Seaton Commerce Center

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	Seaton Commerce Center
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 proposed Project, more specifically, health risk impacts as a result of exposure to diesel particulate matter (DPM) emitted from 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 below for the Project.

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is located approximately 90 feet west of the Project site on Seaton Avenue. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 1.67 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 0.0006, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are located at a greater distance than the scenario analyze herein, and DPM dissipates with distance from the source, all other residential receptors in the vicinity of the Project 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 adjacent residences.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is located immediately adjacent to the south of the Project site at an existing light industrial land use. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.70 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 0.002, 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 scenario 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:

The school site land use with the greatest potential exposure to Project DPM source emissions is at the Val Verde High School located at 972 Morgan Street in the City of Perris, approximately 0.8 mile (~4,224 feet) southeast of the Project site. It should be noted that the greatest potential for exposure to DPM emissions occurs within 1,000 feet from the Project's primary source of DPM

emissions (in the case of the Project, the primary source of emissions is the on-site idling and travel).

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).

The 1,000-foot evaluation distance is supported by research-based findings concerning 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. 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.

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	1.42	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.83	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	0.0006	1.0	NO
Annual Average	Maximum Exposed Worker Receptor	0.002	1.0	NO

1 INTRODUCTION

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

The SCAQMD identifies that if a proposed Project is expected to generate/attract heavy-duty diesel trucks, which emit 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 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 DPM 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.

1.1 SITE LOCATION

The proposed Seaton Commerce Center site is located on the southeast corner of Seaton Avenue and Perry Street, in unincorporated County of Riverside, as shown on Exhibit 1-A.

The Project site is currently vacant. Existing land uses near the site include residential homes and equestrian uses west of the Project site; an industrial warehouse currently under construction located east of the Project site; and existing industrial uses northwest, west, and south of the Project site. Light Industrial-designated land use is located north and immediately east of the Project site. Interstate 215 (I-215) is located approximately 1,500 feet northeast of the Project site, and the March Air Reserve Base/Inland Port Airport (MARB/IPA) is located roughly 1.2 miles northeast of the Project site.

1.2 PROJECT DESCRIPTION

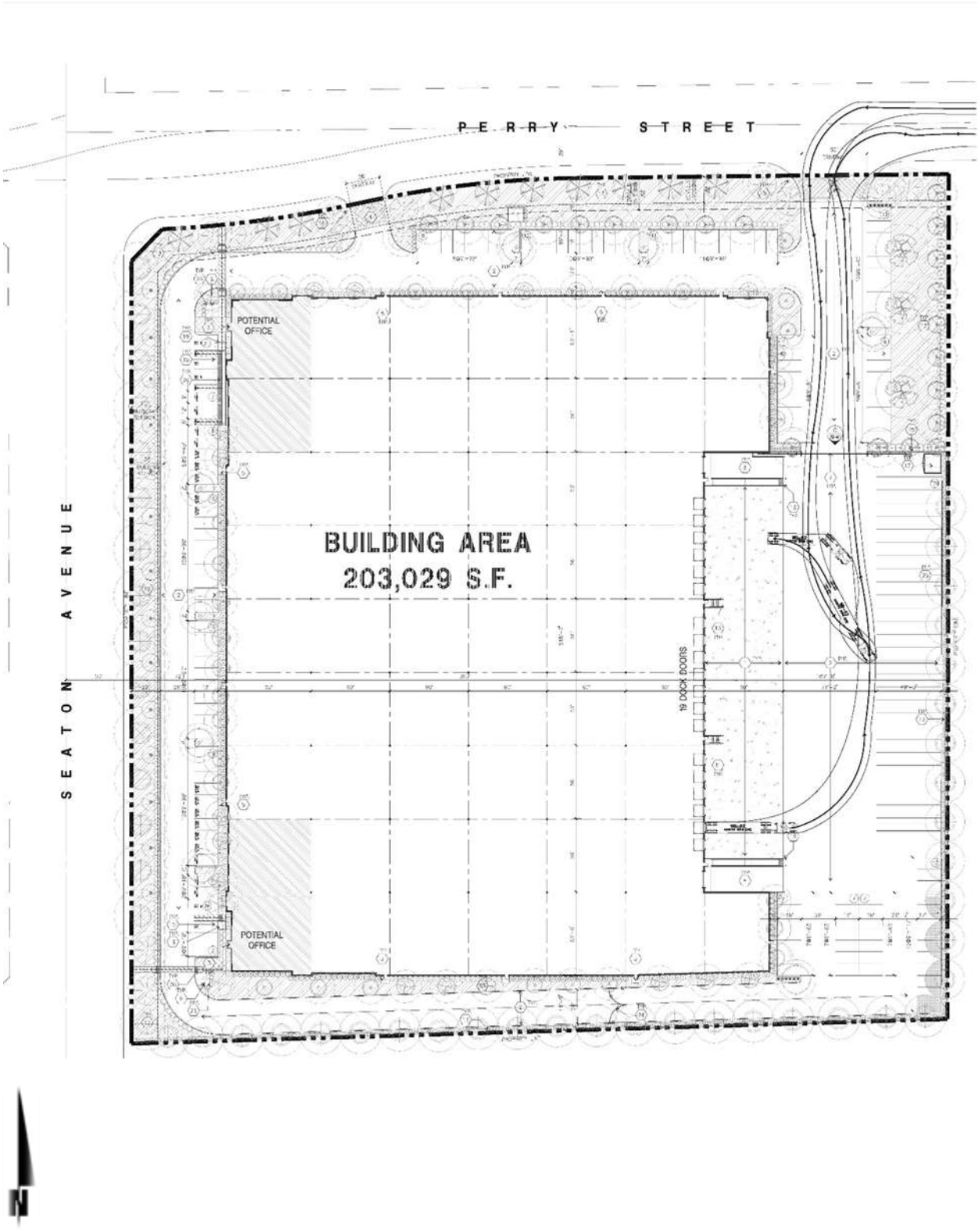
The Site Plan shown on Exhibit 1-B identifies 203,029 square feet of building area. This is slightly less than building area of 203,584 square feet that what was assumed in the *Seaton Commerce Center Traffic Impact Analysis* (TIA) prepared by Urban Crossroads, Inc. (4) In order to maintain analytical consistency with the TIA, the underlying technical evaluation for this study is based on the Project consisting up to 162,867 square feet of high-cube transload / short-term storage warehouse (without cold storage) use (80 percent of the total square footage) and 40,707 square feet of general light industrial use (20 percent of the total square footage) for a total of 203,584 square feet within a single building which would overstate the potential impacts associated with the Project. The Project is anticipated to be constructed in a single phase by the Year 2020.

At the time this HRA was prepared, the future tenants of the proposed Project were unknown. This analysis is intended to describe emission impacts associated with the expected typical operational activities at the Project site.

Per the *Seaton Commerce Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. the Project is expected to generate a total of approximately 434 two-way vehicular trips per day (217 inbound and 217 outbound) which includes 118 two-way truck trips per day (59 inbound and 59 outbound) (5). This health risk assessment study evaluates the potential impacts resulting from diesel exhaust from the 118 two-way truck trips generated by the Project.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



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 SCAQMD 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. The

[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.

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 2020 EMFAC 2017 run was conducted and a static 2020 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2020 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 2020. Additionally, based on EMFAC 2017, Light-Heavy-Duty Trucks are comprised of 47.73% diesel, Medium-Heavy-Duty Trucks are comprised of 88.29% diesel, and Heavy-Heavy-Duty Trucks are comprised of 96.13% diesel. Thus. Tricks 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 (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: 2020 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.15612 (g/idle-hr)
5	0.12568 (g/s)
25	0.08154 (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 Traffic Impact Analysis (TIA) (5). The modeled truck route is consistent with the trip distribution patterns identified in the Project's TIA, 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 1 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, travel, and on-site equipment).

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 are 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.

Per the *Seaton Commerce Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. the Project is expected to generate a total of approximately 434 two-way vehicular trips per day (217 inbound and 217 outbound) which includes 118 two-way truck trips per day (59 inbound and 59 outbound) (5). This health risk assessment study evaluates the potential impacts resulting from diesel exhaust from the 118 two-way truck trips generated by the Project.

