***	*** 22690 Stevens Creek Blvd, Cupertino			***	07/21/20
*** AERMET - VERSION	14134 ***	*** Construction HRA, Residential Receptors			***	09:29:47
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*** MODELOPTs: RegDEFAULT 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
582271.53	4130817.09	0.15371	582311.53	4130817.09	0.21388
582351.53	4130817.09	0.30388	582391.53	4130817.09	0.46589
582431.53	4130817.09	0.73654	582471.53	4130817.09	1.19003
582511.53	4130817.09	1.86731	582551.53	4130817.09	2.55825
582591.53	4130817.09	2.96581	582631.53	4130817.09	3.01828
582671.53	4130817.09	2.87423	582711.53	4130817.09	2.69283
582751.53	4130817.09	2.49136	582791.53	4130817.09	2.24369
582831.53	4130817.09	1.89265	582111.53	4130847.09	0.06055
582151.53	4130847.09	0.07381	582191.53	4130847.09	0.09200
582231.53	4130847.09	0.11993	582271.53	4130847.09	0.16126
582311.53	4130847.09	0.22684	582351.53	4130847.09	0.31988
582391.53	4130847.09	0.50944	582431.53	4130847.09	0.82585
582471.53	4130847.09	1.41254	582511.53	4130847.09	2.36058
582551.53	4130847.09	3.31987	582591.53	4130847.09	3.77196
582631.53	4130847.09	3.71822	582671.53	4130847.09	3.46970
582711.53	4130847.09	3.23395	582751.53	4130847.09	3.00444
582791.53	4130847.09	2.71420	582831.53	4130847.09	2.25416
582111.53	4130877.09	0.06311	582151.53	4130877.09	0.07722
582191.53	4130877.09	0.09606	582231.53	4130877.09	0.12535
582271.53	4130877.09	0.17059	582311.53	4130877.09	0.24370
582351.53	4130877.09	0.34594	582391.53	4130877.09	0.55532
582431.53	4130877.09	0.92945	582471.53	4130877.09	1.69634
582511.53	4130877.09	3.09613	582551.53	4130877.09	4.49736
582591.53	4130877.09	4.93492	582631.53	4130877.09	4.68033
582671.53	4130877.09	4.29814	582711.53	4130877.09	4.00340
582751.53	4130877.09	3.75841	582791.53	4130877.09	3.40977
582831.53	4130877.09	2.77396	582111.53	4130907.09	0.06602
582151.53	4130907.09	0.08090	582191.53	4130907.09	0.10022

Model Output Unit Emission Rates (1 g/s)

