Harley Knox Commerce Center

MOBILE SOURCE HEALTH RISK ASSESSMENT

CITY OF PERRIS

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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
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard Assessment
PM10	Particulate Matter 10 microns in diameter or less
Project	Harley Knox Commerce Center
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TGA	Trip Generation Assessment
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

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

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

Individual Exposure Scenario:

The residential land use with the greatest potential exposure to Project TAC source emissions is Location R3, which represents the existing residence at 220 East Nance Street, approximately 10 feet west of the Project site. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project TAC source emissions is estimated at 3.86 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 from the Project site and primary truck route than the MEIR analyzed herein, and TACs generally dissipate 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 TAC source emissions is Location R5, which represents the northernmost building of the Perris Circle Industrial Park Facility, approximately 10 feet east of the Project site. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact is 0.21 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. In fact, the nearest school in the Project vicinity would be the Rancho Verde High School which is located over 3,800 feet (0.7 mile) northeast of the Project site.

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 California Air Resources Board (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).

The 1,000-foot evaluation distance is supported by research-based findings concerning Toxic Air Contaminant (TAC) emission dispersion rates from roadways and large sources showing that emissions diminish substantially between 500 and 1,000 feet from emission sources.

For purposes of this assessment, a one-quarter mile radius or 1,320 feet geographic scope is utilized for determining potential impacts to nearby schools. This radius is more robust than, and therefore provides a more health protective scenario for evaluation than the 1,000-foot impact radius identified above. Since there is no school site located within ¼ mile of the Project site, there would be no significant impact that would occur to the nearest school, or any other schools located more than ¼ mile from the Project site.

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 Individual Receptor	3.86	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.21	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

1 INTRODUCTION

The South Coast Air Quality Management District (SCAQMD) typically issues a comment letter on the Notice of Preparation of a CEQA Document. Per the SCAQMD's typical comment letter, if a proposed Project is expected to generate/attract diesel trucks, which emit diesel particulate matter (DPM) or other Toxic Air Contaminants (TACs), preparation of a HRA is necessary. This document serves to meet the SCAQMD's request for preparation of a HRA. This 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 United States Environmental Protection Agency (U.S. EPA), California EPA 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 TAC exposure from a project such as the proposed Project. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulatively considerable 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 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. In this HRA, non-carcinogenic exposures of less than 1.0 are considered less-than-significant. Both the cancer risk and non-carcinogenic risk thresholds are applied to the nearest sensitive receptors below.

1.1 SITE LOCATION

The proposed Harley Knox Commerce Center site is located at 220-280 East Nance Street east of Jason Court and north of Nance Street, within the City of Perris' PVCC SP as shown on Exhibit 1-A. The March Air Reserve Base/Inland Port Airport (MARB/IPA) is located approximately 1.5 miles northwest of the Project site boundary. According to the City of Perris General Plan, the Project site is located within the PVCC SP area. As per the PVCC SP, the Project site is designated for Light Industrial uses. The Light Industrial designation provides for light industrial uses and related activities including manufacturing, research, warehouse and distribution, assembly of non-hazardous materials and retail related to manufacturing (4). The Project site is located adjacent to the following uses:

North: Non-conforming residential land use with truck staging yard.
South: Truck staging yard with a single non-conforming residence.
East: Industrial warehouse building.
West: Vacant with a single non-conforming residence.

1.2 PROJECT DESCRIPTION

Exhibit 1-B illustrates a preliminary site plan for the Project. The Project is proposed to consist of a 156,780-square-foot (sf) warehouse building. The currently proposed Project is less square footage however, for the purpose of this analysis, we have conservatively evaluated the site plan representing 156,780 sf. The Project is anticipated to be constructed in a single phase by the year 2022.

At the time this HRA was prepared, the future tenants of the proposed Project were unknown. Because the operating hours of perspective building tenants is not known at this time, this HRA is intended to describe potential toxic emission impacts associated with the expected typical 24-hour, seven day per week operational activities at the Project site, which provides a conservative analysis of impacts.

As summarized in the *Harley Knox Commerce Center (DPR 21-00006) Trip Generation Assessment (TGA)*, the Project is expected to generate a total of approximately 272 two-way vehicular trips per day (136 inbound and 136 outbound) which includes 96 two-way truck trips per day (48 inbound and 48 outbound). DPM-related impacts are associated with diesel exhaust from the 96 two-way truck trips per day generated by the Project (5).

EXHIBIT 1-A: LOCATION MAP

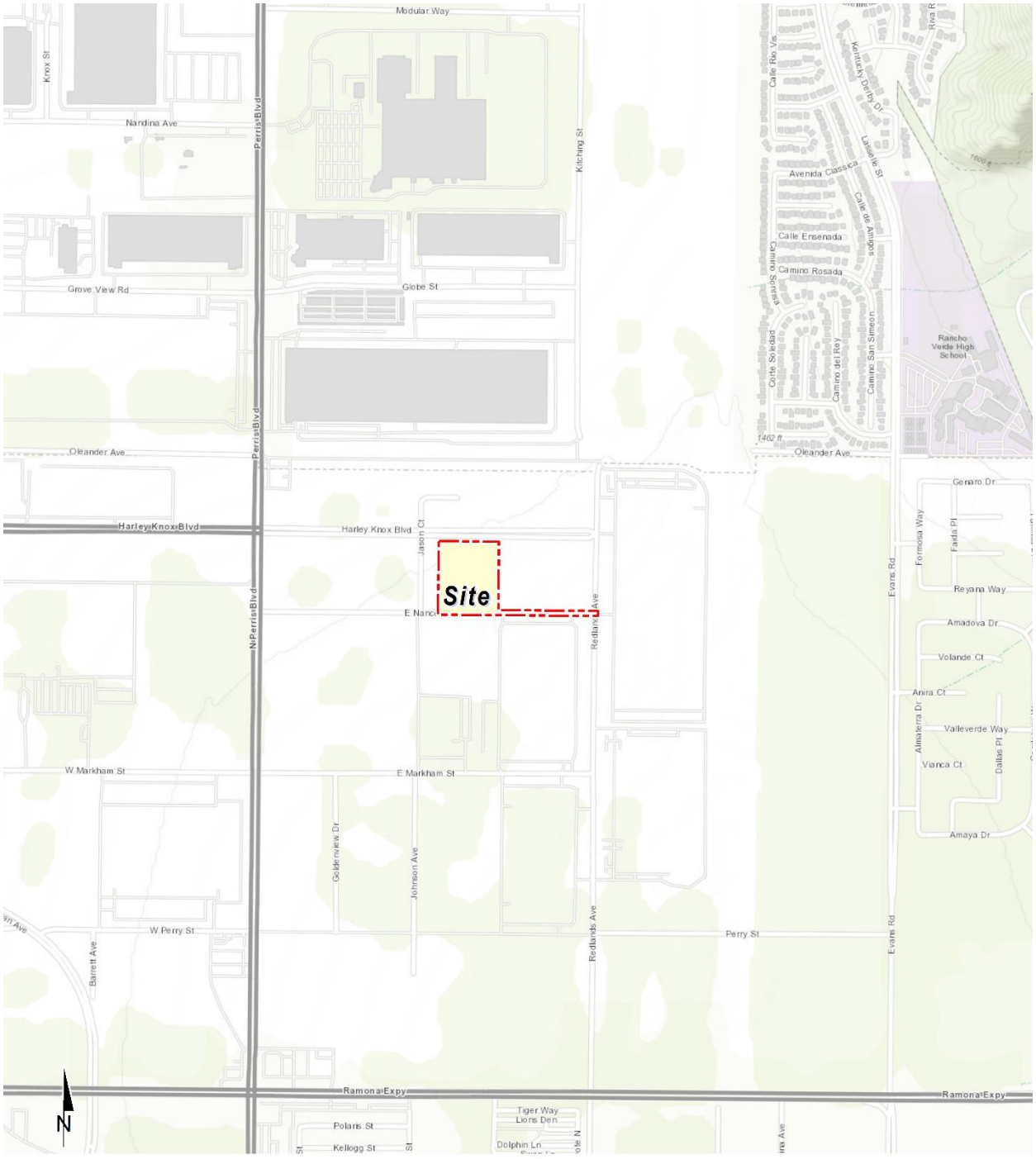
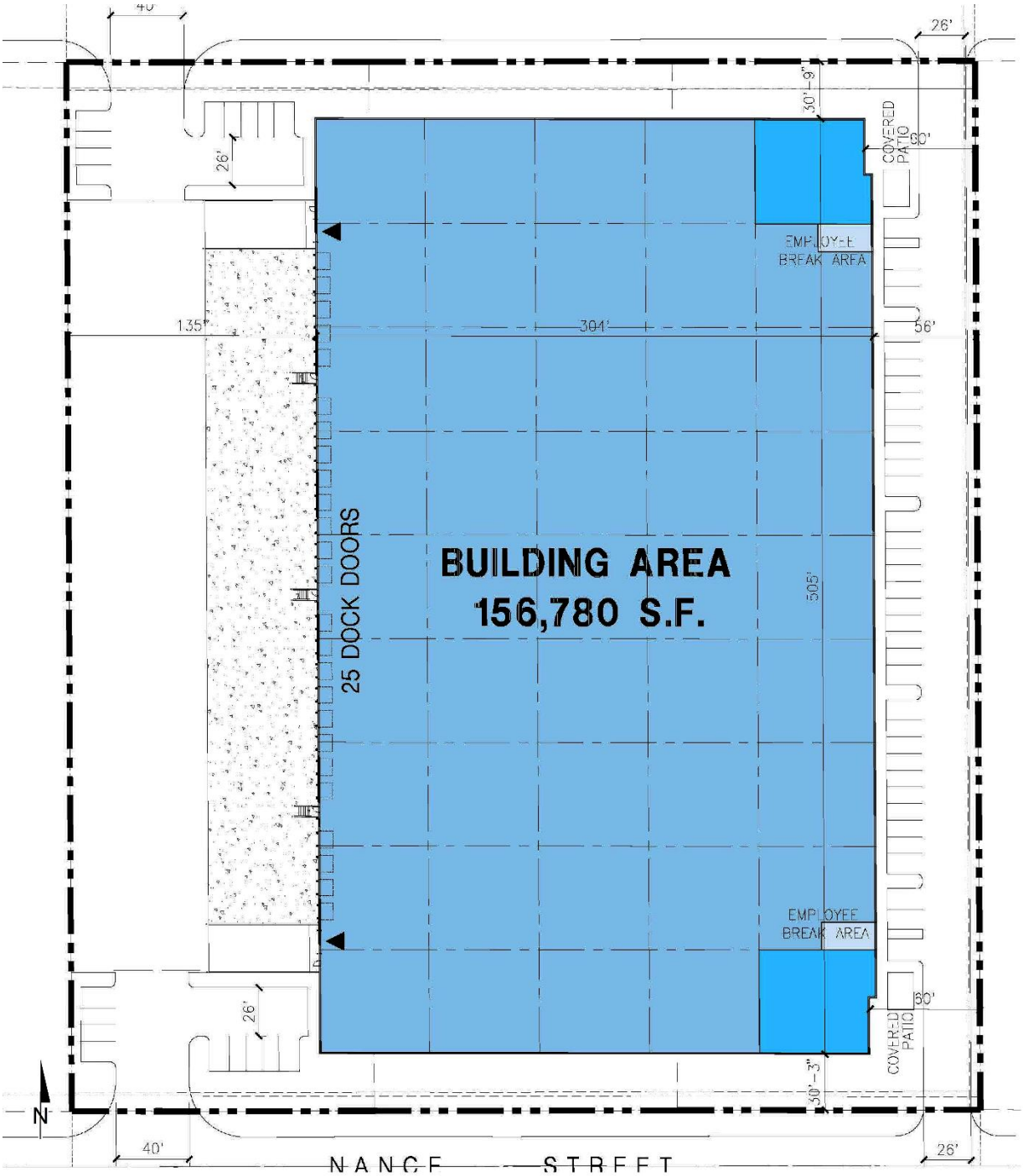