EXHIBIT 2-A: MODELED EMISSION SOURCES

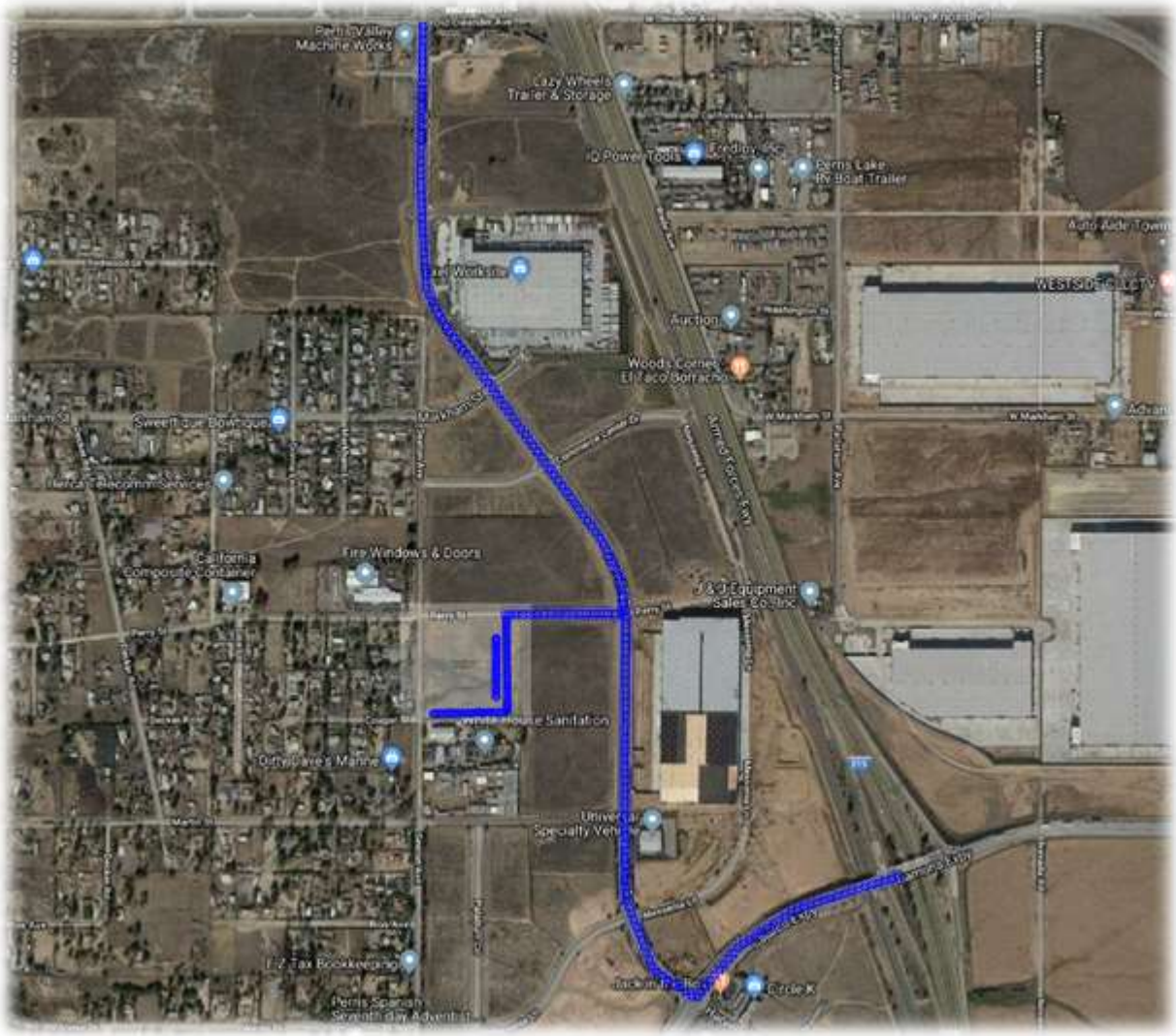


TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS (2020 ANALYSIS YEAR)

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	59			0.1561	2.30	2.665E-05
On-Site Travel	118	24.39	0.1257		3.07	3.549E-05
Off-Site Travel 35% Dwy 2	41	39.41	0.0815		3.21	3.719E-05
Off-Site Travel 65% Dwy 2	77	72.51	0.0815		5.91	6.843E-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.

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 9.7.0) 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 19191 (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.

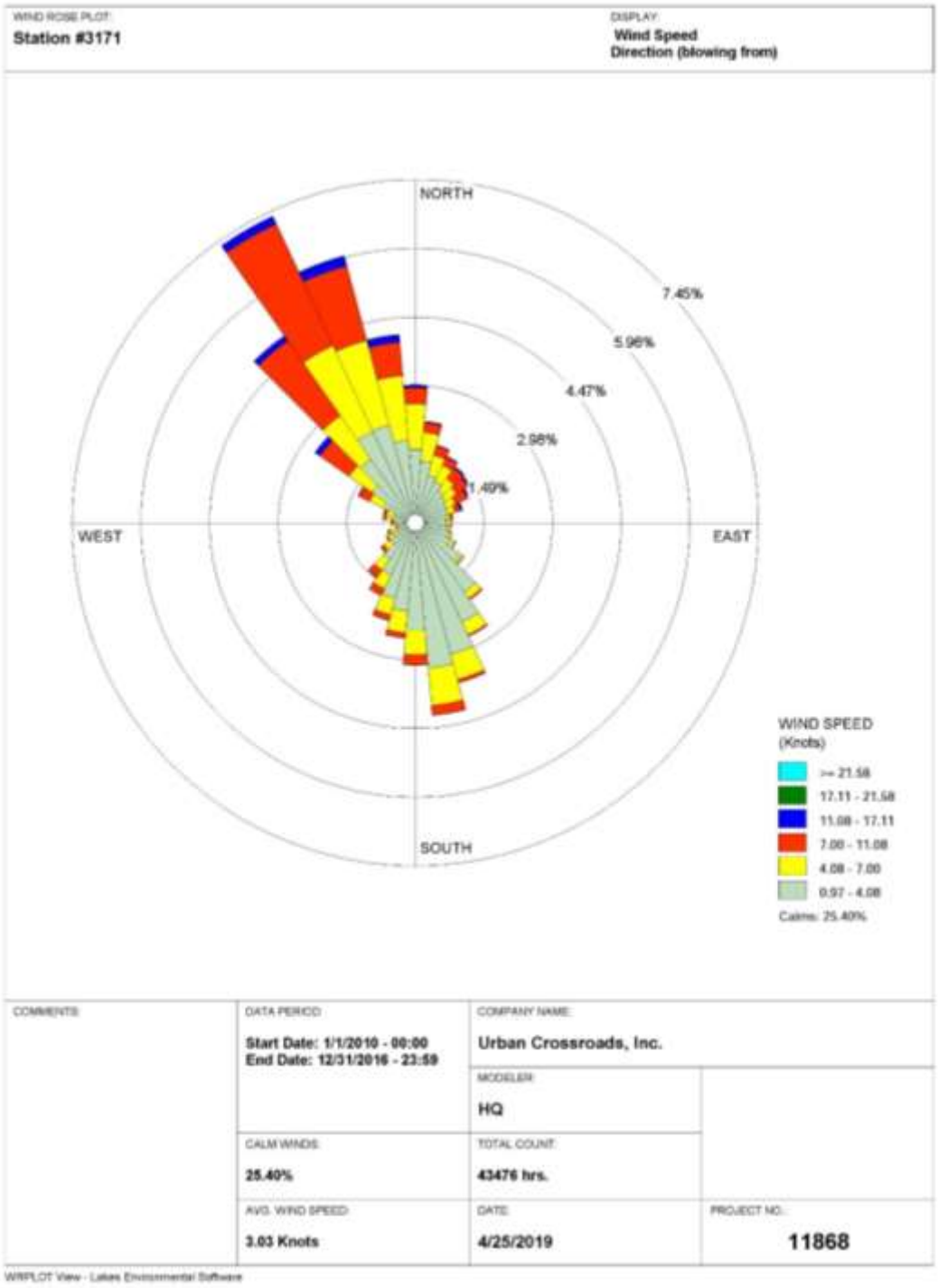
SCAQMD-recommended model parameters are presented in Table 2-3 (10). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's Perris monitoring station (SRA 24) was used to represent local weather conditions and prevailing winds (11). A wind rose exhibit of the Perris monitoring station is provided at Exhibit 2-B.

TABLE 2-3: AERMOD MODEL PARAMETERS

Dispersion Coefficient (Urban/Rural)	Urban (Population 2,189,641)
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 "2.1". Modeled sensitive receptors were placed at residential and non-residential locations.

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 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. As such, even though 30 or 25 years of outdoor exposure is unlikely to occur in practical terms (because of the amount of time spent indoors), this study assumes that a resident would be exposed over 30 years for 24-hours per day at the exterior of the structure where they reside and that a worker would be exposed over 25 years for 12-hours per day at the exterior of the property where they work, positioned on the property line closest to the Project site.

Any impacts to residents or workers located further away from the Project site than the modeled residential and worker receptors would have a lesser impact than what has already been disclosed in the HRA at the MEIR and MEIW.

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

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 Worker scenarios based on 2015 OEHHA Guidelines. Appendix 2.2 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	365	24
16 to 30	261	1	14	0.73	365	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. 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 by lightning.

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.

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

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 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 $\mu g/m^3$ (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 TOXIC AIR POLLUTANTS FROM PROJECT CONSTRUCTION ACTIVITIES

During short-term construction activity, the Project will also result in some 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 Crossroads' professional opinion and experience in preparing health risk assessments for development projects, given the size of the Project and the relatively small amount of construction equipment and relative short duration of construction activity, any DPM

generated from construction activity would be negligible and not result in any significant health risks and no further evaluation is required.

Furthermore, the SCAQMD has acknowledged that they 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 Rules 1401 in June 2015 (see Board Meeting June 5, 2015), the SCAQMD explicitly states that (Page A-7 and A-8) (13):

"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."

2.7 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 located approximately 90 feet west of the Project site on Seaton Avenue. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 1.67 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 0.0006, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are located at a greater distance than the scenario analyze herein, and DPM dissipates with distance from the source, all other residential receptors in the vicinity of the Project 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 adjacent residences. The nearest modeled receptors 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 located immediately adjacent to the south of the Project site at an existing industrial land use. At the MEIW, the maximum incremental cancer risk impact at this location is 0.70 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 0.002, 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 scenario 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

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.

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.

