Muranaka Warehouse

MOBILE SOURCE HEALTH RISK ASSESSMENT

COUNTY OF RIVERSIDE

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg	Microgram
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APS	Auxiliary Power System
AQMD	Air Quality Management District
ARB	Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DPM	Diesel Particulate Matter
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
HHD	Heavy Heavy-Duty
HI	Hazard Index
HRA	Health Risk Assessment
LHD	Light Heavy-Duty
MATES	Multiple Air Toxics Exposure Study
MEIR	Maximally Exposed Individual Receptor
MEISC	Maximally Exposed Individual School Child
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard Assessment
PCE	Passenger Car Equivalent
PM10	Particulate Matter 10 microns in diameter or less
Project	Muranaka Warehouse
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

This report evaluates the potential mobile source health risk impacts to sensitive receptors (residents) and adjacent workers associated with the development of the Project, more specifically, health risk impacts as a result of exposure to diesel particulate matter (DPM) as a result of heavy-duty diesel trucks accessing the site. This section summarizes the significance criteria and Project mobile source health risks.

The results of the health risk assessment of lifetime cancer risk from Project-generated DPM emissions are provided in Table ES-1.

OPERATIONAL IMPACTS

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R1, which represents the existing residence at 22980 Peregrine Way, approximately 1,681 feet southeast of the Project site. R1 is placed in the private outdoor living areas (backyards) facing the Project site. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.04 in one million, which is less than the South Coast Air Quality Management District's (SCAQMD's) significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be ≤0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance than the MEIR analyzed herein, and DPM generally dissipates with distance from the source, all other residential receptors in the vicinity of the Project site would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to nearby residences.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is Location R7, which represents the Simos Insourcing facility at 22722 Harley Knox Boulevard, approximately 261 feet north of the Project site. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact is 0.03 in one million which is less than the SCAQMD's threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be ≤0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled worker receptors are located at a greater distance than the MEIW analyze herein, and DPM dissipates with distance from the source, all other worker receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIW identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent workers.

School Child Exposure Scenario:

There are no schools located within a ¼ mile of the Project site. As such, there would be no significant impacts that would occur to any schools in the vicinity of the Project. Proximity to sources of toxics is critical to determining the impact. In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70-percent drop-off in particulate pollution levels at 500 feet. Based on CARB and SCAQMD emissions and modeling analyses, an 80-percent drop-off in pollutant concentrations is expected at approximately 1,000 feet from a distribution center (1). As such, the Project will not cause a significant human health or cancer risk to nearby school children.

TABLE ES-1: SUMMARY OF CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Sensitive Receptor	0.04	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.03	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	≤0.01	1.0	NO
Annual Average	Maximum Exposed Worker Receptor	≤0.01	1.0	NO

CONSTRUCTION IMPACTS

During short-term construction activity, the Project will also result in some diesel particulate matter (DPM) which is a listed carcinogen and toxic air contaminant (TAC) in the State of California. The 2015 Office of Environmental Health Hazard Assessment (OEHHA) revised risk assessment guidelines suggest that construction projects as short as 2-6 months may warrant evaluation. Notwithstanding, based on Urban Crossroad's professional opinion and experience in preparing health risk assessments for development projects, given the distance of the Project from surrounding sensitive receptors, the dominant wind patterns blowing to the northwest away for receptors, and the annual $PM_{2.5}$ emissions from equipment during each year of construction, any DPM generated from construction activity would result in less than significant

ground level concentrations of DPM and not result in a significant health risks and no further evaluation is required.

Furthermore, many air districts throughout the state, including the SCAQMD, are currently evaluating the applicability of age sensitivity factors and have not established CEQA guidance. More specifically in their response to comments received on SCAQMD New Source Review rule, the SCAQMD explicitly states that:

"The Proposed Amended Rules are separate from the CEQA significance thresholds. The SCAQMD staff is currently evaluating how to implement the Revised OEHHA Guidelines under CEQA. The SCAQMD staff will evaluate a variety of options on how to evaluate health risks under the Revised OEHHA Guidelines under CEQA. The SCAQMD staff will conduct public workshops to gather input before bringing recommendations to the Governing Board. In the interim, staff will continue to use the previous guidelines for CEQA determinations."

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate Project-related impacts to sensitive receptors (residential, schools) and adjacent workers as a result of heavy-duty diesel trucks accessing the site.

The South Coast Air Quality Management District (SCAQMD) identifies that if a Project is expected to generate/attract heavy-duty diesel trucks, which emit diesel particulate matter (DPM), preparation of a mobile source HRA is recommended. This document serves to meet the SCAQMD's request for preparation of a HRA. The mobile source HRA has been prepared in accordance with the document Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2) and is comprised of all relevant and appropriate procedures presented by the U.S. EPA, California Environmental Protection Agency and SCAQMD. Cancer risk is expressed in terms of expected incremental incidence per million population. The SCAQMD has established an incidence rate of ten (10) persons per million as the maximum acceptable incremental cancer risk due to DPM exposure. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulative impact.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (3). In this report the AQMD clearly states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

The SCAQMD has also established non-carcinogenic risk parameters for use in HRAs. Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less-than-significant.

1.1 SITE LOCATION

The proposed Project is located on a 15.2-acre currently vacant site on the east side of Decker Street and south of Harley Knox Boulevard in the Mead Valley area of unincorporated County of Riverside, shown on Exhibit 1-A. The Project site is bounded to the north by Harley Knox Boulevard followed by industrial warehousing uses; to the west by the unimproved Decker Road and land that is approved for industrial business park uses; to the south by the undeveloped right-of-way for Rowland Lane followed by vacant land that is approved for industrial warehousing uses; and to the east by developed industrial warehousing uses.

1.2 PROJECT DESCRIPTION

The Project is proposed to construct a new 239,308 square-foot (sf) high-cube fulfilment center building. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023.

At the time this HRA was prepared, the future tenants of the proposed Project are unknown. This analysis is intended to describe HRA impacts associated with the expected operational activities at the Project site. To present a conservative approach, this report assumes the Project will operate 24-hours daily for seven days per week.

Per the *Muranaka Warehouse Traffic Impact Analysis* (TIA) prepared by EPD Solutions, Inc. the Project is expected to generate a total of approximately 509 two-way vehicular trips per day (255 trips inbound and 254 trips outbound), including 91 two-way truck trips per day (46 truck trips inbound and 45 truck trips outbound) (4).

