APPENDIX E

CONSTRUCTION HEALTH RISK ASSESSMENT

CONSTRUCTION HEALTH RISK ASSESSMENT FOR:

THE VALHALLA

prepared for:

CITY OF SAUSALITO

prepared by:

THE PLANNING CENTER|DC&E

Contact:
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Project Scientist
Cathleen Fitzgerald, P.E.
Senior Engineer

REVISED NOVEMBER 2013

CONSTRUCTION HEALTH RISK ASSESSMENT FOR:

THE VALHALLA

prepared for:

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CSAU-01.0
REVISED
NOVEMBER 2013

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1. Introduction

The Project Applicant is proposing the redevelopment of the former Valhalla site and restaurant on a 0.53-acre parcel located at 206 Second Street and 201 Bridgeway in the City of Sausalito, Marin County, California (see Figure 1). The proposed Project would maintain an existing single-family home located at 206 Second Street and renovate and expand the Valhalla structure to accommodate seven new condominium units.

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, 2012). Construction of the project would take place starting in August 2014 and will include demolition, grading, trenching, building construction, paving, and architectural coating (painting). The construction phase is estimated to take place over a period of 510 calendar days (355 work days) beginning in August 2014 and ending in December 2015.

The nearest offsite residential housing is located within 10 feet of the project, adjacent to the northern border of the site. Additional residences are located approximately 160 feet to the west and south of the site, facing 3rd Street to the west and 2nd Street to the south. Across Richardson Street there are additional residences approximately 250 feet north from the nearest site construction activity. The residents at all of these locations could be potentially impacted from the proposed construction activities.

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 much closer than the distance of 95 meters (312 feet) that would screen out potential health risks. Therefore, a site-specific construction health risk assessment (HRA) was prepared for this project.

This construction HRA considers the health impact of planned construction operations at the project site to sensitive receptors (adults and children in the nearby residences) from diesel equipment exhaust and $PM_{2.5}$.

1. Introduction

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2. Project Description

The proposed Project involves the redevelopment of the former Valhalla site and restaurant on a 0.53-acre parcel consisting of the addresses of 206 Second Street and 201 Bridgeway in the City of Sausalito. The proposed Project would maintain an existing single-family home located at 206 Second Street and renovate and expand the Valhalla structure to accommodate seven new condominium units. The proposed Project would subdivide the Project site to create a separate lot for the single-family residence. The construction phase is estimated to take place over a period of 510 calendar days (355 work days) beginning in August 2014 and ending in December 2015.

The Project site is bound by Second Street to the west, Main Street to the south, the Bridgeway Promenade and San Francisco Bay to the east. The Project site is located approximately one-half mile east of Highway 101, in southern Sausalito, along the San Francisco Bay shoreline. The surrounding neighborhood is primarily residential, although scattered businesses exist along Second Street and other adjoining streets. The project site and vicinity are depicted in Figure 1.

2. Project Description

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Figure 1 Project Location and ISCST3 Model Configuration

Site Boundary

Residential Receptors

0 250
Scale (Feet)

Source: Google Earth Pro 2013

2. Project Description

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3. Methodology and Significance Thresholds

The purpose of the construction HRA is to evaluate the potential health impacts associated with diesel particulate matter (DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$) from construction activities associated with the proposed project. Construction sources evaluated in this HRA include off-road construction equipment, such as excavators, graders, forklifts, pavers, rollers, dozers, tractors, loaders, backhoes, paving equipment, airless painting spray rigs, and water trucks.

The BAAQMD's 2010 adopted "Thresholds of Significance" for local community risk impacts were challenged in a lawsuit and subsequently rescinded. However, lead agencies can determine that these are appropriate air quality thresholds for projects they review. The 2010 BAAQMD thresholds that were used for this project are shown below:

- Non-compliance with a qualified risk reduction plan
- 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 $\mu g/m^3$

Since both the City of Sausalito and Marin County do not have a qualified risk reduction plan, a site-specific analysis of DPM and $PM_{2.5}$ impacts on sensitive receptors was conducted.

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

- BAAQMD, 2012. California Environmental Quality Act Air Quality Guidelines. May 2012.
- BAAQMD, 2010. Screening Tables for Air Toxics Evaluation During Construction. May 2010.
- BAAQMD, 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards. Version 2.0. May 2011
- OEHHA, 2012. Air Toxics Hot Spots Program Risk Assessment Guidelines. June, 2012.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction activities were evaluated for off-site sensitive receptors in the vicinity of the site, including the residences to the north, west, and south. Using air dispersion models, receptor concentrations were estimated and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds identified in the BAAQMD CEQA guidelines.

3. Source Identification

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4. Construction Emissions

Construction emissions were calculated, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod (SCAQMD, 2013). The CalEEMod construction emissions output and emission rate calculations are provided in Appendix A.

The project was assumed to take place over 510 calendar days (355 work days) beginning in August 2014 and ending in December 2015. The modeled emission rates are summarized in Table 1.

Table 1 Construction Activity

Parameter	Onsite Emissions (lbs/day)	Total Offsite Emissions (lbs/day)	Offsite Emissions Within 1,000 feet of Site (lbs/day)
DPM	1.05	0.12	7.4E-04
PM2.5	1.05	0.72	4.4E-03

Source: CalEEMod 2013.2.2 and Air Quality, Community Risk and Hazards, and Greenhouse Gas Technical Report, The Planning Center|DC&E, 2013

4. Source Characterization

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5. Dispersion Modeling

To assess the impact of emitted compounds on sensitive receptors at the project, air quality modeling using the ISCST3 model was performed. 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 construction emissions for the project were modeled as poly-area sources.

The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction phase emission rates are those described in Section 4. Meteorological data obtained from the BAAQMD for the nearest met station (Mt. Tamalpais) and the three latest available years of record (2003-2005) were used to represent local weather conditions and prevailing winds. The annual DPM and $PM_{2.5}$ concentrations for the year 2005, which yielded the maximum concentrations for the three years that were evaluated, were used in this risk assessment.

DPM emissions were based on the CalEEMod construction runs, using annual exhaust PM_{10} construction emissions presented in lbs/day. The $PM_{2.5}$ emissions were taken from the CalEEMod $PM_{2.5}$ total, which includes exhaust $PM_{2.5}$. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and an initial vertical dispersion parameter of 1.93 m was used, per CARB guidance (2000).

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.

To determine contaminant impacts during construction hours, the model's scalar option was invoked to predict flagpole-level concentrations (1.5 m for ground-floor receptors) for emissions generated between the hours of 8:00 AM and 6:00 PM, with a one-hour break for lunch between noon and 1:00 PM and two 30-minute breaks between 9:30 AM and 10:00 AM and 2:30 PM and 3:00PM. In addition, a scalar factor was applied to HROFDY (hour of day) in the ISCST3 model to account for the number of days of construction activity per year.

The configuration of the area sources and the receptor locations are presented in Figure 1. The ISCST3 model output data are presented in Appendix B.

5. Exposure Quantification

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6. Risk Characterizations

6.1 CARCINOGENIC CHEMICAL RISK

The BAAQMD has established a threshold of ten in a million (10E–06) 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.

Cancer risks were calculated using BAAQMD recommended methods for a residential receptor. For the inhalation pathway, 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. To calculate the contaminant dose, the following equation was used:

$$Dose_{AIR} = (C_{air} \times EF \times ED \times [BR/BW] \times A \times CF) / AT$$

Where:

$Dose_{AIR}$	=	dose by inhalation (mg/kg/day)
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years – construction period)
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)
AT	=	averaging time (days)

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. The daily breathing rate for an adult is 302 L/kg-day and for a child is 581 L/kg-day (BAAQMD, 2011). The residential exposure frequency (EF) is set at 350 days per year to allow for a two week period away from home each year (OEHHA, 2012).

OEHHA and BAAQMD procedures require the incorporation of age sensitivity factors (ASF) into the evaluation. The AT (averaging time) for lifetime cancer risks is 70 years for all cases. The exposure duration (ED) and ASFs for the various age-groups are provided herein:

6. Risk Characterizations

ED	ASF
0.25 years – third trimester	10
2 years for 0-2 age group	10
7 years for 2-9 age group	3
14 years for 2-16 age group	3
54 years for 16-70 age group	1

To calculate the overall cancer risk, the risk for each appropriate age group is calculated using appropriate age-sensitivity factors (ASFs), and chemical-specific cancer potency factor (CPF) for each chemical of concern as per the following equation:

$$Cancer\ Risk_{AIR} = Dose_{AIR} \times CPF \times ASF$$

The CPFs used in the assessment were obtained from OEHHA guidance. For DPM, a CPF of 1.1 mg/kg-day^{-1} was used.

The excess lifetime cancer risk to the maximally exposed individual (MEI) during the construction period was calculated, based on the factors provided above. For the adult exposure scenario, a construction period of 1.4 year was assumed and an ASF of 1.7 was applied to the calculated cancer risk number to give the estimated excess cancer risk over a 70-year lifetime. For the child exposure scenario, a 9-year exposure period was used, as per BAAQMD and OEHHA guidance (BAAQMD, 2010), and an ASF of 4.7 was applied to the excess cancer risk number to account for the increased sensitivity of children to air pollutants during the 9-year exposure period. The calculated results are provided in Appendix C.