582231.53	4130907.09	0.13144		582271.53	4130907.09	0.17923
582311.53	4130907.09	0.25980		582351.53	4130907.09	0.37613
582391.53	4130907.09	0.59813		582431.53	4130907.09	1.03941
582471.53	4130907.09	2.04509		582511.53	4130907.09	4.28167
582551.53	4130907.09	6.48070		582591.53	4130907.09	6.69201
582631.53	4130907.09	6.09257		582671.53	4130907.09	5.55213
582711.53	4130907.09	5.21053		582751.53	4130907.09	4.95637
582791.53	4130907.09	4.52873		582831.53	4130907.09	3.58090
582111.53	4130937.09	0.06958		582151.53	4130937.09	0.08499
582191.53	4130937.09	0.10663		582231.53	4130937.09	0.13806
582351.53	4130937.09	0.40978		582391.53	4130937.09	0.64673
582431.53	4130937.09	1.16261		582471.53	4130937.09	2.46913 Residential MER
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*** AERMET - VERSION 14134 ***	*** Construction HRA, Residential Receptors			***		09:29:47
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*** MODELOPTS: RegDEFAULT 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
582511.53	4130937.09	6.46338	582551.53	4130937.09	10.17475
582591.53	4130937.09	9.51216	582631.53	4130937.09	8.37963
582671.53	4130937.09	7.67943	582711.53	4130937.09	7.31784
582751.53	4130937.09	7.08066	582791.53	4130937.09	6.54256
582831.53	4130937.09	4.97111	582111.53	4130967.09	0.07375
582151.53	4130967.09	0.08980	582191.53	4130967.09	0.11471
582231.53	4130967.09	0.14728	582346.84	4130955.96	0.40835
582432.70	4130954.20	1.27035	582591.53	4130967.09	14.50955
582631.53	4130967.09	12.61346	582671.53	4130967.09	11.79222
582711.53	4130967.09	11.50556	582751.53	4130967.09	11.30374
582791.53	4130967.09	10.50606	582831.53	4130967.09	7.71376
582791.53	4130997.09	5.97759	582831.53	4130997.09	13.90706
582111.53	4131027.09	0.08778	582151.53	4131027.09	0.10781
582191.53	4131027.09	0.13747	582231.53	4131027.09	0.17737
582271.53	4131027.09	0.24245	582311.53	4131027.09	0.33929
582351.53	4131027.09	0.52439	582391.53	4131027.09	0.88209
582431.53	4131027.09	1.71829	582551.53	4131027.09	13.06873
582591.53	4131027.09	8.64230	582631.53	4131027.09	7.33676
582671.53	4131027.09	6.65000	582711.53	4131027.09	6.21801
582751.53	4131027.09	5.69418	582791.53	4131027.09	5.61049
582831.53	4131027.09	4.53402	582111.53	4131057.09	0.09609
582151.53	4131057.09	0.11940	582191.53	4131057.09	0.15098

Model Output

Unit Emission Rates (1 g/s)

582231.53	4131057.09	0.19588	582271.53	4131057.09	0.26270
582311.53	4131057.09	0.37166	582351.53	4131057.09	0.57967
582391.53	4131057.09	0.97790	582431.53	4131057.09	1.95677
582551.53	4131057.09	11.08283	582591.53	4131057.09	5.87362
582631.53	4131057.09	4.29355	582671.53	4131057.09	3.63376
582711.53	4131057.09	3.22691	582751.53	4131057.09	2.83303
582791.53	4131057.09	2.39781	582831.53	4131057.09	1.69674
582111.53	4131087.09	0.10460	582151.53	4131087.09	0.12928
582191.53	4131087.09	0.16358	582231.53	4131087.09	0.21530
582271.53	4131087.09	0.29750	582311.53	4131087.09	0.41570
582351.53	4131087.09	0.63543	582391.53	4131087.09	1.07086
582431.53	4131087.09	2.09843	582551.53	4131087.09	10.03954
582591.53	4131087.09	4.74800	582631.53	4131087.09	3.12262
582671.53	4131087.09	2.43297	582711.53	4131087.09	2.05446
582751.53	4131087.09	1.72927	582791.53	4131087.09	1.34769
582831.53	4131087.09	0.98257	582111.53	4131117.09	0.11462
582151.53	4131117.09	0.14405	582191.53	4131117.09	0.18379
582231.53	4131117.09	0.24142	582271.53	4131117.09	0.33054

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*** 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
582311.53	4131117.09	0.46162	582351.53	4131117.09	0.69205
582391.53	4131117.09	1.14711	582431.53	4131117.09	2.17961
582471.53	4131117.09	5.25086	582551.53	4131117.09	9.05604
582591.53	4131117.09	4.03365	582631.53	4131117.09	2.48101
582671.53	4131117.09	1.81692	582711.53	4131117.09	1.46229
582751.53	4131117.09	1.19176	582791.53	4131117.09	0.90705
582831.53	4131117.09	0.70126	582111.53	4131147.09	0.12817
582151.53	4131147.09	0.15812	582191.53	4131147.09	0.19975
582231.53	4131147.09	0.26104	582271.53	4131147.09	0.35304
582311.53	4131147.09	0.49772	582351.53	4131147.09	0.73985
582391.53	4131147.09	1.19780	582431.53	4131147.09	2.18580
582471.53	4131147.09	5.54534	582551.53	4131147.09	8.07810 Senior Living MER
582591.53	4131147.09	3.47273	582631.53	4131147.09	2.03535
582671.53	4131147.09	1.43406	582711.53	4131147.09	1.11463
582751.53	4131147.09	0.88494	582791.53	4131147.09	0.67626
582831.53	4131147.09	0.53997	582191.53	4131177.09	0.21200

