Gilman Springs Mine

AIR QUALITY IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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LIST OF ABBREVIATED TERMS

(1)	Reference
c	
AB 2595	California Clean Air Act
AEROMOD	AMS/EPA Regulatory Model
ANFO	Ammonium Nitrate/Fuel Oil
AQ	Air Quality
AQIA	Air Quality Impact Analysis
AQMP	Air Quality Management Plan
ATC	Application to Construct
BACM	Best Available Control Measures
BBAQMD	Bay Area Air Quality Management District
BC	Black Carbon
BL	Boulevard
BRIEF	Brief of Amicus Curiae by the SCAQMD in the Friant Ranch Case
C_2Cl_4	Perchloroethylene
C_4H_4O	Acetaldehyde
C_4H_6	1,3-butadiene
C_6H_6	Benzene
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_2O	Formaldehyde
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COH	Coefficient of Haze
COHB	Carboxyhemoglobin
COUNTY	County of Riverside
Cr^{+6}	Chromium
CTP	Clean Truck Program

DPM	Diesel Particulate Matter
DRRP	Diesel Risk Reduction Plan
EC	Elemental Carbon
EIR	Environmental Impact Reports
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
GHG	Greenhouse Gas
H_2CO_3	Carbonic Acid
HDT	Heavy Duty Trucks
HI	Hazard Index
HP	Horsepower
HRA	Health Risk Assessment
I-215	Interstate 215
LBS/DAY	Pounds Per Day
LST	Localized Significance Threshold
LST METHODOLOGY	Final Localized Significance Threshold Methodology
MATES	Multiple Air Toxics Exposure Study
MC	Metallic Carbides
$\mu g/m^3$	Microgram per Cubic Meter
MICR	Maximum Individual Cancer Risk
MM	Mitigation Measures
MTPY	Million Tons Per Year
MWELO	California Department of Water Resources' Model Water Efficient
NAAQS	National Ambient Air Quality Standards
N_2	Nitrogen
N_2O	Nitrous Oxides
$(NH_4)_2CO_3$	Ammonium Carbonate
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_2	Oxygen
O_3	Ozone
OBD-II	On-Board Diagnostic
OEHHA	Office of Environmental Health Hazard Assessment
OS-RUR	Open Space – Rural
OS-MIN	Open Space – Mineral Resources
Pb	Lead

PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
POLA	Port of Los Angeles
POLB	Port of Long Beach
PPM	Parts Per Million
Project	Gilman Springs Mine
RD	Road
RECLAIM	Regional Clean Air Incentives Market
RFG-2	Reformulated Gasoline Regulation
ROG	Reactive Organic Gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Southbound
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SF	Square Feet
SJVAPCD	San Joaquin Valley Unified Air Pollution Control District
SIPs	State Implementation Plans
SO_2	Sulfur Dioxide
SO_4	Sulfates
SO_x	Sulfur Oxides
SR-60	State Route 60
SR-79	State Route 79
SRA	Source Receptor Area
ST	Street
TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
TITLE I	Non-Attainment Provisions
TITLE II	Mobile Source Provisions
TPD	Tons Per Day
TPY	Tons Per Year
TRU	Transport Refrigeration Units
UFP	Ultra Fine Particles
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VPH	Vehicles Per Hour

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Gilman Springs Mine Air Quality Impact Analysis* (AQIA) are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for each potential air quality (AQ) impact under CEQA before and after any required mitigation measures (MM) described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Operational Emissions	3.4	*Potentially Significant*	*Significant and Unavoidable*
Localized Operational Emissions	3.5	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.6	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.7	*Potentially Significant*	*Significant and Unavoidable*
Sensitive Receptors	3.8	*Less Than Significant*	*n/a*
Odors	3.10	*Less Than Significant*	*n/a*
Cumulative Impacts	3.11	*Potentially Significant*	*Significant and Unavoidable*

ES.2 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES

Measures listed below (or equivalent language) recommended to appear on all Project grading plans, construction specifications and bid documents, and the County shall ensure such language is incorporated prior to issuance of any applicable development permits. South Coast Air Quality Management District (SCAQMD) Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 403 (Fugitive Dust) (2) and Rule 1113 (Architectural Coatings) (3). It should be noted that these Best Available Control Measures (BACMs) are not mitigation as they are standard regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken in the analysis.