EXHIBIT 1-A: LOCATION MAP

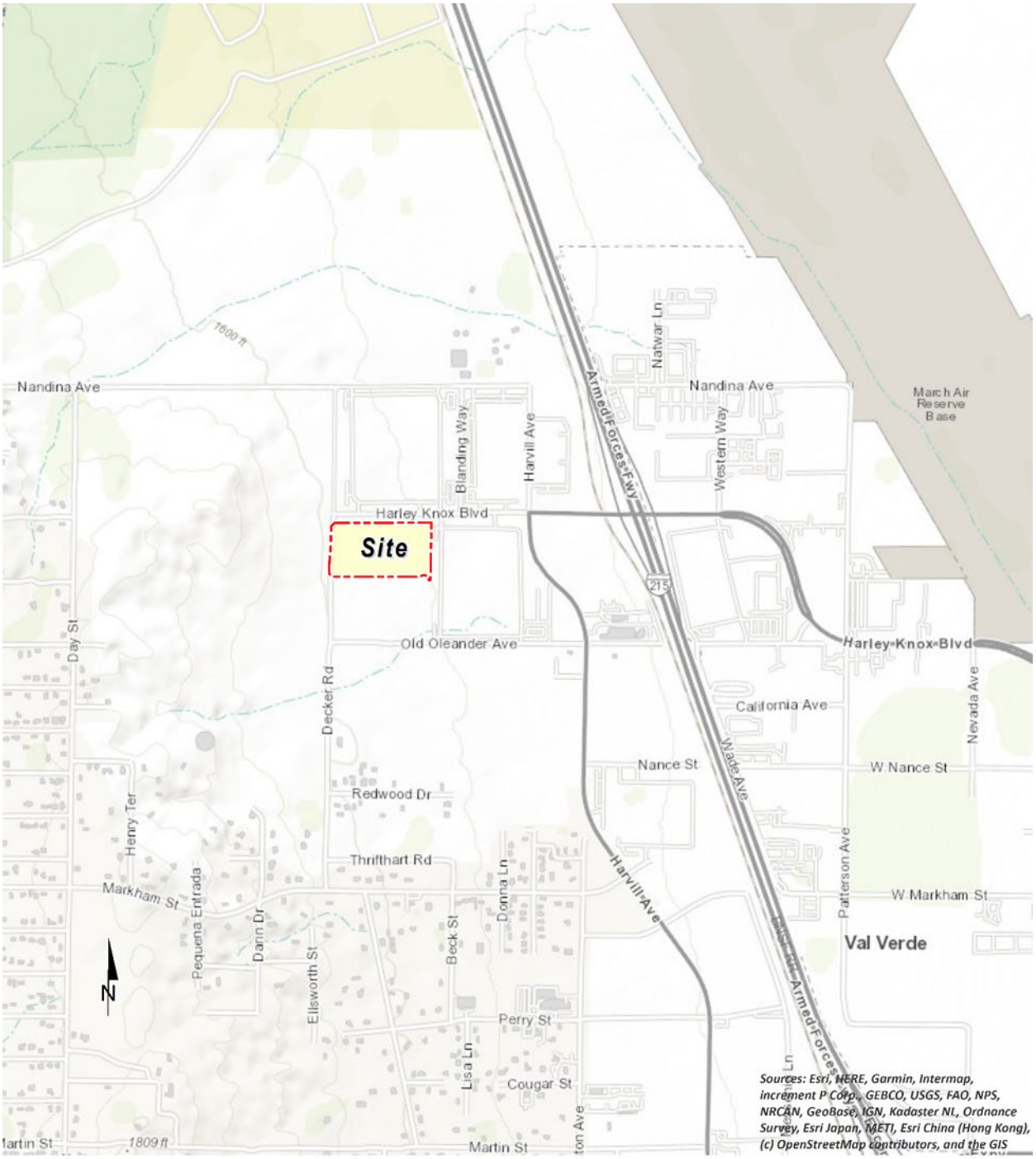
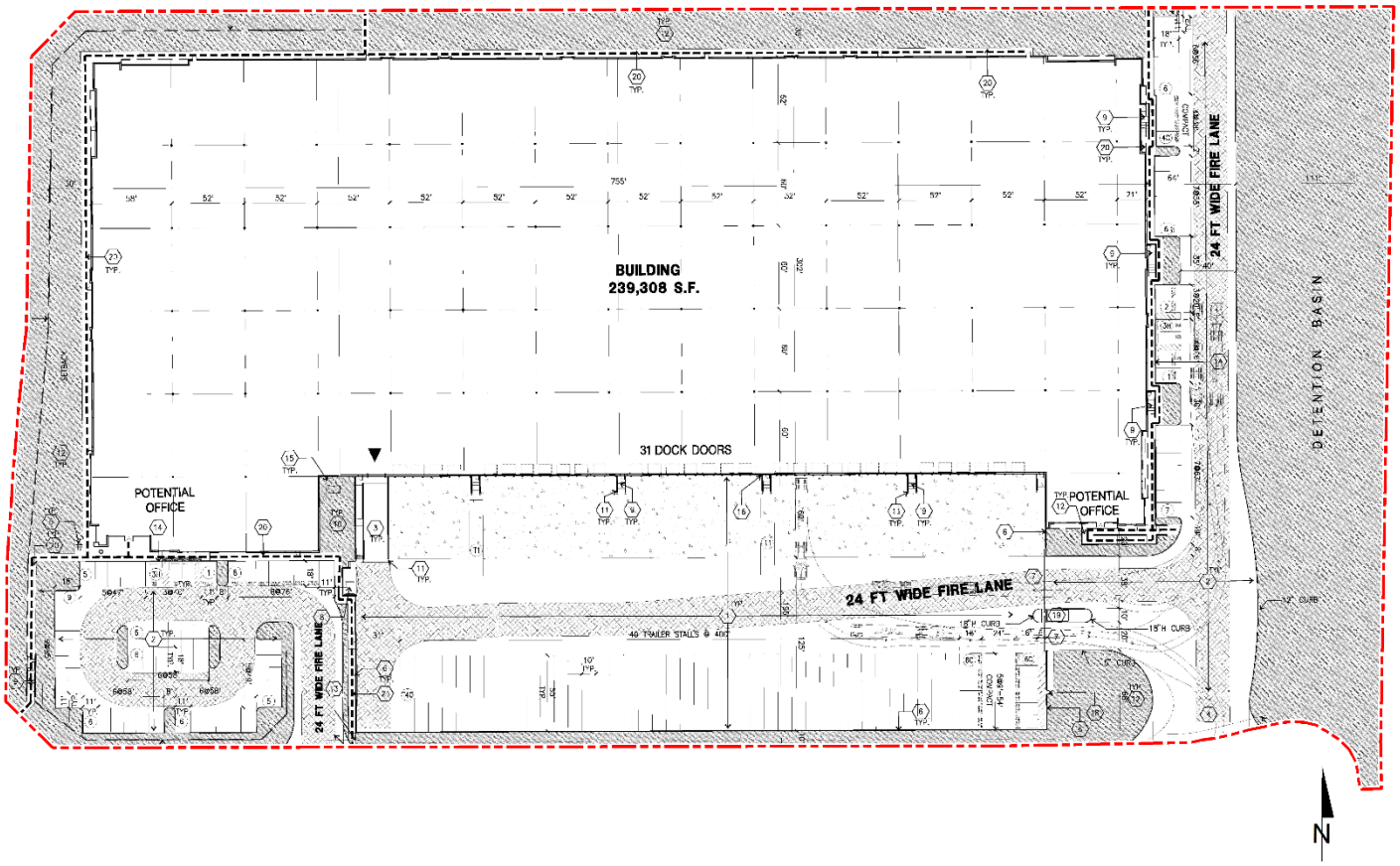


EXHIBIT 1-B: SITE PLAN



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2 BACKGROUND

2.1 BACKGROUND ON RECOMMENDED METHODOLOGY

As noted above, this HRA is based on SCAQMD guidelines to produce conservative estimates of risk posed by exposure to DPM. The conservative nature of this analysis is due primarily to the following factors:

- The ARB-adopted diesel exhaust Unit Risk Factor (URF) of 300 in one million per µg/m3 is based upon the upper 95 percentile of estimated risk for each of the epidemiological studies utilized to develop the URF. Using the 95th percentile URF represents a very conservative (health-protective) risk posed by DPM.
- The emissions derived assume that every truck accessing the project site will idle for 15 minutes under the unmitigated scenario, this is an overestimation of actual idling times and thus conservative.[1] It should be noted that ARB's anti-idling requirements impose a 5-minute maximum idling time and therefore the analysis conservatively overestimates DPM emissions from idling by a factor of 3.

2.2 EMISSIONS ESTIMATION

2.2.1 ON-SITE AND OFF-SITE TRUCK ACTIVITY

Vehicle DPM emissions were estimated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2017 version of the Emission FACtor model (EMFAC) developed by the ARB. EMFAC 2017 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources (5). The most recent version of this model, EMFAC 2017, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

Several distinct emission processes are included in EMFAC 2017. Emission factors calculated using EMFAC 2017 are expressed in units of grams per vehicle miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and corresponding emission factor units associated with diesel particulate exhaust for this Project are presented below.

For this Project, annual average PM_{10} emission factors were generated by running EMFAC 2017 in EMFAC Mode for vehicles in the Riverside County jurisdiction. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed.

[1] Although the Project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (personal communication, in person, with Jillian Wong, December 22, 2016), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc.

The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- Idling – on-site loading/unloading and truck gate
- 5 miles per hour – on-site vehicle movement including driving and maneuvering
- 25 miles per hour – off-site vehicle movement including driving and maneuvering.

Calculated emission factors are shown at Table 2-1. As a conservative measure, a 2023 EMFAC 2017 run was conducted and a static 2023 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2023 emission factors would overstate potential impacts since this approach assumes that emission factors remain "static" and do not change over time due to improved vehicle efficiencies resulting from fleet turnover and implementation of cleaner technology with lower emissions. Based on EMFAC 2017, Light-Heavy-Duty Trucks are comprised of 49.9% diesel, Medium-Heavy-Duty Trucks are comprised of 87.9% diesel, and Heavy-Heavy-Duty Trucks are comprised of 98.7% diesel. Trucks fueled by diesel are accounted for by these percentages accordingly in the emissions factor generation.

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust PM10 emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources (5):

$Emissions_{speedA}$ (g/s) = $EF_{RunExhaust}$ (g/VMT) * Distance (VMT/trip) * Number of Trips (trips/day) / seconds per day

Where:

$Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;

$EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust PM_{10} emission factor at speed A;

Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions. In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust PM_{10} emission factor (g/idle-hr) from EMFAC and the total truck trip over the total idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (5):

$Emissions_{idle}$ (g/s) = EF_{idle} (g/hr) * Number of Trips (trips/day) * Idling Time (min/trip) *

60 minutes per hour / seconds per day

Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling;

EF_{idle}(g/s): EMFAC idle exhaust PM_{10} emission factor.

TABLE 2-1: 2023 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.07044 (g/idle-hr)
5	0.01511 (g/s)
25	0.00717 (g/s)

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report but are included in Appendix "2.1". The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway, as illustrated on Table 2-2. The modeled emission sources are illustrated on Exhibit 2-A. The modeled truck travel routes included in the HRA are based on the truck trip distributions (inbound and outbound) available from the Project's *TA* (4). The modeled truck route is consistent with the trip distribution patterns identified in the Project's traffic study, is supported by substantial evidence, and was modeled to determine the potential impacts to sensitive receptors along the primary truck routes. The modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for approximately 2 miles. This modeling domain is more conservative than using only a ¼ mile modeling domain which is supported by substantial evidence since several studies have shown that the greatest potential risks occur within a ¼ mile of the primary source of emissions (1) (in the case of the Project this is the on-site idling, travel, and on-site equipment).

On-site truck idling was estimated to occur as trucks enter and travel through the facility. Although the Project is required to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (6), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc. As such, this analysis estimated truck idling at 15 minutes, consistent with SCAQMD's recommendation.

Per the *TIA* prepared by EPD Solutions, Inc. the Project is expected to generate a total of approximately 509 two-way vehicular trips per day (255 trips inbound and 254 trips outbound), including 91 two-way truck trips per day (46 truck trips inbound and 45 truck trips outbound) (4).