EXHIBIT 1-B: SITE PLAN



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2 BACKGROUND

2.1 BACKGROUND ON RECOMMENDED METHODOLOGY

This HRA is based on SCAQMD guidelines to produce conservative estimates of human health 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 because it represents breathing rates that are high for the human body (95% higher than the average population).
- The emissions derived assume that every truck accessing the Project site will idle for 15 minutes under the unmitigated scenario, and this is an overestimation of actual idling times and thus conservative.[1] The California Air Resources Board (CARB'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 calculated 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 CARB. EMFAC 2017 is a mathematical model that CARB 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 (6). 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 2022 EMFAC 2017 run was conducted and a static 2022 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2022 emission factors would overstate potential impacts since this approach assumes that emission factors remain "static" and do not change over time due to fleet turnover or cleaner technology with lower emissions that would be incorporated into vehicles after 2022. Additionally, based on EMFAC 2017, Light-Heavy-Duty Trucks are comprised of 49.43% diesel, Medium-Heavy-Duty Trucks are comprised of 88.51% diesel, and Heavy-Heavy-Duty Trucks are comprised of 98.85% diesel. Trucks fueled by diesel are accounted for by these percentages accordingly in the emissions factor generation. Appendix 2.1 includes additional details on the emissions estimates from EMFAC.

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 (7):

$Emissions_{speedA}$ (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 assumed idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (7):

$Emissions_{idle}$ (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: 2022 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.10566 (g/idle-hr)
5	0.04599 (g/s)
25	0.02007 (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 2.2. 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 modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for more than ¾ of a mile. This modeling domain is more inclusive and conservative than using only a ¼ mile modeling domain which is the distance supported by several reputable studies which conclude that the greatest potential risks occur within a ¼ mile of the primary source of emissions (1) (in the case of the Project, the primary source of emissions is the on-site idling and on-site travel).

On-site truck idling was estimated to occur as trucks enter and travel through the Project site. Although the Project's diesel-fueled truck and equipment operators will be required by State law to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions be calculated assuming 15 minutes of truck idling (8), 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 calculates truck idling at 15 minutes, consistent with SCAQMD's recommendation.

As summarized in the *TGA*, the Project is expected to generate a total of approximately 272 two-way vehicular trips per day (136 inbound and 136 outbound) which includes 96 two-way truck trips per day (48 inbound and 48 outbound). DPM-related impacts are associated with diesel exhaust from the 96 two-way truck trips per day generated by the Project (5).