Model Output
Unit Emission Rates (1 g/s)

582231.53	4131177.09	0.27632	582271.53	4131177.09	0.37353	
582311.53	4131177.09	0.52444	582351.53	4131177.09	0.76845	
582391.53	4131177.09	1.20335	582431.53	4131177.09	2.12790	
582471.53	4131177.09	5.82646	582551.53	4131177.09	7.10314	
582591.53	4131177.09	2.93618	582631.53	4131177.09	1.68132	
582671.53	4131177.09	1.16194	582711.53	4131177.09	0.88512	
582751.53	4131177.09	0.69286	582791.53	4131177.09	0.53429	
582831.53	4131177.09	0.43484	582191.53	4131207.09	0.22392	
582231.53	4131207.09	0.29001	582271.53	4131207.09	0.38993	
582311.53	4131207.09	0.53967	582351.53	4131207.09	0.77476	
582391.53	4131207.09	1.17754	582431.53	4131207.09	2.10803	
582471.53	4131207.09	5.82456	582551.53	4131207.09	5.98920	
582591.53	4131207.09	2.43515	582631.53	4131207.09	1.38644	
582671.53	4131207.09	0.95496	582711.53	4131207.09	0.72292	
582751.53	4131207.09	0.56383	582791.53	4131207.09	0.43992	
582831.53	4131207.09	0.36410	582191.53	4131237.09	0.23462	
582231.53	4131237.09	0.30005	582271.53	4131237.09	0.39991	
582311.53	4131237.09	0.54588	582351.53	4131237.09	0.76509	
582391.53	4131237.09	1.14414	582431.53	4131237.09	2.05135	
582471.53	4131237.09	5.81887	582551.53	4131237.09	4.82430	
582591.53	4131237.09	1.96034	582631.53	4131237.09	1.13834	
582671.53	4131237.09	0.79269	582711.53	4131237.09	0.60175	
582751.53	4131237.09	0.46952	582791.53	4131237.09	0.36976	
582831.53	4131237.09	0.31102	582191.53	4131267.09	0.24272	
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*** AERMET - VERSION 14134 ***		*** Construction HRA, Residential Receptors				*** 09:29:47
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*** MODELOPTs: RegDEFAULT 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	
582231.53	4131267.09	0.30747	582271.53	4131267.09	0.40504	
582311.53	4131267.09	0.54478	582351.53	4131267.09	0.74653	
582391.53	4131267.09	1.10679	582431.53	4131267.09	1.93989	
582471.53	4131267.09	5.84643	582551.53	4131267.09	3.62973	
582591.53	4131267.09	1.53456	582631.53	4131267.09	0.93176	
582671.53	4131267.09	0.66246	582711.53	4131267.09	0.50707	
582751.53	4131267.09	0.39549	582791.53	4131267.09	0.31736	
582831.53	4131267.09	0.26953	582111.53	4131297.09	0.16431	
582151.53	4131297.09	0.20121	582191.53	4131297.09	0.24862	
582231.53	4131297.09	0.31327	582271.53	4131297.09	0.40640	

Model Output
Unit Emission Rates (1 g/s)

