APPENDIX B

HEALTH RISK ASSESSMENT BACKGROUND AND MODELING DATA

1. Health Risk Assessment

1.1 CONSTRUCTION HEALTH RISK ASSESSMENT

The proposed project would redevelop an approximately 2.2-acre site into a 5-floor, 150-room hotel totaling 96,260 square feet.

The latest version of the Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Air Quality Guidelines requires projects to evaluate the impacts of construction activities on sensitive receptors (BAAQMD 2017). Project construction is anticipated to occur from January 2018 to December 2018 with demolition, site preparation, grading, building construction, paving, and painting (approximately 249 workdays). The nearest off-site sensitive receptors proximate to the project site include apartments across Kerley Drive to the southwest of the project site. The BAAQMD has developed *Screening Tables for Air Toxics Evaluation During Construction* (2010) 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 the proposed project. This HRA considers the health impact to off-site sensitive receptors (adults and children in 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 this residential-based risk assessment, 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 249 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 age sensitivity factors of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA 2015).

In addition to the nearby residential receptors, a survey of additional sensitive receptor types was conducted. The closest school to the project site is Bachrodt Elementary School located over 900 feet west of the site. In general, school-based sensitive receptors would be present on-site fewer days per year (i.e. typically 180 school days per year) as compared to residential receptors (i.e. 249 days per year). Additionally, health risk calculations for elementary school children would use a different age range (i.e. ages 2 to 9, age sensitivity factor of 3) than child residents (i.e. third trimester pregnancy to age 2, age sensitivity factor of 10). Thus, the determined health risks for child residents would be multiplied by the larger factor of 10 to account for early life exposure as compared to students. Given the distance to the school site, shorter exposure frequency of school occupants compared to residents, and smaller age sensitivity factor for students, the health risk determination was conservatively based on the nearby residential receptors. The school receptors were omitted from the evaluation.

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 Air Quality Guidelines*. May 2017.
- 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 2016.3.1 (CAPCOA, 2016). DPM emissions were based on the CalEEMod construction runs, using annual exhaust PM_{10} construction emissions in tons per year (tons/yr). The project was assumed to take place over 11 months (346 calendar days or 249 work days). The average daily emission rates from construction equipment used during the proposed project were determined by dividing the annual average

emissions (tons/yr) for each construction year (i.e. 2018) by the number of construction days per year (249 construction days in 2018). As the calculated hauling emissions used the CalEEMod default 20-mile haul length, 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.

1.4 AIR DISPERSION MODELING

To assess the impact of emitted compounds on sensitive receptors near the project, air quality modeling using the AERMOD atmospheric dispersion model was performed. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating flag-pole 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 (N.Y. Mineta San Jose International Airport) with the latest available years (2009-2013) 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 and 6.1 for second-floor receptors) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break (assumed between noon and 1:00 PM). 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.

For all modeling runs, a unit emission rate of 1 gram per second was used. 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 AERMOD 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 MER. The off-site residential MER is an apartment complex to the southwest of the project site along Kerley Drive. 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 2 to 3 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, higher 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 ($10E^{-06}$) 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 residential receptors, the following dose algorithm was used.

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

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. 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). 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. 249 work days). As the length of construction is less than one year (11.5 months), only the third trimester and 0-2 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:

Dose_{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. For purposes of this assessment and as stated, the calculated off-site residential cancer risks associated with construction activities are based on the 3rd trimester and 0-2 year old age groups. 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 $1x10^6$ (i.e. 1 million).

The calculated results are provided in Appendix C.

1.5.2 Non-Carcinogenic Hazards

An evaluation of the potential non-cancer effects of chronic and acute chemical exposures was also conducted. 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.

To quantify non-carcinogenic impacts, the hazard index approach was used. The hazard index assumes that chronic and acute sub-threshold exposures adversely affect a specific organ or organ system (toxicological

endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds one, a health hazard is presumed to exist.

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	$PM_{2.5}$ ($\mu g/m^3$)
Off-site Residence	13.2	0.03	0.12
BAAQMD Threshold	10	1.0	0.3
Exceeds Threshold?	Yes	No	No

Note: Cancer risk calculated using 2015 OEHHA HRA guidance.

Cancer risk for the maximum exposed off-site resident (MER) from project-related construction emissions was calculated to be 13.2 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 MER consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 11.5-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 24 hours a day, 260 construction days per year and exposed to all of the daily construction emissions.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint totaled less than one for off-site sensitive receptors. Therefore, chronic non-carcinogenic hazards are within acceptable limits. The highest $PM_{2.5}$ annual concentration of 0.12 $\mu g/m^3$ for off-site residences would be below the BAAQMD significance threshold of 0.3 $\mu g/m^3$.

Because cancer risk for residential receptors would exceed BAAQMD's significance thresholds due to construction activities associated with the proposed project, the following mitigation measure is proposed:

Mitigation Measure AQ-2: During construction, the construction contractor(s) shall use construction equipment fitted with Level 2 Diesel Particulate Filters (DPF) or higher for all equipment over 50 horsepower. The construction contractor shall maintain a list of all operating equipment in use on the project site for verification by the City of San Jose Building Division official or his/her designee. The construction equipment list shall state the makes, models, and number of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with manufacturer recommendations. The construction contractor shall ensure that all non-essential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9. Prior to issuance of any construction permit, the construction contractor shall ensure that all construction plans submitted to the City of San Jose Planning Division and/or Building Division clearly show the requirement for Level 2 DPF or higher emissions standards for construction equipment over 50 horsepower.

Mitigation Measure AQ-2 would reduce the project's localized construction emissions, as shown in Table 2. The results indicate that, with mitigation, cancer risk and $PM_{2.5}$ annual concentrations would be less than the BAAQMD's significance threshold for off-site residents. Therefore, the project would not expose sensitive receptors to substantial concentrations of air pollutant emissions during construction and impacts would be *new less than significant with mitigation incorporated.*

TABLE 2 CONSTRUCTION RISK SUMMARY – MITIGATED

Receptor	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ ($\mu g/m^3$)
Off-site Residence	8.1	0.02	0.07
BAAQMD Threshold	10	1.0	0.3
Exceeds Threshold?	No	No	No

Notes: Cancer risk calculated using 2015 OEHHA HRA guidance.
Risks incorporate Mitigation Measure AQ-2, which includes using construction equipment with Level 2 Diesel Particulate Filters for equipment over 50 horsepower.

2. References

Bay Area Air Quality Management District. 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.

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

California Air Pollution Control Officers Association (CAPCOA). 2016. California Emissions Estimator Model (CalEEMod). Version 2016.3.1. Prepared by: Trinity Consultants and the California Air Districts.

———. 2009-2013. Meteorological Data Set for N.Y. Mineta San Jose International Airport Meteorological Station. https://www.arb.ca.gov/toxics/harp/metfiles2.htm (accessed August 16, 2017).