EXHIBIT 2-A: MODELED EMISSION SOURCES

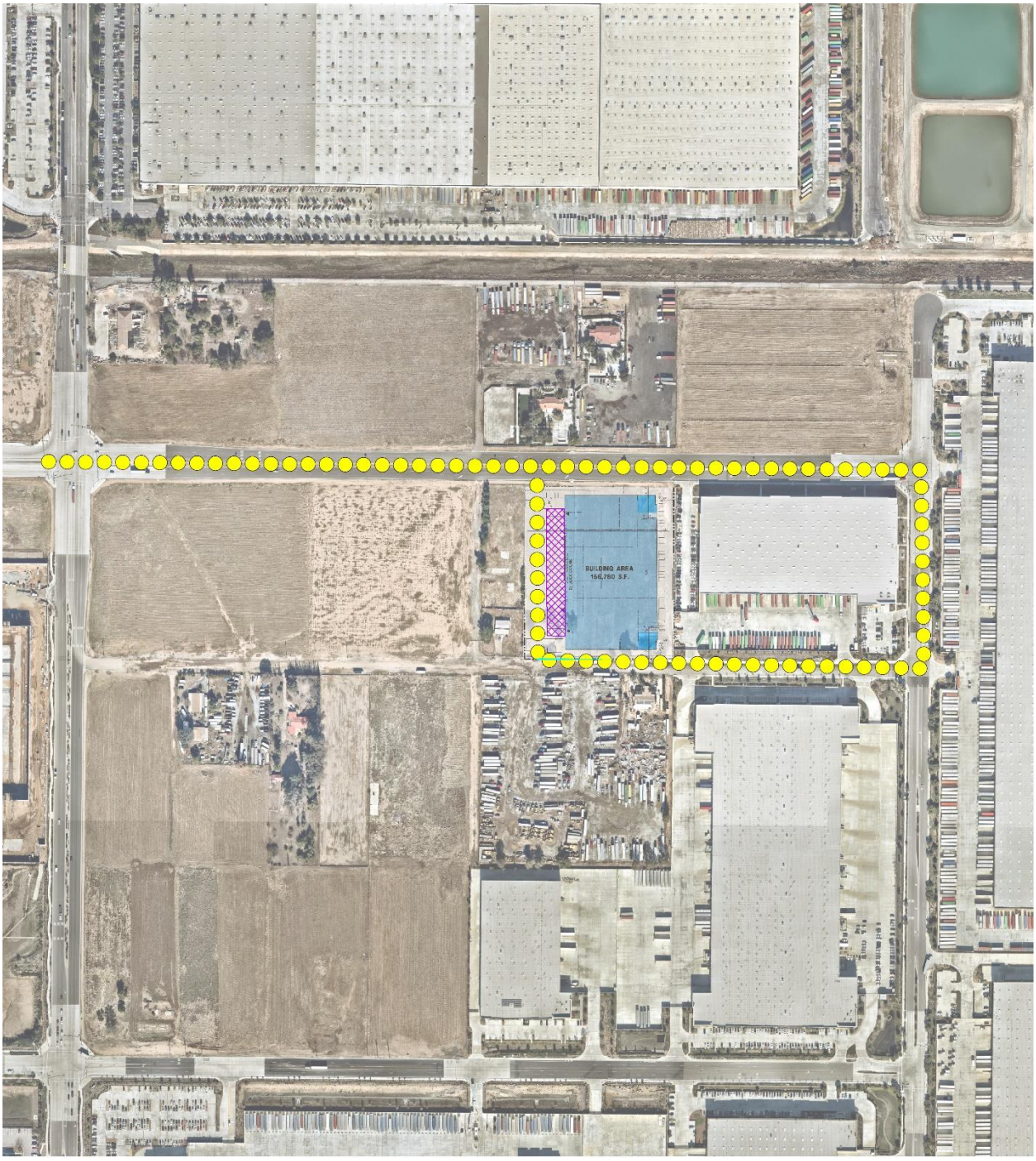


TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS (2022 ANALYSIS YEAR)

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	48			0.1012	1.21	1.406E-05
On-Site Travel	96	10.40	0.0461		0.48	5.550E-06
Off-Site Travel Inbound/Outbound	96	86.05	0.0202		1.74	2.009E-05

[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 on-site.

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 10.12.1) 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 (9).

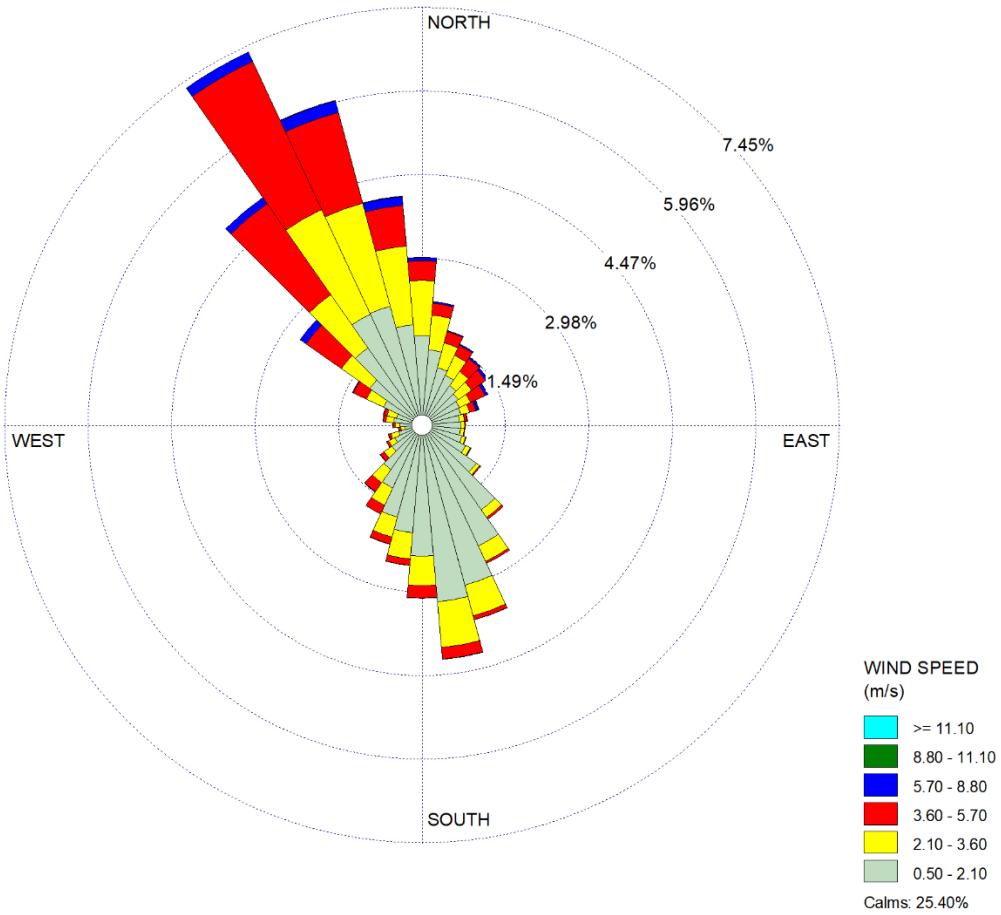
The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route 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 US 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-recommended model parameters are presented in Table 2-3 (10). 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 (11). A wind rose exhibit of the Perris monitoring station is provided at Exhibit 2-B.

EXHIBIT 2-B: WIND ROSE (SRA 24)

WIND ROSE PLOT:
Station #3171

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2010 - 00:00 **End Date: 12/31/2016 - 23:59**	**Urban Crossroads, Inc.**	
		MODELER: **HQ**	
	CALM WINDS: **25.40%**	TOTAL COUNT: **43476 hrs.**	
	AVG. WIND SPEED: **1.56 m/s**	DATE: **3/15/2021**	PROJECT NO.:

TABLE 2-3: AERMOD MODEL PARAMETERS

Dispersion Coefficient (Urban/Rural)	Urban (SCAQMD Requirement)
County Population	2,189,641 (SCAQMD Requirement)
Terrain (Flat/Elevated)	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 site boundaries, each volume source location, and receptor locations in the Project site's vicinity. The AERMOD dispersion model summary output files for the proposed Project are presented in Appendix 2.2. Modeled sensitive receptors were placed at residential and non-residential locations.

Receptors may be placed at applicable structure locations for residential and worker property and not necessarily the boundaries of the properties containing these uses because the human receptors (residents and workers) spend a majority of their time at the residence or in the workplace's building, and not on the property line. 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 residents and workers over a period of 30 or 25 years of exposure, respectively. Notwithstanding, as a conservative measure, receptors were placed at either the outdoor living area or the building façade, whichever is closer to the Project site.

For purposes of this HRA, receptors include both residential and non-residential (worker) land uses in the vicinity of the Project. These receptors are included in the HRA since residents and workers may be exposed at these locations over a long-term duration of 30 and 25 years, respectively. This methodology is consistent with SCAQMD and OEHHA recommended guidance.

Any impacts to residents or workers located further away from the Project site than the modeled residential and workers would have a lesser impact than what has already been disclosed in the HRA at the MEIR and MEIW because concentrations dissipate with distance. It should be noted that the existing residences adjacent to the Project site do not conform to the underlying industrial land use designation of the PVCC SP and City of Perris Zoning Map. Therefore, these residences are considered an existing non-conforming use. Even though these existing non-conforming residences likely will ultimately be developed with land uses that are consistent with the underlying industrial land use designation, for purposes of a conservative analysis they are considered sensitive receptors until such time they are unoccupied or no longer exist.

Consistent with SCAQMD modeling guidance, all receptors were set to existing elevation height so that only ground-level concentrations are analyzed (12). 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.

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 Workers based on 2015 OEHHA Guidelines. Appendix 2.3 includes the detailed risk calculation.

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

2.4 CARCINOGENIC CHEMICAL RISK

The SCAQMD CEQA Air Quality Handbook (1993) states that 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 proposed 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.

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 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 × [BR/BW] × A × EF) x (1 x 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 x 10 -6 = conversion factors (ug to mg, L to m3)

RISKair = DOSEair x CPF x 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 µg/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 (µg/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 TAC SOURCE CANCER AND NON-CANCER RISKS

Individual Exposure Scenario:

The residential land use with the greatest potential exposure to Project TAC source emissions is Location R3, which represents the existing residence at 220 East Nance Street, approximately 10 feet west of the Project site. At the MEIR, the maximum incremental cancer risk attributable to Project TAC source emissions is estimated at 3.86 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 from the Project site and primary truck route than the MEIR analyzed herein, and TACs generally dissipates with distance from the source, all other residential receptors in the vicinity of the Project site and along the anticipated truck travel route 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 are illustrated on Exhibit 2-C.

Worker Exposure Scenario[2]*:*

The worker receptor land use with the greatest potential exposure to Project TAC source emissions is Location R5, which represents the northernmost building of the Perris Circle Industrial Park Facility, approximately 10 feet east of the Project site. At the MEIW, the maximum incremental cancer risk impact is 0.21 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. The nearest modeled receptors are illustrated on Exhibit 2-C.

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.