EXHIBIT 2-A: MODELED EMISSION SOURCES

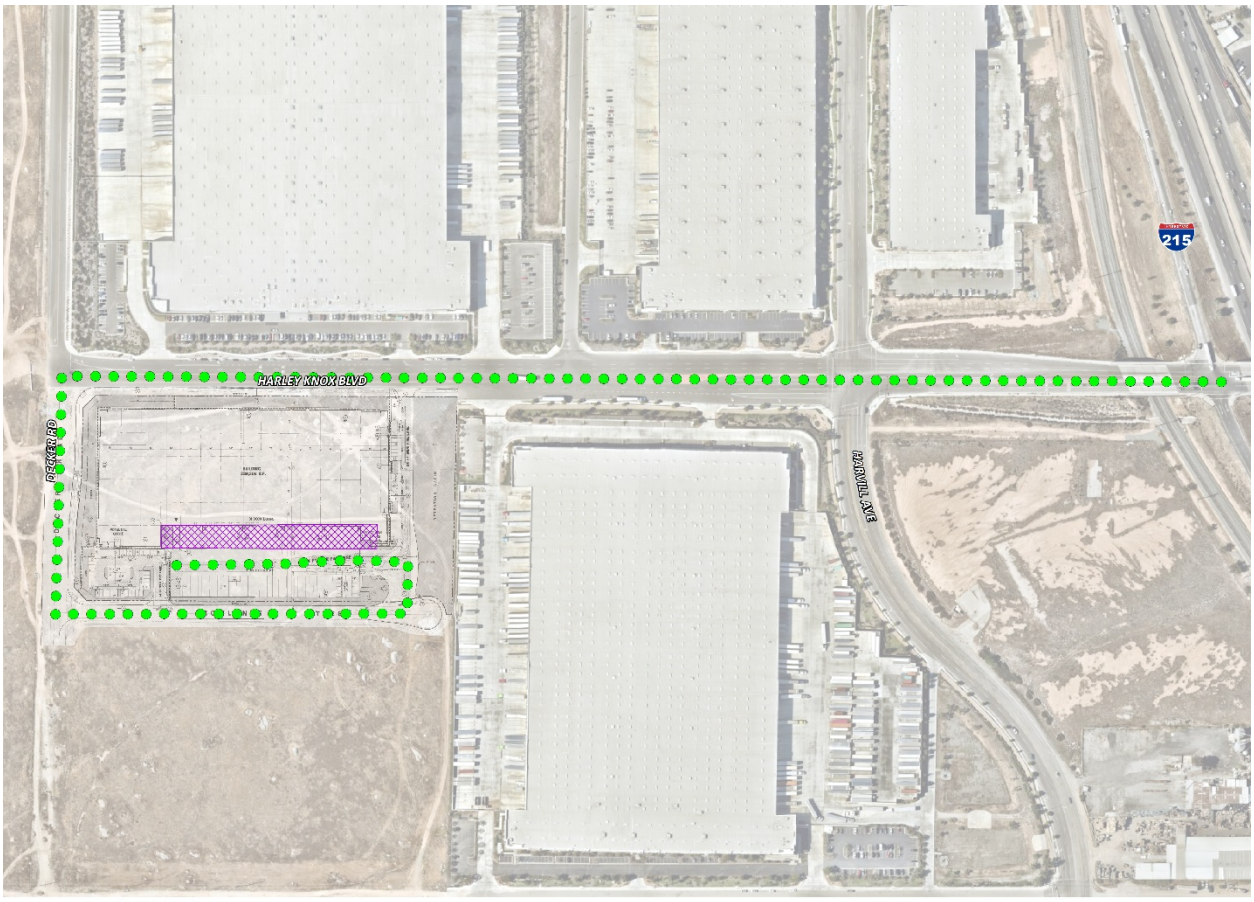


TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS (2023 ANALYSIS YEAR)

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	46			0.0704	0.80	9.273E-06
On-Site Travel	91	10.83	0.0151		0.16	1.895E-06
Off-Site Travel	91	83.13	0.0072		0.60	6.896E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2017. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

2.3 EXPOSURE QUANTIFICATION

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2). SCAQMD recommends using the Environmental Protection Agency's (U.S. EPA's) AERMOD model. For purposes of this analysis, the Lakes AERMOD View (Version 10.2.0) was used to calculate annual average particulate concentrations associated with site operations. Lakes AERMOD View was utilized to incorporate the U.S. EPA's latest AERMOD Version 21112 (7).

The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route methodology for modeling of on-site and off-site truck movement. More specifically, the Haul Road Volume Source Calculator in Lakes AERMOD View has been utilized to determine the release height parameters. Based on the U.S. EPA methodology, the Project's modeled sources would result in a release height of 3.49 meters, and an initial lateral dimension of 4.0 meters, and an initial vertical dimension of 3.25 meters.

SCAQMD required model parameters are presented in Table 2-3 (8). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's Perris monitoring station (SRA 24) was used to represent local weather conditions and prevailing winds (9). A wind rose exhibit of the Perris monitoring station is provided at Exhibit 2-B.

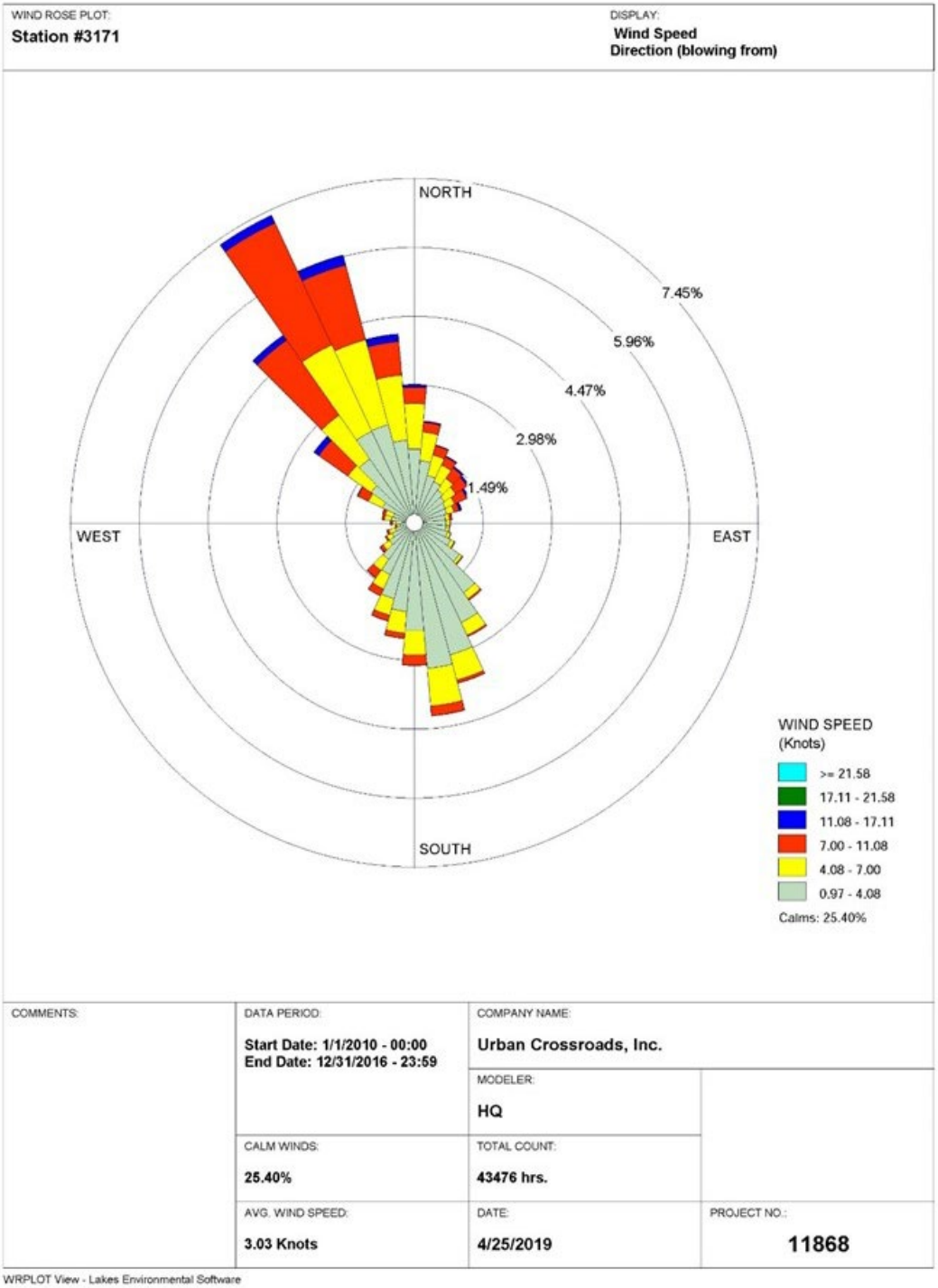
TABLE 2-3: AERMOD MODEL PARAMETERS

Dispersion Coefficient	Urban
Population	2,189,641
Terrain	Elevated (Regulatory Default)
Averaging Time	1 year (5-year Meteorological Data Set)
Receptor Height	0 meters (Regulatory Default)

Universal Transverse Mercator (UTM) coordinates for World Geodetic System (WGS) 84 were used to locate the project boundaries, each volume source location, and receptor locations in the project vicinity. The AERMOD dispersion model summary output files for the proposed facility are presented in Appendix "2.1". Modeled sensitive receptors were placed at residential and non-residential locations.

Consistent with SCAQMD modeling guidance, all receptors were set to the elevation so that only ground-level concentrations are analyzed (8). United States Geological Survey (USGS) Digital Elevation Model (DEM) terrain data based on a 7.5-minute topographic quadrangle map series using AERMAP was utilized in the HRA modeling to set elevations (10).

EXHIBIT 2-B: WIND ROSE (SRA 24)



Receptors may be placed at applicable structure locations for residential and worker property and not necessarily the boundaries of these uses. It should be noted that the primary purpose of receptor placement is focused on long-term exposure. For example, the HRA evaluates the potential health risks to residential and worker over a period of 30 or 25 years of exposure, respectively. As such, even though it is unlikely to occur in practical terms (because the amount of time spent indoors), this study assumes that a resident or worker would be exposed over a long-period of time for 12 or 24-hours per day at the structure where they reside or work.

Furthermore, worker receptors immediately adjacent to the Project site have been evaluated in the HRA. Any impacts to workers located further away from the Project site than the modeled worker receptors would have a lesser impact than what has already been disclosed in the HRA at the MEIW.

Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the 2015 OEHHA Guidelines. Tables 2-4 and 2-5 summarize the Exposure Parameters for Residents and Offsite Workers based on 2015 OEHHA Guidelines. Appendix 2.2 includes the detailed risk calculation.

2.4 CARCINOGENIC CHEMICAL RISK

Based on the South Coast AQMD Air Quality Significance Thresholds (11) (April 2019), emissions of toxic air contaminants (TACs) are considered significant if a HRA shows an increased risk of greater than 10 in one million. Based on guidance from the SCAQMD in the document Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2), for purposes of this analysis, 10 in one million is used as the cancer risk threshold for the Project.

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 10 in one million implies a likelihood that up to 10 people, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time. As an example, the risk of dying from accidental drowning is 1,000 in a million which is 100 times more than the SCAQMD's threshold of 10 in one million, the nearest comparison to 10 in one million is the 7 in one million lifetime chance that an individual would be struck and killed by lightning (12).