School Child Exposure Scenario:

The school site land use with the greatest potential exposure to Project DPM source emissions is at the Val Verde High School located at 972 Morgan Street in the City of Perris, approximately 0.8 mile (~4,224 feet) southeast of the Project site. It should be noted that the greatest potential for exposure to DPM emissions occurs within 1,000 feet from the Project's primary source of DPM emissions (in the case of the Project, the primary source of emissions is the on-site idling and travel).

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).

The 1,000-foot evaluation distance is supported by research-based findings concerning 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. 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.

EXHIBIT 2-C: MODELED RECEPTORS

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3 REFERENCES

1. **Air Resources Board.** *Air Quality and Land Use Handbook: A Community Health Perspective.* 2005.
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. **Urban Crossroads, Inc.** *Seaton Commerce Center Traffic Impact Analysis.* August 2019.
5. —. *Seaton Commerce Center Traffic Impact Analysis.* 2019.
6. **California Air Resources Board.** EMFAC 2017. [Online] https://www.arb.ca.gov/emfac/2017/.
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.
9. **Environmental Protection Agency.** User's Guide for the AMS/EPA Regulatory Model (AERMOD). [Online] 2019. https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf.
10. —. User's Guide for the AMS/EPA Regulatory Model (AERMOD). [Online] April 2018. https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf.
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.
12. —. South Coast AQMD Modeling Guidance for AERMOD. [Online] [Cited: September 18, 2019.] http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance.
13. —. Agenda No. 28 Proposed Amended Rules 1401 New Source Review of Toxic Air Contaminants. [Online] June 5, 2015. [Cited: September 20, 2019 .] http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-jun1-028.pdf?sfvrsn=9.

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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 Seaton 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 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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** AERMOD INPUT PRODUCED BY:
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** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: 10/4/2019
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**************************************
** AERMOD CONTROL PATHWAY
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   AVERTIME ANNUAL
   URBANOPT 2189641
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "11632 HRA 10-4-19.ERR"
CO FINISHED
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** AERMOD SOURCE PATHWAY
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** LINE VOLUME SOURCE ID = SLINE6
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** CONFIGURATION = ADJACENT
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** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
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** 475951.100, 3745822.087, 464.16, 3.49, 6.51
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   LOCATION L0012020     VOLUME   476112.009 3745371.525 463.00
   LOCATION L0012021     VOLUME   476126.009 3745371.586 463.00
   LOCATION L0012022     VOLUME   476140.008 3745371.647 463.00
   LOCATION L0012023     VOLUME   476154.008 3745371.708 463.00
   LOCATION L0012024     VOLUME   476168.008 3745371.769 463.00
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LOCATION L0012025     VOLUME   476182.008 3745371.830 462.59
LOCATION L0012026     VOLUME   476196.008 3745371.891 462.13
LOCATION L0012027     VOLUME   476210.008 3745371.952 462.00
LOCATION L0012028     VOLUME   476216.580 3745378.198 462.00
LOCATION L0012029     VOLUME   476214.107 3745391.978 462.00
LOCATION L0012030     VOLUME   476211.634 3745405.758 462.00
LOCATION L0012031     VOLUME   476209.161 3745419.538 462.00
LOCATION L0012032     VOLUME   476206.688 3745433.318 462.00
LOCATION L0012033     VOLUME   476204.215 3745447.098 462.00
LOCATION L0012034     VOLUME   476198.481 3745459.779 462.05
LOCATION L0012035     VOLUME   476192.114 3745472.248 462.26
LOCATION L0012036     VOLUME   476185.747 3745484.716 462.47
LOCATION L0012037     VOLUME   476179.380 3745497.185 462.68
LOCATION L0012038     VOLUME   476173.013 3745509.653 462.89
LOCATION L0012039     VOLUME   476166.646 3745522.121 462.82
LOCATION L0012040     VOLUME   476158.594 3745533.552 462.64
LOCATION L0012041     VOLUME   476150.321 3745544.846 462.67
LOCATION L0012042     VOLUME   476142.047 3745556.139 462.93
LOCATION L0012043     VOLUME   476133.774 3745567.433 463.00
LOCATION L0012044     VOLUME   476125.501 3745578.727 463.00
LOCATION L0012045     VOLUME   476117.227 3745590.021 463.00
LOCATION L0012046     VOLUME   476108.954 3745601.315 463.03
LOCATION L0012047     VOLUME   476100.680 3745612.609 463.24
LOCATION L0012048     VOLUME   476092.407 3745623.903 463.24
LOCATION L0012049     VOLUME   476084.134 3745635.196 463.03
LOCATION L0012050     VOLUME   476075.860 3745646.490 463.09
LOCATION L0012051     VOLUME   476067.587 3745657.784 463.11
LOCATION L0012052     VOLUME   476059.466 3745669.188 463.00
LOCATION L0012053     VOLUME   476051.371 3745680.610 463.00
LOCATION L0012054     VOLUME   476043.275 3745692.032 463.00
LOCATION L0012055     VOLUME   476035.180 3745703.454 463.00
LOCATION L0012056     VOLUME   476027.085 3745714.876 463.00
LOCATION L0012057     VOLUME   476018.989 3745726.299 463.00
LOCATION L0012058     VOLUME   476010.894 3745737.721 463.11
LOCATION L0012059     VOLUME   476002.799 3745749.143 463.43
LOCATION L0012060     VOLUME   475994.703 3745760.565 463.84
LOCATION L0012061     VOLUME   475986.608 3745771.987 464.00
LOCATION L0012062     VOLUME   475978.513 3745783.409 464.00
LOCATION L0012063     VOLUME   475970.417 3745794.831 464.00
LOCATION L0012064     VOLUME   475962.322 3745806.254 464.00
LOCATION L0012065     VOLUME   475954.226 3745817.676 464.19
LOCATION L0012066     VOLUME   475945.900 3745828.928 464.46
LOCATION L0012067     VOLUME   475937.429 3745840.075 464.75
LOCATION L0012068     VOLUME   475928.958 3745851.221 465.00
LOCATION L0012069     VOLUME   475920.487 3745862.367 465.00
LOCATION L0012070     VOLUME   475912.016 3745873.514 465.00
LOCATION L0012071     VOLUME   475903.545 3745884.660 465.00
LOCATION L0012072     VOLUME   475895.074 3745895.806 465.16
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   LOCATION L0012073     VOLUME   475886.603 3745906.953 465.44
   LOCATION L0012074     VOLUME   475878.131 3745918.099 465.72
   LOCATION L0012075     VOLUME   475869.660 3745929.245 466.01
   LOCATION L0012076     VOLUME   475861.189 3745940.391 466.25
   LOCATION L0012077     VOLUME   475854.685 3745952.786 466.23
   LOCATION L0012078     VOLUME   475848.209 3745965.198 466.02
   LOCATION L0012079     VOLUME   475841.734 3745977.610 466.00
   LOCATION L0012080     VOLUME   475835.258 3745990.023 466.00
   LOCATION L0012081     VOLUME   475828.782 3746002.435 466.00
   LOCATION L0012082     VOLUME   475823.071 3746015.055 466.00
   LOCATION L0012083     VOLUME   475822.367 3746029.037 466.00
   LOCATION L0012084     VOLUME   475821.662 3746043.020 466.00
   LOCATION L0012085     VOLUME   475820.958 3746057.002 466.00
   LOCATION L0012086     VOLUME   475820.254 3746070.984 466.00
   LOCATION L0012087     VOLUME   475819.550 3746084.966 466.00
   LOCATION L0012088     VOLUME   475818.846 3746098.949 466.00
   LOCATION L0012089     VOLUME   475818.142 3746112.931 466.00
   LOCATION L0012090     VOLUME   475817.438 3746126.913 466.00
   LOCATION L0012091     VOLUME   475816.734 3746140.896 466.00
   LOCATION L0012092     VOLUME   475816.029 3746154.878 466.23
   LOCATION L0012093     VOLUME   475815.325 3746168.860 466.62
   LOCATION L0012094     VOLUME   475814.621 3746182.842 466.88
   LOCATION L0012095     VOLUME   475813.917 3746196.825 466.96
   LOCATION L0012096     VOLUME   475813.213 3746210.807 467.00
   LOCATION L0012097     VOLUME   475812.509 3746224.789 467.00
   LOCATION L0012098     VOLUME   475812.209 3746238.778 467.00
   LOCATION L0012099     VOLUME   475812.443 3746252.776 467.00
   LOCATION L0012100     VOLUME   475812.678 3746266.774 467.00
   LOCATION L0012101     VOLUME   475812.912 3746280.772 466.95
   LOCATION L0012102     VOLUME   475813.146 3746294.770 466.89
   LOCATION L0012103     VOLUME   475813.381 3746308.768 466.88
   LOCATION L0012104     VOLUME   475813.615 3746322.767 466.87
   LOCATION L0012105     VOLUME   475813.849 3746336.765 466.56
   LOCATION L0012106     VOLUME   475814.084 3746350.763 466.16
   LOCATION L0012107     VOLUME   475814.318 3746364.761 466.00
   LOCATION L0012108     VOLUME   475814.552 3746378.759 466.00
   LOCATION L0012109     VOLUME   475814.787 3746392.757 466.00
   LOCATION L0012110     VOLUME   475815.021 3746406.755 466.00
   LOCATION L0012111     VOLUME   475815.255 3746420.753 465.97
   LOCATION L0012112     VOLUME   475815.490 3746434.751 465.88
   LOCATION L0012113     VOLUME   475815.724 3746448.749 465.80
   LOCATION L0012114     VOLUME   475815.958 3746462.747 465.80
   LOCATION L0012115     VOLUME   475816.193 3746476.745 465.79
   LOCATION L0012116     VOLUME   475816.427 3746490.743 465.78
   LOCATION L0012117     VOLUME   475816.661 3746504.741 465.77
   LOCATION L0012118     VOLUME   475816.896 3746518.739 465.76
   LOCATION L0012119     VOLUME   475817.130 3746532.737 465.76
** END OF LINE VOLUME SOURCE ID = SLINE6
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** SOURCE PARAMETERS **
** LINE VOLUME SOURCE ID = SLINE1
   SRCPARAM L0010604     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010605     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010606     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010607     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010608     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010609     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010610     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010611     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010612     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010613     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010614     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010615     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010616     0.000001904      3.49      4.00      3.25
   SRCPARAM L0010617     0.000001904      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE2
   SRCPARAM L0010618     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010619     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010620     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010621     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010622     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010623     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010624     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010625     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010626     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010627     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010628     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010629     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010630     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010631     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010632     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010633     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010634     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010635     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010636     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010637     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010638     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010639     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010640     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010641     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010642     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010643     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010644     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010645     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010646     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010647     0.00000091      3.49      4.00      3.25
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   SRCPARAM L0010648     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010649     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010650     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010651     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010652     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010653     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010654     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010655     0.00000091      3.49      4.00      3.25
   SRCPARAM L0010656     0.00000091      3.49      4.00      3.25
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** LINE VOLUME SOURCE ID = SLINE3
   SRCPARAM L0011901     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011902     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011903     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011904     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011905     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011906     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011907     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011908     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011909     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011910     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011911     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011912     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011913     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011914     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011915     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011916     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011917     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011918     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011919     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011920     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011921     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011922     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011923     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011924     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011925     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011926     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011927     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011928     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011929     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011930     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011931     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011932     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011933     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011934     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011935     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011936     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011937     0.0000003381      3.49      6.51      3.25
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SRCPARAM L0011938     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011939     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011940     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011941     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011942     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011943     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011944     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011945     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011946     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011947     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011948     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011949     0.0000003381      3.49      6.51      3.25
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SRCPARAM L0011952     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011953     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011954     0.0000003381      3.49      6.51      3.25
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SRCPARAM L0011958     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011959     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011960     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011961     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011962     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011963     0.0000003381      3.49      6.51      3.25
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SRCPARAM L0011966     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011967     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011968     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011969     0.0000003381      3.49      6.51      3.25
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SRCPARAM L0011973     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011974     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011975     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011976     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011977     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011978     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011979     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011980     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011981     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011982     0.0000003381      3.49      6.51      3.25
SRCPARAM L0011983     0.0000003381      3.49      6.51      3.25
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SRCPARAM L0011985     0.0000003381      3.49      6.51      3.25
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   SRCPARAM L0011986     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011987     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011988     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011989     0.0000003381      3.49      6.51      3.25
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   SRCPARAM L0011992     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011993     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011994     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011995     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011996     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011997     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011998     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0011999     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012000     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012001     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012002     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012003     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012004     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012005     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012006     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012007     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012008     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012009     0.0000003381      3.49      6.51      3.25
   SRCPARAM L0012010     0.0000003381      3.49      6.51      3.25
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** LINE VOLUME SOURCE ID = SLINE6
   SRCPARAM L0012011     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012012     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012013     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012014     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012015     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012016     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012017     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012018     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012019     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012020     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012021     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012022     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012023     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012024     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012025     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012026     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012027     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012028     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012029     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012030     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012031     0.0000006278      3.49      6.51      3.25
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SRCPARAM L0012032     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012033     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012034     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012035     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012036     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012037     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012038     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012039     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012040     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012041     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012042     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012043     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012044     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012045     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012046     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012047     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012048     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012049     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012050     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012051     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012052     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012053     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012054     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012055     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012056     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012057     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012058     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012059     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012060     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012061     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012062     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012063     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012064     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012065     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012066     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012067     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012068     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012069     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012070     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012071     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012072     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012073     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012074     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012075     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012076     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012077     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012078     0.0000006278      3.49      6.51      3.25
SRCPARAM L0012079     0.0000006278      3.49      6.51      3.25
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   SRCPARAM L0012080     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012081     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012082     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012083     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012084     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012085     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012086     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012087     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012088     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012089     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012090     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012091     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012092     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012093     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012094     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012095     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012096     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012097     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012098     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012099     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012100     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012101     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012102     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012103     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012104     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012105     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012106     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012107     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012108     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012109     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012110     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012111     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012112     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012113     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012114     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012115     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012116     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012117     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012118     0.0000006278      3.49      6.51      3.25
   SRCPARAM L0012119     0.0000006278      3.49      6.51      3.25
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD RECEPTOR PATHWAY
**************************************
```