California Air Resources Board (CARB). 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.

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

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

On-site Construction Emissions		DPM [1]	$PM_{2.5}$ [2]
2018 On-site Emissions	Average Daily Emissions (lbs/day)	1.31	1.25
	Average Daily Emissions (lbs/hr)	1.63E-01	1.56E-01
	Emission Rate (g/s)	2.06E-02	1.96E-02

Note: Emissions assumed to be evenly distributed over entire construction phase area.

Off-site Construction Emissions		DPM [1]	$PM_{2.5}$ [2]
2018 Off-site Emissions	Haul Length Daily Emissions (lbs/day)	0.028	0.027
	Hauling Emissions w/in 1,000 ft (lbs/day) [3]	5.84E-04	5.59E-04
	Emission Rate (lbs/hr)	7.30E-05	6.99E-05
	Emission Rate (g/s)	9.20E-06	8.80E-06

Note: Emissions evenly distributed over **74** modeled volume sources.

Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4] 8 hours

Year	Contruction Days per Year	Risk Scalar [5]
2018	249	0.95

Hauling Length (miles)	20.0
Haul Length within 1,000 ft of Site (mile) [3]	0.42

[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 distance of 20 miles (CalEEMod Default), 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 Files).

[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).

A - Construction Emissions - DPM and PM2.5
Input to Risk Tables
Mitigated Scenario - Level 2 DPFs for Eq. > 50hp

On-site Construction Emissions		DPM [1]	$PM_{2.5}$ [2]
2018 On-site Emissions	Average Daily Emissions (lbs/day)	0.81	0.78
	Average Daily Emissions (lbs/hr)	1.01E-01	9.71E-02
	Emission Rate (g/s)	1.27E-02	1.22E-02

Note: Emissions assumed to be evenly distributed over entire construction phase area.

Off-site Construction Emissions		DPM [1]	$PM_{2.5}$ [2]
2018 Off-site Emissions	Haul Length Daily Emissions (lbs/day)	0.028	0.027
	Hauling Emissions w/in 1,000 ft (lbs/day) [3]	5.84E-04	5.59E-04
	Emission Rate (lbs/hr)	7.30E-05	6.99E-05
	Emission Rate (g/s)	9.20E-06	8.80E-06

Note: Emissions evenly distributed over **74** modeled volume sources.

Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4] 8 hours

Year	Contruction Days per Year	Risk Scalar [5]
2018	249	0.95

Hauling Length (miles)	20.0
Haul Length within 1,000 ft of Site (mile) [3]	0.42

[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 distance of 20 miles (CalEEMod Default), 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 Files).