Guidance from CARB and the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are utilized to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose. Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of

TABLE 2-4: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
-0.25 to 0	361	10	0.25	0.85	350	24
0 to 2	1090	10	2	0.85	350	24
2 to 16	572	3	14	0.72	350	24
16 to 30	261	1	14	0.73	350	24

TABLE 2-5: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (25 YEAR WORKER)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure Time (hours/day)
16 to 41	230	1	25	250	12

inverse dose expressed in milligrams per kilogram per day (mg/kg/day)-1 to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was utilized.

$$DOSEair = (Cair \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

Cair = concentration of contaminant in air (ug/m3)

[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)

A = inhalation absorption factor

EF = exposure frequency (days/365 days)

BW = body weight (kg)

1×10^{-6} = conversion factors (ug to mg, L to m3)

$$RISKair = DOSEair \times CPF \times ED/AT$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

CPF = cancer potency factor

ED = number of years within particular age group

AT = averaging time

2.5 NON-CARCINOGENIC EXPOSURES

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHA as 5 $\mu g/m^3$ (OEHHA Toxicity Criteria Database, http://www.oehha.org/risk/chemicaldb/index.asp).

The non-cancer hazard index was calculated (consistent with SCAQMD methodology) as follows:

The relationship for the non-cancer health effects of DPM is given by the following equation:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average DPM concentration ($\mu g/m^3$).

REL_{DPM} = Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

For purposes of this analysis the hazard index for the respiratory endpoint totaled less than one for all receptors in the project vicinity, and thus is less than significant.

2.6 POTENTIAL PROJECT-RELATED DPM SOURCE CANCER AND NON-CANCER RISKS[2]

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R1, which represents the existing residence at 22980 Peregrine Way, approximately 1,681 feet southeast of the Project site. R1 is placed in the private outdoor living areas (backyards) facing the Project site. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.04 in one million, which is less than the SCAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be ≤0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance than the MEIR analyzed herein, and DPM generally dissipates

2 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003), also indicate that it is not necessary to examine the health effects to on-site workers unless required by RCRA (Resource Conservation and Recovery Act) / CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or the worker resides on-site.

with distance from the source, all other residential receptors in the vicinity of the Project site would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to nearby residences. The nearest modeled receptors for operational activity are illustrated on Exhibit 2-C.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is Location R7, which represents the Simos Insourcing facility at 22722 Harley Knox Boulevard, approximately 261 feet north of the Project site. At the MEIW, the maximum incremental cancer risk impact is 0.03 in one million which is less than the SCAQMD's threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be ≤0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled worker receptors are located at a greater distance than the MEIW analyzed herein, and DPM dissipates with distance from the source, all other worker receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIW identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent workers. The nearest modeled receptors for operational activity are illustrated on Exhibit 2-C.

School Child Exposure Scenario:

There are no schools located within a ¼ mile of the Project site. As such, there would be no significant impacts that would occur to any schools in the vicinity of the Project. Proximity to sources of toxics is critical to determining the impact. In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70-percent drop-off in particulate pollution levels at 500 feet. Based on CARB and SCAQMD emissions and modeling analyses, an 80-percent drop-off in pollutant concentrations is expected at approximately 1,000 feet from a distribution center (1). As such, the Project will not cause a significant human health or cancer risk to nearby school children.

CONSTRUCTION IMPACTS

During short-term construction activity, the Project will also result in some diesel particulate matter (DPM) which is a listed carcinogen and toxic air contaminant (TAC) in the State of California. The 2015 Office of Environmental Health Hazard Assessment (OEHHA) revised risk assessment guidelines suggest that construction projects as short as 2-6 months may warrant evaluation. Notwithstanding, based on Urban Crossroad's professional opinion and experience in preparing health risk assessments for development projects, given the distance of the Project from surrounding sensitive receptors, the dominant wind patterns blowing to the northwest away for receptors, and the annual $PM_{2.5}$ emissions from equipment during each year of construction, any DPM generated from construction activity would result in less than significant ground level concentrations of DPM and not result in a significant health risks and no further evaluation is required.

Furthermore, many air districts throughout the state, including the SCAQMD, are currently evaluating the applicability of age sensitivity factors and have not established CEQA guidance.

More specifically in their response to comments received on SCAQMD New Source Review rule, the SCAQMD explicitly states that:

"The Proposed Amended Rules are separate from the CEQA significance thresholds. The SCAQMD staff is currently evaluating how to implement the Revised OEHHA Guidelines under CEQA. The SCAQMD staff will evaluate a variety of options on how to evaluate health risks under the Revised OEHHA Guidelines under CEQA. The SCAQMD staff will conduct public workshops to gather input before bringing recommendations to the Governing Board. In the interim, staff will continue to use the previous guidelines for CEQA determinations."

EXHIBIT 2-C: MODELED RECEPTORS

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3 REFERENCES

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2. **South Coast Air Quality Managment District.** Mobile Source Toxics Analysis. [Online] 2003. http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html.
3. **Goss, Tracy A and Kroeger, Amy.** White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. [Online] South Coast Air Quality Management District, 2003. [Cited: June 6, 2019.] http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf?sfvrsn=2.
4. **EPD Solutions, Inc.** *Muranaka Warehouse Project Traffic Impact Analysis.* 2021.
5. **California Air Resources Board.** EMFAC 2017. [Online] https://www.arb.ca.gov/emfac/2017/.
6. **Wong, Jillian.** *Planning, Rule Development & Area Sources.* December 22, 2016.
7. **Environmental Protection Agency.** User's Guide for the AMS/EPA Regulatory Model (AERMOD). [Online] 2021. https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf.
8. **South Coast Air Quality Management District.** South Coast AQMD Modeling Guidance for AERMOD. [Online] [Cited: September 18, 2019.] http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance.
9. —. Data for AERMOD. [Online] [Cited: June 10, 2019.] https://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/data-for-aermod.
10. **Environmental Protection Agency.** User's Guide for the AERMOD Terrain Preprocessor (AERMAP). [Online] 2018. https://gaftp.epa.gov/Air/aqmg/SCRAM/models/related/aermap/aermap_userguide_v18081.pdf.
11. **South Coast Air Quality Management District.** South Coast AQMD Air Quality Significance Thresholds. [Online] April 2019. [Cited: June 6, 2019.] http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.
12. **National Safety Council.** Injury Fact Chart. [Online] [Cited: September 18, 2019.] https://www.nsc.org/work-safety/tools-resources/injury-facts/chart.

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4 CERTIFICATION

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed Muranaka Warehouse Project. The information contained in this health risk assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 2.1:

AERMOD MODEL INPUT/OUTPUT

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** Lakes Environmental Software Inc.
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** AERMOD Control Pathway
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   RUNORNOT RUN
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CO FINISHED
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   SRCPARAM L0000003     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000004     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000005     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000006     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000007     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000008     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000009     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000010     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000011     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000012     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000013     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000014     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000015     0.0000005796      3.49      4.00      3.25
   SRCPARAM L0000016     0.0000005796      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE2
   SRCPARAM L0000033     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000034     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000035     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000036     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000037     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000038     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000039     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000040     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000041     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000042     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000043     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000044     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000045     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000046     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000047     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000048     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000049     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000050     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000051     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000052     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000053     0.00000008614      3.49      4.00      3.25
   SRCPARAM L0000054     0.00000008614      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0000055     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000056     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000057     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000058     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000059     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000060     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000061     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000062     0.00000004033      3.49      4.00      3.25
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SRCPARAM L0000112     0.00000004033      3.49      4.00      3.25
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SRCPARAM L0000212     0.00000004033      3.49      4.00      3.25
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   SRCPARAM L0000213     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000214     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000215     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000216     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000217     0.00000004033      3.49      4.00      3.25
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   SRCPARAM L0000223     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000224     0.00000004033      3.49      4.00      3.25
   SRCPARAM L0000225     0.00000004033      3.49      4.00      3.25
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "13660 HRA.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE PERI_V9_ADJU\PERI_v9.SFC
   PROFFILE PERI_V9_ADJU\PERI_v9.PFL
   SURFDATA 3171 2010
   UAIRDATA 3190 2010
   SITEDATA 99999 2010
   PROFBASE 442.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE ANNUAL ALL "13660 HRA.AD\AN00GALL.PLT" 31
   SUMMFILE "13660 HRA.sum"
```

```
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

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

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


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


    ********   WARNING MESSAGES   ********
 ME W186     540       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     540       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\13660 HRA\13660
HRA.isc                          ***        12/08/21
 *** AERMET - VERSION  16216 ***   ***
                         ***        13:30:26

                                    PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

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

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

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

 **Model Uses URBAN Dispersion Algorithm for the SBL for   209 Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =   2189641.0 ;  Urban Roughness Length =  1.000 m
```

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

 **Other Options Specified:
        ADJ_U*   - Use ADJ_U* option for SBL in AERMET
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  DPM

 **Model Calculates ANNUAL Averages Only

 **This Run Includes:    209 Source(s);       1 Source Group(s); and       7
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    209 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)


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

 **The AERMET Input Meteorological Data Version Date:  16216

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

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

```
 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   442.00 ;  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 =      3.6 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   13660 HRA.err

 **File for Summary of Results:   13660 HRA.sum

↑ *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\13660 HRA\13660
HRA.isc                          ***        12/08/21
 *** AERMET - VERSION  16216 ***   ***
                        ***       13:30:26

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                          *** VOLUME SOURCE DATA ***