```
**
**
RE STARTING
   INCLUDED "11632 HRA 10-4-19.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 "11632 HRA 10-4-19.AD\AN00GALL.PLT" 31
   SUMMFILE "11632 HRA 10-4-19.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     691       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
```

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 ME W187     691       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

↑ *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC        ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:08:12

                                   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   272 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:    272 Source(s);       1 Source Group(s); and      62
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    272 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      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:   11632 HRA 10-4-19.ERR
```

**File for Summary of Results: 11632 HRA 10-4-19.SUM

*** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\11632 HRA 10-4-19\11632 HRA 10-4-19.ISC *** 10/04/19
*** AERMET - VERSION 16216 *** *** *** 11:08:12

*** 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
L0010604	0	0.19040E-05	475961.7	3745320.2	466.0	3.49	4.00	3.25	YES	
L0010605	0	0.19040E-05	475961.7	3745311.6	466.0	3.49	4.00	3.25	YES	
L0010606	0	0.19040E-05	475961.8	3745303.0	466.0	3.49	4.00	3.25	YES	
L0010607	0	0.19040E-05	475961.8	3745294.4	466.0	3.49	4.00	3.25	YES	
L0010608	0	0.19040E-05	475961.8	3745285.8	466.0	3.49	4.00	3.25	YES	
L0010609	0	0.19040E-05	475961.8	3745277.2	466.0	3.49	4.00	3.25	YES	
L0010610	0	0.19040E-05	475961.9	3745268.6	466.0	3.49	4.00	3.25	YES	
L0010611	0	0.19040E-05	475961.9	3745260.0	466.0	3.49	4.00	3.25	YES	
L0010612	0	0.19040E-05	475961.9	3745251.4	466.0	3.49	4.00	3.25	YES	
L0010613	0	0.19040E-05	475962.0	3745242.8	466.0	3.49	4.00	3.25	YES	
L0010614	0	0.19040E-05	475962.0	3745234.3	466.0	3.49	4.00	3.25	YES	
L0010615	0	0.19040E-05	475962.0	3745225.7	466.0	3.49	4.00	3.25	YES	
L0010616	0	0.19040E-05	475962.0	3745217.1	466.0	3.49	4.00	3.25	YES	

L0010617	0	0.19040E-05	475962.1	3745208.5	466.0	3.49	4.00	3.25 YES
L0010618	0	0.91000E-06	475840.6	3745174.7	468.0	3.49	4.00	3.25 YES
L0010619	0	0.91000E-06	475849.2	3745174.9	468.0	3.49	4.00	3.25 YES
L0010620	0	0.91000E-06	475857.8	3745175.1	468.0	3.49	4.00	3.25 YES
L0010621	0	0.91000E-06	475866.4	3745175.3	468.0	3.49	4.00	3.25 YES
L0010622	0	0.91000E-06	475875.0	3745175.4	467.9	3.49	4.00	3.25 YES
L0010623	0	0.91000E-06	475883.6	3745175.6	467.7	3.49	4.00	3.25 YES
L0010624	0	0.91000E-06	475892.2	3745175.8	467.5	3.49	4.00	3.25 YES
L0010625	0	0.91000E-06	475900.7	3745176.0	467.3	3.49	4.00	3.25 YES
L0010626	0	0.91000E-06	475909.3	3745176.2	467.2	3.49	4.00	3.25 YES
L0010627	0	0.91000E-06	475917.9	3745176.4	467.1	3.49	4.00	3.25 YES
L0010628	0	0.91000E-06	475926.5	3745176.6	467.0	3.49	4.00	3.25 YES
L0010629	0	0.91000E-06	475935.1	3745176.8	466.9	3.49	4.00	3.25 YES
L0010630	0	0.91000E-06	475943.7	3745176.9	466.7	3.49	4.00	3.25 YES
L0010631	0	0.91000E-06	475952.3	3745177.1	466.5	3.49	4.00	3.25 YES
L0010632	0	0.91000E-06	475960.9	3745177.3	466.3	3.49	4.00	3.25 YES
L0010633	0	0.91000E-06	475969.4	3745177.5	466.2	3.49	4.00	3.25 YES
L0010634	0	0.91000E-06	475978.0	3745177.7	466.1	3.49	4.00	3.25 YES
L0010635	0	0.91000E-06	475983.7	3745180.7	466.0	3.49	4.00	3.25 YES
L0010636	0	0.91000E-06	475983.6	3745189.3	466.0	3.49	4.00	3.25 YES
L0010637	0	0.91000E-06	475983.5	3745197.8	466.0	3.49	4.00	3.25 YES
L0010638	0	0.91000E-06	475983.4	3745206.4	466.0	3.49	4.00	3.25 YES
L0010639	0	0.91000E-06	475983.3	3745215.0	466.0	3.49	4.00	3.25 YES
L0010640	0	0.91000E-06	475983.2	3745223.6	466.0	3.49	4.00	3.25 YES