[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

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Model Output
Unit Emission Rates (1 g/s)

```
*** AERMOD - VERSION 16216r ***   *** Hilton Garden Inn                                                    ***        08/22/17
*** AERMET - VERSION  14134 ***   *** Hilton Garden Inn                                                    ***        14:21:37
                                                                                                                     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    59 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   1030000.0 ;  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:     59 Source(s);       2 Source Group(s); and     346 Receptor(s)

              with:      0 POINT(s), including
                         0 POINTCAP(s) and      0 POINTHOR(s)
               and:     58 VOLUME source(s)
               and:      1 AREA type source(s)
               and:      0 LINE 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) =    15.50 ;  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.

**Detailed Error/Message File:   Gish_Road.err
**File for Summary of Results:   Gish_Road.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	0.17241E-01	596609.6	4135787.1	15.9	4.15	5.67	0.90	YES	HRDOW
L0000002	0	0.17241E-01	596615.7	4135776.6	15.9	4.15	5.67	0.90	YES	HRDOW
L0000003	0	0.17241E-01	596621.9	4135766.0	15.9	4.15	5.67	0.90	YES	HRDOW
L0000004	0	0.17241E-01	596628.0	4135755.5	16.0	4.15	5.67	0.90	YES	HRDOW
L0000005	0	0.17241E-01	596634.1	4135744.9	16.0	4.15	5.67	0.90	YES	HRDOW
L0000006	0	0.17241E-01	596640.2	4135734.4	16.0	4.15	5.67	0.90	YES	HRDOW
L0000007	0	0.17241E-01	596646.4	4135723.9	16.0	4.15	5.67	0.90	YES	HRDOW
L0000008	0	0.17241E-01	596652.5	4135713.3	16.1	4.15	5.67	0.90	YES	HRDOW
L0000009	0	0.17241E-01	596658.6	4135702.8	16.1	4.15	5.67	0.90	YES	HRDOW
L0000010	0	0.17241E-01	596664.8	4135692.2	16.1	4.15	5.67	0.90	YES	HRDOW
L0000011	0	0.17241E-01	596670.9	4135681.7	16.1	4.15	5.67	0.90	YES	HRDOW
L0000012	0	0.17241E-01	596677.0	4135671.1	16.2	4.15	5.67	0.90	YES	HRDOW
L0000013	0	0.17241E-01	596683.1	4135660.6	16.2	4.15	5.67	0.90	YES	HRDOW
L0000014	0	0.17241E-01	596682.0	4135651.7	16.2	4.15	5.67	0.90	YES	HRDOW
L0000015	0	0.17241E-01	596671.9	4135644.8	16.2	4.15	5.67	0.90	YES	HRDOW
L0000016	0	0.17241E-01	596661.9	4135637.9	16.2	4.15	5.67	0.90	YES	HRDOW
L0000017	0	0.17241E-01	596651.8	4135631.0	16.2	4.15	5.67	0.90	YES	HRDOW
L0000018	0	0.17241E-01	596641.8	4135624.0	16.2	4.15	5.67	0.90	YES	HRDOW
L0000019	0	0.17241E-01	596631.8	4135617.1	16.2	4.15	5.67	0.90	YES	HRDOW
L0000020	0	0.17241E-01	596621.7	4135610.2	16.2	4.15	5.67	0.90	YES	HRDOW
L0000021	0	0.17241E-01	596611.7	4135603.3	16.2	4.15	5.67	0.90	YES	HRDOW
L0000022	0	0.17241E-01	596601.6	4135596.4	16.2	4.15	5.67	0.90	YES	HRDOW
L0000023	0	0.17241E-01	596591.6	4135589.5	16.2	4.15	5.67	0.90	YES	HRDOW
L0000024	0	0.17241E-01	596581.5	4135582.6	16.2	4.15	5.67	0.90	YES	HRDOW
L0000025	0	0.17241E-01	596571.5	4135575.6	16.2	4.15	5.67	0.90	YES	HRDOW
L0000026	0	0.17241E-01	596561.5	4135568.7	16.2	4.15	5.67	0.90	YES	HRDOW
L0000027	0	0.17241E-01	596551.4	4135561.8	16.2	4.15	5.67	0.90	YES	HRDOW
L0000028	0	0.17241E-01	596544.1	4135554.3	16.2	4.15	5.67	0.90	YES	HRDOW
L0000029	0	0.17241E-01	596550.4	4135543.9	16.3	4.15	5.67	0.90	YES	HRDOW
L0000030	0	0.17241E-01	596556.8	4135533.5	16.3	4.15	5.67	0.90	YES	HRDOW
L0000031	0	0.17241E-01	596563.1	4135523.0	16.4	4.15	5.67	0.90	YES	HRDOW
L0000032	0	0.17241E-01	596569.4	4135512.6	16.4	4.15	5.67	0.90	YES	HRDOW
L0000033	0	0.17241E-01	596575.7	4135502.2	16.5	4.15	5.67	0.90	YES	HRDOW
L0000034	0	0.17241E-01	596582.0	4135491.8	16.5	4.15	5.67	0.90	YES	HRDOW
L0000035	0	0.17241E-01	596588.4	4135481.3	16.6	4.15	5.67	0.90	YES	HRDOW
L0000036	0	0.17241E-01	596594.7	4135470.9	16.6	4.15	5.67	0.90	YES	HRDOW
L0000037	0	0.17241E-01	596601.0	4135460.5	16.7	4.15	5.67	0.90	YES	HRDOW
L0000038	0	0.17241E-01	596607.3	4135450.0	16.8	4.15	5.67	0.90	YES	HRDOW

Model Output
Unit Emission Rates (1 g/s)

L0000039	0	0.17241E-01	596613.6	4135439.6	16.8	4.15	5.67	0.90	YES	HRDOW
L0000040	0	0.17241E-01	596619.9	4135429.2	16.9	4.15	5.67	0.90	YES	HRDOW
L0000041	0	0.17241E-01	596626.3	4135418.8	16.9	4.15	5.67	0.90	YES	HRDOW
L0000042	0	0.17241E-01	596632.6	4135408.3	17.0	4.15	5.67	0.90	YES	HRDOW
L0000043	0	0.17241E-01	596638.9	4135397.9	17.0	4.15	5.67	0.90	YES	HRDOW
L0000044	0	0.17241E-01	596645.2	4135387.5	17.1	4.15	5.67	0.90	YES	HRDOW
L0000045	0	0.17241E-01	596651.5	4135377.1	17.1	4.15	5.67	0.90	YES	HRDOW
L0000046	0	0.17241E-01	596657.9	4135366.6	17.2	4.15	5.67	0.90	YES	HRDOW
L0000047	0	0.17241E-01	596664.2	4135356.2	17.2	4.15	5.67	0.90	YES	HRDOW
L0000048	0	0.17241E-01	596670.5	4135345.8	17.3	4.15	5.67	0.90	YES	HRDOW
L0000049	0	0.17241E-01	596676.8	4135335.3	17.4	4.15	5.67	0.90	YES	HRDOW
L0000050	0	0.17241E-01	596683.1	4135324.9	17.4	4.15	5.67	0.90	YES	HRDOW