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

 L0000001         0   0.57960E-06  475119.9 3746816.4   481.7     3.49     4.00
3.25     YES
 L0000002         0   0.57960E-06  475128.5 3746816.3   481.5     3.49     4.00
3.25     YES
 L0000003         0   0.57960E-06  475137.1 3746816.3   481.3     3.49     4.00
3.25     YES
 L0000004         0   0.57960E-06  475145.7 3746816.2   481.1     3.49     4.00
3.25     YES
 L0000005         0   0.57960E-06  475154.3 3746816.1   480.9     3.49     4.00
3.25     YES
 L0000006         0   0.57960E-06  475162.9 3746816.1   480.6     3.49     4.00
3.25     YES
 L0000007         0   0.57960E-06  475171.5 3746816.0   480.3     3.49     4.00
```

3.25 YES
L0000008 0 0.57960E-06 475180.1 3746815.9 480.0 3.49 4.00
3.25 YES
L0000009 0 0.57960E-06 475188.6 3746815.8 479.4 3.49 4.00
3.25 YES
L0000010 0 0.57960E-06 475197.2 3746815.8 478.8 3.49 4.00
3.25 YES
L0000011 0 0.57960E-06 475205.8 3746815.7 478.3 3.49 4.00
3.25 YES
L0000012 0 0.57960E-06 475214.4 3746815.6 477.9 3.49 4.00
3.25 YES
L0000013 0 0.57960E-06 475223.0 3746815.5 477.6 3.49 4.00
3.25 YES
L0000014 0 0.57960E-06 475231.6 3746815.5 477.3 3.49 4.00
3.25 YES
L0000015 0 0.57960E-06 475240.2 3746815.4 477.0 3.49 4.00
3.25 YES
L0000016 0 0.57960E-06 475248.8 3746815.3 476.8 3.49 4.00
3.25 YES
L0000033 0 0.86140E-07 475120.7 3746793.2 482.0 3.49 4.00
3.25 YES
L0000034 0 0.86140E-07 475129.3 3746793.5 481.7 3.49 4.00
3.25 YES
L0000035 0 0.86140E-07 475137.9 3746793.8 481.4 3.49 4.00
3.25 YES
L0000036 0 0.86140E-07 475146.5 3746794.1 481.1 3.49 4.00
3.25 YES
L0000037 0 0.86140E-07 475155.0 3746794.3 480.8 3.49 4.00
3.25 YES
L0000038 0 0.86140E-07 475163.6 3746794.6 480.5 3.49 4.00
3.25 YES
L0000039 0 0.86140E-07 475172.2 3746795.1 480.2 3.49 4.00
3.25 YES
L0000040 0 0.86140E-07 475180.8 3746795.8 479.9 3.49 4.00
3.25 YES
L0000041 0 0.86140E-07 475189.3 3746796.4 479.4 3.49 4.00
3.25 YES
L0000042 0 0.86140E-07 475197.9 3746797.0 478.8 3.49 4.00
3.25 YES
L0000043 0 0.86140E-07 475206.5 3746797.6 478.2 3.49 4.00
3.25 YES
L0000044 0 0.86140E-07 475215.0 3746798.2 477.8 3.49 4.00
3.25 YES
L0000045 0 0.86140E-07 475223.6 3746798.8 477.5 3.49 4.00
3.25 YES
L0000046 0 0.86140E-07 475232.2 3746799.3 477.2 3.49 4.00
3.25 YES
L0000047 0 0.86140E-07 475240.8 3746799.1 477.0 3.49 4.00
3.25 YES
L0000048 0 0.86140E-07 475249.4 3746799.0 476.7 3.49 4.00

3.25   YES
 L0000049   0   0.86140E-07 475258.0 3746798.8   476.4   3.49   4.00
3.25   YES
 L0000050   0   0.86140E-07 475266.5 3746798.6   476.1   3.49   4.00
3.25   YES
 L0000051   0   0.86140E-07 475274.5 3746796.4   475.8   3.49   4.00
3.25   YES
 L0000052   0   0.86140E-07 475282.0 3746792.1   475.6   3.49   4.00
3.25   YES
 L0000053   0   0.86140E-07 475289.0 3746787.4   475.4   3.49   4.00
3.25   YES
 L0000054   0   0.86140E-07 475291.9 3746779.3   475.3   3.49   4.00
3.25   YES
 L0000055   0   0.40330E-07 475289.6 3746761.1   475.2   3.49   4.00
3.25   YES
 L0000056   0   0.40330E-07 475281.0 3746761.0   475.3   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000057	0	0.40330E-07	475272.4	3746760.9	475.4	3.49	4.00	3.25	YES	
L0000058	0	0.40330E-07	475263.8	3746760.8	475.7	3.49	4.00	3.25	YES	
L0000059	0	0.40330E-07	475255.2	3746760.8	476.0	3.49	4.00	3.25	YES	
L0000060	0	0.40330E-07	475246.6	3746760.7	476.2	3.49	4.00	3.25	YES	
L0000061	0	0.40330E-07	475238.0	3746760.6	476.6	3.49	4.00	3.25	YES	
L0000062	0	0.40330E-07	475229.4	3746760.5	477.0	3.49	4.00	3.25	YES	
L0000063	0	0.40330E-07	475220.8	3746760.4	477.4	3.49	4.00			

3.25 YES
L0000064 0 0.40330E-07 475212.3 3746760.3 477.9 3.49 4.00
3.25 YES
L0000065 0 0.40330E-07 475203.7 3746760.2 478.4 3.49 4.00
3.25 YES
L0000066 0 0.40330E-07 475195.1 3746760.1 479.0 3.49 4.00
3.25 YES
L0000067 0 0.40330E-07 475186.5 3746760.0 479.6 3.49 4.00
3.25 YES
L0000068 0 0.40330E-07 475177.9 3746759.9 480.1 3.49 4.00
3.25 YES
L0000069 0 0.40330E-07 475169.3 3746759.8 480.4 3.49 4.00
3.25 YES
L0000070 0 0.40330E-07 475160.7 3746759.7 480.6 3.49 4.00
3.25 YES
L0000071 0 0.40330E-07 475152.1 3746759.6 480.9 3.49 4.00
3.25 YES
L0000072 0 0.40330E-07 475143.5 3746759.5 481.2 3.49 4.00
3.25 YES
L0000073 0 0.40330E-07 475135.0 3746759.4 481.5 3.49 4.00
3.25 YES
L0000074 0 0.40330E-07 475126.4 3746759.3 481.8 3.49 4.00
3.25 YES
L0000075 0 0.40330E-07 475117.8 3746759.2 482.1 3.49 4.00
3.25 YES
L0000076 0 0.40330E-07 475109.2 3746759.1 482.5 3.49 4.00
3.25 YES
L0000077 0 0.40330E-07 475100.6 3746759.0 482.9 3.49 4.00
3.25 YES
L0000078 0 0.40330E-07 475092.0 3746758.9 483.3 3.49 4.00
3.25 YES
L0000079 0 0.40330E-07 475083.4 3746758.8 483.7 3.49 4.00
3.25 YES
L0000080 0 0.40330E-07 475074.8 3746758.7 484.0 3.49 4.00
3.25 YES
L0000081 0 0.40330E-07 475066.2 3746758.6 484.3 3.49 4.00
3.25 YES
L0000082 0 0.40330E-07 475057.6 3746758.5 484.7 3.49 4.00
3.25 YES
L0000083 0 0.40330E-07 475049.1 3746758.4 485.1 3.49 4.00
3.25 YES
L0000084 0 0.40330E-07 475040.5 3746758.3 485.5 3.49 4.00
3.25 YES
L0000085 0 0.40330E-07 475031.9 3746758.2 485.9 3.49 4.00
3.25 YES
L0000086 0 0.40330E-07 475023.3 3746758.1 486.2 3.49 4.00
3.25 YES
L0000087 0 0.40330E-07 475019.6 3746762.9 486.3 3.49 4.00
3.25 YES
L0000088 0 0.40330E-07 475019.8 3746771.5 486.3 3.49 4.00

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3.25     YES
 L0000089         0   0.40330E-07  475020.0 3746780.1   486.3     3.49     4.00
3.25     YES
 L0000090         0   0.40330E-07  475020.2 3746788.7   486.3     3.49     4.00
3.25     YES
 L0000091         0   0.40330E-07  475020.4 3746797.2   486.3     3.49     4.00
3.25     YES
 L0000092         0   0.40330E-07  475020.6 3746805.8   486.3     3.49     4.00
3.25     YES
 L0000093         0   0.40330E-07  475020.8 3746814.4   486.3     3.49     4.00
3.25     YES
 L0000094         0   0.40330E-07  475021.0 3746823.0   486.3     3.49     4.00
3.25     YES
 L0000095         0   0.40330E-07  475021.2 3746831.6   486.3     3.49     4.00
3.25     YES
 L0000096         0   0.40330E-07  475021.4 3746840.2   486.2     3.49     4.00
3.25     YES
```


```
                                                  *** VOLUME SOURCE DATA ***

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

 L0000097         0   0.40330E-07  475021.6 3746848.8   486.1     3.49     4.00
3.25     YES
 L0000098         0   0.40330E-07  475021.8 3746857.4   485.9     3.49     4.00
3.25     YES
 L0000099         0   0.40330E-07  475022.0 3746865.9   485.8     3.49     4.00
3.25     YES
 L0000100         0   0.40330E-07  475022.2 3746874.5   485.9     3.49     4.00
3.25     YES
 L0000101         0   0.40330E-07  475022.4 3746883.1   486.0     3.49     4.00
3.25     YES
 L0000102         0   0.40330E-07  475022.5 3746891.7   486.2     3.49     4.00
3.25     YES
 L0000103         0   0.40330E-07  475022.7 3746900.3   486.1     3.49     4.00
```

3.25 YES
L0000104 0 0.40330E-07 475022.9 3746908.9 485.8 3.49 4.00
3.25 YES
L0000105 0 0.40330E-07 475023.1 3746917.5 485.5 3.49 4.00
3.25 YES
L0000106 0 0.40330E-07 475023.3 3746926.1 485.2 3.49 4.00
3.25 YES
L0000107 0 0.40330E-07 475023.5 3746934.7 485.2 3.49 4.00
3.25 YES
L0000108 0 0.40330E-07 475023.7 3746943.2 485.2 3.49 4.00
3.25 YES
L0000109 0 0.40330E-07 475028.8 3746946.8 485.0 3.49 4.00
3.25 YES
L0000110 0 0.40330E-07 475037.4 3746946.8 484.5 3.49 4.00
3.25 YES
L0000111 0 0.40330E-07 475046.0 3746946.7 483.9 3.49 4.00
3.25 YES
L0000112 0 0.40330E-07 475054.6 3746946.7 483.4 3.49 4.00
3.25 YES
L0000113 0 0.40330E-07 475063.2 3746946.7 482.9 3.49 4.00
3.25 YES
L0000114 0 0.40330E-07 475071.8 3746946.6 482.6 3.49 4.00
3.25 YES
L0000115 0 0.40330E-07 475080.4 3746946.6 482.3 3.49 4.00
3.25 YES
L0000116 0 0.40330E-07 475089.0 3746946.6 482.0 3.49 4.00
3.25 YES
L0000117 0 0.40330E-07 475097.5 3746946.5 481.7 3.49 4.00
3.25 YES
L0000118 0 0.40330E-07 475106.1 3746946.5 481.5 3.49 4.00
3.25 YES
L0000119 0 0.40330E-07 475114.7 3746946.5 481.2 3.49 4.00
3.25 YES
L0000120 0 0.40330E-07 475123.3 3746946.4 480.9 3.49 4.00
3.25 YES
L0000121 0 0.40330E-07 475131.9 3746946.4 480.6 3.49 4.00
3.25 YES
L0000122 0 0.40330E-07 475140.5 3746946.4 480.3 3.49 4.00
3.25 YES
L0000123 0 0.40330E-07 475149.1 3746946.4 480.0 3.49 4.00
3.25 YES
L0000124 0 0.40330E-07 475157.7 3746946.3 479.5 3.49 4.00
3.25 YES
L0000125 0 0.40330E-07 475166.3 3746946.3 478.9 3.49 4.00
3.25 YES
L0000126 0 0.40330E-07 475174.8 3746946.3 478.3 3.49 4.00
3.25 YES
L0000127 0 0.40330E-07 475183.4 3746946.2 477.8 3.49 4.00
3.25 YES
L0000128 0 0.40330E-07 475192.0 3746946.2 477.3 3.49 4.00