6.2 NONCARCINOGENIC HAZARDS

An evaluation of the potential non-cancer effects of chronic 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 noncarcinogenic impacts, the hazard index approach was used. The hazard index assumes that chronic 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. In a manner consistent with the assessment of carcinogenic exposures, REL/RfC (reference concentration) values were converted to units expressed in mg/kg/day to accommodate the above intake algorithm.

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 noncarcinogenic exposures.

6.3 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. The modeling results for $PM_{2.5}$ are summarized in Table 2 and Table 3; the model runs are provided in Appendix B.

For $PM_{2.5}$, the maximum annual concentration was calculated to be 0.60 $\mu g/m^3$ for adult and child residents north of the project site, which is greater than the significance threshold of 0.3 $\mu g/m^3$. The results of the modeling indicate that sensitive receptors in the vicinity of the project would be adversely impacted by $PM_{2.5}$ emissions during the 1.4 year construction period.

6. Risk Characterizations

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7. Conclusions

Results of the health risk assessment indicate that the maximum incremental cancer risk during the construction phase of the project for a ground-floor adult resident located on the project site, based on the maximum modeled receptor concentration over a 1.4 year construction exposure period, assuming 24-hour outdoor exposure, and averaged over a 70-year lifetime, is 6.5 x 10^{-6} (6.5 per million), which is less than the significance threshold of 10 per million. However, the incremental cancer risk for the child exposure scenario was estimated to be 35 x 10^{-6} (35 per million), which is greater than the significance threshold of 10 per million.

For noncarcinogenic effects, the hazard index identified for each toxicological endpoint totaled less than one. Therefore, chronic noncarcinogenic hazards are within acceptable limits. The $PM_{2.5}$ annual concentrations are greater than the BAAQMD significance threshold. The unmitigated risk results for residential receptors are summarized in Table 2.

Table 2 Unmitigated Residential Risk Summary

Receptor	Value	BAAQMD Significance Threshold	Exceeds Significance Threshold?
Adult Resident – Cancer Risk	6.5E-06	10E-06	No
Child Resident – Cancer Risk	35E-06	10E-06	Yes
Chronic Hazard	0.12	1.0	No
$PM_{2.5}$ Concentration (µg/m^3)	0.60	0.30	Yes

Source: Breeze 7.7.3, 2013.

It should be noted that these health impacts were based on conservative (i.e., health protective) assumptions. The USEPA (2005) and OEHHA (2012) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks do not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of risk and usually overestimate exposure and thus risk. For this resident-based risk assessment, the following conservative assumptions were used:

- To determine the Maximum Exposed Individual (MEI) for the unmitigated scenario, as reported in Table 2, it was assumed that children and adults stood outside of their residence for 24 hours per day, 350 days/year for 9 years (children) or 70 years (adults). In reality, it is likely that children and adults typically will spend a maximum of 2 hours per day outdoors at their residences (USEPA, 1996), which would result in a lower estimated risk value.

- For the MEI scenario, it was assumed that children and adults remained at home one hundred percent of the time. In reality, it is likely that children and adults would only spend a fraction of time at home, which

7. Conclusions

would result in a lower estimated risk value. OEHHA (2012), recommends the following fraction of time at home (FAH) values for estimating health risk values:

Age Range	FAH
Third Trimester – 2	0.85
2-16	0.72
16-70	0.73

- The calculated risk for pregnant women and children from 0-2 years is multiplied by a factor of 10 (age sensitivity factor) and the calculated risk for children from 2-16 years is multiplied by a factor of 3 to account for early life exposure and uncertainty in child vs. adult exposure impacts. Thus, the estimated risks are conservative.

- The calculated health risks are determined using maximum flagpole concentrations of toxic air contaminants for first floor residents. For multi-story residential developments, contaminant concentrations and health risks are reduced at higher floors. For instance the maximum DPM concentrations and excess cancer risks are reduced 15% for 2nd-floor residents (flagpole receptor height of 20 feet or 6.1 m).

Nevertheless, because the carcinogenic risks for the child scenario and maximum annual $PM_{2.5}$ concentrations are predicted to be above the significance thresholds, mitigation measures are warranted. The following mitigation measures are proposed:

- The construction contractors shall use Level 3 Diesel Particulate Filters for construction equipment over 75 horsepower. These types of filters are capable of reducing particulate matter emissions by 85 percent (SCAQMD, 2009). A list of construction equipment by type and model year shall be maintained by the construction contractor onsite. The construction contractor shall ensure that all construction equipment is properly serviced and maintained to the manufacturer's standards to reduce operational emissions, and shall limit nonessential idling of construction equipment to no more than five consecutive minutes.

The above mitigation measures are capable of reducing DPM and $PM_{2.5}$ concentrations by 85 percent. Assuming a resident or child would spend only a fraction of time at home, the mitigated risk values were calculated and are results are summarized in Table 3.

Table 3 Mitigated Residential Risk Summary – Level 3 Diesel Particulate Filters

Receptor	Value	BAAQMD Significance Threshold	Exceeds Significance Threshold?
Adult Resident – Cancer Risk	1.3E-06	10E-06	No
Child Resident – Cancer Risk	7.2E-06	10E-06	No
Chronic Hazard	0.033	1.0	No
$PM_{2.5}$ Concentration (µg/m^3)	0.20	0.30	No

Source: Breeze 7.7.3, 2013. Mitigated scenario includes retrofitting of all off-road equipment 75 HP or greater with Level 3 diesel particulate filters.

7. Conclusions

The results indicate that with mitigation, the excess cancer risk for the adult and child exposure scenarios would be less than the threshold values. Additionally, the $PM_{2.5}$ annual concentrations would be below the significance threshold with mitigation. Therefore, with the mitigation measures described above, the project would have a less than significant impact with respect to excess cancer risk for adult or child residents, chronic non-hazard impacts, and $PM_{2.5}$ emissions during the 1.4 year construction period.

7. Conclusions

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8. References

Bay Area Air Quality Management District (BAAQMD), 2012. *California Environmental Quality Act Air Quality Guidelines*. Dated June 2010.

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OEHHA, 2012. *Air Toxic Hot Spots Program Risk Assessment Guidelines. Technical Support Document for Exposure Assessment and Stochastic Analysis*. Dated June 2012.

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SCAQMD, 2009. On-road Engines Mitigation Measure Table IV – Mitigation Measures: Level 1, 2, and 3 Retrofits for On-road Engines.

United States Environmental Protection Agency (USEPA). 2005. *Guideline on Air Quality Models* (Revised). EPA-450/2-78-027R.

USEPA. 1996. *National Human Activities Pattern Survey: A Resource for Assessing Exposure to Environmental Pollutants*. National Exposure Research Laboratory.

8. References

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Appendix A. Emission Rate Calculations

Appendix

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Criteria Air Pollutant Emissions Summary - Construction (Daily - lbs/day)

Annual emissions divided by total construction duration to obtain average daily emissions. Average construction emissions accounts for the duration of each construction phase and the time each piece of construction equipment is onsite.

	avg lbs/day	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total		4.41	22.73	32.29	0.05	2.40	1.18	3.57	0.67	1.09	1.77
	avg lbs/day										
		ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total Onsite		2.65	15.06	10.52	0.01	0.13	1.05	1.19	0.07	0.98	1.05
Total Offsite		1.76	7.68	21.78	0.04	2.27	0.12	2.39	0.61	0.11	0.72
BAAQMD lbs/day Threshold		54	54	NA	NA	BCM	82	NA	BCM	54	NA
Exceeds		No	No	NA	NA	Mit	No	NA	Mit	No	NA

Criteria Air Pollutant Emissions Summary - Construction (Daily - lbs/day) Mitigated (DPM Level 3)

Annual emissions divided by total construction duration to obtain average daily emissions. Average construction emissions accounts for the duration of each construction phase and the time each piece of construction equipment is onsite.

	avg lbs/day	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total		4.41	22.73	32.29	0.05	2.40	0.41	2.81	0.67	0.39	1.07

	avg lbs/day	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total Onsite		2.65	15.06	10.52	0.01	0.13	0.29	0.42	0.07	0.28	0.34
Total Offsite		1.76	7.68	21.78	0.04	2.27	0.12	2.39	0.61	0.11	0.72
BAAQMD lbs/day Threshold		54	54	NA	NA	BCM	82	NA	BCM	54	NA
Exceeds		No	No	NA	NA	Mit	No	NA	Mit	No	NA