L0000051	0	0.17241E-01	596689.4	4135314.5	17.5	4.15	5.67	0.90	YES	HRDOW
L0000052	0	0.17241E-01	596695.8	4135304.1	17.5	4.15	5.67	0.90	YES	HRDOW
L0000053	0	0.17241E-01	596702.1	4135293.6	17.6	4.15	5.67	0.90	YES	HRDOW
L0000054	0	0.17241E-01	596708.4	4135283.2	17.6	4.15	5.67	0.90	YES	HRDOW
L0000055	0	0.17241E-01	596714.7	4135272.8	17.7	4.15	5.67	0.90	YES	HRDOW
L0000056	0	0.17241E-01	596721.0	4135262.4	17.7	4.15	5.67	0.90	YES	HRDOW
L0000057	0	0.17241E-01	596727.4	4135251.9	17.8	4.15	5.67	0.90	YES	HRDOW
L0000058	0	0.17241E-01	596733.7	4135241.5	17.8	4.15	5.67	0.90	YES	HRDOW

Model Output
Unit Emission Rates (1 g/s)

*** 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	0.11083E-03	596613.9	4135793.8	15.9	4.15	7	1.93	YES	HRDOW

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
OFFSITE	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 ,
ONSITE	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

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

URBAN ID	URBAN POP	SOURCE IDs
	1030000.	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 ,

Model Output
Unit Emission Rates (1 g/s)

*** 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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

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

SOURCE ID = L0000001 through L0000058 ; 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

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(	596377.1,	4135805.5,	15.5,	15.5,	1.5);	(596364.6,	4135798.0,	15.5,	15.5,	1.5);
(	596380.2,	4135773.0,	15.5,	15.5,	1.5);	(596392.8,	4135777.4,	15.5,	15.5,	1.5);
(	596400.9,	4135765.5,	15.5,	15.5,	1.5);	(596387.8,	4135756.7,	15.5,	15.5,	1.5);
(	596407.8,	4135722.3,	15.9,	15.9,	1.5);	(596422.8,	4135733.6,	15.8,	15.8,	1.5);
(	596429.7,	4135719.8,	15.9,	15.9,	1.5);	(596415.3,	4135707.3,	15.9,	15.9,	1.5);
(	596431.6,	4135687.3,	15.9,	15.9,	1.5);	(596443.5,	4135694.1,	15.9,	15.9,	1.5);
(	596459.7,	4135646.6,	15.9,	15.9,	1.5);	(596467.9,	4135649.1,	15.9,	15.9,	1.5);
(	596446.6,	4135673.5,	15.9,	15.9,	1.5);	(596482.2,	4135617.2,	16.2,	16.2,	1.5);
(	596486.6,	4135607.1,	16.2,	16.2,	1.5);	(596491.6,	4135597.1,	16.2,	16.2,	1.5);
(	596501.0,	4135581.5,	16.2,	16.2,	1.5);	(596506.0,	4135572.7,	16.2,	16.2,	1.5);
(	596515.4,	4135562.7,	16.2,	16.2,	1.5);	(596484.1,	4135547.1,	16.2,	16.2,	1.5);
(	596477.2,	4135565.2,	16.2,	16.2,	1.5);	(596462.2,	4135587.1,	16.2,	16.2,	1.5);
(	596452.2,	4135599.0,	16.2,	16.2,	1.5);	(596440.3,	4135614.7,	16.1,	16.1,	1.5);
(	596437.2,	4135627.2,	15.9,	15.9,	1.5);	(596423.4,	4135640.9,	15.9,	15.9,	1.5);
(	596415.9,	4135655.3,	15.9,	15.9,	1.5);	(596410.3,	4135669.7,	15.9,	15.9,	1.5);
(	596405.3,	4135682.9,	15.9,	15.9,	1.5);	(596397.1,	4135696.6,	15.9,	15.9,	1.5);
(	596384.6,	4135713.5,	15.8,	15.8,	1.5);	(596376.5,	4135726.1,	15.7,	15.7,	1.5);
(	596368.4,	4135744.2,	15.6,	15.6,	1.5);	(596356.5,	4135753.0,	15.5,	15.5,	1.5);
(	596343.9,	4135779.3,	15.5,	15.5,	1.5);	(596350.8,	4135767.4,	15.5,	15.5,	1.5);
(	596448.5,	4135524.5,	16.2,	16.2,	1.5);	(596439.7,	4135535.8,	16.2,	16.2,	1.5);
(	596435.3,	4135548.3,	16.2,	16.2,	1.5);	(596422.8,	4135564.6,	16.2,	16.2,	1.5);
(	596415.3,	4135574.0,	16.2,	16.2,	1.5);	(596409.7,	4135589.0,	16.2,	16.2,	1.5);
(	596380.9,	4135575.2,	16.2,	16.2,	1.5);	(596386.5,	4135558.3,	16.2,	16.2,	1.5);
(	596396.5,	4135545.2,	16.2,	16.2,	1.5);	(596403.4,	4135532.7,	16.2,	16.2,	1.5);
(	596409.7,	4135515.1,	16.2,	16.2,	1.5);	(596414.0,	4135509.5,	16.2,	16.2,	1.5);
(	596506.0,	4135513.3,	16.4,	16.4,	1.5);	(596510.4,	4135497.6,	16.4,	16.4,	1.5);
(	596519.8,	4135485.1,	16.5,	16.5,	1.5);	(596528.6,	4135469.5,	16.5,	16.5,	1.5);
(	596536.1,	4135448.2,	16.5,	16.5,	1.5);	(596549.9,	4135438.2,	16.5,	16.5,	1.5);
(	596558.0,	4135423.1,	16.5,	16.5,	1.5);	(596565.5,	4135409.4,	16.6,	16.6,	1.5);
(	596573.0,	4135398.1,	16.8,	16.8,	1.5);	(596584.3,	4135378.7,	16.8,	16.8,	1.5);
(	596594.3,	4135368.1,	16.8,	16.8,	1.5);	(596603.0,	4135350.5,	16.8,	16.8,	1.5);
(	596647.5,	4135340.5,	17.1,	17.1,	1.5);	(596656.2,	4135329.3,	17.1,	17.1,	1.5);
(	596673.8,	4135303.0,	17.4,	17.4,	1.5);	(596685.7,	4135274.2,	17.4,	17.4,	1.5);
(	596695.7,	4135263.6,	17.5,	17.5,	1.5);	(596662.5,	4135255.4,	17.6,	17.6,	1.5);
(	596653.7,	4135269.8,	17.4,	17.4,	1.5);	(596643.7,	4135282.3,	17.3,	17.3,	1.5);
(	596630.0,	4135297.4,	17.2,	17.2,	1.5);	(596626.2,	4135309.9,	17.1,	17.1,	1.5);
(	596615.6,	4135326.1,	16.9,	16.9,	1.5);	(596609.3,	4135246.7,	17.4,	17.4,	1.5);
(	596601.8,	4135261.1,	17.4,	17.4,	1.5);	(596596.8,	4135274.2,	17.3,	17.3,	1.5);
(	596588.7,	4135293.0,	17.1,	17.1,	1.5);	(596577.4,	4135299.9,	17.1,	17.1,	1.5);
(	596561.1,	4135272.3,	17.1,	17.1,	1.5);	(596566.1,	4135259.2,	17.2,	17.2,	1.5);
(	596576.8,	4135241.0,	17.4,	17.4,	1.5);	(596533.6,	4135309.2,	16.8,	16.8,	1.5);
(	596522.3,	4135329.3,	16.8,	16.8,	1.5);	(596517.3,	4135339.3,	16.8,	16.8,	1.5);

Model Output
Unit Emission Rates (1 g/s)