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3.25     YES
 L0000129         0   0.40330E-07  475200.6 3746946.2   476.8     3.49     4.00
3.25     YES
 L0000130         0   0.40330E-07  475209.2 3746946.1   476.4     3.49     4.00
3.25     YES
 L0000131         0   0.40330E-07  475217.8 3746946.1   476.1     3.49     4.00
3.25     YES
 L0000132         0   0.40330E-07  475226.4 3746946.1   475.8     3.49     4.00
3.25     YES
 L0000133         0   0.40330E-07  475235.0 3746946.0   475.5     3.49     4.00
3.25     YES
 L0000134         0   0.40330E-07  475243.6 3746946.0   475.4     3.49     4.00
3.25     YES
 L0000135         0   0.40330E-07  475252.2 3746946.0   475.6     3.49     4.00
3.25     YES
 L0000136         0   0.40330E-07  475260.7 3746946.0   475.8     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\13660 HRA\13660
HRA.isc                         ***        12/08/21
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:30:26

                                   PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***

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

 L0000137         0   0.40330E-07  475269.3 3746945.9   476.0     3.49     4.00
3.25     YES
 L0000138         0   0.40330E-07  475277.9 3746945.9   475.7     3.49     4.00
3.25     YES
 L0000139         0   0.40330E-07  475286.5 3746945.9   475.4     3.49     4.00
3.25     YES
 L0000140         0   0.40330E-07  475295.1 3746945.8   475.2     3.49     4.00
3.25     YES
 L0000141         0   0.40330E-07  475303.7 3746945.8   474.9     3.49     4.00
3.25     YES
 L0000142         0   0.40330E-07  475312.3 3746945.8   474.7     3.49     4.00
3.25     YES
 L0000143         0   0.40330E-07  475320.9 3746945.7   474.5     3.49     4.00
```

3.25 YES
L0000144 0 0.40330E-07 475329.5 3746945.7 474.4 3.49 4.00
3.25 YES
L0000145 0 0.40330E-07 475338.1 3746945.7 474.3 3.49 4.00
3.25 YES
L0000146 0 0.40330E-07 475346.6 3746945.6 474.2 3.49 4.00
3.25 YES
L0000147 0 0.40330E-07 475355.2 3746945.6 474.1 3.49 4.00
3.25 YES
L0000148 0 0.40330E-07 475363.8 3746945.7 473.9 3.49 4.00
3.25 YES
L0000149 0 0.40330E-07 475372.4 3746945.7 473.6 3.49 4.00
3.25 YES
L0000150 0 0.40330E-07 475381.0 3746945.7 473.3 3.49 4.00
3.25 YES
L0000151 0 0.40330E-07 475389.6 3746945.7 473.0 3.49 4.00
3.25 YES
L0000152 0 0.40330E-07 475398.2 3746945.7 472.7 3.49 4.00
3.25 YES
L0000153 0 0.40330E-07 475406.8 3746945.7 472.4 3.49 4.00
3.25 YES
L0000154 0 0.40330E-07 475415.4 3746945.7 472.2 3.49 4.00
3.25 YES
L0000155 0 0.40330E-07 475424.0 3746945.7 471.9 3.49 4.00
3.25 YES
L0000156 0 0.40330E-07 475432.5 3746945.8 471.6 3.49 4.00
3.25 YES
L0000157 0 0.40330E-07 475441.1 3746945.8 471.3 3.49 4.00
3.25 YES
L0000158 0 0.40330E-07 475449.7 3746945.8 471.0 3.49 4.00
3.25 YES
L0000159 0 0.40330E-07 475458.3 3746945.8 470.7 3.49 4.00
3.25 YES
L0000160 0 0.40330E-07 475466.9 3746945.8 470.4 3.49 4.00
3.25 YES
L0000161 0 0.40330E-07 475475.5 3746945.8 470.1 3.49 4.00
3.25 YES
L0000162 0 0.40330E-07 475484.1 3746945.8 469.9 3.49 4.00
3.25 YES
L0000163 0 0.40330E-07 475492.7 3746945.8 469.6 3.49 4.00
3.25 YES
L0000164 0 0.40330E-07 475501.3 3746945.8 469.3 3.49 4.00
3.25 YES
L0000165 0 0.40330E-07 475509.9 3746945.9 469.0 3.49 4.00
3.25 YES
L0000166 0 0.40330E-07 475518.4 3746945.9 468.9 3.49 4.00
3.25 YES
L0000167 0 0.40330E-07 475527.0 3746945.9 468.8 3.49 4.00
3.25 YES
L0000168 0 0.40330E-07 475535.6 3746945.9 468.7 3.49 4.00

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3.25     YES
 L0000169         0   0.40330E-07  475544.2 3746945.9   468.6     3.49     4.00
3.25     YES
 L0000170         0   0.40330E-07  475552.8 3746945.9   468.4     3.49     4.00
3.25     YES
 L0000171         0   0.40330E-07  475561.4 3746945.9   468.2     3.49     4.00
3.25     YES
 L0000172         0   0.40330E-07  475570.0 3746945.9   468.0     3.49     4.00
3.25     YES
 L0000173         0   0.40330E-07  475578.6 3746945.9   467.6     3.49     4.00
3.25     YES
 L0000174         0   0.40330E-07  475587.2 3746946.0   467.2     3.49     4.00
3.25     YES
 L0000175         0   0.40330E-07  475595.8 3746946.0   466.8     3.49     4.00
3.25     YES
 L0000176         0   0.40330E-07  475604.3 3746946.0   466.6     3.49     4.00
3.25     YES
```



```
                                                  *** VOLUME SOURCE DATA ***

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

 L0000177         0   0.40330E-07  475612.9 3746946.0   466.4     3.49     4.00
3.25     YES
 L0000178         0   0.40330E-07  475621.5 3746946.0   466.2     3.49     4.00
3.25     YES
 L0000179         0   0.40330E-07  475630.1 3746946.0   466.0     3.49     4.00
3.25     YES
 L0000180         0   0.40330E-07  475638.7 3746946.0   466.0     3.49     4.00
3.25     YES
 L0000181         0   0.40330E-07  475647.3 3746946.1   466.0     3.49     4.00
3.25     YES
 L0000182         0   0.40330E-07  475655.9 3746946.3   466.0     3.49     4.00
3.25     YES
 L0000183         0   0.40330E-07  475664.5 3746946.4   466.0     3.49     4.00
```

3.25 YES
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3.25 YES
L0000185 0 0.40330E-07 475681.7 3746946.7 466.0 3.49 4.00
3.25 YES
L0000186 0 0.40330E-07 475690.2 3746946.9 466.0 3.49 4.00
3.25 YES
L0000187 0 0.40330E-07 475698.8 3746947.1 465.5 3.49 4.00
3.25 YES
L0000188 0 0.40330E-07 475707.4 3746947.2 465.0 3.49 4.00
3.25 YES
L0000189 0 0.40330E-07 475716.0 3746947.4 464.5 3.49 4.00
3.25 YES
L0000190 0 0.40330E-07 475724.6 3746947.5 464.1 3.49 4.00
3.25 YES
L0000191 0 0.40330E-07 475733.2 3746947.7 463.8 3.49 4.00
3.25 YES
L0000192 0 0.40330E-07 475741.8 3746947.9 463.6 3.49 4.00
3.25 YES
L0000193 0 0.40330E-07 475750.4 3746948.0 463.3 3.49 4.00
3.25 YES
L0000194 0 0.40330E-07 475758.9 3746948.1 463.3 3.49 4.00
3.25 YES
L0000195 0 0.40330E-07 475767.5 3746948.1 463.3 3.49 4.00
3.25 YES
L0000196 0 0.40330E-07 475776.1 3746948.2 463.3 3.49 4.00
3.25 YES
L0000197 0 0.40330E-07 475784.7 3746948.3 463.2 3.49 4.00
3.25 YES
L0000198 0 0.40330E-07 475793.3 3746948.4 463.1 3.49 4.00
3.25 YES
L0000199 0 0.40330E-07 475801.9 3746948.4 463.1 3.49 4.00
3.25 YES
L0000200 0 0.40330E-07 475810.5 3746948.5 463.0 3.49 4.00
3.25 YES
L0000201 0 0.40330E-07 475819.1 3746948.6 463.0 3.49 4.00
3.25 YES
L0000202 0 0.40330E-07 475827.7 3746948.6 463.0 3.49 4.00
3.25 YES
L0000203 0 0.40330E-07 475836.3 3746948.7 463.0 3.49 4.00
3.25 YES
L0000204 0 0.40330E-07 475844.8 3746948.8 462.9 3.49 4.00
3.25 YES
L0000205 0 0.40330E-07 475853.4 3746948.8 462.7 3.49 4.00
3.25 YES
L0000206 0 0.40330E-07 475862.0 3746948.9 462.4 3.49 4.00
3.25 YES
L0000207 0 0.40330E-07 475870.6 3746949.0 462.2 3.49 4.00
3.25 YES
L0000208 0 0.40330E-07 475879.2 3746949.1 462.2 3.49 4.00