CONSTRUCTION EMISSIONS - DPM and $PM_{2.5}$
INPUT TO ISCST3 MODEL

Construction Phase	Onsite Average Daily	Offsite [3,4] Average Daily
DPM Emissions (lbs/day) [1]	1.05	7.35E-04
DPM Emissions (lbs/hr)	1.32E-01	9.19E-05
DPM Emissions (g/s)	1.66E-02	**1.16E-05**
Modeled Area (acres)	0.53	
Modeled Area (m^2)	2,145	
DPM Emission Rate ($g/s/m^2$)	**7.74E-06**	
$PM_{2.5}$ Emissions (lbs/day) [2]	1.05	4.41E-03
$PM_{2.5}$ Emissions (lbs/hr)	1.31E-01	5.52E-04
$PM_{2.5}$ Emissions (g/s)	1.65E-02	**6.95E-05**
Modeled Area (acres)	0.53	
Modeled Area (m^2)	2,145	
$PM_{2.5}$ Emission Rate ($g/s/m^2$)	**7.69E-06**	

[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 and fugitive dust emissions from CalEEMod average daily emissions

[3]Emissions from CalEEMod based on haul truck trips of 24 miles (demolition) and 52 miles (grading) proportioned to evaluate emissions from 0.27 mile route within 1,000 feet of project site

[4]Offsite emissions divided by 44 (number of volume sources) to get emission rate per volume source for ISCST3 model

Emissions assumed to be evenly distributed over entire construction phase area

Hours per work day	8
Total construction days per year	260
Scalar for HROFDY in ISCST3 model	0.71

Assume maximum of 8.0 hrs/day of heavy equipment operation
Operating hours between 8 am and 6 pm, with 1-hour lunch period plus breaks

MITIGATED CONSTRUCTION EMISSIONS - DPM and PM2.5 - DIESEL PARTICULAR FILTERS LEVEL 3 (for equipment > 75 HP)
INPUT TO ISCST3 MODEL

Construction Phase	Onsite Average Daily	Offsite [3,4] Average Daily
DPM Emissions (lbs/day) [1]	0.29	7.35E-04
DPM Emissions (lbs/hr)	3.63E-02	9.19E-05
DPM Emissions (g/s)	4.57E-03	**1.16E-05**
Modeled Area (acres)	0.53	
Modeled Area (m^2)	2,145	
DPM Emission Rate ($g/s/m^2$)	**2.13E-06**	
$PM_{2.5}$ Emissions (lbs/day) [2]	0.34	4.41E-03
$PM_{2.5}$ Emissions (lbs/hr)	4.31E-02	5.52E-04
$PM_{2.5}$ Emissions (g/s)	5.43E-03	**6.95E-05**
Modeled Area (acres)	0.53	
Modeled Area (m^2)	2,145	
$PM_{2.5}$ Emission Rate ($g/s/m^2$)	**2.53E-06**	

[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 and fugitive dust emissions from CalEEMod average daily emissions

[3]Emissions from CalEEMod based on haul truck trips of 24 miles (demolition) and 52 miles (grading) proportioned to evaluate emissions from 0.27 mile route within 1,000 feet of project site

[4]Offsite emissions divided by 44 (number of volume sources) to get emission rate per volume source for ISCST3 model

Emissions assumed to be evenly distributed over entire construction phase area

Hours per work day	8
Total construction days per year	260
Scalar for HROFDY in ISCST3 model	0.71

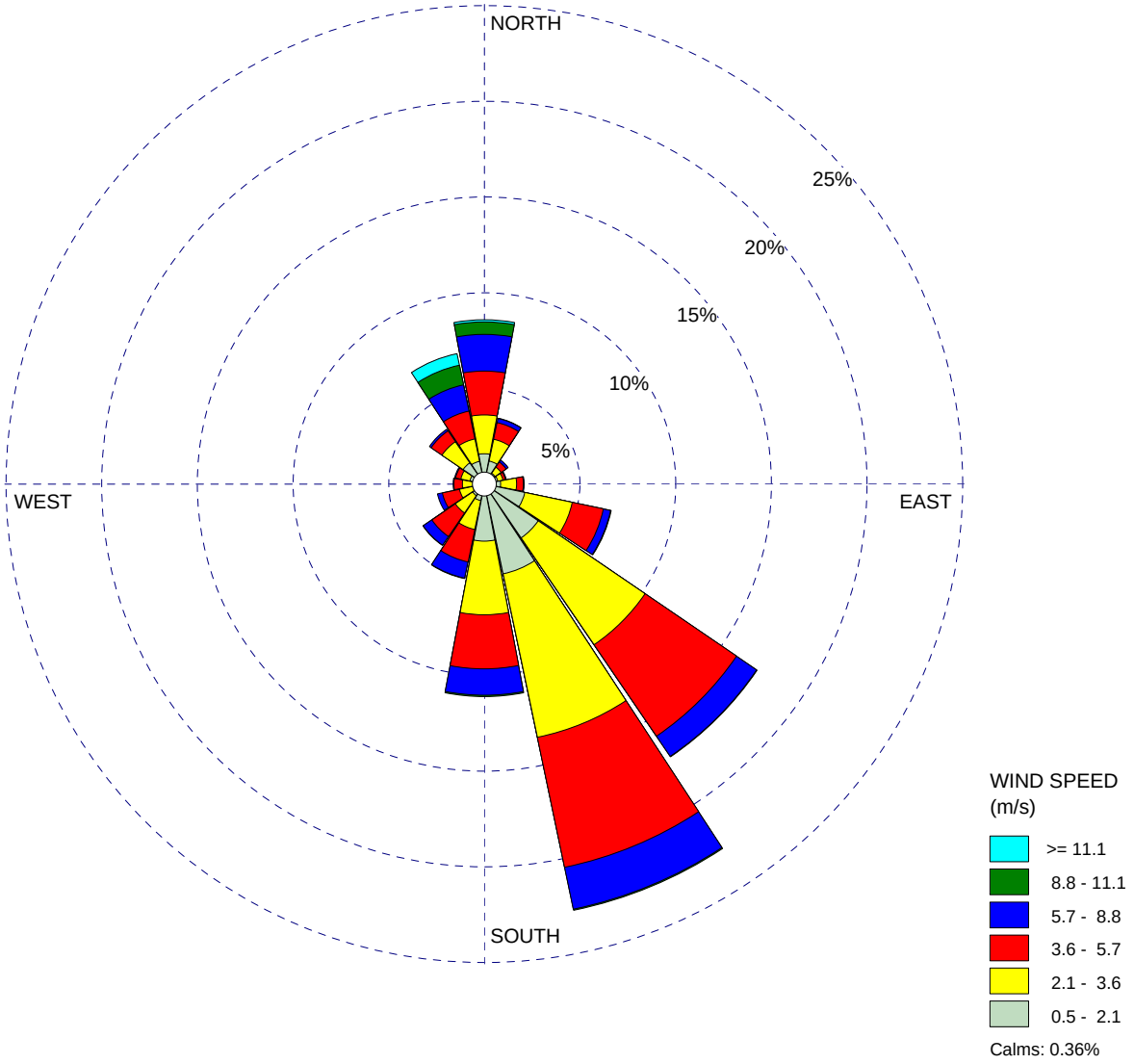
Assume maximum of 8.0 hrs/day of heavy equipment operation
Operating hours between 8 am and 6 pm, with 1-hour lunch period plus breaks

WIND ROSE PLOT:

Mt. Tamalpais Station
1/1/2003-12/31/2005

DISPLAY:

Wind Speed
Flow Vector (blowing to)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2003 - 08:00 **End Date: 12/31/2005 - 17:00**	MODELER:	
	CALM WINDS: **0.36%**	TOTAL COUNT: **10960 hrs.**	
	AVG. WIND SPEED: **3.61 m/s**	DATE: **9/20/2013**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

BAAQMD Meteorological Site

Name: Mt. Tamalpais
Site ID: 3901
Start Date: 7/28/1989
End Date: current
Operator: BAAQMD
Latitude: 37.9274
Longitude: 122.5884
Elevation: 762.2 m
Wind Height: 7.3 m
UTM - East: 536.169
UTM - North: 4197.835
County: Marin
Sensors: ws,wd,temp solar insolation

Files for Downloading

Year	ASCII	ISCST3 300 m mixing height	ISCST3 600 m mixing height
2005	metdata3901-05met.zip	metdata3901-05300.zip	metdata3901-05600.zip
2004	metdata3901-04met.zip	metdata3901-04300.zip	metdata3901-04600.zip
2003	metdata3901-03met.zip	metdata3901-03300.zip	metdata3901-03600.zip
2002	metdata3901-02met.zip	A	A
2001	metdata3901-01met.zip	metdata3901-013ra.zip	metdata3901-016ra.zip
2000	metdata3901-00met.zip	metdata3901-003ra.zip	metdata3901-006ra.zip
1999	metdata3901-99met.zip	A	A
1998	metdata3901-98met.zip	A	A
1997	metdata3901-97met.zip	A	A
1996	metdata3901-96met.zip	A	A
1995	metdata3901-95met.zip	A	A
1994	metdata3901-94met.zip	A	A
1993	metdata3901-93met.zip	A	A
1992	metdata3901-92met.zip	A	A
1991	metdata3901-91met.zip	metdata3901-91300.zip	metdata3901-91600.zip
1990	metdata3901-90met.zip	A	A

Note: An “A” instead of a filename for any given year in the ASCII column signifies the data are missing. An “A” in the ISCST3 columns indicates the data are either missing or do not meet the EPA 90% data capture rate required for regulatory modeling applications.