EXHIBIT 2-C: MODELED RECEPTORS

School Child Exposure Scenario:

There are no schools located within a ¼ mile of the Project site. In fact, the nearest school in the Project vicinity would be the Rancho Verde High School which is located over 3,800 feet (0.7 mile) northeast of the Project site.

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 California Air Resources Board (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).

The 1,000-foot evaluation distance is supported by research-based findings concerning Toxic Air Contaminant (TAC) emission dispersion rates from roadways and large sources showing that emissions diminish substantially between 500 and 1,000 feet from emission sources.

For purposes of this assessment, a one-quarter mile radius or 1,320 feet geographic scope is utilized for determining potential impacts to nearby schools. This radius is more robust than, and therefore provides a more health protective scenario for evaluation than the 1,000-foot impact radius identified above. Since there is no school site located within ¼ mile of the Project site, there would be no significant impact that would occur to the nearest school, or any other schools located more than ¼ mile from the Project site.

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3 REFERENCES

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4. **City of Perris.** Perris Valley Commerce Center Amendment No. 9. [Online] 2018. https://www.cityofperris.org/Home/ShowDocument?id=2647.
5. **Urban Crossroads, Inc.** *Harley Knox Commerce Center (DPR 21-00006) Trip Generation Assessment.* 2022.
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7. **California Department of Transportation.** EMFAC Software. [Online] http://www.dot.ca.gov/hq/env/air/pages/emfac.htm.
8. **Wong, Jillian.** *Planning, Rule Development & Area Sources.* December 22, 2016.
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11. **South Coast Air Quality Management District.** Data for AERMOD. [Online] [Cited: June 10, 2019.] https://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/data-for-aermod.
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4 CERTIFICATIONS

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed Harley Knox Commerce Center 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 at (949) 660-1994.

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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:

EMFAC EMISSIONS SUMMARY

AVERAGE EMISSION FACTOR
RIVERSIDE COUNTY 2022

Speed	LHD1	MHD	HHD
0	0.389075	0.130109	0.01485
5	0.037927	0.062152	0.04296
25	0.013603	0.0316	0.01812

Speed	**Weighted Average Emissions**
0	**0.10124**
5	**0.04612**
25	**0.02017**

Emission Rates - 2022 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	48			0.1012	1.21	1.406E-05
On-Site Travel	96	10.40	0.0461		0.48	5.550E-06
Off-Site Travel Inbound/Outbound	96	86.05	0.0202		1.74	2.009E-05

[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 on-site.

calendar_y	season_m	sub_area	vehicle_class	fuel	temperatu	relative_h	process	speed_tim	pollutant	emission_rate
2022	Annual	Riverside (SC)	HHDT	Dsl	60	70	RUNEX	5	PM10	0.043461
2022	Annual	Riverside (SC)	HHDT	Dsl	60	70	RUNEX	25	PM10	0.018326
2022	Annual	Riverside (SC)	LHDT1	Dsl	60	70	RUNEX	5	PM10	0.076718
2022	Annual	Riverside (SC)	LHDT1	Dsl	60	70	RUNEX	25	PM10	0.027515
2022	Annual	Riverside (SC)	MHDT	Dsl	60	70	RUNEX	5	PM10	0.070223
2022	Annual	Riverside (SC)	MHDT	Dsl	60	70	RUNEX	25	PM10	0.035704
2022	Annual	Riverside (SC)	HHDT	Dsl			IDLEX		PM10	0.015028
2022	Annual	Riverside (SC)	LHDT1	Dsl			IDLEX		PM10	0.78701
2022	Annual	Riverside (SC)	MHDT	Dsl			IDLEX		PM10	0.147006

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: County
Region: Riverside
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for VMT, trips/year for Trips, tons/year for Emissions, 1000 gallons/year for Fuel Consumption

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population
Riverside	2022	HHDT	Aggregate	Aggregate	Gasoline	7.25505
Riverside	2022	HHDT	Aggregate	Aggregate	Diesel	27819.8
Riverside	2022	HHDT	Aggregate	Aggregate	Natural G	316.985
Riverside	2022	LHDT1	Aggregate	Aggregate	Gasoline	20620.9
Riverside	2022	LHDT1	Aggregate	Aggregate	Diesel	20161.8
Riverside	2022	MHDT	Aggregate	Aggregate	Gasoline	2027.16
Riverside	2022	MHDT	Aggregate	Aggregate	Diesel	15610

HHDT% GAS/NG	0.01152
HHDT% DSL	0.98848
LHDT1% GAS	0.50563
LHDT1% DSL	0.49437
MHDT% GAS	0.11494
MHDT% DSL	0.88506

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APPENDIX 2.2:

AERMOD MODEL INPUT/OUTPUT

```
**
**************************************
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** AERMOD Input Produced by:
** AERMOD View Ver. 10.2.1
** Lakes Environmental Software Inc.
** Date: 3/28/2022
** File: C:\Lakes\AERMOD View\14087 Ops HRA\14087 Ops HRA.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
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CO STARTING
   TITLEONE C:\Lakes\AERMOD View\14087 Ops HRA\14087 Ops HRA.isc
   MODELOPT DFAULT CONC
   AVERTIME ANNUAL
   URBANOPT 2189641
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "14087 Ops HRA.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC On-Site Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00001406
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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** 479572.294, 3746183.771, 443.06, 3.49, 4.00
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   LOCATION L0000608     VOLUME   479571.153 3746289.052 444.00
   LOCATION L0000609     VOLUME   479571.246 3746280.462 444.00
   LOCATION L0000610     VOLUME   479571.339 3746271.873 444.00
   LOCATION L0000611     VOLUME   479571.432 3746263.283 444.00
   LOCATION L0000612     VOLUME   479571.525 3746254.694 444.00
   LOCATION L0000613     VOLUME   479571.618 3746246.104 444.00
   LOCATION L0000614     VOLUME   479571.712 3746237.515 444.00
   LOCATION L0000615     VOLUME   479571.805 3746228.925 443.90
   LOCATION L0000616     VOLUME   479571.898 3746220.336 443.79
   LOCATION L0000617     VOLUME   479571.991 3746211.746 443.67
   LOCATION L0000618     VOLUME   479572.084 3746203.157 443.53
   LOCATION L0000619     VOLUME   479572.177 3746194.567 443.36
   LOCATION L0000620     VOLUME   479572.270 3746185.978 443.19
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** LINE VOLUME Source ID = SLINE2
** DESCRSRC On-Site Travel
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 5.55E-06
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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** ----------------------------------------------------------------------
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** PREFIX
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** Configuration = Adjacent
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LOCATION L0000770 VOLUME 479413.487 3746354.255 444.00
LOCATION L0000771 VOLUME 479404.897 3746354.348 444.16

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   LOCATION L0000772     VOLUME   479396.308 3746354.440 444.43
   LOCATION L0000773     VOLUME   479387.718 3746354.533 444.70
   LOCATION L0000774     VOLUME   479379.129 3746354.625 444.95
   LOCATION L0000775     VOLUME   479370.539 3746354.718 444.95
   LOCATION L0000776     VOLUME   479361.950 3746354.810 444.95
   LOCATION L0000777     VOLUME   479353.360 3746354.903 444.96
   LOCATION L0000778     VOLUME   479344.771 3746354.995 444.97
   LOCATION L0000779     VOLUME   479336.181 3746355.088 444.98
   LOCATION L0000780     VOLUME   479327.592 3746355.180 444.99
   LOCATION L0000781     VOLUME   479319.002 3746355.272 445.00
   LOCATION L0000782     VOLUME   479310.413 3746355.358 445.00
   LOCATION L0000783     VOLUME   479301.823 3746355.292 445.00
   LOCATION L0000784     VOLUME   479293.233 3746355.227 445.00
   LOCATION L0000785     VOLUME   479284.644 3746355.161 445.00
   LOCATION L0000786     VOLUME   479276.054 3746355.095 445.00
   LOCATION L0000787     VOLUME   479267.464 3746355.029 445.00
   LOCATION L0000788     VOLUME   479258.874 3746354.963 445.00
   LOCATION L0000789     VOLUME   479250.285 3746354.897 445.00
   LOCATION L0000790     VOLUME   479241.695 3746354.832 445.00
   LOCATION L0000791     VOLUME   479233.105 3746354.766 445.00
   LOCATION L0000792     VOLUME   479224.515 3746354.700 445.00
   LOCATION L0000793     VOLUME   479215.926 3746354.634 445.00
   LOCATION L0000794     VOLUME   479207.336 3746354.568 445.00
   LOCATION L0000795     VOLUME   479198.746 3746354.503 445.00
   LOCATION L0000796     VOLUME   479190.156 3746354.437 445.00
   LOCATION L0000797     VOLUME   479181.567 3746354.371 445.00
   LOCATION L0000798     VOLUME   479172.977 3746354.305 445.00
   LOCATION L0000799     VOLUME   479164.387 3746354.239 445.00
   LOCATION L0000800     VOLUME   479155.797 3746354.173 445.00
   LOCATION L0000801     VOLUME   479147.208 3746354.108 445.00
   LOCATION L0000802     VOLUME   479138.618 3746354.042 445.00
   LOCATION L0000803     VOLUME   479130.028 3746353.976 445.00
   LOCATION L0000804     VOLUME   479121.438 3746353.910 445.00
   LOCATION L0000805     VOLUME   479112.849 3746353.844 445.00
   LOCATION L0000806     VOLUME   479104.259 3746353.778 445.00
   LOCATION L0000807     VOLUME   479095.669 3746353.713 445.00
   LOCATION L0000808     VOLUME   479087.079 3746353.647 445.00
** End of LINE VOLUME Source ID = SLINE3
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
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** LINE VOLUME Source ID = SLINE3
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   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
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**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "14087 Ops HRA.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE PerrisADJU\PERI_V9_ADJU\PERI_v9.SFC
   PROFFILE PerrisADJU\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 "14087 Ops HRA.AD\AN00GALL.PLT" 31
   SUMMFILE "14087 Ops 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     523       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     523       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\14087 Ops HRA\14087
Ops HRA.isc                  ***        03/28/22
 *** AERMET - VERSION  16216 ***   ***
                         ***        22:58:40

                                    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   202 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:    202 Source(s);       1 Source Group(s); and       5
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    202 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:   14087 Ops HRA.err

 **File for Summary of Results:   14087 Ops HRA.sum
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*** 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 BY	EMISSION RATE SCALAR VARY
L0000607	0	0.10040E-05	479571.1	3746297.6	444.0	3.49	4.00	3.25	YES	
L0000608	0	0.10040E-05	479571.2	3746289.1	444.0	3.49	4.00	3.25	YES	
L0000609	0	0.10040E-05	479571.2	3746280.5	444.0	3.49	4.00	3.25	YES	
L0000610	0	0.10040E-05	479571.3	3746271.9	444.0	3.49	4.00	3.25	YES	
L0000611	0	0.10040E-05	479571.4	3746263.3	444.0	3.49	4.00	3.25	YES	
L0000612	0	0.10040E-05	479571.5	3746254.7	444.0	3.49	4.00	3.25	YES	
L0000613	0	0.10040E-05	479571.6	3746246.1	444.0	3.49	4.00	3.25	YES	
L0000614	0	0.10040E-05	479571.7	3746237.5	444.0	3.49	4.00	3.25	YES	
L0000615	0	0.10040E-05	479571.8	3746228.9	443.9	3.49	4.00	3.25	YES	
L0000616	0	0.10040E-05	479571.9	3746220.3	443.8	3.49	4.00	3.25	YES	
L0000617	0	0.10040E-05	479572.0	3746211.7	443.7	3.49	4.00	3.25	YES	