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3.25     YES
 L0000209         0   0.40330E-07  475887.8 3746949.1   462.1     3.49     4.00
3.25     YES
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3.25     YES
 L0000211         0   0.40330E-07  475905.0 3746949.3   462.0     3.49     4.00
3.25     YES
 L0000212         0   0.40330E-07  475913.6 3746949.3   462.0     3.49     4.00
3.25     YES
 L0000213         0   0.40330E-07  475922.2 3746949.4   462.0     3.49     4.00
3.25     YES
 L0000214         0   0.40330E-07  475930.7 3746949.5   462.0     3.49     4.00
3.25     YES
 L0000215         0   0.40330E-07  475939.3 3746949.6   461.7     3.49     4.00
3.25     YES
 L0000216         0   0.40330E-07  475947.9 3746949.6   461.4     3.49     4.00
3.25     YES
```


```
                                                    *** VOLUME SOURCE DATA ***

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

 L0000217         0   0.40330E-07  475956.5 3746949.7   461.1     3.49     4.00
3.25     YES
 L0000218         0   0.40330E-07  475965.1 3746949.8   461.0     3.49     4.00
3.25     YES
 L0000219         0   0.40330E-07  475973.7 3746949.8   461.0     3.49     4.00
3.25     YES
 L0000220         0   0.40330E-07  475982.3 3746949.9   461.0     3.49     4.00
3.25     YES
 L0000221         0   0.40330E-07  475990.9 3746950.0   461.0     3.49     4.00
3.25     YES
 L0000222         0   0.40330E-07  475999.5 3746950.0   460.7     3.49     4.00
3.25     YES
 L0000223         0   0.40330E-07  476008.1 3746950.1   460.4     3.49     4.00
```

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

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

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

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

             L0000033   , L0000034   , L0000035   , L0000036   , L0000037   ,
L0000038   , L0000039   , L0000040   ,

             L0000041   , L0000042   , L0000043   , L0000044   , L0000045   ,
L0000046   , L0000047   , L0000048   ,

             L0000049   , L0000050   , L0000051   , L0000052   , L0000053   ,
L0000054   , L0000055   , L0000056   ,

             L0000057   , L0000058   , L0000059   , L0000060   , L0000061   ,
L0000062   , L0000063   , L0000064   ,

             L0000065   , L0000066   , L0000067   , L0000068   , L0000069   ,
L0000070   , L0000071   , L0000072   ,

             L0000073   , L0000074   , L0000075   , L0000076   , L0000077   ,
L0000078   , L0000079   , L0000080   ,

             L0000081   , L0000082   , L0000083   , L0000084   , L0000085   ,
L0000086   , L0000087   , L0000088   ,

             L0000089   , L0000090   , L0000091   , L0000092   , L0000093   ,
L0000094   , L0000095   , L0000096   ,

```
             L0000097    , L0000098    , L0000099    , L0000100    , L0000101    ,
L0000102    , L0000103    , L0000104    ,

             L0000105    , L0000106    , L0000107    , L0000108    , L0000109    ,
L0000110    , L0000111    , L0000112    ,

             L0000113    , L0000114    , L0000115    , L0000116    , L0000117    ,
L0000118    , L0000119    , L0000120    ,

             L0000121    , L0000122    , L0000123    , L0000124    , L0000125    ,
L0000126    , L0000127    , L0000128    ,

             L0000129    , L0000130    , L0000131    , L0000132    , L0000133    ,
L0000134    , L0000135    , L0000136    ,

             L0000137    , L0000138    , L0000139    , L0000140    , L0000141    ,
L0000142    , L0000143    , L0000144    ,

             L0000145    , L0000146    , L0000147    , L0000148    , L0000149    ,
L0000150    , L0000151    , L0000152    ,

             L0000153    , L0000154    , L0000155    , L0000156    , L0000157    ,
L0000158    , L0000159    , L0000160    ,

             L0000161    , L0000162    , L0000163    , L0000164    , L0000165    ,
L0000166    , L0000167    , L0000168    ,

             L0000169    , L0000170    , L0000171    , L0000172    , L0000173    ,
L0000174    , L0000175    , L0000176    ,
```


 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                              *** SOURCE IDs DEFINING SOURCE GROUPS ***

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

```
             L0000177    , L0000178    , L0000179    , L0000180    , L0000181    ,
L0000182    , L0000183    , L0000184    ,

             L0000185    , L0000186    , L0000187    , L0000188    , L0000189    ,
```

L0000190   , L0000191   , L0000192   ,

             L0000193   , L0000194   , L0000195   , L0000196   , L0000197   ,
L0000198   , L0000199   , L0000200   ,

             L0000201   , L0000202   , L0000203   , L0000204   , L0000205   ,
L0000206   , L0000207   , L0000208   ,

             L0000209   , L0000210   , L0000211   , L0000212   , L0000213   ,
L0000214   , L0000215   , L0000216   ,

             L0000217   , L0000218   , L0000219   , L0000220   , L0000221   ,
L0000222   , L0000223   , L0000224   ,

             L0000225   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

  URBAN ID   URBAN POP   SOURCE IDs
  --------   ---------   ----------

              2189641.   L0000001   , L0000002   , L0000003   , L0000004   ,
L0000005   , L0000006   , L0000007   ,
 L0000008   ,

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

             L0000033   , L0000034   , L0000035   , L0000036   , L0000037   ,
L0000038   , L0000039   , L0000040   ,

             L0000041   , L0000042   , L0000043   , L0000044   , L0000045   ,
L0000046   , L0000047   , L0000048   ,

             L0000049   , L0000050   , L0000051   , L0000052   , L0000053   ,
L0000054   , L0000055   , L0000056   ,

             L0000057   , L0000058   , L0000059   , L0000060   , L0000061   ,
L0000062   , L0000063   , L0000064   ,

```
             L0000065    , L0000066    , L0000067    , L0000068    , L0000069    ,
L0000070    , L0000071    , L0000072    ,

             L0000073    , L0000074    , L0000075    , L0000076    , L0000077    ,
L0000078    , L0000079    , L0000080    ,

             L0000081    , L0000082    , L0000083    , L0000084    , L0000085    ,
L0000086    , L0000087    , L0000088    ,

             L0000089    , L0000090    , L0000091    , L0000092    , L0000093    ,
L0000094    , L0000095    , L0000096    ,

             L0000097    , L0000098    , L0000099    , L0000100    , L0000101    ,
L0000102    , L0000103    , L0000104    ,

             L0000105    , L0000106    , L0000107    , L0000108    , L0000109    ,
L0000110    , L0000111    , L0000112    ,

             L0000113    , L0000114    , L0000115    , L0000116    , L0000117    ,
L0000118    , L0000119    , L0000120    ,

             L0000121    , L0000122    , L0000123    , L0000124    , L0000125    ,
L0000126    , L0000127    , L0000128    ,

             L0000129    , L0000130    , L0000131    , L0000132    , L0000133    ,
L0000134    , L0000135    , L0000136    ,

             L0000137    , L0000138    , L0000139    , L0000140    , L0000141    ,
L0000142    , L0000143    , L0000144    ,

             L0000145    , L0000146    , L0000147    , L0000148    , L0000149    ,
L0000150    , L0000151    , L0000152    ,

             L0000153    , L0000154    , L0000155    , L0000156    , L0000157    ,
L0000158    , L0000159    , L0000160    ,

             L0000161    , L0000162    , L0000163    , L0000164    , L0000165    ,
L0000166    , L0000167    , L0000168    ,

             L0000169    , L0000170    , L0000171    , L0000172    , L0000173    ,
L0000174    , L0000175    , L0000176    ,
 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\13660 HRA\13660
HRA.isc                         ***        12/08/21
 *** AERMET - VERSION  16216 ***   ***
                          ***        13:30:26

                                    PAGE  11
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
```

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

URBAN ID	URBAN POP	SOURCE IDs

L0000177 , L0000178 , L0000179 , L0000180 , L0000181 , L0000182 , L0000183 , L0000184 ,

L0000185 , L0000186 , L0000187 , L0000188 , L0000189 , L0000190 , L0000191 , L0000192 ,

L0000193 , L0000194 , L0000195 , L0000196 , L0000197 , L0000198 , L0000199 , L0000200 ,

L0000201 , L0000202 , L0000203 , L0000204 , L0000205 , L0000206 , L0000207 , L0000208 ,

L0000209 , L0000210 , L0000211 , L0000212 , L0000213 , L0000214 , L0000215 , L0000216 ,

L0000217 , L0000218 , L0000219 , L0000220 , L0000221 , L0000222 , L0000223 , L0000224 ,

L0000225 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

(475375.6, 3746874.2, 473.5, 473.5, 0.0); (475758.8, 3746465.8, 466.8, 466.8, 0.0);
(475347.3, 3746154.1, 477.0, 477.0, 0.0); (475115.6, 3746115.7, 485.0, 485.0, 0.0);
(474299.3, 3746412.9, 522.6, 522.6, 0.0); (474192.6, 3746904.2, 517.9, 517.9, 0.0);
(475214.4, 3747002.7, 475.9, 475.9, 0.0);

*** AERMOD - VERSION 21112 *** *** C:\Lakes\AERMOD View\13660 HRA\13660 HRA.isc *** 12/08/21
*** AERMET - VERSION 16216 *** *** *** 13:30:26

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

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

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

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

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

Surface file: PERI_V9_ADJU\PERI_v9.SFC
Met Version: 16216
Profile file: PERI_V9_ADJU\PERI_v9.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 3171 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN

Year: 2010 Year: 2010

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
10	01	01	1	01	-7.9	0.125	-9.000	-9.000	-999.	106.	21.2	0.19	0.61	1.00	1.30	335.	9.1	282.5	5.5
10	01	01	1	02	-3.9	0.088	-9.000	-9.000	-999.	62.	15.1	0.19	0.61	1.00	0.90	142.	9.1	280.9	5.5
10	01	01	1	03	-3.9	0.088	-9.000	-9.000	-999.	62.	15.1	0.19	0.61	1.00	0.90	324.	9.1	280.4	5.5
10	01	01	1	04	-1.3	0.064	-9.000	-9.000	-999.	39.	18.3	0.19	0.61	1.00	0.40	294.	9.1	278.8	5.5
10	01	01	1	05	-3.9	0.088	-9.000	-9.000	-999.	62.	15.0	0.19	0.61	1.00	0.90	205.	9.1	278.1	5.5
10	01	01	1	06	-1.3	0.065	-9.000	-9.000	-999.	39.	18.3	0.19	0.61	1.00	0.40	3.	9.1	277.0	5.5
10	01	01	1	07	-8.0	0.125	-9.000	-9.000	-999.	106.	21.0	0.19	0.61	1.00	1.30	99.	9.1	277.0	5.5
10	01	01	1	08	-3.3	0.086	-9.000	-9.000	-999.	61.	16.8	0.19	0.61	0.54	0.90	319.	9.1	278.8	5.5
10	01	01	1	09	20.1	0.128	0.307	0.010	49.	110.	-9.0	0.19	0.61	0.33	0.90	239.	9.1	284.2	5.5
10	01	01	1	10	56.7	0.087	0.560	0.010	107.	62.	-1.0	0.19	0.61	0.26	0.40	188.	9.1	289.2	5.5
10	01	01	1	11	81.5	0.323	0.867	0.008	277.	441.	-35.9	0.19	0.61	0.23	2.70	310.	9.1	290.9	5.5
10	01	01	1	12	97.1	0.281	1.058	0.008	421.	357.	-19.7	0.19	0.61	0.22	2.20	357.	9.1	293.1	5.5
10	01	01	1	13	92.2	0.279	1.117	0.008	523.	354.	-20.4	0.19	0.61	0.22	2.20	356.	9.1	293.8	5.5
10	01	01	1	14	77.6	0.275	1.102	0.008	595.	347.	-23.2	0.19	0.61	0.23	2.20	50.	9.1	294.2	5.5
10	01	01	1	15	54.9	0.230	1.006	0.008	640.	266.	-19.2	0.19	0.61	0.27	1.80	53.	9.1	293.8	5.5
10	01	01	1	16	12.3	0.206	0.613	0.008	648.	225.	-61.5	0.19	0.61	0.36	1.80	11.	9.1	292.5	5.5
10	01	01	1	17	-3.6	0.087	-9.000	-9.000	-999.	71.	15.6	0.19	0.61	0.64	0.90	351.	9.1	290.4	5.5
10	01	01	1	18	-3.8	0.087	-9.000	-9.000	-999.	62.	15.2	0.19	0.61	1.00	0.90	186.	9.1	287.5	5.5