Appendix B. ISCST3 Model Output Files

Appendix

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```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:06:07
**MODELOPTs:                                                                                                       PAGE   1
CONC                    URBAN FLAT  FLGPOL DFAULT

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

**Intermediate Terrain Processing is Selected

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

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:    45 Source(s);      3 Source Group(s); and      43 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

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

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE 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:  Anem. Hgt. (m) =    10.00 ;    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 =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:06:07
**MODELOPTs:                                                                                                       PAGE   2
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
101	0	0.26324E-06	545718.1	4189224.0	0.0	4.15	4.19	1.93	HROFDY
102	0	0.26324E-06	545718.3	4189233.0	0.0	4.15	4.19	1.93	HROFDY
103	0	0.26324E-06	545718.5	4189242.0	0.0	4.15	4.19	1.93	HROFDY
104	0	0.26324E-06	545718.7	4189251.0	0.0	4.15	4.19	1.93	HROFDY
105	0	0.26324E-06	545718.9	4189260.0	0.0	4.15	4.19	1.93	HROFDY
106	0	0.26324E-06	545719.1	4189269.0	0.0	4.15	4.19	1.93	HROFDY
107	0	0.26324E-06	545719.3	4189278.0	0.0	4.15	4.19	1.93	HROFDY
108	0	0.26324E-06	545719.5	4189287.0	0.0	4.15	4.19	1.93	HROFDY
109	0	0.26324E-06	545719.7	4189296.0	0.0	4.15	4.19	1.93	HROFDY
110	0	0.26324E-06	545719.9	4189305.0	0.0	4.15	4.19	1.93	HROFDY
111	0	0.26324E-06	545720.1	4189314.0	0.0	4.15	4.19	1.93	HROFDY
112	0	0.26324E-06	545728.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
113	0	0.26324E-06	545737.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
114	0	0.26324E-06	545746.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
115	0	0.26324E-06	545755.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
116	0	0.26324E-06	545764.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
117	0	0.26324E-06	545773.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
118	0	0.26324E-06	545781.5	4189316.5	0.0	4.15	4.19	1.93	HROFDY
119	0	0.26324E-06	545789.5	4189320.5	0.0	4.15	4.19	1.93	HROFDY
120	0	0.26324E-06	545793.2	4189328.5	0.0	4.15	4.19	1.93	HROFDY
121	0	0.26324E-06	545796.9	4189336.8	0.0	4.15	4.19	1.93	HROFDY
122	0	0.26324E-06	545800.6	4189345.0	0.0	4.15	4.19	1.93	HROFDY
123	0	0.26324E-06	545804.3	4189353.2	0.0	4.15	4.19	1.93	HROFDY
124	0	0.26324E-06	545808.0	4189361.5	0.0	4.15	4.19	1.93	HROFDY
125	0	0.26324E-06	545811.6	4189369.5	0.0	4.15	4.19	1.93	HROFDY
126	0	0.26324E-06	545815.3	4189377.8	0.0	4.15	4.19	1.93	HROFDY
127	0	0.26324E-06	545819.0	4189386.0	0.0	4.15	4.19	1.93	HROFDY
128	0	0.26324E-06	545822.7	4189394.2	0.0	4.15	4.19	1.93	HROFDY
129	0	0.26324E-06	545826.4	4189402.5	0.0	4.15	4.19	1.93	HROFDY
130	0	0.26324E-06	545830.1	4189410.8	0.0	4.15	4.19	1.93	HROFDY
131	0	0.26324E-06	545833.8	4189419.0	0.0	4.15	4.19	1.93	HROFDY
132	0	0.26324E-06	545837.5	4189427.0	0.0	4.15	4.19	1.93	HROFDY
133	0	0.26324E-06	545841.1	4189435.2	0.0	4.15	4.19	1.93	HROFDY
134	0	0.26324E-06	545844.8	4189443.5	0.0	4.15	4.19	1.93	HROFDY
135	0	0.26324E-06	545848.5	4189451.8	0.0	4.15	4.19	1.93	HROFDY
136	0	0.26324E-06	545852.2	4189460.0	0.0	4.15	4.19	1.93	HROFDY
137	0	0.26324E-06	545855.9	4189468.0	0.0	4.15	4.19	1.93	HROFDY
138	0	0.26324E-06	545859.6	4189476.2	0.0	4.15	4.19	1.93	HROFDY
139	0	0.26324E-06	545863.3	4189484.5	0.0	4.15	4.19	1.93	HROFDY
140	0	0.26324E-06	545865.5	4189493.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:06:07
**MODELOPTs:                                                                                                       PAGE   3
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
141	0	0.26324E-06	545865.5	4189502.0	0.0	4.15	4.19	1.93	HROFDY
142	0	0.26324E-06	545865.5	4189511.0	0.0	4.15	4.19	1.93	HROFDY
143	0	0.26324E-06	545865.5	4189520.0	0.0	4.15	4.19	1.93	HROFDY
144	0	0.26324E-06	545865.5	4189529.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                        ***        11/14/13
                                   ***                                                                      ***        13:06:07
**MODELOPTs:                                                                                                           PAGE   4
CONC                    URBAN FLAT  FLGPOL DFAULT



                                               *** AREAPOLY SOURCE DATA ***

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

  1             0   0.77400E-05  545721.9 4189222.5     0.0     4.15       6         1.93      HROFDY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                        ***        11/14/13
                                   ***                                                                      ***        13:06:07
**MODELOPTs:                                                                                                           PAGE  17
CONC                   URBAN FLAT  FLGPOL DFAULT


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

     FILE:   C:\Users\sbush\DOCUME~1\!METFI~1\BAAQMD~1\tam05300.asc
     FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
     SURFACE STATION NO.:   3901                   UPPER AIR STATION NO.:   3901
                    NAME: UNKNOWN                                    NAME: UNKNOWN
                    YEAR:   2005                                     YEAR:   2005

             FLOW   SPEED  TEMP  STAB  MIXING HEIGHT (M)  USTAR  M-O LENGTH   Z-0 IPCODE PRATE
YR MN DY HR VECTOR  (M/S)   (K)  CLASS   RURAL   URBAN    (M/S)     (M)       (M)       (mm/HR)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

05 01 01 01  111.8   5.23  275.8   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 02  106.7   4.60  275.8   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 03  107.0   4.20  275.7   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 04   93.3   2.86  275.7   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 05   92.7   2.95  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 06   81.1   2.50  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 07   63.2   2.55  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 08   41.7   3.44  275.5   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 09   18.6   3.67  276.0   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 10    0.1   3.71  276.5   2     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 11  359.9   4.43  276.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 12    3.7   4.60  277.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 13    4.9   4.52  277.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 14    7.7   4.83  277.7   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 15   21.9   3.93  277.3   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 16   43.5   3.22  276.9   2     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 17   67.2   2.59  276.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 18   46.0   3.31  276.3   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 19   38.0   3.40  276.1   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 20   24.9   3.40  276.2   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 21   13.6   3.13  276.3   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 22  359.8   3.67  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 23  356.0   3.84  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 24  357.3   3.98  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00


*** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
            FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.
```

*** ISCST3 - VERSION 02035 *** *** Valhalla Inn - Sausalito, CA *** 11/14/13
*** *** 13:06:07
**MODELOPTs: PAGE 21
CONC URBAN FLAT FLGPOL DFAULT

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.60383 AT (	545767.81,	4189252.00,	0.00,	1.50)	DC	NA
	2ND HIGHEST VALUE IS	0.56195 AT (	545732.62,	4189262.25,	0.00,	1.50)	DC	NA
	3RD HIGHEST VALUE IS	0.40950 AT (	545767.81,	4189262.75,	0.00,	1.50)	DC	NA
	4TH HIGHEST VALUE IS	0.39424 AT (	545733.38,	4189273.50,	0.00,	1.50)	DC	NA
	5TH HIGHEST VALUE IS	0.36480 AT (	545751.69,	4189273.25,	0.00,	1.50)	DC	NA
	6TH HIGHEST VALUE IS	0.31924 AT (	545769.12,	4189269.75,	0.00,	1.50)	DC	NA
	7TH HIGHEST VALUE IS	0.28303 AT (	545754.81,	4189171.00,	0.00,	1.50)	DC	NA
	8TH HIGHEST VALUE IS	0.26221 AT (	545734.50,	4189286.75,	0.00,	1.50)	DC	NA
	9TH HIGHEST VALUE IS	0.25840 AT (	545755.81,	4189283.25,	0.00,	1.50)	DC	NA
	10TH HIGHEST VALUE IS	0.24834 AT (	545769.38,	4189278.00,	0.00,	1.50)	DC	NA
ONSITE	1ST HIGHEST VALUE IS	0.60381 AT (	545767.81,	4189252.00,	0.00,	1.50)	DC	NA
	2ND HIGHEST VALUE IS	0.56177 AT (	545732.62,	4189262.25,	0.00,	1.50)	DC	NA
	3RD HIGHEST VALUE IS	0.40945 AT (	545767.81,	4189262.75,	0.00,	1.50)	DC	NA
	4TH HIGHEST VALUE IS	0.39403 AT (	545733.38,	4189273.50,	0.00,	1.50)	DC	NA
	5TH HIGHEST VALUE IS	0.36469 AT (	545751.69,	4189273.25,	0.00,	1.50)	DC	NA
	6TH HIGHEST VALUE IS	0.31916 AT (	545769.12,	4189269.75,	0.00,	1.50)	DC	NA
	7TH HIGHEST VALUE IS	0.28302 AT (	545754.81,	4189171.00,	0.00,	1.50)	DC	NA
	8TH HIGHEST VALUE IS	0.26199 AT (	545734.50,	4189286.75,	0.00,	1.50)	DC	NA
	9TH HIGHEST VALUE IS	0.25825 AT (	545755.81,	4189283.25,	0.00,	1.50)	DC	NA
	10TH HIGHEST VALUE IS	0.24822 AT (	545769.38,	4189278.00,	0.00,	1.50)	DC	NA
TRUCKS	1ST HIGHEST VALUE IS	0.00025 AT (	545773.38,	4189303.00,	0.00,	1.50)	DC	NA
	2ND HIGHEST VALUE IS	0.00025 AT (	545758.62,	4189302.25,	0.00,	1.50)	DC	NA
	3RD HIGHEST VALUE IS	0.00024 AT (	545732.62,	4189262.25,	0.00,	1.50)	DC	NA
	4TH HIGHEST VALUE IS	0.00024 AT (	545733.38,	4189273.50,	0.00,	1.50)	DC	NA
	5TH HIGHEST VALUE IS	0.00024 AT (	545734.50,	4189286.75,	0.00,	1.50)	DC	NA
	6TH HIGHEST VALUE IS	0.00024 AT (	545743.31,	4189299.50,	0.00,	1.50)	DC	NA
	7TH HIGHEST VALUE IS	0.00017 AT (	545755.81,	4189283.25,	0.00,	1.50)	DC	NA
	8TH HIGHEST VALUE IS	0.00016 AT (	545751.69,	4189273.25,	0.00,	1.50)	DC	NA
	9TH HIGHEST VALUE IS	0.00014 AT (	545769.38,	4189278.00,	0.00,	1.50)	DC	NA
	10TH HIGHEST VALUE IS	0.00013 AT (	545773.38,	4189325.50,	0.00,	1.50)	DC	NA

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

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:06:07
**MODELOPTs:                                                                                                       PAGE  22
CONC                    URBAN FLAT  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

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

A Total of            0 Fatal Error Message(s)
A Total of            3 Warning Message(s)
A Total of           87 Informational Message(s)

A Total of           87 Calm Hours Identified


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


   ********   WARNING MESSAGES   ********
OU W565   353 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   354 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   355 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:04:04
**MODELOPTs:                                                                                                       PAGE   1
CONC                    URBAN FLAT  FLGPOL DFAULT

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

**Intermediate Terrain Processing is Selected

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

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:    45 Source(s);      3 Source Group(s); and      43 Receptor(s)

**The Model Assumes A Pollutant Type of:  PM25

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

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE 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:  Anem. Hgt. (m) =    10.00 ;    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 =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:04:04
**MODELOPTs:                                                                                                       PAGE   2
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
101	0	0.15794E-05	545718.1	4189224.0	0.0	4.15	4.19	1.93	HROFDY
102	0	0.15794E-05	545718.3	4189233.0	0.0	4.15	4.19	1.93	HROFDY
103	0	0.15794E-05	545718.5	4189242.0	0.0	4.15	4.19	1.93	HROFDY
104	0	0.15794E-05	545718.7	4189251.0	0.0	4.15	4.19	1.93	HROFDY
105	0	0.15794E-05	545718.9	4189260.0	0.0	4.15	4.19	1.93	HROFDY
106	0	0.15794E-05	545719.1	4189269.0	0.0	4.15	4.19	1.93	HROFDY
107	0	0.15794E-05	545719.3	4189278.0	0.0	4.15	4.19	1.93	HROFDY
108	0	0.15794E-05	545719.5	4189287.0	0.0	4.15	4.19	1.93	HROFDY
109	0	0.15794E-05	545719.7	4189296.0	0.0	4.15	4.19	1.93	HROFDY
110	0	0.15794E-05	545719.9	4189305.0	0.0	4.15	4.19	1.93	HROFDY
111	0	0.15794E-05	545720.1	4189314.0	0.0	4.15	4.19	1.93	HROFDY
112	0	0.15794E-05	545728.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
113	0	0.15794E-05	545737.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
114	0	0.15794E-05	545746.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
115	0	0.15794E-05	545755.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
116	0	0.15794E-05	545764.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
117	0	0.15794E-05	545773.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
118	0	0.15794E-05	545781.5	4189316.5	0.0	4.15	4.19	1.93	HROFDY
119	0	0.15794E-05	545789.5	4189320.5	0.0	4.15	4.19	1.93	HROFDY
120	0	0.15794E-05	545793.2	4189328.5	0.0	4.15	4.19	1.93	HROFDY
121	0	0.15794E-05	545796.9	4189336.8	0.0	4.15	4.19	1.93	HROFDY
122	0	0.15794E-05	545800.6	4189345.0	0.0	4.15	4.19	1.93	HROFDY
123	0	0.15794E-05	545804.3	4189353.2	0.0	4.15	4.19	1.93	HROFDY
124	0	0.15794E-05	545808.0	4189361.5	0.0	4.15	4.19	1.93	HROFDY
125	0	0.15794E-05	545811.6	4189369.5	0.0	4.15	4.19	1.93	HROFDY
126	0	0.15794E-05	545815.3	4189377.8	0.0	4.15	4.19	1.93	HROFDY
127	0	0.15794E-05	545819.0	4189386.0	0.0	4.15	4.19	1.93	HROFDY
128	0	0.15794E-05	545822.7	4189394.2	0.0	4.15	4.19	1.93	HROFDY
129	0	0.15794E-05	545826.4	4189402.5	0.0	4.15	4.19	1.93	HROFDY
130	0	0.15794E-05	545830.1	4189410.8	0.0	4.15	4.19	1.93	HROFDY
131	0	0.15794E-05	545833.8	4189419.0	0.0	4.15	4.19	1.93	HROFDY
132	0	0.15794E-05	545837.5	4189427.0	0.0	4.15	4.19	1.93	HROFDY
133	0	0.15794E-05	545841.1	4189435.2	0.0	4.15	4.19	1.93	HROFDY
134	0	0.15794E-05	545844.8	4189443.5	0.0	4.15	4.19	1.93	HROFDY
135	0	0.15794E-05	545848.5	4189451.8	0.0	4.15	4.19	1.93	HROFDY
136	0	0.15794E-05	545852.2	4189460.0	0.0	4.15	4.19	1.93	HROFDY
137	0	0.15794E-05	545855.9	4189468.0	0.0	4.15	4.19	1.93	HROFDY
138	0	0.15794E-05	545859.6	4189476.2	0.0	4.15	4.19	1.93	HROFDY
139	0	0.15794E-05	545863.3	4189484.5	0.0	4.15	4.19	1.93	HROFDY
140	0	0.15794E-05	545865.5	4189493.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:04:04
**MODELOPTs:                                                                                                       PAGE   3
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
141	0	0.15794E-05	545865.5	4189502.0	0.0	4.15	4.19	1.93	HROFDY
142	0	0.15794E-05	545865.5	4189511.0	0.0	4.15	4.19	1.93	HROFDY
143	0	0.15794E-05	545865.5	4189520.0	0.0	4.15	4.19	1.93	HROFDY
144	0	0.15794E-05	545865.5	4189529.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                       ***        11/14/13
                                   ***                                                                      ***        13:04:04
**MODELOPTs:                                                                                                           PAGE   4
CONC                    URBAN FLAT  FLGPOL DFAULT



                                              *** AREAPOLY SOURCE DATA ***

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

  1             0   0.76900E-05  545721.9 4189222.5     0.0     4.15       6         1.93      HROFDY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                      ***        11/14/13
                                   ***                                                                    ***        13:04:04
**MODELOPTs:                                                                                                         PAGE  17
CONC                    URBAN FLAT  FLGPOL DFAULT


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

     FILE:   C:\Users\sbush\DOCUME~1\!METFI~1\BAAQMD~1\tam05300.asc
     FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
     SURFACE STATION NO.:   3901                   UPPER AIR STATION NO.:   3901
                    NAME: UNKNOWN                                   NAME: UNKNOWN
                    YEAR:   2005                                    YEAR:   2005

             FLOW   SPEED  TEMP  STAB  MIXING HEIGHT (M)  USTAR  M-O LENGTH   Z-0 IPCODE PRATE
YR MN DY HR VECTOR  (M/S)   (K)  CLASS   RURAL   URBAN    (M/S)     (M)       (M)       (mm/HR)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