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 L0010641         0   0.91000E-06  475983.1 3745232.2   466.0     3.49     4.00
3.25     YES
 L0010642         0   0.91000E-06  475983.0 3745240.8   466.0     3.49     4.00
3.25     YES
 L0010643         0   0.91000E-06  475982.8 3745249.4   466.0     3.49     4.00
3.25     YES
```



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

 L0010644         0   0.91000E-06  475982.7 3745258.0   466.0     3.49     4.00
3.25     YES
 L0010645         0   0.91000E-06  475982.6 3745266.6   466.0     3.49     4.00
3.25     YES
 L0010646         0   0.91000E-06  475982.5 3745275.2   466.0     3.49     4.00
3.25     YES
 L0010647         0   0.91000E-06  475982.4 3745283.7   466.0     3.49     4.00
3.25     YES
 L0010648         0   0.91000E-06  475982.3 3745292.3   466.0     3.49     4.00
3.25     YES
 L0010649         0   0.91000E-06  475982.2 3745300.9   466.0     3.49     4.00
3.25     YES
 L0010650         0   0.91000E-06  475982.1 3745309.5   466.0     3.49     4.00
3.25     YES
 L0010651         0   0.91000E-06  475981.9 3745318.1   466.0     3.49     4.00
3.25     YES
 L0010652         0   0.91000E-06  475981.8 3745326.7   466.0     3.49     4.00
3.25     YES
 L0010653         0   0.91000E-06  475981.7 3745335.3   466.0     3.49     4.00
3.25     YES
 L0010654         0   0.91000E-06  475981.6 3745343.9   466.1     3.49     4.00
3.25     YES
```

L0010655	0	0.91000E-06	475981.5	3745352.5	466.2	3.49	4.00	3.25 YES
L0010656	0	0.91000E-06	475981.4	3745361.0	466.2	3.49	4.00	3.25 YES
L0011901	0	0.33810E-06	475986.0	3745371.0	466.1	3.49	6.51	3.25 YES
L0011902	0	0.33810E-06	476000.0	3745371.1	465.7	3.49	6.51	3.25 YES
L0011903	0	0.33810E-06	476014.0	3745371.2	465.2	3.49	6.51	3.25 YES
L0011904	0	0.33810E-06	476028.0	3745371.2	464.7	3.49	6.51	3.25 YES
L0011905	0	0.33810E-06	476042.0	3745371.3	464.3	3.49	6.51	3.25 YES
L0011906	0	0.33810E-06	476056.0	3745371.4	464.0	3.49	6.51	3.25 YES
L0011907	0	0.33810E-06	476070.0	3745371.5	464.0	3.49	6.51	3.25 YES
L0011908	0	0.33810E-06	476084.0	3745371.6	463.9	3.49	6.51	3.25 YES
L0011909	0	0.33810E-06	476098.0	3745371.6	463.4	3.49	6.51	3.25 YES
L0011910	0	0.33810E-06	476112.0	3745371.7	463.0	3.49	6.51	3.25 YES
L0011911	0	0.33810E-06	476126.0	3745371.8	463.0	3.49	6.51	3.25 YES
L0011912	0	0.33810E-06	476140.0	3745371.9	463.0	3.49	6.51	3.25 YES
L0011913	0	0.33810E-06	476154.0	3745372.0	463.0	3.49	6.51	3.25 YES
L0011914	0	0.33810E-06	476168.0	3745372.1	463.0	3.49	6.51	3.25 YES
L0011915	0	0.33810E-06	476182.0	3745372.1	462.6	3.49	6.51	3.25 YES
L0011916	0	0.33810E-06	476196.0	3745372.2	462.1	3.49	6.51	3.25 YES
L0011917	0	0.33810E-06	476210.0	3745372.3	462.0	3.49	6.51	3.25 YES
L0011918	0	0.33810E-06	476217.4	3745365.7	462.0	3.49	6.51	3.25 YES
L0011919	0	0.33810E-06	476217.5	3745351.7	462.0	3.49	6.51	3.25 YES
L0011920	0	0.33810E-06	476217.6	3745337.7	462.0	3.49	6.51	3.25 YES
L0011921	0	0.33810E-06	476217.7	3745323.7	462.2	3.49	6.51	3.25 YES
L0011922	0	0.33810E-06	476217.8	3745309.7	462.4	3.49	6.51	3.25 YES

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 L0011923         0   0.33810E-06  476217.9 3745295.7   462.4     3.49     6.51
3.25     YES
 L0011924         0   0.33810E-06  476217.9 3745281.7   462.4     3.49     6.51
3.25     YES
 L0011925         0   0.33810E-06  476217.8 3745267.7   462.6     3.49     6.51
3.25     YES
 L0011926         0   0.33810E-06  476217.7 3745253.7   462.9     3.49     6.51
3.25     YES
 L0011927         0   0.33810E-06  476217.6 3745239.7   463.0     3.49     6.51
3.25     YES
↑ *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:08:12

                                  PAGE   4
 *** 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
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 L0011928         0   0.33810E-06  476217.5 3745225.7   463.0     3.49     6.51
3.25     YES
 L0011929         0   0.33810E-06  476217.4 3745211.7   463.0     3.49     6.51
3.25     YES
 L0011930         0   0.33810E-06  476217.4 3745197.7   463.0     3.49     6.51
3.25     YES
 L0011931         0   0.33810E-06  476217.3 3745183.7   463.0     3.49     6.51
3.25     YES
 L0011932         0   0.33810E-06  476217.2 3745169.7   463.0     3.49     6.51
3.25     YES
 L0011933         0   0.33810E-06  476217.1 3745155.7   463.0     3.49     6.51
3.25     YES
 L0011934         0   0.33810E-06  476217.0 3745141.7   463.0     3.49     6.51
3.25     YES
 L0011935         0   0.33810E-06  476216.9 3745127.7   463.0     3.49     6.51
3.25     YES
 L0011936         0   0.33810E-06  476216.8 3745113.7   463.2     3.49     6.51
3.25     YES
```

L0011937	0	0.33810E-06	476216.7	3745099.7	463.4	3.49	6.51	3.25 YES
L0011938	0	0.33810E-06	476216.6	3745085.7	463.6	3.49	6.51	3.25 YES
L0011939	0	0.33810E-06	476216.6	3745071.7	463.9	3.49	6.51	3.25 YES
L0011940	0	0.33810E-06	476216.5	3745057.7	464.0	3.49	6.51	3.25 YES
L0011941	0	0.33810E-06	476216.4	3745043.7	464.0	3.49	6.51	3.25 YES
L0011942	0	0.33810E-06	476216.3	3745029.7	464.0	3.49	6.51	3.25 YES
L0011943	0	0.33810E-06	476216.2	3745015.7	464.0	3.49	6.51	3.25 YES
L0011944	0	0.33810E-06	476216.1	3745001.7	464.0	3.49	6.51	3.25 YES
L0011945	0	0.33810E-06	476216.0	3744987.7	464.0	3.49	6.51	3.25 YES
L0011946	0	0.33810E-06	476215.9	3744973.7	464.0	3.49	6.51	3.25 YES
L0011947	0	0.33810E-06	476215.9	3744959.7	464.0	3.49	6.51	3.25 YES
L0011948	0	0.33810E-06	476216.1	3744945.7	464.0	3.49	6.51	3.25 YES
L0011949	0	0.33810E-06	476216.2	3744931.7	464.0	3.49	6.51	3.25 YES
L0011950	0	0.33810E-06	476216.3	3744917.7	464.0	3.49	6.51	3.25 YES
L0011951	0	0.33810E-06	476216.5	3744903.7	464.0	3.49	6.51	3.25 YES
L0011952	0	0.33810E-06	476216.6	3744889.7	464.0	3.49	6.51	3.25 YES
L0011953	0	0.33810E-06	476216.7	3744875.7	464.0	3.49	6.51	3.25 YES
L0011954	0	0.33810E-06	476216.9	3744861.7	464.0	3.49	6.51	3.25 YES
L0011955	0	0.33810E-06	476217.0	3744847.7	464.0	3.49	6.51	3.25 YES
L0011956	0	0.33810E-06	476217.1	3744833.7	464.0	3.49	6.51	3.25 YES
L0011957	0	0.33810E-06	476217.3	3744819.7	464.0	3.49	6.51	3.25 YES
L0011958	0	0.33810E-06	476218.0	3744805.8	464.0	3.49	6.51	3.25 YES
L0011959	0	0.33810E-06	476223.2	3744792.8	464.0	3.49	6.51	3.25 YES
L0011960	0	0.33810E-06	476228.3	3744779.8	464.0	3.49	6.51	3.25 YES