```
( 596509.8, 4135356.2,     16.7,     16.7,      1.5);      ( 596501.0, 4135369.3,     16.6,     16.6,      1.5);
( 596496.7, 4135380.0,     16.5,     16.5,      1.5);      ( 596484.8, 4135397.5,     16.5,     16.5,      1.5);
( 596478.5, 4135408.1,     16.5,     16.5,      1.5);      ( 596466.0, 4135421.3,     16.5,     16.5,      1.5);
( 596467.2, 4135434.4,     16.5,     16.5,      1.5);      ( 596457.2, 4135447.6,     16.5,     16.5,      1.5);
( 596449.7, 4135456.9,     16.5,     16.5,      1.5);      ( 596436.6, 4135474.5,     16.4,     16.4,      1.5);
( 596461.0, 4135487.6,     16.4,     16.4,      1.5);      ( 596468.5, 4135472.0,     16.5,     16.5,      1.5);
( 596481.0, 4135458.2,     16.5,     16.5,      1.5);      ( 596487.3, 4135448.2,     16.5,     16.5,      1.5);
( 596494.8, 4135436.3,     16.5,     16.5,      1.5);      ( 596506.0, 4135418.8,     16.5,     16.5,      1.5);
( 596511.0, 4135410.0,     16.5,     16.5,      1.5);      ( 596521.7, 4135396.9,     16.5,     16.5,      1.5);
( 596529.8, 4135381.8,     16.7,     16.7,      1.5);      ( 596538.6, 4135369.3,     16.8,     16.8,      1.5);
( 596546.1, 4135356.2,     16.8,     16.8,      1.5);      ( 596555.5, 4135341.2,     16.8,     16.8,      1.5);
( 596420.1, 4135825.9,     15.5,     15.5,      1.5);      ( 596428.2, 4135810.1,     15.5,     15.5,      1.5);
( 596433.7, 4135799.7,     15.5,     15.5,      1.5);      ( 596442.3, 4135787.4,     15.5,     15.5,      1.5);
( 596451.8, 4135768.5,     15.5,     15.5,      1.5);      ( 596471.7, 4135778.9,     15.5,     15.5,      1.5);
( 596487.5, 4135786.1,     15.6,     15.6,      1.5);      ( 596507.4, 4135797.4,     15.5,     15.5,      1.5);
( 596479.4, 4135808.2,     15.5,     15.5,      1.5);      ( 596471.7, 4135821.8,     15.5,     15.5,      1.5);
( 596461.7, 4135836.3,     15.4,     15.4,      1.5);      ( 596454.0, 4135852.6,     15.2,     15.2,      1.5);
( 596562.6, 4135778.9,     15.8,     15.8,      1.5);      ( 596571.6, 4135783.4,     15.8,     15.8,      1.5);
( 596582.9, 4135791.5,     15.8,     15.8,      1.5);      ( 596568.4, 4135763.5,     15.8,     15.8,      1.5);
( 596580.2, 4135770.7,     15.9,     15.9,      1.5);      ( 596588.3, 4135777.0,     15.9,     15.9,      1.5);
( 596575.2, 4135751.7,     15.9,     15.9,      1.5);      ( 596583.8, 4135759.4,     15.9,     15.9,      1.5);
( 596596.9, 4135764.4,     15.9,     15.9,      1.5);      ( 596606.9, 4135754.4,     15.9,     15.9,      1.5);
( 596595.6, 4135744.0,     15.9,     15.9,      1.5);      ( 596581.5, 4135739.1,     15.9,     15.9,      1.5);
( 596589.7, 4135727.3,     15.9,     15.9,      1.5);      ( 596600.1, 4135737.7,     15.9,     15.9,      1.5);
( 596609.6, 4135741.3,     15.9,     15.9,      1.5);      ( 596596.0, 4135711.0,     15.9,     15.9,      1.5);
( 596607.3, 4135721.4,     15.9,     15.9,      1.5);      ( 596620.0, 4135727.8,     15.9,     15.9,      1.5);
( 596577.0, 4135876.1,     15.5,     15.5,      1.5);      ( 596590.1, 4135883.3,     15.5,     15.5,      1.5);
( 596601.9, 4135890.1,     15.5,     15.5,      1.5);      ( 596613.2, 4135897.8,     15.5,     15.5,      1.5);
( 596625.9, 4135876.1,     15.6,     15.6,      1.5);      ( 596618.6, 4135887.4,     15.5,     15.5,      1.5);
( 596615.5, 4135864.8,     15.6,     15.6,      1.5);      ( 596597.4, 4135861.2,     15.5,     15.5,      1.5);
( 596587.9, 4135853.9,     15.5,     15.5,      1.5);      ( 596649.8, 4135897.8,     15.6,     15.6,      1.5);
( 596660.7, 4135902.3,     15.6,     15.6,      1.5);      ( 596673.8, 4135910.9,     15.6,     15.6,      1.5);
( 596681.0, 4135896.4,     15.8,     15.8,      1.5);      ( 596693.2, 4135881.0,     15.9,     15.9,      1.5);
( 596680.6, 4135870.2,     15.9,     15.9,      1.5);      ( 596669.7, 4135865.7,     15.9,     15.9,      1.5);
( 596658.0, 4135858.4,     15.8,     15.8,      1.5);      ( 596667.0, 4135831.8,     15.9,     15.9,      1.5);
( 596920.2, 4135651.3,     16.6,     16.6,      1.5);      ( 596913.9, 4135661.3,     16.5,     16.5,      1.5);
( 596926.1, 4135672.6,     16.5,     16.5,      1.5);      ( 596939.7, 4135679.8,     16.5,     16.5,      1.5);
( 596951.4, 4135686.6,     16.5,     16.5,      1.5);      ( 596960.5, 4135673.5,     16.5,     16.5,      1.5);
( 596937.0, 4135698.8,     16.5,     16.5,      1.5);      ( 596925.2, 4135691.6,     16.5,     16.5,      1.5);