05 01 01 01  111.8   5.23  275.8   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 02  106.7   4.60  275.8   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 03  107.0   4.20  275.7   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 04   93.3   2.86  275.7   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 05   92.7   2.95  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 06   81.1   2.50  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 07   63.2   2.55  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 08   41.7   3.44  275.5   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 09   18.6   3.67  276.0   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 10    0.1   3.71  276.5   2     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 11  359.9   4.43  276.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 12    3.7   4.60  277.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 13    4.9   4.52  277.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 14    7.7   4.83  277.7   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 15   21.9   3.93  277.3   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 16   43.5   3.22  276.9   2     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 17   67.2   2.59  276.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 18   46.0   3.31  276.3   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 19   38.0   3.40  276.1   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 20   24.9   3.40  276.2   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 21   13.6   3.13  276.3   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 22  359.8   3.67  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 23  356.0   3.84  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 24  357.3   3.98  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00


*** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
            FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                          ***        11/14/13
                                   ***                                                                        ***        13:04:04
**MODELOPTs:                                                                                                             PAGE  21
CONC                   URBAN FLAT  FLGPOL DFAULT

                                           *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***

                                       ** CONC OF PM25     IN MICROGRAMS/M**3                          **

                                                                                                     NETWORK
GROUP ID                      AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.60047 AT (  545767.81,  4189252.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.55953 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.40747 AT (  545767.81,  4189262.75,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.39289 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.36323 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.31783 AT (  545769.12,  4189269.75,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.28147 AT (  545754.81,  4189171.00,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.26171 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.25758 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.24746 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA

ONSITE   1ST HIGHEST VALUE IS       0.59991 AT (  545767.81,  4189252.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.55814 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.40680 AT (  545767.81,  4189262.75,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.39149 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.36233 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.31710 AT (  545769.12,  4189269.75,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.28119 AT (  545754.81,  4189171.00,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.26030 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.25658 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.24661 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA

TRUCKS   1ST HIGHEST VALUE IS       0.00149 AT (  545773.38,  4189303.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.00147 AT (  545758.62,  4189302.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.00143 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.00143 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.00143 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.00143 AT (  545743.31,  4189299.50,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.00101 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.00093 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.00086 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.00080 AT (  545773.38,  4189325.50,      0.00,      1.50)  DC      NA

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

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        13:04:04
**MODELOPTs:                                                                                                       PAGE  22
CONC                    URBAN FLAT  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

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

A Total of            0 Fatal Error Message(s)
A Total of            3 Warning Message(s)
A Total of           87 Informational Message(s)

A Total of           87 Calm Hours Identified


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


   ********   WARNING MESSAGES   ********
OU W565   353 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   354 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   355 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:51:34
**MODELOPTs:                                                                                                       PAGE   1
CONC                    URBAN FLAT  FLGPOL DFAULT

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

**Intermediate Terrain Processing is Selected

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

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:    45 Source(s);      3 Source Group(s); and      43 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

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

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE 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:  Anem. Hgt. (m) =    10.00 ;    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 =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                  ***        11/14/13
                                   ***                                                                ***        14:51:34
**MODELOPTs:                                                                                                     PAGE   2
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
101	0	0.26324E-06	545718.1	4189224.0	0.0	4.15	4.19	1.93	HROFDY
102	0	0.26324E-06	545718.3	4189233.0	0.0	4.15	4.19	1.93	HROFDY
103	0	0.26324E-06	545718.5	4189242.0	0.0	4.15	4.19	1.93	HROFDY
104	0	0.26324E-06	545718.7	4189251.0	0.0	4.15	4.19	1.93	HROFDY
105	0	0.26324E-06	545718.9	4189260.0	0.0	4.15	4.19	1.93	HROFDY
106	0	0.26324E-06	545719.1	4189269.0	0.0	4.15	4.19	1.93	HROFDY
107	0	0.26324E-06	545719.3	4189278.0	0.0	4.15	4.19	1.93	HROFDY
108	0	0.26324E-06	545719.5	4189287.0	0.0	4.15	4.19	1.93	HROFDY
109	0	0.26324E-06	545719.7	4189296.0	0.0	4.15	4.19	1.93	HROFDY
110	0	0.26324E-06	545719.9	4189305.0	0.0	4.15	4.19	1.93	HROFDY
111	0	0.26324E-06	545720.1	4189314.0	0.0	4.15	4.19	1.93	HROFDY
112	0	0.26324E-06	545728.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
113	0	0.26324E-06	545737.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
114	0	0.26324E-06	545746.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
115	0	0.26324E-06	545755.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
116	0	0.26324E-06	545764.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
117	0	0.26324E-06	545773.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
118	0	0.26324E-06	545781.5	4189316.5	0.0	4.15	4.19	1.93	HROFDY
119	0	0.26324E-06	545789.5	4189320.5	0.0	4.15	4.19	1.93	HROFDY
120	0	0.26324E-06	545793.2	4189328.5	0.0	4.15	4.19	1.93	HROFDY
121	0	0.26324E-06	545796.9	4189336.8	0.0	4.15	4.19	1.93	HROFDY
122	0	0.26324E-06	545800.6	4189345.0	0.0	4.15	4.19	1.93	HROFDY
123	0	0.26324E-06	545804.3	4189353.2	0.0	4.15	4.19	1.93	HROFDY
124	0	0.26324E-06	545808.0	4189361.5	0.0	4.15	4.19	1.93	HROFDY
125	0	0.26324E-06	545811.6	4189369.5	0.0	4.15	4.19	1.93	HROFDY
126	0	0.26324E-06	545815.3	4189377.8	0.0	4.15	4.19	1.93	HROFDY
127	0	0.26324E-06	545819.0	4189386.0	0.0	4.15	4.19	1.93	HROFDY
128	0	0.26324E-06	545822.7	4189394.2	0.0	4.15	4.19	1.93	HROFDY
129	0	0.26324E-06	545826.4	4189402.5	0.0	4.15	4.19	1.93	HROFDY
130	0	0.26324E-06	545830.1	4189410.8	0.0	4.15	4.19	1.93	HROFDY
131	0	0.26324E-06	545833.8	4189419.0	0.0	4.15	4.19	1.93	HROFDY
132	0	0.26324E-06	545837.5	4189427.0	0.0	4.15	4.19	1.93	HROFDY
133	0	0.26324E-06	545841.1	4189435.2	0.0	4.15	4.19	1.93	HROFDY
134	0	0.26324E-06	545844.8	4189443.5	0.0	4.15	4.19	1.93	HROFDY
135	0	0.26324E-06	545848.5	4189451.8	0.0	4.15	4.19	1.93	HROFDY
136	0	0.26324E-06	545852.2	4189460.0	0.0	4.15	4.19	1.93	HROFDY
137	0	0.26324E-06	545855.9	4189468.0	0.0	4.15	4.19	1.93	HROFDY
138	0	0.26324E-06	545859.6	4189476.2	0.0	4.15	4.19	1.93	HROFDY
139	0	0.26324E-06	545863.3	4189484.5	0.0	4.15	4.19	1.93	HROFDY
140	0	0.26324E-06	545865.5	4189493.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:51:34
**MODELOPTs:                                                                                                       PAGE   3
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
141	0	0.26324E-06	545865.5	4189502.0	0.0	4.15	4.19	1.93	HROFDY
142	0	0.26324E-06	545865.5	4189511.0	0.0	4.15	4.19	1.93	HROFDY
143	0	0.26324E-06	545865.5	4189520.0	0.0	4.15	4.19	1.93	HROFDY
144	0	0.26324E-06	545865.5	4189529.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                  ***        11/14/13
                                   ***                                                                ***        14:51:34
**MODELOPTs:                                                                                                     PAGE   4
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
1	0	0.21300E-05	545721.9	4189222.5	0.0	4.15	6	1.93	HROFDY

*** ISCST3 - VERSION 02035 *** *** Valhalla Inn - Sausalito, CA *** 11/14/13
*** *** 14:51:34
**MODELOPTs: PAGE 17
CONC URBAN FLAT FLGPOL DFAULT

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

FILE: C:\Users\sbush\DOCUME~1\!METFI~1\BAAQMD~1\TAM05300.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 3901 UPPER AIR STATION NO.: 3901