L0000618	0	0.10040E-05	479572.1	3746203.2	443.5	3.49	4.00	3.25	YES	
L0000619	0	0.10040E-05	479572.2	3746194.6	443.4	3.49	4.00	3.25	YES	
L0000620	0	0.10040E-05	479572.3	3746186.0	443.2	3.49	4.00	3.25	YES	
L0000621	0	0.27750E-06	479550.3	3746332.2	444.0	3.49	4.00	3.25	YES	

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 L0000622         0   0.27750E-06  479550.4 3746323.7   444.0     3.49     4.00
3.25     YES
 L0000623         0   0.27750E-06  479550.6 3746315.1   444.0     3.49     4.00
3.25     YES
 L0000624         0   0.27750E-06  479550.7 3746306.5   444.0     3.49     4.00
3.25     YES
 L0000625         0   0.27750E-06  479550.8 3746297.9   444.0     3.49     4.00
3.25     YES
 L0000626         0   0.27750E-06  479550.9 3746289.3   444.0     3.49     4.00
3.25     YES
 L0000627         0   0.27750E-06  479551.1 3746280.7   444.0     3.49     4.00
3.25     YES
 L0000628         0   0.27750E-06  479551.2 3746272.1   444.0     3.49     4.00
3.25     YES
 L0000629         0   0.27750E-06  479551.3 3746263.5   444.0     3.49     4.00
3.25     YES
 L0000630         0   0.27750E-06  479551.5 3746254.9   444.0     3.49     4.00
3.25     YES
 L0000631         0   0.27750E-06  479551.6 3746246.4   444.0     3.49     4.00
3.25     YES
 L0000632         0   0.27750E-06  479551.7 3746237.8   444.0     3.49     4.00
3.25     YES
 L0000633         0   0.27750E-06  479551.8 3746229.2   444.0     3.49     4.00
3.25     YES
 L0000634         0   0.27750E-06  479552.0 3746220.6   444.0     3.49     4.00
3.25     YES
 L0000635         0   0.27750E-06  479552.1 3746212.0   444.0     3.49     4.00
3.25     YES
 L0000636         0   0.27750E-06  479552.2 3746203.4   443.9     3.49     4.00
3.25     YES
 L0000637         0   0.27750E-06  479552.3 3746194.8   443.7     3.49     4.00
3.25     YES
 L0000638         0   0.27750E-06  479552.5 3746186.2   443.5     3.49     4.00
3.25     YES
 L0000639         0   0.27750E-06  479552.6 3746177.6   443.3     3.49     4.00
3.25     YES
 L0000640         0   0.27750E-06  479552.7 3746169.1   443.2     3.49     4.00
3.25     YES
 L0000641         0   0.11960E-06  479555.9 3746150.8   443.0     3.49     4.00
3.25     YES
 L0000642         0   0.11960E-06  479564.5 3746150.9   443.0     3.49     4.00
3.25     YES
 L0000643         0   0.11960E-06  479573.0 3746150.9   443.0     3.49     4.00
3.25     YES
 L0000644         0   0.11960E-06  479581.6 3746151.0   443.0     3.49     4.00
3.25     YES
 L0000645         0   0.11960E-06  479590.2 3746151.1   443.0     3.49     4.00
3.25     YES
 L0000646         0   0.11960E-06  479598.8 3746151.1   443.0     3.49     4.00
3.25     YES
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*** 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 BY	EMISSION RATE SCALAR VARY
L0000647	0	0.11960E-06	479607.4	3746151.2	443.0	3.49	4.00	3.25	YES	
L0000648	0	0.11960E-06	479616.0	3746151.3	443.0	3.49	4.00	3.25	YES	
L0000649	0	0.11960E-06	479624.6	3746151.4	443.0	3.49	4.00	3.25	YES	
L0000650	0	0.11960E-06	479633.2	3746151.4	443.0	3.49	4.00	3.25	YES	
L0000651	0	0.11960E-06	479641.8	3746151.5	443.0	3.49	4.00	3.25	YES	
L0000652	0	0.11960E-06	479650.3	3746151.6	443.0	3.49	4.00	3.25	YES	
L0000653	0	0.11960E-06	479658.9	3746151.6	443.0	3.49	4.00	3.25	YES	
L0000654	0	0.11960E-06	479667.5	3746151.7	443.0	3.49	4.00	3.25	YES	
L0000655	0	0.11960E-06	479676.1	3746151.8	443.0	3.49	4.00	3.25	YES	
L0000656	0	0.11960E-06	479684.7	3746151.9	443.0	3.49	4.00	3.25	YES	
L0000657	0	0.11960E-06	479693.3	3746151.9	443.0	3.49	4.00	3.25	YES	
L0000658	0	0.11960E-06	479701.9	3746152.0	443.0	3.49	4.00	3.25	YES	
L0000659	0	0.11960E-06	479710.5	3746152.1	443.0	3.49	4.00	3.25	YES	
L0000660	0	0.11960E-06	479719.1	3746152.1	443.0	3.49	4.00	3.25	YES	
L0000661	0	0.11960E-06	479727.7	3746152.2	443.0	3.49	4.00	3.25	YES	

L0000662	0	0.11960E-06	479736.2	3746152.3	443.0	3.49	4.00	3.25 YES
L0000663	0	0.11960E-06	479744.8	3746152.4	443.0	3.49	4.00	3.25 YES
L0000664	0	0.11960E-06	479753.4	3746152.4	443.0	3.49	4.00	3.25 YES
L0000665	0	0.11960E-06	479762.0	3746152.5	443.0	3.49	4.00	3.25 YES
L0000666	0	0.11960E-06	479770.6	3746152.4	443.0	3.49	4.00	3.25 YES
L0000667	0	0.11960E-06	479779.2	3746152.3	443.0	3.49	4.00	3.25 YES
L0000668	0	0.11960E-06	479787.8	3746152.2	443.0	3.49	4.00	3.25 YES
L0000669	0	0.11960E-06	479796.4	3746152.0	443.0	3.49	4.00	3.25 YES
L0000670	0	0.11960E-06	479805.0	3746151.9	443.0	3.49	4.00	3.25 YES
L0000671	0	0.11960E-06	479813.6	3746151.8	443.0	3.49	4.00	3.25 YES
L0000672	0	0.11960E-06	479822.1	3746151.7	443.0	3.49	4.00	3.25 YES
L0000673	0	0.11960E-06	479830.7	3746151.6	443.0	3.49	4.00	3.25 YES
L0000674	0	0.11960E-06	479839.3	3746151.5	443.0	3.49	4.00	3.25 YES
L0000675	0	0.11960E-06	479847.9	3746151.4	443.0	3.49	4.00	3.25 YES
L0000676	0	0.11960E-06	479856.5	3746151.3	443.0	3.49	4.00	3.25 YES
L0000677	0	0.11960E-06	479865.1	3746151.2	443.0	3.49	4.00	3.25 YES
L0000678	0	0.11960E-06	479873.7	3746151.1	443.0	3.49	4.00	3.25 YES
L0000679	0	0.11960E-06	479882.3	3746151.0	443.0	3.49	4.00	3.25 YES
L0000680	0	0.11960E-06	479890.9	3746150.9	443.0	3.49	4.00	3.25 YES
L0000681	0	0.11960E-06	479899.4	3746150.8	443.0	3.49	4.00	3.25 YES
L0000682	0	0.11960E-06	479908.0	3746150.7	443.0	3.49	4.00	3.25 YES
L0000683	0	0.11960E-06	479916.6	3746150.5	443.0	3.49	4.00	3.25 YES
L0000684	0	0.11960E-06	479925.2	3746150.4	442.9	3.49	4.00	3.25 YES
L0000685	0	0.11960E-06	479933.8	3746150.3	442.6	3.49	4.00	3.25 YES
L0000686	0	0.11960E-06	479935.6	3746157.4	442.7	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 BY	EMISSION RATE SCALAR VARY
L0000687	0	0.11960E-06	479936.0	3746166.0	442.8	3.49	4.00	3.25	YES	
L0000688	0	0.11960E-06	479936.4	3746174.6	443.0	3.49	4.00	3.25	YES	
L0000689	0	0.11960E-06	479936.8	3746183.1	443.0	3.49	4.00	3.25	YES	
L0000690	0	0.11960E-06	479937.2	3746191.7	443.0	3.49	4.00	3.25	YES	
L0000691	0	0.11960E-06	479937.5	3746200.3	443.0	3.49	4.00	3.25	YES	
L0000692	0	0.11960E-06	479937.9	3746208.9	443.0	3.49	4.00	3.25	YES	
L0000693	0	0.11960E-06	479938.3	3746217.5	443.0	3.49	4.00	3.25	YES	
L0000694	0	0.11960E-06	479938.7	3746226.0	443.0	3.49	4.00	3.25	YES	
L0000695	0	0.11960E-06	479939.1	3746234.6	443.0	3.49	4.00	3.25	YES	
L0000696	0	0.11960E-06	479939.5	3746243.2	443.0	3.49	4.00	3.25	YES	
L0000697	0	0.11960E-06	479939.9	3746251.8	443.0	3.49	4.00	3.25	YES	
L0000698	0	0.11960E-06	479940.2	3746260.4	443.0	3.49	4.00	3.25	YES	
L0000699	0	0.11960E-06	479939.8	3746268.9	443.0	3.49	4.00	3.25	YES	
L0000700	0	0.11960E-06	479939.2	3746277.5	443.0	3.49	4.00	3.25	YES	
L0000701	0	0.11960E-06	479938.5	3746286.1	443.0	3.49	4.00	3.25	YES	

L0000702	0	0.11960E-06	479937.9	3746294.6	443.0	3.49	4.00	3.25 YES
L0000703	0	0.11960E-06	479937.3	3746303.2	443.0	3.49	4.00	3.25 YES
L0000704	0	0.11960E-06	479936.6	3746311.8	443.0	3.49	4.00	3.25 YES
L0000705	0	0.11960E-06	479936.0	3746320.3	443.0	3.49	4.00	3.25 YES
L0000706	0	0.11960E-06	479935.3	3746328.9	443.1	3.49	4.00	3.25 YES
L0000707	0	0.11960E-06	479934.7	3746337.5	443.4	3.49	4.00	3.25 YES
L0000708	0	0.11960E-06	479934.1	3746346.0	443.7	3.49	4.00	3.25 YES
L0000709	0	0.11960E-06	479933.4	3746354.6	443.9	3.49	4.00	3.25 YES
L0000710	0	0.11960E-06	479928.8	3746358.7	444.0	3.49	4.00	3.25 YES