582311.53	4131297.09	0.53806	582351.53	4131297.09	0.72082
582391.53	4131297.09	1.05697	582431.53	4131297.09	1.82672
582471.53	4131297.09	5.69981	582551.53	4131297.09	2.50871
582591.53	4131297.09	1.17928	582631.53	4131297.09	0.75941
582671.53	4131297.09	0.55493	582711.53	4131297.09	0.43030
582751.53	4131297.09	0.33540	582791.53	4131297.09	0.27293
582831.53	4131297.09	0.23343	582111.53	4131327.09	0.16747
582151.53	4131327.09	0.20535	582191.53	4131327.09	0.25367
582231.53	4131327.09	0.31494	582271.53	4131327.09	0.40264
582311.53	4131327.09	0.52522	582351.53	4131327.09	0.69299
582391.53	4131327.09	1.00594	582431.53	4131327.09	1.69329
582471.53	4131327.09	4.85240	582551.53	4131327.09	1.66482
582591.53	4131327.09	0.90533	582631.53	4131327.09	0.61717
582671.53	4131327.09	0.46389	582711.53	4131327.09	0.36528
582751.53	4131327.09	0.28576	582791.53	4131327.09	0.23081
582831.53	4131327.09	0.20298	582111.53	4131357.09	0.16775
582151.53	4131357.09	0.20613	582191.53	4131357.09	0.25454
582231.53	4131357.09	0.31391	582271.53	4131357.09	0.39478
582311.53	4131357.09	0.50711	582351.53	4131357.09	0.65401
582391.53	4131357.09	0.92886	582431.53	4131357.09	1.41802
582471.53	4131357.09	2.82995	582511.53	4131357.09	2.11478
582551.53	4131357.09	1.08243	582591.53	4131357.09	0.68512
582631.53	4131357.09	0.49688	582671.53	4131357.09	0.38623
582711.53	4131357.09	0.31095	582751.53	4131357.09	0.24654
582791.53	4131357.09	0.19212	582831.53	4131357.09	0.17279
582397.42	4130968.19	0.77674			

Model Output Unit Emission Rates (1 g/s)

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*** MODELOPTs: RegDEFAULT 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
Residential MER									
ONSITE	1ST HIGHEST VALUE IS	100.09548 AT (	582471.53,	4130937.09,	119.33,	254.10,	1.50)	DC	
	2ND HIGHEST VALUE IS	82.87908 AT (	582511.53,	4130937.09,	118.32,	254.10,	1.50)	DC	
	3RD HIGHEST VALUE IS	63.76270 AT (	582432.70,	4130954.20,	119.91,	254.10,	1.50)	DC	
	4TH HIGHEST VALUE IS	49.39619 AT (	582511.53,	4130907.09,	118.67,	254.10,	1.50)	DC	
	5TH HIGHEST VALUE IS	47.59861 AT (	582471.53,	4130907.09,	119.44,	254.10,	1.50)	DC	
	6TH HIGHEST VALUE IS	34.50093 AT (	582431.53,	4130937.09,	120.06,	254.10,	1.50)	DC	
	7TH HIGHEST VALUE IS	28.81194 AT (	582511.53,	4130877.09,	118.77,	254.10,	1.50)	DC	
	8TH HIGHEST VALUE IS	26.20561 AT (	582471.53,	4130877.09,	119.56,	254.10,	1.50)	DC	
	9TH HIGHEST VALUE IS	18.27891 AT (	582511.53,	4130847.09,	119.02,	254.10,	1.50)	DC	
	10TH HIGHEST VALUE IS	18.27494 AT (	582431.53,	4130907.09,	120.13,	254.10,	1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	14.50955 AT (	582591.53,	4130967.09,	118.21,	254.10,	1.50)	DC	
	2ND HIGHEST VALUE IS	13.90706 AT (	582831.53,	4130997.09,	119.67,	119.67,	1.50)	DC	
	3RD HIGHEST VALUE IS	13.06873 AT (	582551.53,	4131027.09,	117.53,	254.10,	1.50)	DC	
	4TH HIGHEST VALUE IS	12.61346 AT (	582631.53,	4130967.09,	119.30,	254.10,	1.50)	DC	
	5TH HIGHEST VALUE IS	11.79222 AT (	582671.53,	4130967.09,	119.16,	252.84,	1.50)	DC	
	6TH HIGHEST VALUE IS	11.50556 AT (	582711.53,	4130967.09,	119.28,	119.28,	1.50)	DC	
	7TH HIGHEST VALUE IS	11.30374 AT (	582751.53,	4130967.09,	119.72,	119.72,	1.50)	DC	
	8TH HIGHEST VALUE IS	11.08283 AT (	582551.53,	4131057.09,	116.80,	254.10,	1.50)	DC	
	9TH HIGHEST VALUE IS	10.50606 AT (	582791.53,	4130967.09,	119.60,	119.60,	1.50)	DC	
	10TH HIGHEST VALUE IS	10.17475 AT (	582551.53,	4130937.09,	118.24,	254.10,	1.50)	DC	