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 2005 YEAR: 2005

YR MN DY HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
05 01 01 01	111.8	5.23	275.8	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 02	106.7	4.60	275.8	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 03	107.0	4.20	275.7	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 04	93.3	2.86	275.7	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 05	92.7	2.95	275.5	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 06	81.1	2.50	275.5	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 07	63.2	2.55	275.5	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 08	41.7	3.44	275.5	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 09	18.6	3.67	276.0	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 10	0.1	3.71	276.5	2	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 11	359.9	4.43	276.5	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 12	3.7	4.60	277.5	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 13	4.9	4.52	277.5	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 14	7.7	4.83	277.7	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 15	21.9	3.93	277.3	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 16	43.5	3.22	276.9	2	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 17	67.2	2.59	276.5	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 18	46.0	3.31	276.3	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 19	38.0	3.40	276.1	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 20	24.9	3.40	276.2	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 21	13.6	3.13	276.3	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 22	359.8	3.67	276.6	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 23	356.0	3.84	276.6	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 24	357.3	3.98	276.6	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:51:34
**MODELOPTs:                                                                                                       PAGE  21
CONC                   URBAN FLAT  FLGPOL DFAULT

                                           *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


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

                                                                                                     NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.16624 AT (  545767.81,  4189252.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.15482 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.11279 AT (  545767.81,  4189262.75,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.10867 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.10051 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.08795 AT (  545769.12,  4189269.75,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.07793 AT (  545754.81,  4189171.00,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.07233 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.07123 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.06845 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA

ONSITE   1ST HIGHEST VALUE IS       0.16616 AT (  545767.81,  4189252.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.15460 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.11268 AT (  545767.81,  4189262.75,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.10843 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.10036 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.08783 AT (  545769.12,  4189269.75,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.07788 AT (  545754.81,  4189171.00,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.07210 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.07107 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.06831 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA

TRUCKS   1ST HIGHEST VALUE IS       0.00025 AT (  545773.38,  4189303.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.00025 AT (  545758.62,  4189302.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.00024 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.00024 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.00024 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.00024 AT (  545743.31,  4189299.50,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.00017 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.00016 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.00014 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.00013 AT (  545773.38,  4189325.50,      0.00,      1.50)  DC      NA

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

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                  ***        11/14/13
                                   ***                                                                ***        14:51:34
**MODELOPTs:                                                                                                     PAGE  22
CONC                    URBAN FLAT  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

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

A Total of            0 Fatal Error Message(s)
A Total of            3 Warning Message(s)
A Total of           87 Informational Message(s)

A Total of           87 Calm Hours Identified


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


   ********   WARNING MESSAGES   ********
OU W565   353 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   354 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   355 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:53:31
**MODELOPTs:                                                                                                       PAGE   1
CONC                    URBAN FLAT  FLGPOL DFAULT

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

**Intermediate Terrain Processing is Selected

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

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:    45 Source(s);      3 Source Group(s); and      43 Receptor(s)

**The Model Assumes A Pollutant Type of:  PM25

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

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE 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:  Anem. Hgt. (m) =    10.00 ;    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 =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:53:31
**MODELOPTs:                                                                                                       PAGE   2
CONC                    URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
101	0	0.15794E-05	545718.1	4189224.0	0.0	4.15	4.19	1.93	HROFDY
102	0	0.15794E-05	545718.3	4189233.0	0.0	4.15	4.19	1.93	HROFDY
103	0	0.15794E-05	545718.5	4189242.0	0.0	4.15	4.19	1.93	HROFDY
104	0	0.15794E-05	545718.7	4189251.0	0.0	4.15	4.19	1.93	HROFDY
105	0	0.15794E-05	545718.9	4189260.0	0.0	4.15	4.19	1.93	HROFDY
106	0	0.15794E-05	545719.1	4189269.0	0.0	4.15	4.19	1.93	HROFDY
107	0	0.15794E-05	545719.3	4189278.0	0.0	4.15	4.19	1.93	HROFDY
108	0	0.15794E-05	545719.5	4189287.0	0.0	4.15	4.19	1.93	HROFDY
109	0	0.15794E-05	545719.7	4189296.0	0.0	4.15	4.19	1.93	HROFDY
110	0	0.15794E-05	545719.9	4189305.0	0.0	4.15	4.19	1.93	HROFDY
111	0	0.15794E-05	545720.1	4189314.0	0.0	4.15	4.19	1.93	HROFDY
112	0	0.15794E-05	545728.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
113	0	0.15794E-05	545737.0	4189315.0	0.0	4.15	4.19	1.93	HROFDY
114	0	0.15794E-05	545746.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
115	0	0.15794E-05	545755.0	4189314.8	0.0	4.15	4.19	1.93	HROFDY
116	0	0.15794E-05	545764.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
117	0	0.15794E-05	545773.0	4189314.5	0.0	4.15	4.19	1.93	HROFDY
118	0	0.15794E-05	545781.5	4189316.5	0.0	4.15	4.19	1.93	HROFDY
119	0	0.15794E-05	545789.5	4189320.5	0.0	4.15	4.19	1.93	HROFDY
120	0	0.15794E-05	545793.2	4189328.5	0.0	4.15	4.19	1.93	HROFDY
121	0	0.15794E-05	545796.9	4189336.8	0.0	4.15	4.19	1.93	HROFDY
122	0	0.15794E-05	545800.6	4189345.0	0.0	4.15	4.19	1.93	HROFDY
123	0	0.15794E-05	545804.3	4189353.2	0.0	4.15	4.19	1.93	HROFDY
124	0	0.15794E-05	545808.0	4189361.5	0.0	4.15	4.19	1.93	HROFDY
125	0	0.15794E-05	545811.6	4189369.5	0.0	4.15	4.19	1.93	HROFDY
126	0	0.15794E-05	545815.3	4189377.8	0.0	4.15	4.19	1.93	HROFDY
127	0	0.15794E-05	545819.0	4189386.0	0.0	4.15	4.19	1.93	HROFDY
128	0	0.15794E-05	545822.7	4189394.2	0.0	4.15	4.19	1.93	HROFDY
129	0	0.15794E-05	545826.4	4189402.5	0.0	4.15	4.19	1.93	HROFDY
130	0	0.15794E-05	545830.1	4189410.8	0.0	4.15	4.19	1.93	HROFDY
131	0	0.15794E-05	545833.8	4189419.0	0.0	4.15	4.19	1.93	HROFDY
132	0	0.15794E-05	545837.5	4189427.0	0.0	4.15	4.19	1.93	HROFDY
133	0	0.15794E-05	545841.1	4189435.2	0.0	4.15	4.19	1.93	HROFDY
134	0	0.15794E-05	545844.8	4189443.5	0.0	4.15	4.19	1.93	HROFDY
135	0	0.15794E-05	545848.5	4189451.8	0.0	4.15	4.19	1.93	HROFDY
136	0	0.15794E-05	545852.2	4189460.0	0.0	4.15	4.19	1.93	HROFDY
137	0	0.15794E-05	545855.9	4189468.0	0.0	4.15	4.19	1.93	HROFDY
138	0	0.15794E-05	545859.6	4189476.2	0.0	4.15	4.19	1.93	HROFDY
139	0	0.15794E-05	545863.3	4189484.5	0.0	4.15	4.19	1.93	HROFDY
140	0	0.15794E-05	545865.5	4189493.0	0.0	4.15	4.19	1.93	HROFDY

**MODELOPTs:
CONC URBAN FLAT FLGPOL DFAULT

*** 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)	EMISSION RATE SCALAR VARY BY
141	0	0.15794E-05	545865.5	4189502.0	0.0	4.15	4.19	1.93	HROFDY
142	0	0.15794E-05	545865.5	4189511.0	0.0	4.15	4.19	1.93	HROFDY
143	0	0.15794E-05	545865.5	4189520.0	0.0	4.15	4.19	1.93	HROFDY
144	0	0.15794E-05	545865.5	4189529.0	0.0	4.15	4.19	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                     ***        11/14/13
                                   ***                                                                   ***        14:53:31
**MODELOPTs:                                                                                                        PAGE   4
CONC                     URBAN FLAT  FLGPOL DFAULT
```