L0000711	0	0.11960E-06	479920.2	3746358.5	444.0	3.49	4.00	3.25 YES
L0000712	0	0.11960E-06	479911.6	3746358.3	444.0	3.49	4.00	3.25 YES
L0000713	0	0.11960E-06	479903.0	3746358.1	444.0	3.49	4.00	3.25 YES
L0000714	0	0.11960E-06	479894.4	3746357.9	444.0	3.49	4.00	3.25 YES
L0000715	0	0.11960E-06	479885.9	3746357.7	444.0	3.49	4.00	3.25 YES
L0000716	0	0.11960E-06	479877.3	3746357.5	444.0	3.49	4.00	3.25 YES
L0000717	0	0.11960E-06	479868.7	3746357.3	444.0	3.49	4.00	3.25 YES
L0000718	0	0.11960E-06	479860.1	3746357.1	444.0	3.49	4.00	3.25 YES
L0000719	0	0.11960E-06	479851.5	3746356.9	444.0	3.49	4.00	3.25 YES
L0000720	0	0.11960E-06	479842.9	3746356.7	444.0	3.49	4.00	3.25 YES
L0000721	0	0.11960E-06	479834.3	3746356.5	444.0	3.49	4.00	3.25 YES
L0000722	0	0.11960E-06	479825.7	3746356.3	444.0	3.49	4.00	3.25 YES
L0000723	0	0.11960E-06	479817.2	3746356.1	444.0	3.49	4.00	3.25 YES
L0000724	0	0.11960E-06	479808.6	3746355.9	444.0	3.49	4.00	3.25 YES
L0000725	0	0.11960E-06	479800.0	3746355.7	444.0	3.49	4.00	3.25 YES
L0000726	0	0.11960E-06	479791.4	3746355.5	444.0	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 BY	EMISSION RATE SCALAR VARY
L0000727	0	0.11960E-06	479782.8	3746355.3	444.0	3.49	4.00	3.25	YES	
L0000728	0	0.11960E-06	479774.2	3746355.1	444.0	3.49	4.00	3.25	YES	
L0000729	0	0.11960E-06	479765.6	3746354.9	444.0	3.49	4.00	3.25	YES	
L0000730	0	0.11960E-06	479757.0	3746354.7	444.0	3.49	4.00	3.25	YES	
L0000731	0	0.11960E-06	479748.5	3746354.5	444.0	3.49	4.00	3.25	YES	
L0000732	0	0.11960E-06	479739.9	3746354.3	443.9	3.49	4.00	3.25	YES	
L0000733	0	0.11960E-06	479731.3	3746354.1	443.9	3.49	4.00	3.25	YES	
L0000734	0	0.11960E-06	479722.7	3746353.9	443.9	3.49	4.00	3.25	YES	
L0000735	0	0.11960E-06	479714.1	3746353.7	443.9	3.49	4.00	3.25	YES	
L0000736	0	0.11960E-06	479705.5	3746353.5	443.9	3.49	4.00	3.25	YES	
L0000737	0	0.11960E-06	479696.9	3746353.3	443.9	3.49	4.00	3.25	YES	
L0000738	0	0.11960E-06	479688.3	3746353.1	444.0	3.49	4.00	3.25	YES	
L0000739	0	0.11960E-06	479679.8	3746352.9	444.0	3.49	4.00	3.25	YES	
L0000740	0	0.11960E-06	479671.2	3746352.7	444.0	3.49	4.00	3.25	YES	
L0000741	0	0.11960E-06	479662.6	3746352.5	444.0	3.49	4.00	3.25	YES	

L0000742	0	0.11960E-06	479654.0	3746352.3	444.0	3.49	4.00	3.25 YES
L0000743	0	0.11960E-06	479645.4	3746352.1	444.0	3.49	4.00	3.25 YES
L0000744	0	0.11960E-06	479636.8	3746351.9	444.0	3.49	4.00	3.25 YES
L0000745	0	0.11960E-06	479628.2	3746351.9	444.0	3.49	4.00	3.25 YES
L0000746	0	0.11960E-06	479619.6	3746352.0	444.0	3.49	4.00	3.25 YES
L0000747	0	0.11960E-06	479611.0	3746352.1	444.0	3.49	4.00	3.25 YES
L0000748	0	0.11960E-06	479602.5	3746352.2	444.0	3.49	4.00	3.25 YES
L0000749	0	0.11960E-06	479593.9	3746352.3	444.0	3.49	4.00	3.25 YES
L0000750	0	0.11960E-06	479585.3	3746352.4	444.0	3.49	4.00	3.25 YES
L0000751	0	0.11960E-06	479576.7	3746352.5	444.0	3.49	4.00	3.25 YES
L0000752	0	0.11960E-06	479568.1	3746352.6	444.0	3.49	4.00	3.25 YES
L0000753	0	0.11960E-06	479559.5	3746352.7	444.0	3.49	4.00	3.25 YES
L0000754	0	0.11960E-06	479550.9	3746352.8	444.0	3.49	4.00	3.25 YES
L0000755	0	0.11960E-06	479542.3	3746352.9	444.0	3.49	4.00	3.25 YES
L0000756	0	0.11960E-06	479533.7	3746353.0	444.0	3.49	4.00	3.25 YES
L0000757	0	0.11960E-06	479525.1	3746353.1	444.0	3.49	4.00	3.25 YES
L0000758	0	0.11960E-06	479516.6	3746353.1	444.0	3.49	4.00	3.25 YES
L0000759	0	0.11960E-06	479508.0	3746353.2	444.0	3.49	4.00	3.25 YES
L0000760	0	0.11960E-06	479499.4	3746353.3	444.0	3.49	4.00	3.25 YES
L0000761	0	0.11960E-06	479490.8	3746353.4	444.0	3.49	4.00	3.25 YES
L0000762	0	0.11960E-06	479482.2	3746353.5	444.0	3.49	4.00	3.25 YES
L0000763	0	0.11960E-06	479473.6	3746353.6	444.0	3.49	4.00	3.25 YES
L0000764	0	0.11960E-06	479465.0	3746353.7	444.0	3.49	4.00	3.25 YES
L0000765	0	0.11960E-06	479456.4	3746353.8	444.0	3.49	4.00	3.25 YES
L0000766	0	0.11960E-06	479447.8	3746353.9	444.0	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 BY	EMISSION RATE SCALAR VARY
L0000767	0	0.11960E-06	479439.3	3746354.0	444.0	3.49	4.00	3.25	YES	
L0000768	0	0.11960E-06	479430.7	3746354.1	444.0	3.49	4.00	3.25	YES	
L0000769	0	0.11960E-06	479422.1	3746354.2	444.0	3.49	4.00	3.25	YES	
L0000770	0	0.11960E-06	479413.5	3746354.3	444.0	3.49	4.00	3.25	YES	
L0000771	0	0.11960E-06	479404.9	3746354.3	444.2	3.49	4.00	3.25	YES	
L0000772	0	0.11960E-06	479396.3	3746354.4	444.4	3.49	4.00	3.25	YES	
L0000773	0	0.11960E-06	479387.7	3746354.5	444.7	3.49	4.00	3.25	YES	
L0000774	0	0.11960E-06	479379.1	3746354.6	444.9	3.49	4.00	3.25	YES	
L0000775	0	0.11960E-06	479370.5	3746354.7	444.9	3.49	4.00	3.25	YES	
L0000776	0	0.11960E-06	479362.0	3746354.8	444.9	3.49	4.00	3.25	YES	
L0000777	0	0.11960E-06	479353.4	3746354.9	445.0	3.49	4.00	3.25	YES	
L0000778	0	0.11960E-06	479344.8	3746355.0	445.0	3.49	4.00	3.25	YES	
L0000779	0	0.11960E-06	479336.2	3746355.1	445.0	3.49	4.00	3.25	YES	
L0000780	0	0.11960E-06	479327.6	3746355.2	445.0	3.49	4.00	3.25	YES	
L0000781	0	0.11960E-06	479319.0	3746355.3	445.0	3.49	4.00	3.25	YES	

L0000782	0	0.11960E-06	479310.4	3746355.4	445.0	3.49	4.00	3.25 YES
L0000783	0	0.11960E-06	479301.8	3746355.3	445.0	3.49	4.00	3.25 YES
L0000784	0	0.11960E-06	479293.2	3746355.2	445.0	3.49	4.00	3.25 YES
L0000785	0	0.11960E-06	479284.6	3746355.2	445.0	3.49	4.00	3.25 YES
L0000786	0	0.11960E-06	479276.1	3746355.1	445.0	3.49	4.00	3.25 YES
L0000787	0	0.11960E-06	479267.5	3746355.0	445.0	3.49	4.00	3.25 YES
L0000788	0	0.11960E-06	479258.9	3746355.0	445.0	3.49	4.00	3.25 YES
L0000789	0	0.11960E-06	479250.3	3746354.9	445.0	3.49	4.00	3.25 YES
L0000790	0	0.11960E-06	479241.7	3746354.8	445.0	3.49	4.00	3.25 YES
L0000791	0	0.11960E-06	479233.1	3746354.8	445.0	3.49	4.00	3.25 YES
L0000792	0	0.11960E-06	479224.5	3746354.7	445.0	3.49	4.00	3.25 YES
L0000793	0	0.11960E-06	479215.9	3746354.6	445.0	3.49	4.00	3.25 YES
L0000794	0	0.11960E-06	479207.3	3746354.6	445.0	3.49	4.00	3.25 YES
L0000795	0	0.11960E-06	479198.7	3746354.5	445.0	3.49	4.00	3.25 YES
L0000796	0	0.11960E-06	479190.2	3746354.4	445.0	3.49	4.00	3.25 YES
L0000797	0	0.11960E-06	479181.6	3746354.4	445.0	3.49	4.00	3.25 YES
L0000798	0	0.11960E-06	479173.0	3746354.3	445.0	3.49	4.00	3.25 YES
L0000799	0	0.11960E-06	479164.4	3746354.2	445.0	3.49	4.00	3.25 YES
L0000800	0	0.11960E-06	479155.8	3746354.2	445.0	3.49	4.00	3.25 YES
L0000801	0	0.11960E-06	479147.2	3746354.1	445.0	3.49	4.00	3.25 YES
L0000802	0	0.11960E-06	479138.6	3746354.0	445.0	3.49	4.00	3.25 YES
L0000803	0	0.11960E-06	479130.0	3746354.0	445.0	3.49	4.00	3.25 YES
L0000804	0	0.11960E-06	479121.4	3746353.9	445.0	3.49	4.00	3.25 YES
L0000805	0	0.11960E-06	479112.8	3746353.8	445.0	3.49	4.00	3.25 YES
L0000806	0	0.11960E-06	479104.3	3746353.8	445.0	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
L0000807	0	0.11960E-06	479095.7	3746353.7	445.0	3.49	4.00	3.25	YES	
L0000808	0	0.11960E-06	479087.1	3746353.6	445.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

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

ALL L0000607 , L0000608 , L0000609 , L0000610 , L0000611 , L0000612 , L0000613 , L0000614 ,

L0000615 , L0000616 , L0000617 , L0000618 , L0000619 , L0000620 , L0000621 , L0000622 ,

L0000623 , L0000624 , L0000625 , L0000626 , L0000627 , L0000628 , L0000629 , L0000630 ,

L0000631 , L0000632 , L0000633 , L0000634 , L0000635 ,