( 596913.9, 4135685.3,     16.5,     16.5,      1.5);      ( 596901.2, 4135675.3,     16.5,     16.5,      1.5);
( 596756.5, 4135908.6,     15.9,     15.9,      1.5);      ( 596751.6, 4135919.9,     15.9,     15.9,      1.5);
( 596746.1, 4135931.2,     15.9,     15.9,      1.5);      ( 596756.5, 4135937.1,     15.9,     15.9,      1.5);
( 596769.7, 4135943.9,     15.9,     15.9,      1.5);      ( 596778.2, 4135951.1,     15.9,     15.9,      1.5);
( 596782.8, 4135937.6,     15.9,     15.9,      1.5);      ( 596788.2, 4135928.5,     15.9,     15.9,      1.5);
( 597725.2, 4135977.5,     17.8,     17.8,      1.5);      ( 596377.1, 4135805.5,     15.5,     15.5,      6.1);
( 596364.6, 4135798.0,     15.5,     15.5,      6.1);      ( 596380.2, 4135773.0,     15.5,     15.5,      6.1);
( 596392.8, 4135777.4,     15.5,     15.5,      6.1);      ( 596400.9, 4135765.5,     15.5,     15.5,      6.1);
( 596387.8, 4135756.7,     15.5,     15.5,      6.1);      ( 596407.8, 4135722.3,     15.9,     15.9,      6.1);
```

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(	596422.8,	4135733.6,	15.8,	15.8,	6.1);	(596429.7,	4135719.8,	15.9,	15.9,	6.1);
(	596415.3,	4135707.3,	15.9,	15.9,	6.1);	(596431.6,	4135687.3,	15.9,	15.9,	6.1);
(	596443.5,	4135694.1,	15.9,	15.9,	6.1);	(596459.7,	4135646.6,	15.9,	15.9,	6.1);
(	596467.9,	4135649.1,	15.9,	15.9,	6.1);	(596446.6,	4135673.5,	15.9,	15.9,	6.1);
(	596482.2,	4135617.2,	16.2,	16.2,	6.1);	(596486.6,	4135607.1,	16.2,	16.2,	6.1);
(	596491.6,	4135597.1,	16.2,	16.2,	6.1);	(596501.0,	4135581.5,	16.2,	16.2,	6.1);
(	596506.0,	4135572.7,	16.2,	16.2,	6.1);	(596515.4,	4135562.7,	16.2,	16.2,	6.1);
(	596484.1,	4135547.1,	16.2,	16.2,	6.1);	(596477.2,	4135565.2,	16.2,	16.2,	6.1);
(	596462.2,	4135587.1,	16.2,	16.2,	6.1);	(596452.2,	4135599.0,	16.2,	16.2,	6.1);
(	596440.3,	4135614.7,	16.1,	16.1,	6.1);	(596437.2,	4135627.2,	15.9,	15.9,	6.1);
(	596423.4,	4135640.9,	15.9,	15.9,	6.1);	(596415.9,	4135655.3,	15.9,	15.9,	6.1);
(	596410.3,	4135669.7,	15.9,	15.9,	6.1);	(596405.3,	4135682.9,	15.9,	15.9,	6.1);
(	596397.1,	4135696.6,	15.9,	15.9,	6.1);	(596384.6,	4135713.5,	15.8,	15.8,	6.1);
(	596376.5,	4135726.1,	15.7,	15.7,	6.1);	(596368.4,	4135744.2,	15.6,	15.6,	6.1);
(	596356.5,	4135753.0,	15.5,	15.5,	6.1);	(596343.9,	4135779.3,	15.5,	15.5,	6.1);
(	596350.8,	4135767.4,	15.5,	15.5,	6.1);	(596448.5,	4135524.5,	16.2,	16.2,	6.1);
(	596439.7,	4135535.8,	16.2,	16.2,	6.1);	(596435.3,	4135548.3,	16.2,	16.2,	6.1);
(	596422.8,	4135564.6,	16.2,	16.2,	6.1);	(596415.3,	4135574.0,	16.2,	16.2,	6.1);
(	596409.7,	4135589.0,	16.2,	16.2,	6.1);	(596380.9,	4135575.2,	16.2,	16.2,	6.1);
(	596386.5,	4135558.3,	16.2,	16.2,	6.1);	(596396.5,	4135545.2,	16.2,	16.2,	6.1);
(	596403.4,	4135532.7,	16.2,	16.2,	6.1);	(596409.7,	4135515.1,	16.2,	16.2,	6.1);
(	596414.0,	4135509.5,	16.2,	16.2,	6.1);	(596506.0,	4135513.3,	16.4,	16.4,	6.1);
(	596510.4,	4135497.6,	16.4,	16.4,	6.1);	(596519.8,	4135485.1,	16.5,	16.5,	6.1);
(	596528.6,	4135469.5,	16.5,	16.5,	6.1);	(596536.1,	4135448.2,	16.5,	16.5,	6.1);
(	596549.9,	4135438.2,	16.5,	16.5,	6.1);	(596558.0,	4135423.1,	16.5,	16.5,	6.1);
(	596565.5,	4135409.4,	16.6,	16.6,	6.1);	(596573.0,	4135398.1,	16.8,	16.8,	6.1);
(	596584.3,	4135378.7,	16.8,	16.8,	6.1);	(596594.3,	4135368.1,	16.8,	16.8,	6.1);
(	596603.0,	4135350.5,	16.8,	16.8,	6.1);	(596647.5,	4135340.5,	17.1,	17.1,	6.1);
(	596656.2,	4135329.3,	17.1,	17.1,	6.1);	(596673.8,	4135303.0,	17.4,	17.4,	6.1);
(	596685.7,	4135274.2,	17.4,	17.4,	6.1);	(596695.7,	4135263.6,	17.5,	17.5,	6.1);
(	596662.5,	4135255.4,	17.6,	17.6,	6.1);	(596653.7,	4135269.8,	17.4,	17.4,	6.1);
(	596643.7,	4135282.3,	17.3,	17.3,	6.1);	(596630.0,	4135297.4,	17.2,	17.2,	6.1);
(	596626.2,	4135309.9,	17.1,	17.1,	6.1);	(596615.6,	4135326.1,	16.9,	16.9,	6.1);
(	596609.3,	4135246.7,	17.4,	17.4,	6.1);	(596601.8,	4135261.1,	17.4,	17.4,	6.1);
(	596596.8,	4135274.2,	17.3,	17.3,	6.1);	(596588.7,	4135293.0,	17.1,	17.1,	6.1);
(	596577.4,	4135299.9,	17.1,	17.1,	6.1);	(596561.1,	4135272.3,	17.1,	17.1,	6.1);
(	596566.1,	4135259.2,	17.2,	17.2,	6.1);	(596576.8,	4135241.0,	17.4,	17.4,	6.1);
(	596533.6,	4135309.2,	16.8,	16.8,	6.1);	(596522.3,	4135329.3,	16.8,	16.8,	6.1);
(	596517.3,	4135339.3,	16.8,	16.8,	6.1);	(596509.8,	4135356.2,	16.7,	16.7,	6.1);
(	596501.0,	4135369.3,	16.6,	16.6,	6.1);	(596496.7,	4135380.0,	16.5,	16.5,	6.1);
(	596484.8,	4135397.5,	16.5,	16.5,	6.1);	(596478.5,	4135408.1,	16.5,	16.5,	6.1);
(	596466.0,	4135421.3,	16.5,	16.5,	6.1);	(596467.2,	4135434.4,	16.5,	16.5,	6.1);

Model Output
Unit Emission Rates (1 g/s)