```
 10 01 01   1 19   -3.8  0.087 -9.000 -9.000 -999.   62.     15.2  0.19   0.61
1.00    0.90  275.    9.1  285.9    5.5
 10 01 01   1 20   -1.2  0.064 -9.000 -9.000 -999.   39.     18.1  0.19   0.61
1.00    0.40  181.    9.1  285.4    5.5
 10 01 01   1 21   -7.8  0.125 -9.000 -9.000 -999.  106.     21.3  0.19   0.61
1.00    1.30  318.    9.1  284.9    5.5
 10 01 01   1 22   -3.8  0.088 -9.000 -9.000 -999.   62.     15.1  0.19   0.61
1.00    0.90  196.    9.1  283.1    5.5
 10 01 01   1 23   -3.8  0.088 -9.000 -9.000 -999.   62.     15.1  0.19   0.61
1.00    0.90  330.    9.1  281.4    5.5
 10 01 01   1 24   -7.9  0.125 -9.000 -9.000 -999.  106.     21.2  0.19   0.61
1.00    1.30  332.    9.1  280.9    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 10 01 01 01    5.5 0 -999.  -99.00   282.6   99.0  -99.00  -99.00
 10 01 01 01    9.1 1  335.    1.30  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\13660 HRA\13660
HRA.isc                         ***       12/08/21
 *** AERMET - VERSION  16216 ***   ***
                          ***       13:30:26

                                    PAGE  15
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   5
YEARS FOR SOURCE GROUP: ALL      ***
                                    INCLUDING SOURCE(S):     L0000001    , L0000002
 , L0000003    , L0000004    , L0000005    ,
                   L0000006    , L0000007    , L0000008    , L0000009    , L0000010
 , L0000011    , L0000012    , L0000013    ,
                   L0000014    , L0000015    , L0000016    , L0000033    , L0000034
 , L0000035    , L0000036    , L0000037    ,
                   L0000038    , L0000039    , L0000040    , L0000041    , L0000042
 , L0000043    , L0000044    ,  . . .      ,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)        CONC                        X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - -
         475375.60    3746874.23        0.00050                      475758.78
```

```
3746465.76        0.00007
         475347.29    3746154.14        0.00006                      475115.58
3746115.66        0.00005
         474299.28    3746412.87        0.00002                      474192.59
3746904.19        0.00002
         475214.44    3747002.66        0.00051

↑ *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\13660 HRA\13660
HRA.isc                         ***        12/08/21
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:30:26

                                   PAGE  16
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                   *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   5 YEARS ***


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



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

ALL       1ST HIGHEST VALUE IS       0.00051 AT (  475214.44,  3747002.66,
475.85,   475.85,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00050 AT (  475375.60,  3746874.23,
473.47,   473.47,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00007 AT (  475758.78,  3746465.76,
466.81,   466.81,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00006 AT (  475347.29,  3746154.14,
476.99,   476.99,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00005 AT (  475115.58,  3746115.66,
485.00,   485.00,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00002 AT (  474192.59,  3746904.19,
517.90,   517.90,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00002 AT (  474299.28,  3746412.87,
522.59,   522.59,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

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

A Total of   0 Fatal Error Message(s)
A Total of   4 Warning Message(s)
A Total of   2028 Informational Message(s)

A Total of   43824 Hours Were Processed

A Total of   978 Calm Hours Identified

A Total of   1050 Missing Hours Identified (2.40 Percent)

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

   ********   WARNING MESSAGES   ********
ME W186   540   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
ME W187   540   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

MX W450   17521   CHKDAT: Record Out of Sequence in Meteorological File at:
 14010101
MX W450   17521   CHKDAT: Record Out of Sequence in Meteorological File at:
2 year gap

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

AVERAGE EMISSION FACTOR
RIVERSIDE COUNTY 2023

Speed	LHD1	MHD	HHD
0	0.392364	0.038645	0.01241
5	0.035611	0.005921	0.01285
25	0.012981	0.002881	0.00686

Speed	Weighted Average Emissions
0	**0.07044**
5	**0.01511**
25	**0.00717**

Emission Rates - 2023 Emission Factors

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	46			0.0704	0.80	9.273E-06
On-Site Travel	91	10.83	0.0151		0.16	1.895E-06
Off-Site Travel	91	83.13	0.0072		0.60	6.896E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2017. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

calendar_y	season_m	sub_area	vehicle_class	fuel	temperatu	relative_h	process	speed_tim	pollutant	emission_rate
2023	Annual	Riverside (	HHDT	Dsl	60	70	RUNEX	5	PM10	0.013015
2023	Annual	Riverside (	HHDT	Dsl	60	70	RUNEX	25	PM10	0.00695
2023	Annual	Riverside (	LHDT1	Dsl	60	70	RUNEX	5	PM10	0.071342
2023	Annual	Riverside (	LHDT1	Dsl	60	70	RUNEX	25	PM10	0.026006
2023	Annual	Riverside (	MHDT	Dsl	60	70	RUNEX	5	PM10	0.006736
2023	Annual	Riverside (	MHDT	Dsl	60	70	RUNEX	25	PM10	0.003278
2023	Annual	Riverside (	HHDT	Dsl			IDLEX		PM10	0.012569
2023	Annual	Riverside (	LHDT1	Dsl			IDLEX		PM10	0.786058
2023	Annual	Riverside (	MHDT	Dsl			IDLEX		PM10	0.043967

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: County
Region: Riverside
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for VMT, trips/year for Trips, tons/year for Emissions, 1000 gallons/year for Fuel Consumptic

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population
Riverside	2023	HHDT	Aggregate	Aggregate	Gasoline	7.088214
Riverside	2023	HHDT	Aggregate	Aggregate	Diesel	28234.19
Riverside	2023	HHDT	Aggregate	Aggregate	Natural Ga	355.8193
Riverside	2023	LHDT1	Aggregate	Aggregate	Gasoline	20379.4
Riverside	2023	LHDT1	Aggregate	Aggregate	Diesel	20310.56
Riverside	2023	MHDT	Aggregate	Aggregate	Gasoline	2097.293
Riverside	2023	MHDT	Aggregate	Aggregate	Diesel	15231.09

HHDT% GAS/NG	0.01269
HHDT% DSL	0.98731
LHDT1% GAS	0.50085
LHDT1% DSL	0.49915
MHDT% GAS	0.12103
MHDT% DSL	0.87897

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APPENDIX 2.2:

RISK CALCULATIONS

Table 1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
-0.25 to 0 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00007	7.00E-08	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	2.4E-08	7.7E-10	5.0E+00	1.4E-03	1.4E-05							
TOTAL								7.7E-10			1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	0.25
inhalation rate (L/kg-day))	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (age third trimester	10

Table 2
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
0-2 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00007	7.00E-08	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	7.3E-08	1.9E-08	5.0E+00	1.4E-03	1.4E-05							
TOTAL								1.9E-08			1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	2
inhalation rate (L/kg-day))	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (0 to 2 years old)	10

Table 3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
2-16 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00007	7.00E-08	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	3.8E-08	1.7E-08	5.0E+00	1.4E-03	1.4E-05							
TOTAL								1.7E-08			1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.72
age sensitivity factor (ages 2 to 16 years	3

Table 4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
16-30 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00007	7.00E-08	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.8E-08	2.7E-09	5.0E+00	1.4E-03	1.4E-05							
TOTAL								2.7E-09			1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	261
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.73
age sensitivity factor (ages 16 to 30 years old)	1

Total Risk for All Age Bins (per million) **0.04**

Table 5
Quantification of Carcinogenic Risks and Noncarcinogenic Risks
25-Year Worker Exposure Scenario

	Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
						URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
		(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	5.10E-04	5.10E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	8.0E-08	3.0E-08	5.0E+00	1.4E-03	1.0E-04							
	TOTAL								3.0E-08 0.03			1.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	250
exposure duration (years)	25
inhalation rate (L/kg-day))	230
inhalation absorption factor	1
averaging time (years)	70