*** 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)	EMISSION RATE SCALAR VARY BY
1	0	0.25300E-05	545721.9	4189222.5	0.0	4.15	6	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:53:31
**MODELOPTs:                                                                                                       PAGE  17
CONC                    URBAN FLAT  FLGPOL DFAULT


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

     FILE:   C:\Users\sbush\DOCUME~1\!METFI~1\BAAQMD~1\TAM05300.ASC
     FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
     SURFACE STATION NO.:   3901                   UPPER AIR STATION NO.:   3901
                    NAME: UNKNOWN                                    NAME: UNKNOWN
                    YEAR:   2005                                     YEAR:   2005

             FLOW   SPEED  TEMP  STAB  MIXING HEIGHT (M)  USTAR  M-O LENGTH   Z-0 IPCODE PRATE
YR MN DY HR VECTOR  (M/S)   (K)  CLASS   RURAL   URBAN    (M/S)     (M)       (M)       (mm/HR)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

05 01 01 01  111.8   5.23  275.8   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 02  106.7   4.60  275.8   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 03  107.0   4.20  275.7   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 04   93.3   2.86  275.7   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 05   92.7   2.95  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 06   81.1   2.50  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 07   63.2   2.55  275.5   5     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 08   41.7   3.44  275.5   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 09   18.6   3.67  276.0   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 10    0.1   3.71  276.5   2     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 11  359.9   4.43  276.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 12    3.7   4.60  277.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 13    4.9   4.52  277.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 14    7.7   4.83  277.7   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 15   21.9   3.93  277.3   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 16   43.5   3.22  276.9   2     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 17   67.2   2.59  276.5   3     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 18   46.0   3.31  276.3   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 19   38.0   3.40  276.1   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 20   24.9   3.40  276.2   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 21   13.6   3.13  276.3   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 22  359.8   3.67  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 23  356.0   3.84  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00
05 01 01 24  357.3   3.98  276.6   4     300.0   300.0    0.0000       0.0  0.0000   0   0.00


*** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
            FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.
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 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                      ***        11/14/13
                                   ***                                                                    ***        14:53:31
**MODELOPTs:                                                                                                         PAGE  21
CONC                   URBAN FLAT  FLGPOL DFAULT

                                           *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                       ** CONC OF PM25     IN MICROGRAMS/M**3                         **

                                                                                                     NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.19798 AT (  545767.81,  4189252.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.18505 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.13453 AT (  545767.81,  4189262.75,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.13022 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.12013 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.10508 AT (  545769.12,  4189269.75,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.09282 AT (  545754.81,  4189171.00,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.08706 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.08542 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.08199 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA

ONSITE   1ST HIGHEST VALUE IS       0.19737 AT (  545767.81,  4189252.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.18363 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.13384 AT (  545767.81,  4189262.75,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.12880 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.11921 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.10433 AT (  545769.12,  4189269.75,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.09251 AT (  545754.81,  4189171.00,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.08564 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.08442 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.08114 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA

TRUCKS   1ST HIGHEST VALUE IS       0.00149 AT (  545773.38,  4189303.00,      0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.00147 AT (  545758.62,  4189302.25,      0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.00143 AT (  545732.62,  4189262.25,      0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.00143 AT (  545733.38,  4189273.50,      0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.00143 AT (  545734.50,  4189286.75,      0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.00143 AT (  545743.31,  4189299.50,      0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.00101 AT (  545755.81,  4189283.25,      0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.00093 AT (  545751.69,  4189273.25,      0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.00086 AT (  545769.38,  4189278.00,      0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.00080 AT (  545773.38,  4189325.50,      0.00,      1.50)  DC      NA


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

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 *** ISCST3 - VERSION 02035 ***    ***  Valhalla Inn - Sausalito, CA                                    ***        11/14/13
                                   ***                                                                  ***        14:53:31
**MODELOPTs:                                                                                                       PAGE  22
CONC                    URBAN FLAT  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

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

A Total of            0 Fatal Error Message(s)
A Total of            3 Warning Message(s)
A Total of           87 Informational Message(s)

A Total of           87 Calm Hours Identified


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


   ********   WARNING MESSAGES   ********
OU W565   353 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   354 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   355 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
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Appendix C. Risk Calculations Worksheets

Appendix

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Construction Risk Assessment
Adult Resident Exposure Scenario - 70 Years

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	DOSE **	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(µg/m^3)			(mg/kg/day)$^{-1}$	(mg/kg/day)		(µg/m^3)													
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)
On-Site Emissions	6.04E-01	1.00E+00	Diesel Particulate	1.1E+00	3.5E-06	3.8E-06	5.0E+00												1.2E-01	
Truck Route	2.50E-04	1.00E+00	Diesel Particulate	1.1E+00	1.4E-09	1.6E-09	5.0E+00												5.0E-05	
TOTAL						3.8E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	0.0E+00
BAAQMD Cancer Risk Adjustment Factor - 70-year Adult Scenario						1.7														
Adjusted Cancer Risk						6.5E-06														

* Key to Toxicological Endpoints

ALI	Alimentary
BONE	Bone
CARDIO	Cardiovascular
DEV	Developmental
ENDO	Endocrine
EYE	Eye
HEME	Hematologic
IMM	Immune
KID	Kidney
NERV	Nervous
REPRO	Reproductive
RESP	Respiratory
SKIN	Skin

** Exposure factors used to calculate dose

daily breathing rate (L/kg-day) - adult resident	302
inhalation absorption factor	1.0
exposure frequency (days/year) - residents	350
calendar days over length of construction period	510
exposure duration (years) - construction period	1.4
averaging time (days) - 70 year duration	25550
fraction of time at home	1.0
maximum annual PM2.5 concentration (µg/m^3)	0.60

Construction Risk Assessment
Child Resident Exposure Scenario - 9 Years

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	DOSE **	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(µg/m^3)			(mg/kg/day)$^{-1}$	(mg/kg/day)		(µg/m^3)													
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)
On-Site Emissions	6.04E-01	1.00E+00	Diesel Particulate	1.1E+00	6.7E-06	7.4E-06	5.0E+00												1.2E-01	
Truck Route	2.50E-04	1.00E+00	Diesel Particulate	1.1E+00	2.8E-09	3.1E-09	5.0E+00												5.0E-05	
TOTAL						7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	0.0E+00
BAAQMD Cancer Risk Adjustment Factor - 9-year Child Scenario						4.7														
Adjusted Cancer Risk						3.5E-05														

* Key to Toxicological Endpoints

ALI	Alimentary
BONE	Bone
CARDIO	Cardiovascular
DEV	Developmental
ENDO	Endocrine
EYE	Eye
HEME	Hematologic
IMM	Immune
KID	Kidney
NERV	Nervous
REPRO	Reproductive
RESP	Respiratory
SKIN	Skin

** Exposure factors used to calculate dose

daily breathing rate (L/kg-day) - child residen	581
inhalation absorption factor	1.0
exposure frequency (days/year) - residents	350
calendar days over length of construction period	510
exposure duration (years) - construction period	1.4
averaging time (days) - 70 year duration	25550
fraction of time at home	1.0
maximum annual PM2.5 concentration (µg/m^3)	0.60

Construction Risk Assessment
Adult Resident Exposure Scenario - 70 Years
Mitigated Scenario - Level 3 Diesel Particulate Filters

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	DOSE **	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(µg/m^3)			(mg/kg/day)$^{-1}$	(mg/kg/day)		(µg/m^3)													
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)
On-Site Emissions	1.66E-01	1.00E+00	Diesel Particulate	1.1E+00	9.6E-07	7.7E-07	5.0E+00												3.3E-02	
Truck Route	2.50E-04	1.00E+00	Diesel Particulate	1.1E+00	1.4E-09	1.2E-09	5.0E+00												5.0E-05	
TOTAL						7.7E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-02	0.0E+00
BAAQMD Cancer Risk Adjustment Factor - 70-year Adult Scenario						1.7														
Adjusted Cancer Risk						1.3E-06														

* Key to Toxicological Endpoints

ALI	Alimentary
BONE	Bone
CARDIO	Cardiovascular
DEV	Developmental
ENDO	Endocrine
EYE	Eye
HEME	Hematologic
IMM	Immune
KID	Kidney
NERV	Nervous
REPRO	Reproductive
RESP	Respiratory
SKIN	Skin

** Exposure factors used to calculate dose

daily breathing rate (L/kg-day) - adult resident	302
inhalation absorption factor	1.0
exposure frequency (days/year) - residents	350
calendar days over length of construction period	510
exposure duration (years) - construction period	1.4
averaging time (days) - 70 year duration	25550
fraction of time at home	0.73
maximum annual PM2.5 concentration (µg/m^3)	0.20
(DPF Level 3 - 85% reduction in PM)	

Construction Risk Assessment
Child Resident Exposure Scenario - 9 Years
Mitigated Scenario - Level 3 Diesel Particulate Filters

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	DOSE **	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	($\mu g/m^3$)			$(mg/kg/day)^{-1}$	(mg/kg/day)		($\mu g/m^3$)													
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)
On-Site Emissions	1.66E-01	1.00E+00	Diesel Particulate	1.1E+00	1.8E-06	1.5E-06	5.0E+00												3.3E-02	
Truck Route	2.50E-04	1.00E+00	Diesel Particulate	1.1E+00	2.8E-09	2.3E-09	5.0E+00												5.0E-05	
TOTAL						1.5E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-02	0.0E+00
BAAQMD Cancer Risk Adjustment Factor - 9-year Child Scenario						4.7														
Adjusted Cancer Risk						7.2E-06														

* Key to Toxicological Endpoints

ALI	Alimentary
BONE	Bone
CARDIO	Cardiovascular
DEV	Developmental
ENDO	Endocrine
EYE	Eye
HEME	Hematologic
IMM	Immune
KID	Kidney
NERV	Nervous
REPRO	Reproductive
RESP	Respiratory
SKIN	Skin

** Exposure factors used to calculate dose

daily breathing rate (L/kg-day) - child residen	581
inhalation absorption factor	1.0
exposure frequency (days/year) - residents	350
calendar days over length of construction period	510
exposure duration (years) - construction period	1.4
averaging time (days) - 70 year duration	25550
fraction of time at home	0.75
maximum annual PM2.5 concentration ($\mu g/m^3$)	0.20
(DPF Level 3 - 85% reduction in PM)	