```
 L0011961         0   0.33810E-06  476233.4 3744766.7   463.9     3.49     6.51
3.25     YES
 L0011962         0   0.33810E-06  476238.6 3744753.7   463.8     3.49     6.51
3.25     YES
 L0011963         0   0.33810E-06  476243.7 3744740.7   463.9     3.49     6.51
3.25     YES
 L0011964         0   0.33810E-06  476248.8 3744727.7   464.0     3.49     6.51
3.25     YES
 L0011965         0   0.33810E-06  476254.0 3744714.6   464.0     3.49     6.51
3.25     YES
 L0011966         0   0.33810E-06  476259.1 3744701.6   464.0     3.49     6.51
3.25     YES
 L0011967         0   0.33810E-06  476264.2 3744688.6   463.9     3.49     6.51
3.25     YES
```



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 *** 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
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 L0011968         0   0.33810E-06  476269.4 3744675.6   464.0     3.49     6.51
3.25     YES
 L0011969         0   0.33810E-06  476278.0 3744665.3   464.0     3.49     6.51
3.25     YES
 L0011970         0   0.33810E-06  476289.5 3744657.4   464.0     3.49     6.51
3.25     YES
 L0011971         0   0.33810E-06  476301.1 3744649.5   463.6     3.49     6.51
3.25     YES
 L0011972         0   0.33810E-06  476312.7 3744641.6   463.2     3.49     6.51
3.25     YES
 L0011973         0   0.33810E-06  476324.2 3744633.7   463.0     3.49     6.51
3.25     YES
 L0011974         0   0.33810E-06  476335.8 3744625.8   463.0     3.49     6.51
3.25     YES
```

L0011975	0	0.33810E-06	476347.3	3744617.9	463.0	3.49	6.51	3.25 YES
L0011976	0	0.33810E-06	476358.1	3744615.7	463.0	3.49	6.51	3.25 YES
L0011977	0	0.33810E-06	476367.0	3744626.5	462.8	3.49	6.51	3.25 YES
L0011978	0	0.33810E-06	476376.0	3744637.2	462.4	3.49	6.51	3.25 YES
L0011979	0	0.33810E-06	476384.9	3744648.0	462.0	3.49	6.51	3.25 YES
L0011980	0	0.33810E-06	476393.8	3744658.8	462.0	3.49	6.51	3.25 YES
L0011981	0	0.33810E-06	476402.8	3744669.6	462.0	3.49	6.51	3.25 YES
L0011982	0	0.33810E-06	476411.7	3744680.3	461.9	3.49	6.51	3.25 YES
L0011983	0	0.33810E-06	476420.6	3744691.1	461.6	3.49	6.51	3.25 YES
L0011984	0	0.33810E-06	476429.6	3744701.9	461.3	3.49	6.51	3.25 YES
L0011985	0	0.33810E-06	476438.5	3744712.7	461.0	3.49	6.51	3.25 YES
L0011986	0	0.33810E-06	476449.7	3744720.9	460.8	3.49	6.51	3.25 YES
L0011987	0	0.33810E-06	476461.4	3744728.6	460.8	3.49	6.51	3.25 YES
L0011988	0	0.33810E-06	476473.1	3744736.3	460.9	3.49	6.51	3.25 YES
L0011989	0	0.33810E-06	476484.8	3744743.9	460.4	3.49	6.51	3.25 YES
L0011990	0	0.33810E-06	476496.5	3744751.6	460.1	3.49	6.51	3.25 YES
L0011991	0	0.33810E-06	476508.3	3744759.3	460.0	3.49	6.51	3.25 YES
L0011992	0	0.33810E-06	476520.0	3744766.9	460.0	3.49	6.51	3.25 YES
L0011993	0	0.33810E-06	476531.7	3744774.6	459.9	3.49	6.51	3.25 YES
L0011994	0	0.33810E-06	476543.4	3744782.3	459.6	3.49	6.51	3.25 YES
L0011995	0	0.33810E-06	476555.5	3744789.1	459.1	3.49	6.51	3.25 YES
L0011996	0	0.33810E-06	476568.8	3744793.4	458.7	3.49	6.51	3.25 YES
L0011997	0	0.33810E-06	476582.2	3744797.7	458.3	3.49	6.51	3.25 YES
L0011998	0	0.33810E-06	476595.5	3744802.0	458.0	3.49	6.51	3.25 YES

```
 L0011999         0   0.33810E-06  476608.8 3744806.3   458.0     3.49     6.51
3.25     YES
 L0012000         0   0.33810E-06  476622.1 3744810.5   458.0     3.49     6.51
3.25     YES
 L0012001         0   0.33810E-06  476635.5 3744814.8   457.7     3.49     6.51
3.25     YES
 L0012002         0   0.33810E-06  476648.8 3744819.1   457.3     3.49     6.51
3.25     YES
 L0012003         0   0.33810E-06  476662.1 3744823.4   457.1     3.49     6.51
3.25     YES
 L0012004         0   0.33810E-06  476675.5 3744827.7   457.0     3.49     6.51
3.25     YES
 L0012005         0   0.33810E-06  476688.8 3744831.9   457.0     3.49     6.51
3.25     YES
 L0012006         0   0.33810E-06  476702.1 3744836.2   457.0     3.49     6.51
3.25     YES
 L0012007         0   0.33810E-06  476715.5 3744840.5   457.0     3.49     6.51
3.25     YES
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:08:12

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 *** 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
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 L0012008         0   0.33810E-06  476728.8 3744844.8   457.0     3.49     6.51
3.25     YES
 L0012009         0   0.33810E-06  476742.1 3744849.1   457.0     3.49     6.51
3.25     YES
 L0012010         0   0.33810E-06  476755.4 3744853.3   457.0     3.49     6.51
3.25     YES
 L0012011         0   0.62780E-06  475986.0 3745371.0   466.1     3.49     6.51
3.25     YES
 L0012012         0   0.62780E-06  476000.0 3745371.0   465.7     3.49     6.51
3.25     YES
```

L0012013	0	0.62780E-06	476014.0	3745371.1	465.2	3.49	6.51	3.25 YES
L0012014	0	0.62780E-06	476028.0	3745371.2	464.7	3.49	6.51	3.25 YES
L0012015	0	0.62780E-06	476042.0	3745371.2	464.3	3.49	6.51	3.25 YES
L0012016	0	0.62780E-06	476056.0	3745371.3	464.0	3.49	6.51	3.25 YES
L0012017	0	0.62780E-06	476070.0	3745371.3	464.0	3.49	6.51	3.25 YES
L0012018	0	0.62780E-06	476084.0	3745371.4	463.9	3.49	6.51	3.25 YES
L0012019	0	0.62780E-06	476098.0	3745371.5	463.4	3.49	6.51	3.25 YES
L0012020	0	0.62780E-06	476112.0	3745371.5	463.0	3.49	6.51	3.25 YES
L0012021	0	0.62780E-06	476126.0	3745371.6	463.0	3.49	6.51	3.25 YES
L0012022	0	0.62780E-06	476140.0	3745371.6	463.0	3.49	6.51	3.25 YES
L0012023	0	0.62780E-06	476154.0	3745371.7	463.0	3.49	6.51	3.25 YES
L0012024	0	0.62780E-06	476168.0	3745371.8	463.0	3.49	6.51	3.25 YES
L0012025	0	0.62780E-06	476182.0	3745371.8	462.6	3.49	6.51	3.25 YES
L0012026	0	0.62780E-06	476196.0	3745371.9	462.1	3.49	6.51	3.25 YES
L0012027	0	0.62780E-06	476210.0	3745372.0	462.0	3.49	6.51	3.25 YES
L0012028	0	0.62780E-06	476216.6	3745378.2	462.0	3.49	6.51	3.25 YES
L0012029	0	0.62780E-06	476214.1	3745392.0	462.0	3.49	6.51	3.25 YES
L0012030	0	0.62780E-06	476211.6	3745405.8	462.0	3.49	6.51	3.25 YES
L0012031	0	0.62780E-06	476209.2	3745419.5	462.0	3.49	6.51	3.25 YES
L0012032	0	0.62780E-06	476206.7	3745433.3	462.0	3.49	6.51	3.25 YES
L0012033	0	0.62780E-06	476204.2	3745447.1	462.0	3.49	6.51	3.25 YES
L0012034	0	0.62780E-06	476198.5	3745459.8	462.1	3.49	6.51	3.25 YES
L0012035	0	0.62780E-06	476192.1	3745472.2	462.3	3.49	6.51	3.25 YES
L0012036	0	0.62780E-06	476185.7	3745484.7	462.5	3.49	6.51	3.25 YES

```
 L0012037         0   0.62780E-06  476179.4 3745497.2   462.7     3.49     6.51
3.25     YES
 L0012038         0   0.62780E-06  476173.0 3745509.7   462.9     3.49     6.51
3.25     YES
 L0012039         0   0.62780E-06  476166.6 3745522.1   462.8     3.49     6.51
3.25     YES
 L0012040         0   0.62780E-06  476158.6 3745533.6   462.6     3.49     6.51
3.25     YES
 L0012041         0   0.62780E-06  476150.3 3745544.8   462.7     3.49     6.51
3.25     YES
 L0012042         0   0.62780E-06  476142.0 3745556.1   462.9     3.49     6.51
3.25     YES
 L0012043         0   0.62780E-06  476133.8 3745567.4   463.0     3.49     6.51
3.25     YES
 L0012044         0   0.62780E-06  476125.5 3745578.7   463.0     3.49     6.51
3.25     YES
 L0012045         0   0.62780E-06  476117.2 3745590.0   463.0     3.49     6.51
3.25     YES
 L0012046         0   0.62780E-06  476109.0 3745601.3   463.0     3.49     6.51
3.25     YES
 L0012047         0   0.62780E-06  476100.7 3745612.6   463.2     3.49     6.51
3.25     YES
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:08:12

                                  PAGE   7
 *** 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
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 L0012048         0   0.62780E-06  476092.4 3745623.9   463.2     3.49     6.51
3.25     YES
 L0012049         0   0.62780E-06  476084.1 3745635.2   463.0     3.49     6.51
3.25     YES
 L0012050         0   0.62780E-06  476075.9 3745646.5   463.1     3.49     6.51
3.25     YES
```