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

Model Output Unit Emission Rates (1 g/s)

*** AERMOD - VERSION 19191 *** *** 22690 Stevens Creek Blvd, Cupertino
*** AERMET - VERSION 14134 *** *** Construction HRA, Residential Receptors

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*** MODELOPTs: RegDEFAULT 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 15496 Informational Message(s)

A Total of 43872 Hours Were Processed

A Total of 14061 Calm Hours Identified

A Total of 1435 Missing Hours Identified (3.27 Percent)

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

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

*** AERMOD Finishes Successfully ***

Appendix C. Construction Risk Calculations

**Table C1
Residential MER Concentrations for Risk Calculations**

Contaminant (a)	Source (b)	Model Output ¹ ($\mu\text{g}/\text{m}^3$) (c)	Emission Rates ² (g/s) (d)	MER Conc. ($\mu\text{g}/\text{m}^3$) (e)	Total MER Conc. Annual Average ($\mu\text{g}/\text{m}^3$) (f)
Residential Receptors - Unmitigated					
DPM	2022	On-Site Emissions	100.1	6.63E-03	6.64E-01
		Truck Route	2.47	4.55E-07	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations					
PM _{2.5}	2022	On-Site Emissions	100.1	6.29E-03	6.30E-01
		Truck Route	2.47	4.55E-07	
Maximum Annual PM_{2.5} Concentration					0.63
Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 25 HP					
DPM	2022	On-Site Emissions	100.1	5.49E-04	5.50E-02
		Truck Route	2.47	4.55E-07	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations					
PM _{2.5}	2022	On-Site Emissions	100.1	5.49E-04	5.50E-02
		Truck Route	2.47	4.55E-07	
Maximum Annual PM_{2.5} Concentration					0.05

Maximum Exposed Receptor (MER) UTM coordinates: 582471.53E, 4130937.09N

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

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

**Table C2
Residential MER Health Risk Calculations**

Source (a)	MER Conc. ($\mu\text{g}/\text{m}^3$) (b)	Weight Fraction (c)	Contaminant (d)	URF ($\mu\text{g}/\text{m}^3$) ⁻¹ (e)	CPF ($\text{mg}/\text{kg}/\text{day}$) ⁻¹ (f)	Dose (by age bin)		Carcinogenic Risks (by age bin)		Total Cancer Risk per million (m)	Chronic Hazards ³			
						3rd Trimester ($\text{mg}/\text{kg}/\text{day}$) (g)	0 < 2 years ($\text{mg}/\text{kg}/\text{day}$) (h)	3rd Trimester per million (i)	0 < 2 years per million (k)		REL ($\mu\text{g}/\text{m}^3$) (n)	RESP (o)		
Residential Receptors - Unmitigated														
2022	On & Off-Site Emissions	6.64E-01	1.00E+00	DPM	3.0E-04	1.1E+00	2.30E-04	6.94E-04	7.32E+00	5.20E+01	59.4	5.0E+00	1.33E-01	
											Total	59.4		0.133
Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 25 HP														
2022	On & Off-Site Emissions	5.50E-02	1.00E+00	DPM	3.0E-04	1.1E+00	1.90E-05	5.74E-05	6.06E-01	4.31E+00	4.9	5.0E+00	1.10E-02	
											Total	4.9		0.011