```
( 596457.2, 4135447.6,    16.5,    16.5,    6.1);    ( 596449.7, 4135456.9,    16.5,    16.5,    6.1);
( 596436.6, 4135474.5,    16.4,    16.4,    6.1);    ( 596461.0, 4135487.6,    16.4,    16.4,    6.1);
( 596468.5, 4135472.0,    16.5,    16.5,    6.1);    ( 596481.0, 4135458.2,    16.5,    16.5,    6.1);
( 596487.3, 4135448.2,    16.5,    16.5,    6.1);    ( 596494.8, 4135436.3,    16.5,    16.5,    6.1);
( 596506.0, 4135418.8,    16.5,    16.5,    6.1);    ( 596511.0, 4135410.0,    16.5,    16.5,    6.1);
( 596521.7, 4135396.9,    16.5,    16.5,    6.1);    ( 596529.8, 4135381.8,    16.7,    16.7,    6.1);
( 596538.6, 4135369.3,    16.8,    16.8,    6.1);    ( 596546.1, 4135356.2,    16.8,    16.8,    6.1);
( 596555.5, 4135341.2,    16.8,    16.8,    6.1);    ( 596420.1, 4135825.9,    15.5,    15.5,    6.1);
( 596428.2, 4135810.1,    15.5,    15.5,    6.1);    ( 596433.7, 4135799.7,    15.5,    15.5,    6.1);
( 596442.3, 4135787.4,    15.5,    15.5,    6.1);    ( 596451.8, 4135768.5,    15.5,    15.5,    6.1);
( 596471.7, 4135778.9,    15.5,    15.5,    6.1);    ( 596487.5, 4135786.1,    15.6,    15.6,    6.1);
( 596507.4, 4135797.4,    15.5,    15.5,    6.1);    ( 596479.4, 4135808.2,    15.5,    15.5,    6.1);
( 596471.7, 4135821.8,    15.5,    15.5,    6.1);    ( 596461.7, 4135836.3,    15.4,    15.4,    6.1);
( 596454.0, 4135852.6,    15.2,    15.2,    6.1);    ( 596562.6, 4135778.9,    15.8,    15.8,    6.1);
( 596571.6, 4135783.4,    15.8,    15.8,    6.1);    ( 596582.9, 4135791.5,    15.8,    15.8,    6.1);
( 596568.4, 4135763.5,    15.8,    15.8,    6.1);    ( 596580.2, 4135770.7,    15.9,    15.9,    6.1);
( 596588.3, 4135777.0,    15.9,    15.9,    6.1);    ( 596575.2, 4135751.7,    15.9,    15.9,    6.1);
( 596583.8, 4135759.4,    15.9,    15.9,    6.1);    ( 596596.9, 4135764.4,    15.9,    15.9,    6.1);
( 596606.9, 4135754.4,    15.9,    15.9,    6.1);    ( 596595.6, 4135744.0,    15.9,    15.9,    6.1);
( 596581.5, 4135739.1,    15.9,    15.9,    6.1);    ( 596589.7, 4135727.3,    15.9,    15.9,    6.1);
( 596600.1, 4135737.7,    15.9,    15.9,    6.1);    ( 596609.6, 4135741.3,    15.9,    15.9,    6.1);
( 596596.0, 4135711.0,    15.9,    15.9,    6.1);    ( 596607.3, 4135721.4,    15.9,    15.9,    6.1);
( 596620.0, 4135727.8,    15.9,    15.9,    6.1);    ( 596577.0, 4135876.1,    15.5,    15.5,    6.1);
( 596590.1, 4135883.3,    15.5,    15.5,    6.1);    ( 596601.9, 4135890.1,    15.5,    15.5,    6.1);
( 596613.2, 4135897.8,    15.5,    15.5,    6.1);    ( 596625.9, 4135876.1,    15.6,    15.6,    6.1);
( 596618.6, 4135887.4,    15.5,    15.5,    6.1);    ( 596615.5, 4135864.8,    15.6,    15.6,    6.1);
( 596597.4, 4135861.2,    15.5,    15.5,    6.1);    ( 596587.9, 4135853.9,    15.5,    15.5,    6.1);
( 596649.8, 4135897.8,    15.6,    15.6,    6.1);    ( 596660.7, 4135902.3,    15.6,    15.6,    6.1);
( 596673.8, 4135910.9,    15.6,    15.6,    6.1);    ( 596681.0, 4135896.4,    15.8,    15.8,    6.1);
( 596693.2, 4135881.0,    15.9,    15.9,    6.1);    ( 596680.6, 4135870.2,    15.9,    15.9,    6.1);
( 596669.7, 4135865.7,    15.9,    15.9,    6.1);    ( 596658.0, 4135858.4,    15.8,    15.8,    6.1);
( 596667.0, 4135831.8,    15.9,    15.9,    6.1);    ( 596920.2, 4135651.3,    16.6,    16.6,    6.1);
( 596913.9, 4135661.3,    16.5,    16.5,    6.1);    ( 596926.1, 4135672.6,    16.5,    16.5,    6.1);
( 596939.7, 4135679.8,    16.5,    16.5,    6.1);    ( 596951.4, 4135686.6,    16.5,    16.5,    6.1);
( 596960.5, 4135673.5,    16.5,    16.5,    6.1);    ( 596937.0, 4135698.8,    16.5,    16.5,    6.1);
( 596925.2, 4135691.6,    16.5,    16.5,    6.1);    ( 596913.9, 4135685.3,    16.5,    16.5,    6.1);
( 596901.2, 4135675.3,    16.5,    16.5,    6.1);    ( 596756.5, 4135908.6,    15.9,    15.9,    6.1);
( 596751.6, 4135919.9,    15.9,    15.9,    6.1);    ( 596746.1, 4135931.2,    15.9,    15.9,    6.1);
( 596756.5, 4135937.1,    15.9,    15.9,    6.1);    ( 596769.7, 4135943.9,    15.9,    15.9,    6.1);
( 596778.2, 4135951.1,    15.9,    15.9,    6.1);    ( 596782.8, 4135937.6,    15.9,    15.9,    6.1);
( 596788.2, 4135928.5,    15.9,    15.9,    6.1);    ( 597725.2, 4135977.5,    17.8,    17.8,    6.1);
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*** AERMOD - VERSION 16216r ***   *** Hilton Garden Inn                                                      ***        08/22/17
*** AERMET - VERSION  14134 ***   *** Hilton Garden Inn                                                      ***        14:21:37
                                                                                                                        PAGE  70
*** 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,
```

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

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

Surface file: L:\WUL-02.0\03_ProductFiles\Tech_Studies\AQGHG\HRA\B - Air Dispersion Model Outp Met Version: 14134
Profile file: L:\WUL-02.0\03_ProductFiles\Tech_Studies\AQGHG\HRA\B - Air Dispersion Model Outp
Surface format: FREE
Profile format: FREE
Surface station no.: 23293 Upper air station no.: 23230
Name: UNKNOWN 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	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	1.00	0.00	0.	10.0	282.5	2.0
09	01	01	1	02	-13.4	0.236	-9.000	-9.000	-999.	275.	89.0	0.32	1.10	1.00	2.36	18.	10.0	282.5	2.0
09	01	01	1	03	-7.9	0.139	-9.000	-9.000	-999.	128.	30.9	0.32	1.10	1.00	1.76	4.	10.0	282.0	2.0
09	01	01	1	04	-12.4	0.217	-9.000	-9.000	-999.	242.	74.8	0.25	1.10	1.00	2.36	73.	10.0	281.4	2.0
09	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	1.00	0.00	0.	10.0	282.0	2.0
09	01	01	1	06	-9.7	0.170	-9.000	-9.000	-999.	168.	46.1	0.47	1.10	1.00	1.76	342.	10.0	281.4	2.0
09	01	01	1	07	-13.5	0.236	-9.000	-9.000	-999.	275.	88.6	0.32	1.10	1.00	2.36	5.	10.0	281.4	2.0
09	01	01	1	08	-19.7	0.345	-9.000	-9.000	-999.	486.	189.6	0.47	1.10	0.74	2.86	333.	10.0	280.9	2.0
09	01	01	1	09	-8.3	0.363	-9.000	-9.000	-999.	526.	525.4	0.47	1.10	0.39	2.86	327.	10.0	280.9	2.0
09	01	01	1	10	8.1	0.382	0.288	0.014	106.	566.	-625.1	0.47	1.10	0.27	2.86	351.	10.0	280.9	2.0
09	01	01	1	11	17.6	-9.000	-9.000	-9.000	189.	-999.	-99999.0	0.25	1.10	0.23	0.00	0.	10.0	280.9	2.0
09	01	01	1	12	23.0	-9.000	-9.000	-9.000	259.	-999.	-99999.0	0.25	1.10	0.21	0.00	0.	10.0	281.4	2.0
09	01	01	1	13	23.9	-9.000	-9.000	-9.000	315.	-999.	-99999.0	0.25	1.10	0.21	0.00	0.	10.0	281.4	2.0