```
L0000636    , L0000637    , L0000638    ,

             L0000639    , L0000640    , L0000641    , L0000642    , L0000643    ,
L0000644    , L0000645    , L0000646    ,

             L0000647    , L0000648    , L0000649    , L0000650    , L0000651    ,
L0000652    , L0000653    , L0000654    ,

             L0000655    , L0000656    , L0000657    , L0000658    , L0000659    ,
L0000660    , L0000661    , L0000662    ,

             L0000663    , L0000664    , L0000665    , L0000666    , L0000667    ,
L0000668    , L0000669    , L0000670    ,

             L0000671    , L0000672    , L0000673    , L0000674    , L0000675    ,
L0000676    , L0000677    , L0000678    ,

             L0000679    , L0000680    , L0000681    , L0000682    , L0000683    ,
L0000684    , L0000685    , L0000686    ,

             L0000687    , L0000688    , L0000689    , L0000690    , L0000691    ,
L0000692    , L0000693    , L0000694    ,

             L0000695    , L0000696    , L0000697    , L0000698    , L0000699    ,
L0000700    , L0000701    , L0000702    ,

             L0000703    , L0000704    , L0000705    , L0000706    , L0000707    ,
L0000708    , L0000709    , L0000710    ,

             L0000711    , L0000712    , L0000713    , L0000714    , L0000715    ,
L0000716    , L0000717    , L0000718    ,

             L0000719    , L0000720    , L0000721    , L0000722    , L0000723    ,
L0000724    , L0000725    , L0000726    ,

             L0000727    , L0000728    , L0000729    , L0000730    , L0000731    ,
L0000732    , L0000733    , L0000734    ,

             L0000735    , L0000736    , L0000737    , L0000738    , L0000739    ,
L0000740    , L0000741    , L0000742    ,

             L0000743    , L0000744    , L0000745    , L0000746    , L0000747    ,
L0000748    , L0000749    , L0000750    ,

             L0000751    , L0000752    , L0000753    , L0000754    , L0000755    ,
L0000756    , L0000757    , L0000758    ,

             L0000759    , L0000760    , L0000761    , L0000762    , L0000763    ,
L0000764    , L0000765    , L0000766    ,
```

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0000767 , L0000768 , L0000769 , L0000770 , L0000771 , L0000772 , L0000773 , L0000774 ,
	L0000775 , L0000776 , L0000777 , L0000778 , L0000779 , L0000780 , L0000781 , L0000782 ,
	L0000783 , L0000784 , L0000785 , L0000786 , L0000787 , L0000788 , L0000789 , L0000790 ,
	L0000791 , L0000792 , L0000793 , L0000794 , L0000795 , L0000796 , L0000797 , L0000798 ,
	L0000799 , L0000800 , L0000801 , L0000802 , L0000803 , L0000804 , L0000805 , L0000806 ,
	L0000807 , L0000808 ,

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

URBAN ID	URBAN POP	SOURCE IDs
	2189641.	L0000607 , L0000608 , L0000609 , L0000610 , L0000611 , L0000612 , L0000613 , L0000614 ,

L0000615 , L0000616 , L0000617 , L0000618 , L0000619 ,
L0000620 , L0000621 , L0000622 ,

L0000623 , L0000624 , L0000625 , L0000626 , L0000627 ,
L0000628 , L0000629 , L0000630 ,

L0000631 , L0000632 , L0000633 , L0000634 , L0000635 ,
L0000636 , L0000637 , L0000638 ,

L0000639 , L0000640 , L0000641 , L0000642 , L0000643 ,
L0000644 , L0000645 , L0000646 ,

L0000647 , L0000648 , L0000649 , L0000650 , L0000651 ,
L0000652 , L0000653 , L0000654 ,

L0000655 , L0000656 , L0000657 , L0000658 , L0000659 ,
L0000660 , L0000661 , L0000662 ,

L0000663 , L0000664 , L0000665 , L0000666 , L0000667 ,
L0000668 , L0000669 , L0000670 ,

L0000671 , L0000672 , L0000673 , L0000674 , L0000675 ,
L0000676 , L0000677 , L0000678 ,

L0000679 , L0000680 , L0000681 , L0000682 , L0000683 ,
L0000684 , L0000685 , L0000686 ,

L0000687 , L0000688 , L0000689 , L0000690 , L0000691 ,
L0000692 , L0000693 , L0000694 ,

L0000695 , L0000696 , L0000697 , L0000698 , L0000699 ,
L0000700 , L0000701 , L0000702 ,

L0000703 , L0000704 , L0000705 , L0000706 , L0000707 ,
L0000708 , L0000709 , L0000710 ,

L0000711 , L0000712 , L0000713 , L0000714 , L0000715 ,
L0000716 , L0000717 , L0000718 ,

L0000719 , L0000720 , L0000721 , L0000722 , L0000723 ,
L0000724 , L0000725 , L0000726 ,

L0000727 , L0000728 , L0000729 , L0000730 , L0000731 ,
L0000732 , L0000733 , L0000734 ,

L0000735 , L0000736 , L0000737 , L0000738 , L0000739 ,
L0000740 , L0000741 , L0000742 ,

L0000743 , L0000744 , L0000745 , L0000746 , L0000747 ,

L0000748   , L0000749   , L0000750   ,

             L0000751   , L0000752   , L0000753   , L0000754   , L0000755   ,
L0000756   , L0000757   , L0000758   ,

             L0000759   , L0000760   , L0000761   , L0000762   , L0000763   ,
L0000764   , L0000765   , L0000766   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

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

             L0000767   , L0000768   , L0000769   , L0000770   , L0000771   ,
L0000772   , L0000773   , L0000774   ,

             L0000775   , L0000776   , L0000777   , L0000778   , L0000779   ,
L0000780   , L0000781   , L0000782   ,

             L0000783   , L0000784   , L0000785   , L0000786   , L0000787   ,
L0000788   , L0000789   , L0000790   ,

             L0000791   , L0000792   , L0000793   , L0000794   , L0000795   ,
L0000796   , L0000797   , L0000798   ,

             L0000799   , L0000800   , L0000801   , L0000802   , L0000803   ,
L0000804   , L0000805   , L0000806   ,

             L0000807   , L0000808   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

(479690.5, 3746210.1,   443.0,   780.0,   0.0);   (479571.4,
3746379.9,   444.0,   780.0,   0.0);
(479536.5, 3746193.4,   443.9,   443.9,   0.0);   (479664.2,
3746142.1,   443.0,   780.0,   0.0);
(479321.2, 3746098.9,   444.0,   444.0,   0.0);

*** 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: PerrisADJU\PERI_V9_ADJU\PERI_v9.SFC
Met Version: 16216
Profile file: PerrisADJU\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\14087 Ops HRA\14087
Ops HRA.isc                  ***        03/28/22
 *** AERMET - VERSION  16216 ***   ***
                       ***        22:58:40

                                  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):     L0000607    , L0000608
 , L0000609    , L0000610    , L0000611    ,
                   L0000612    , L0000613    , L0000614    , L0000615    , L0000616
 , L0000617    , L0000618    , L0000619    ,
                   L0000620    , L0000621    , L0000622    , L0000623    , L0000624
 , L0000625    , L0000626    , L0000627    ,
                   L0000628    , L0000629    , L0000630    , L0000631    , L0000632
 , L0000633    , L0000634    ,  . . .      ,
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*** 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
479690.45	3746210.08	0.00179	479571.43	3746379.91	0.00240
479536.46	3746193.36	0.00684	479664.20	3746142.14	0.00336
479321.23	3746098.91	0.00045			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

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

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.00684 AT (479536.46, 3746193.36, 443.91, 443.91, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.00336 AT (479664.20, 3746142.14, 443.00, 780.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00240 AT (479571.43, 3746379.91, 444.00, 780.00, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00179 AT (479690.45, 3746210.08, 443.00, 780.00, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00045 AT (479321.23, 3746098.91, 444.00, 444.00, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		

```
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          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)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION 21112  ***   *** C:\Lakes\AERMOD View\14087 Ops HRA\14087
Ops HRA.isc                 ***        03/28/22
 *** AERMET - VERSION  16216 ***   ***
                       ***        22:58:40

                                  PAGE  17
 *** 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     523       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     523       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 ***
**********************************
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APPENDIX 2.3:

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)
	0.00684	6.84E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	2.4E-06	7.5E-08	5.0E+00	1.4E-03	1.4E-03							
TOTAL								7.5E-08			1.4E-03	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)
	0.00684	6.84E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	7.1E-06	1.8E-06	5.0E+00	1.4E-03	1.4E-03							
TOTAL								1.8E-06			1.4E-03	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)
	0.00684	6.84E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	3.8E-06	1.7E-06	5.0E+00	1.4E-03	1.4E-03							
TOTAL								1.7E-06			1.4E-03	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)
	0.00684	6.84E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.7E-06	2.6E-07	5.0E+00	1.4E-03	1.4E-03							
TOTAL								2.6E-07			1.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
								0.26										

** 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) **3.86**

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	3.36E-03	3.36E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	5.3E-07	2.0E-07	5.0E+00	1.4E-03	6.7E-04							
	TOTAL								2.1E-07			7.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
									0.21										

** 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

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