Maximum Exposed Receptor (MER) UTM coordinates: 582471.53E, 4130937.09N

		OEHHA age bin exposure year(s)	3rd Trimester 2022	0 < 2 years 2022	
Dose Exposure Factors:		exposure frequency (days/year)	350	350	
		inhalation rate (L/kg-day) ¹	361	1090	
		inhalation absorption factor	1	1	
		conversion factor ($\text{mg}/\mu\text{g}; \text{m}^3/\text{L}$)	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
		2022	0.84	0.25	0.59
		Total	0.84	0.25	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.

Table C3
Senior Living MER Concentrations for Risk Calculations

Contaminant (a)	Source (b)	Model Output ¹ ($\mu\text{g}/\text{m}^3$) (c)	Emission Rates ² (g/s) (d)	MER Conc. ($\mu\text{g}/\text{m}^3$) (e)	Total MER Conc. Annual Average ($\mu\text{g}/\text{m}^3$) (f)
Senior Living Receptors - Unmitigated					
DPM	2022	On-Site Emissions	0.35	6.63E-03	2.33E-03
		Truck Route	8.08	4.55E-07	3.68E-06
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations					
PM _{2.5}	2022	On-Site Emissions	0.35	6.29E-03	2.21E-03
		Truck Route	8.08	4.55E-07	3.68E-06
Maximum Annual PM_{2.5} Concentration					2.2E-03
Senior Living Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 50 HP					
DPM	2022	On-Site Emissions	0.35	5.49E-04	1.92E-04
		Truck Route	8.08	4.55E-07	3.68E-06
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations					
PM _{2.5}	2022	On-Site Emissions	0.35	5.49E-04	1.96E-04
		Truck Route	8.08	4.55E-07	3.68E-06
Maximum Annual PM_{2.5} Concentration					2.0E-04

Senior Living MER UTM coordinates: 582551.53E, 4131147.09N

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

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

Table C4
Senior Living MER Health Risk Calculations

Source (a)	MER Conc. ($\mu\text{g}/\text{m}^3$) (b)	Weight Fraction (c)	Contaminant			Dose (by age bin)		Carcinogenic Risks (by age bin)		Chronic Hazards ³	
			(d)	URF ($\mu\text{g}/\text{m}^3$) ⁻¹ (e)	CPF ($\text{mg}/\text{kg}/\text{day}$) ⁻¹ (f)	Senior Resident 16 < 70 years ($\text{mg}/\text{kg}/\text{day}$) (g)	Senior Resident 16 < 70 years per million (j)	REL ($\mu\text{g}/\text{m}^3$) (n)	RESP (o)		
Senior Living Receptors - Unmitigated											
2022	On & Off Site	2.33E-03	1.00E+00	DPM	3.0E-04	1.1E+00	6.77E-07		8.51E-03		5.0E+00 4.67E-04
									Total	8.5E-03	4.7E-04
Senior Living Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 50 HP											
2022	On & Off Site	1.96E-04	1.00E+00	DPM	3.0E-04	1.1E+00	5.68E-08		7.14E-04		5.0E+00 3.92E-05
									Total	7.1E-04	3.9E-05

		OEHHA age bin exposure year(s)	Senior Resident 16 < 70 years 2021-2022
Dose Exposure Factors:	exposure frequency (days/year)		365
	inhalation rate (L/kg-day) ¹		290
	inhalation absorption factor		1
	conversion factor (mg/ μg ; m^3/L)		1.0E-06
Risk Calculation Factors:	age sensitivity factor		1
	averaging time (years)		70
	per million		1.0E+06

exposure durations per age bin		exposure durations (year)
Construction Year		Risk Scalar ²
2022	0.84	Senior Res 0.84
Total	0.84	0.84

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.