L0012051	0	0.62780E-06	476067.6	3745657.8	463.1	3.49	6.51	3.25 YES
L0012052	0	0.62780E-06	476059.5	3745669.2	463.0	3.49	6.51	3.25 YES
L0012053	0	0.62780E-06	476051.4	3745680.6	463.0	3.49	6.51	3.25 YES
L0012054	0	0.62780E-06	476043.3	3745692.0	463.0	3.49	6.51	3.25 YES
L0012055	0	0.62780E-06	476035.2	3745703.5	463.0	3.49	6.51	3.25 YES
L0012056	0	0.62780E-06	476027.1	3745714.9	463.0	3.49	6.51	3.25 YES
L0012057	0	0.62780E-06	476019.0	3745726.3	463.0	3.49	6.51	3.25 YES
L0012058	0	0.62780E-06	476010.9	3745737.7	463.1	3.49	6.51	3.25 YES
L0012059	0	0.62780E-06	476002.8	3745749.1	463.4	3.49	6.51	3.25 YES
L0012060	0	0.62780E-06	475994.7	3745760.6	463.8	3.49	6.51	3.25 YES
L0012061	0	0.62780E-06	475986.6	3745772.0	464.0	3.49	6.51	3.25 YES
L0012062	0	0.62780E-06	475978.5	3745783.4	464.0	3.49	6.51	3.25 YES
L0012063	0	0.62780E-06	475970.4	3745794.8	464.0	3.49	6.51	3.25 YES
L0012064	0	0.62780E-06	475962.3	3745806.3	464.0	3.49	6.51	3.25 YES
L0012065	0	0.62780E-06	475954.2	3745817.7	464.2	3.49	6.51	3.25 YES
L0012066	0	0.62780E-06	475945.9	3745828.9	464.5	3.49	6.51	3.25 YES
L0012067	0	0.62780E-06	475937.4	3745840.1	464.8	3.49	6.51	3.25 YES
L0012068	0	0.62780E-06	475929.0	3745851.2	465.0	3.49	6.51	3.25 YES
L0012069	0	0.62780E-06	475920.5	3745862.4	465.0	3.49	6.51	3.25 YES
L0012070	0	0.62780E-06	475912.0	3745873.5	465.0	3.49	6.51	3.25 YES
L0012071	0	0.62780E-06	475903.5	3745884.7	465.0	3.49	6.51	3.25 YES
L0012072	0	0.62780E-06	475895.1	3745895.8	465.2	3.49	6.51	3.25 YES
L0012073	0	0.62780E-06	475886.6	3745907.0	465.4	3.49	6.51	3.25 YES
L0012074	0	0.62780E-06	475878.1	3745918.1	465.7	3.49	6.51	3.25 YES

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 L0012075         0   0.62780E-06  475869.7 3745929.2   466.0     3.49     6.51
3.25     YES
 L0012076         0   0.62780E-06  475861.2 3745940.4   466.2     3.49     6.51
3.25     YES
 L0012077         0   0.62780E-06  475854.7 3745952.8   466.2     3.49     6.51
3.25     YES
 L0012078         0   0.62780E-06  475848.2 3745965.2   466.0     3.49     6.51
3.25     YES
 L0012079         0   0.62780E-06  475841.7 3745977.6   466.0     3.49     6.51
3.25     YES
 L0012080         0   0.62780E-06  475835.3 3745990.0   466.0     3.49     6.51
3.25     YES
 L0012081         0   0.62780E-06  475828.8 3746002.4   466.0     3.49     6.51
3.25     YES
 L0012082         0   0.62780E-06  475823.1 3746015.1   466.0     3.49     6.51
3.25     YES
 L0012083         0   0.62780E-06  475822.4 3746029.0   466.0     3.49     6.51
3.25     YES
 L0012084         0   0.62780E-06  475821.7 3746043.0   466.0     3.49     6.51
3.25     YES
 L0012085         0   0.62780E-06  475821.0 3746057.0   466.0     3.49     6.51
3.25     YES
 L0012086         0   0.62780E-06  475820.3 3746071.0   466.0     3.49     6.51
3.25     YES
 L0012087         0   0.62780E-06  475819.5 3746085.0   466.0     3.49     6.51
3.25     YES
```



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

 L0012088         0   0.62780E-06  475818.8 3746098.9   466.0     3.49     6.51
3.25     YES
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L0012089	0	0.62780E-06	475818.1	3746112.9	466.0	3.49	6.51	3.25 YES
L0012090	0	0.62780E-06	475817.4	3746126.9	466.0	3.49	6.51	3.25 YES
L0012091	0	0.62780E-06	475816.7	3746140.9	466.0	3.49	6.51	3.25 YES
L0012092	0	0.62780E-06	475816.0	3746154.9	466.2	3.49	6.51	3.25 YES
L0012093	0	0.62780E-06	475815.3	3746168.9	466.6	3.49	6.51	3.25 YES
L0012094	0	0.62780E-06	475814.6	3746182.8	466.9	3.49	6.51	3.25 YES
L0012095	0	0.62780E-06	475813.9	3746196.8	467.0	3.49	6.51	3.25 YES
L0012096	0	0.62780E-06	475813.2	3746210.8	467.0	3.49	6.51	3.25 YES
L0012097	0	0.62780E-06	475812.5	3746224.8	467.0	3.49	6.51	3.25 YES
L0012098	0	0.62780E-06	475812.2	3746238.8	467.0	3.49	6.51	3.25 YES
L0012099	0	0.62780E-06	475812.4	3746252.8	467.0	3.49	6.51	3.25 YES
L0012100	0	0.62780E-06	475812.7	3746266.8	467.0	3.49	6.51	3.25 YES
L0012101	0	0.62780E-06	475812.9	3746280.8	466.9	3.49	6.51	3.25 YES
L0012102	0	0.62780E-06	475813.1	3746294.8	466.9	3.49	6.51	3.25 YES
L0012103	0	0.62780E-06	475813.4	3746308.8	466.9	3.49	6.51	3.25 YES
L0012104	0	0.62780E-06	475813.6	3746322.8	466.9	3.49	6.51	3.25 YES
L0012105	0	0.62780E-06	475813.8	3746336.8	466.6	3.49	6.51	3.25 YES
L0012106	0	0.62780E-06	475814.1	3746350.8	466.2	3.49	6.51	3.25 YES
L0012107	0	0.62780E-06	475814.3	3746364.8	466.0	3.49	6.51	3.25 YES
L0012108	0	0.62780E-06	475814.6	3746378.8	466.0	3.49	6.51	3.25 YES
L0012109	0	0.62780E-06	475814.8	3746392.8	466.0	3.49	6.51	3.25 YES
L0012110	0	0.62780E-06	475815.0	3746406.8	466.0	3.49	6.51	3.25 YES
L0012111	0	0.62780E-06	475815.3	3746420.8	466.0	3.49	6.51	3.25 YES
L0012112	0	0.62780E-06	475815.5	3746434.8	465.9	3.49	6.51	3.25 YES

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 L0012113         0   0.62780E-06  475815.7 3746448.7   465.8     3.49     6.51
3.25     YES
 L0012114         0   0.62780E-06  475816.0 3746462.7   465.8     3.49     6.51
3.25     YES
 L0012115         0   0.62780E-06  475816.2 3746476.7   465.8     3.49     6.51
3.25     YES
 L0012116         0   0.62780E-06  475816.4 3746490.7   465.8     3.49     6.51
3.25     YES
 L0012117         0   0.62780E-06  475816.7 3746504.7   465.8     3.49     6.51
3.25     YES
 L0012118         0   0.62780E-06  475816.9 3746518.7   465.8     3.49     6.51
3.25     YES
 L0012119         0   0.62780E-06  475817.1 3746532.7   465.8     3.49     6.51
3.25     YES
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:08:12

                                   PAGE   9
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                              *** SOURCE IDs DEFINING SOURCE GROUPS
***

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


  ALL        L0010604    , L0010605    , L0010606    , L0010607    , L0010608    ,
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L0010617    , L0010618    , L0010619    ,

             L0010620    , L0010621    , L0010622    , L0010623    , L0010624    ,
L0010625    , L0010626    , L0010627    ,

             L0010628    , L0010629    , L0010630    , L0010631    , L0010632    ,
L0010633    , L0010634    , L0010635    ,

             L0010636    , L0010637    , L0010638    , L0010639    , L0010640    ,
L0010641    , L0010642    , L0010643    ,

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L0010649    , L0010650    , L0010651    ,
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L0011909    , L0011910    , L0011911    ,

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L0011989    , L0011990    , L0011991    ,

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L0011997    , L0011998    , L0011999    ,

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L0012005    , L0012006    , L0012007    ,
↟ *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:08:12

                                   PAGE  10
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
```