09	01	01	1	14	48.5	-9.000	-9.000	-9.000	407.	-999.	-99999.0	0.25	1.10	0.22	0.00	0.	10.0	283.1	2.0
09	01	01	1	15	69.5	0.319	0.953	0.016	453.	433.	-42.6	0.32	1.10	0.25	2.36	32.	10.0	283.1	2.0
09	01	01	1	16	24.5	-9.000	-9.000	-9.000	460.	-999.	-99999.0	0.25	1.10	0.33	0.00	0.	10.0	283.1	2.0
09	01	01	1	17	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	0.57	0.00	0.	10.0	283.1	2.0
09	01	01	1	18	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	1.00	0.00	0.	10.0	282.5	2.0
09	01	01	1	19	-24.2	0.212	-9.000	-9.000	-999.	235.	35.9	0.47	1.10	1.00	2.36	324.	10.0	281.4	2.0
09	01	01	1	20	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	1.00	0.00	0.	10.0	281.4	2.0
09	01	01	1	21	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	1.00	0.00	0.	10.0	280.9	2.0
09	01	01	1	22	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.25	1.10	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	0.25	1.10	1.00	0.00	0.	10.0	280.4	2.0
09	01	01	1	24	-9.7	0.170	-9.000	-9.000	-999.	168.	45.7	0.47	1.10	1.00	1.76	310.	10.0	280.4	2.0

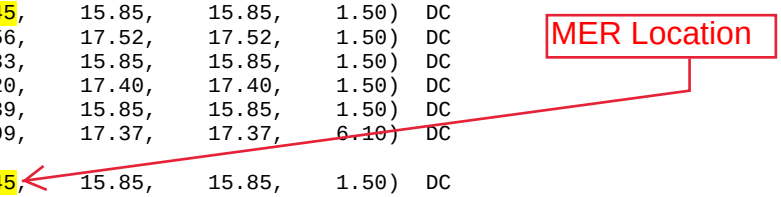
First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
09	01	01	01	10.0	1	-999.	-99.00	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 16216r ***   *** Hilton Garden Inn                                          ***        08/22/17
 *** AERMET - VERSION  14134 ***   *** Hilton Garden Inn                                          ***        14:21:37
                                                                                                            PAGE  82

 *** 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
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

OFFSITE   1ST HIGHEST VALUE IS       8.21522 AT (  596673.76,  4135302.99,    17.37,    17.37,    1.50)  DC
          2ND HIGHEST VALUE IS       7.97851 AT (  596656.24,  4135329.27,    17.12,    17.12,    1.50)  DC
          3RD HIGHEST VALUE IS       7.49846 AT (  596647.48,  4135340.54,    17.05,    17.05,    1.50)  DC
          4TH HIGHEST VALUE IS       7.48959 AT (  596619.98,  4135727.77,    15.85,    15.85,    1.50)  DC
          5TH HIGHEST VALUE IS       7.26982 AT (  596606.86,  4135754.45,    15.85,    15.85,    1.50)  DC
          6TH HIGHEST VALUE IS       6.87992 AT (  596695.67,  4135263.56,    17.52,    17.52,    1.50)  DC
          7TH HIGHEST VALUE IS       6.43896 AT (  596609.58,  4135741.33,    15.85,    15.85,    1.50)  DC
          8TH HIGHEST VALUE IS       6.32958 AT (  596685.65,  4135274.20,    17.40,    17.40,    1.50)  DC
          9TH HIGHEST VALUE IS       5.61416 AT (  596596.91,  4135764.39,    15.85,    15.85,    1.50)  DC
         10TH HIGHEST VALUE IS       5.24703 AT (  596673.76,  4135302.99,    17.37,    17.37,    6.10)  DC

ONSITE    1ST HIGHEST VALUE IS       6.09442 AT (  596606.86,  4135754.45,    15.85,    15.85,    1.50)  DC
          2ND HIGHEST VALUE IS       5.52106 AT (  596596.91,  4135764.39,    15.85,    15.85,    1.50)  DC
          3RD HIGHEST VALUE IS       5.44530 AT (  596619.98,  4135727.77,    15.85,    15.85,    1.50)  DC
          4TH HIGHEST VALUE IS       5.38847 AT (  596582.90,  4135791.52,    15.81,    15.81,    1.50)  DC
          5TH HIGHEST VALUE IS       5.33724 AT (  596588.32,  4135777.05,    15.85,    15.85,    1.50)  DC
          6TH HIGHEST VALUE IS       5.28888 AT (  596609.58,  4135741.33,    15.85,    15.85,    1.50)  DC
          7TH HIGHEST VALUE IS       4.63293 AT (  596606.86,  4135754.45,    15.85,    15.85,    6.10)  DC
          8TH HIGHEST VALUE IS       4.46892 AT (  596582.90,  4135791.52,    15.81,    15.81,    6.10)  DC
          9TH HIGHEST VALUE IS       4.45317 AT (  596667.00,  4135831.77,    15.85,    15.85,    1.50)  DC
         10TH HIGHEST VALUE IS       4.35542 AT (  596596.91,  4135764.39,    15.85,    15.85,    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   13130 Informational Message(s)

A Total of   43872 Hours Were Processed

A Total of   11611 Calm Hours Identified

A Total of   1519 Missing Hours Identified (3.46 Percent)

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

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

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

Appendix C. Construction Risk Calculations

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Table C1
Off-site Residential MER 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)
Residential Receptors - Unmitigated						
DPM	2018	On-Site Emissions	6.09	2.06E-02	1.25E-01	1.25E-01
		Truck Route	7.27	9.20E-06	6.69E-05	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations						
$PM_{2.5}$	2018	On-Site Emissions	6.09	1.96E-02	1.20E-01	1.20E-01
		Truck Route	7.27	8.80E-06	6.40E-05	
				Maximum Annual $PM_{2.5}$ Concentration		**0.12**
Residential Receptors - Mitigated Run: Level 2 DPFs for eq. > 50 HP						
DPM	2018	On-Site Emissions	6.09	1.27E-02	7.75E-02	7.75E-02
		Truck Route	7.27	9.20E-06	6.69E-05	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations						
$PM_{2.5}$	2018	On-Site Emissions	6.09	1.22E-02	7.46E-02	7.46E-02
		Truck Route	7.27	8.80E-06	6.40E-05	
				Maximum Annual $PM_{2.5}$ Concentration		**0.07**

Maximum Exposed Receptor (MER) UTM coordinates: 596606.86E, 4135754.45N

[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
Quantification of Health Risks for Off-site Residents

Source		MER	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	3rd Trimester	0 < 2 years		Chronic REL	RESP
		($\mu g/m^3$)			$(\mu g/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		per million		per million	($\mu g/m^3$)	
(a)		(b)	(c)	(d)	(e)	(f)	(g)		(i)		(k)	(l)	(m)
Residential Receptors - Unmitigated													
2018	On & Off-Site	1.25E-01	1.00E+00	DPM	3.0E-04	1.1E+00	4.34E-05	1.31E-04	1.38E+00	1.18E+01	13.2	5.0E+00	2.51E-02
										Total	**13.2**		**0.025**
Residential Receptors - Mitigated Run: Level 2 DPFs for eq. > 50 HP													
2018	On & Off-Site	7.75E-02	1.00E+00	DPM	3.0E-04	1.1E+00	2.68E-05	8.10E-05	8.55E-01	7.27E+00	8.13	5.0E+00	1.55E-02
										Total	**8.1**		**0.016**

Maximum Exposed Receptor (MER) UTM coordinates: 596606.86E, 4135754.45N

		3rd Trimester	0 < 2 years
	OEHHA age bin	3rd Trimester	0 < 2 years
	exposure year(s)	2018	2018
Dose Exposure Factors:	xposure 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
2018	0.95	0.25	0.70
Total	0.95	0.25	0.70

[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.