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0012008 , L0012009 , L0012010 , L0012011 , L0012012 , L0012013 , L0012014 , L0012015 ,
	L0012016 , L0012017 , L0012018 , L0012019 , L0012020 , L0012021 , L0012022 , L0012023 ,
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	L0012040 , L0012041 , L0012042 , L0012043 , L0012044 , L0012045 , L0012046 , L0012047 ,
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L0012112 , L0012113 , L0012114 , L0012115 , L0012116 ,
L0012117 , L0012118 , L0012119 ,
*** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC *** 10/04/19
*** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs
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		L0010612 , L0010613 , L0010614 , L0010615 , L0010616 , L0010617 , L0010618 , L0010619 ,
		L0010620 , L0010621 , L0010622 , L0010623 , L0010624 , L0010625 , L0010626 , L0010627 ,
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		L0010636 , L0010637 , L0010638 , L0010639 , L0010640 , L0010641 , L0010642 , L0010643 ,
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		L0010652 , L0010653 , L0010654 , L0010655 , L0010656 , L0011901 , L0011902 , L0011903 ,
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L0012000 , L0012001 , L0012002 , L0012003 , L0012004 , L0012005 , L0012006 , L0012007 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs

L0012008 , L0012009 , L0012010 , L0012011 , L0012012 , L0012013 , L0012014 , L0012015 ,

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L0012101    , L0012102    , L0012103    ,

             L0012104    , L0012105    , L0012106    , L0012107    , L0012108    ,
L0012109    , L0012110    , L0012111    ,

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L0012117    , L0012118    , L0012119    ,
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
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                                  PAGE  13
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
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🡅 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
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 *** 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
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1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 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.
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*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 19191 *** *** C:\LAKES\AERMOD VIEW\11632 HRA 10-4-19\11632 HRA 10-4-19.ISC *** 10/04/19

*** AERMET - VERSION 16216 *** *** *** 11:08:12

*** 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 Name: UNKNOWN Year: 2010

Upper air station no.: 3190 Name: UNKNOWN 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
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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						

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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  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0010604 , L0010605 , L0010606 , L0010607 , L0010608 , L0010609 , L0010610 , L0010611 , L0010612 , L0010613 , L0010614 , L0010615 , L0010616 , L0010617 , L0010618 , L0010619 , L0010620 , L0010621 , L0010622 , L0010623 , L0010624 , L0010625 , L0010626 , L0010627 , L0010628 , L0010629 , L0010630 , L0010631 , . . . ,

*** 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
475776.77	3745342.19	0.00189	475746.19	3745337.21	0.00159
475792.62	3745194.83	0.00295	475767.60	3745199.30	0.00222
475769.95	3744929.17	0.00086	475769.91	3744886.71	0.00075
475797.99	3745892.59	0.00173	475772.40	3745575.23	0.00113
475774.26	3745724.83	0.00108	475855.80	3745144.58	0.00672
475767.59	3745400.89	0.00156	476024.49	3745266.67	0.01070
475887.38	3745387.91	0.00347	475911.28	3745975.96	0.00236
475954.65	3745152.22	0.01171	475857.58	3745096.19	0.00312
475970.71	3745095.69	0.00420	475774.03	3745664.72	0.00107
475790.24	3745804.60	0.00126	475774.88	3745839.27	0.00126
475788.90	3745939.41	0.00198	475696.70	3745927.23	0.00099

```
         475693.35    3745882.04        0.00092                        475703.39
3745716.35        0.00086
         475693.35    3745646.05        0.00086                        475696.70
3745597.51        0.00089
         475716.78    3745451.90        0.00113                        475895.76
3746023.61        0.00221
         475896.52    3746103.11        0.00186                        475893.49
3745944.86        0.00394
         476011.24    3746025.42        0.00112                        476256.63
3744938.20        0.00229
         475689.81    3744506.69        0.00030                        475693.96
3744501.16        0.00030
         475779.59    3744830.59        0.00066                        475773.38
3744790.53        0.00059
         475776.83    3744695.92        0.00048                        475628.84
3745914.24        0.00073
         475615.92    3745836.70        0.00068                        475602.99
3745681.60        0.00065
         475600.41    3745598.89        0.00066                        475654.69
3745327.48        0.00098
         475662.44    3745213.75        0.00105                        475639.18
3745094.84        0.00083
         475597.82    3745324.89        0.00077                        475600.41
3745221.50        0.00079
         475582.31    3745097.43        0.00066                        475546.12
3745875.47        0.00055
         475546.12    3745673.85        0.00056                        475548.71
3745604.06        0.00057
         476292.84    3745221.81        0.00212                        476405.90
3744630.52        0.00240
         476354.82    3744541.14        0.00103                        475740.44
3745233.34        0.00175
         475725.59    3745190.06        0.00157                        475697.79
3745204.91        0.00132
         475695.43    3745126.23        0.00115                        475653.88
3745124.86        0.00093
         475719.90    3745809.74        0.00095                        475751.81
3745791.97        0.00106
         475766.10    3745887.92        0.00135                        475738.08
3745888.34        0.00115
 *** AERMOD - VERSION  19191 ***   *** C:\LAKES\AERMOD VIEW\11632 HRA
10-4-19\11632 HRA 10-4-19.ISC         ***        10/04/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:08:12

                                  PAGE  17
 *** 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	0.01171 AT (475954.65, 3745152.22, 467.02, 467.02, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.01070 AT (476024.49, 3745266.67, 465.00, 465.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.00672 AT (475855.80, 3745144.58, 468.18, 468.18, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.00420 AT (475970.71, 3745095.69, 467.01, 467.01, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.00394 AT (475893.49, 3745944.86, 465.21, 465.21, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.00347 AT (475887.38, 3745387.91, 467.88, 467.88, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.00312 AT (475857.58, 3745096.19, 469.00, 469.00, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.00295 AT (475792.62, 3745194.83, 469.16, 469.16, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.00240 AT (476405.90, 3744630.52, 462.07, 462.07, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.00236 AT (475911.28, 3745975.96, 464.62, 464.62, 0.00)	DC	

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

*** 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     691       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     691       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 2020

Speed	LHD1	MHD	HHD
0	0.377205	0.257311	0.02553
5	0.014543	0.250247	0.12754
25	0.041828	0.088151	0.09598

Speed	**Weighted Average Emissions**
0	**0.15612**
5	**0.12568**
25	**0.08154**

Emission Rates - 2020 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	59			0.1561	2.30	2.665E-05
On-Site Travel	118	24.39	0.1257		3.07	3.549E-05
Off-Site Travel 35% Dwy 2	41	39.41	0.0815		3.21	3.719E-05
Off-Site Travel 65% Dwy 2	77	72.51	0.0815		5.91	6.843E-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.

calendar_y	season_mo	sub_area	vehicle_class	fuel	temperatu	relative_hu	process	speed_tim	pollutant	emission_rate
2020	Annual	Riverside (	HHDT	Dsl	60	70	RUNEX	5	PM10	0.132667
2020	Annual	Riverside (	HHDT	Dsl	60	70	RUNEX	25	PM10	0.051224
2020	Annual	Riverside (	LHDT1	Dsl	60	70	RUNEX	5	PM10	0.087636
2020	Annual	Riverside (	LHDT1	Dsl	60	70	RUNEX	25	PM10	0.03047
2020	Annual	Riverside (	MHDT	Dsl	60	70	RUNEX	5	PM10	0.283444
2020	Annual	Riverside (	MHDT	Dsl	60	70	RUNEX	25	PM10	0.099845
2020	Annual	Riverside (	HHDT	Dsl			IDLEX		PM10	0.026558
2020	Annual	Riverside (	LHDT1	Dsl			IDLEX		PM10	0.790306
2020	Annual	Riverside (	MHDT	Dsl			IDLEX		PM10	0.291445

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: RIVERSIDE
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population
RIVERSID	2020	HHDT	Aggregate	Aggregate	GAS	9.095524
RIVERSID	2020	HHDT	Aggregate	Aggregate	DSL	26446.81
RIVERSID	2020	HHDT	Aggregate	Aggregate	NG	238.4864
RIVERSID	2020	LHDT1	Aggregate	Aggregate	GAS	21163.23
RIVERSID	2020	LHDT1	Aggregate	Aggregate	DSL	19824.05
RIVERSID	2020	MHDT	Aggregate	Aggregate	GAS	1903.946
RIVERSID	2020	MHDT	Aggregate	Aggregate	DSL	15685.65

HHDT% GAS/NG	0.009275
HHDT% DSL	0.990725
LHDT1% GAS	0.516337
LHDT1% DSL	0.483663
MHDT% GAS	0.108243
MHDT% DSL	0.891757

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)
	0.00295	2.95E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.0E-06	3.3E-08	5.0E+00	1.4E-03	5.9E-04							
TOTAL								3.3E-08			5.9E-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)	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)
	0.00295	2.95E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	3.1E-06	7.9E-07	5.0E+00	1.4E-03	5.9E-04							
TOTAL								7.9E-07			5.9E-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)	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)
	0.00295	2.95E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.6E-06	7.3E-07	5.0E+00	1.4E-03	5.9E-04							
TOTAL								7.3E-07			5.9E-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)	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)
	0.00295	2.95E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	7.4E-07	1.1E-07	5.0E+00	1.4E-03	5.9E-04							
TOTAL								1.1E-07			5.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
								0.11										

** 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) 1.67

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	1.17E-02	1.17E-05	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.8E-06	6.9E-07	5.0E+00	1.4E-03	2.3E-03							
	TOTAL								7.0E-07			2.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
									0.70										

** 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