BACM AQ-1

The contractor shall adhere to applicable measures contained in Table 1 of Rule 403 including, but not limited to (2):

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are limited to 15 miles per hour or less.

BACM AQ-2

The Project shall comply with SCAQMD Rule 1157, which requires the following:

- No visible dust more than 100 feet from any activity, equipment, storage pile, or disturbed area anywhere onsite
- No dust emissions from any source exceeding 20 percent opacity (average of 12 readings)
- Prompt cleanup of any spilled material and stabilization of any spilled material storage piles at a minimum at the end of each workday
- Dust suppressants or other dust control methods on conveyors, loading, unloading, or transferring activities
- Baghouse emission controls on screening and crushing activities or other dust control measures to meet the visible emission limits
- Chemical stabilization and covering storage piles
- Chemical stabilization of unpaved haul roads
- Sweeping of paved roads once each shift with SCAQMD-certified sweepers
- Covered or otherwise stabilized aggregate loads (i.e. loads to remain 6 inches from the upper edge of the container area) to avoid dust emissions from product transport trucks in compliance with California Vehicle Code No. 23114
- Wheel washers, rumble grate, and paving of internal plant roads to eliminate track out.

ES.3 MITIGATION MEASURES

The Project would exceed regional thresholds of significance established by the SCAQMD for emissions of nitrogen oxides (NO_X), PM_{10} (particulate matter less than 10 microns), and $PM_{2.5}$ (particulate matter less than 2.5 microns). It is important to note that more than 50 percent of the Project's NO_X emissions are derived from vehicular activity and more than 95 percent of the Project's PM_{10} and $PM_{2.5}$ emissions are associated with dust resulting from aggregate processing and handling. The following mitigation measures are designed to reduce the operational NO_X emissions but will not be enough to reduce the NO_X emissions to less than the significant impacts.

Further, the Project already implements best management practices to reduce fugitive dust-related emissions.

MM AQ-1

The Project shall ensure that equipment, including heavy-duty equipment, motor vehicles, and portable equipment, will be turned off when not in use for more than 5 minutes. Truck idling shall not exceed 5 minutes in time. All facilities will post signs requiring that trucks shall not be left idling for more than 5 minutes pursuant to Title 13 of the California Code of Regulations (CCR), Section 2485, which limits idle times to not more than 5 minutes.

MM AQ-2

The Project will provide information to the truck fleet operators to encourage the vendor trucks to incorporate energy efficiency improvement features through the Carl Moyer Program—including truck modernization, retrofits, and/or aerodynamic kits and low rolling resistance tires—to reduce fuel consumption.

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1 INTRODUCTION

This report presents the results of the AQIA prepared by Urban Crossroads, Inc., for the proposed Gilman Springs Mine (Project). The purpose of this AQIA is to evaluate the potential impacts to AQ associated with operations of the proposed Project and, if warranted, recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the SCAQMD.

1.1 SITE LOCATION

The proposed Gilman Springs Mine Project is located on the northeast side of Gilman Springs Road and south of Bridge Street in unincorporated County of Riverside, as shown on Exhibit 1-A. State Route 79 (SR-79) is located approximately 1.1 miles southeast of the Project site, State Route 60 (SR-60) is located approximately 3.0 miles north of the Project site, and Interstate 215 (I-215) is located approximately 11.5 miles west of the Project site. Existing agricultural uses are located west and south of the Project site; vacant land is located north of the Project site; and the Lamb Canyon Landfill is located roughly 1.5 miles east of the Project site.

1.2 PROJECT DESCRIPTION

The Project's historic tonnage average is 377,675 tons per year (TPY) based on a 15-year average of historical data. The Project is proposing a permit that would allow up to 1,000,000 TPY. For impact calculations that rely on annual tonnage, the net increase over the baseline (i.e., 377,675 TPY) will be evaluated as part of the analysis. When compared to the proposed permitted maximum annual production quantity of the 1.0 million tons per year (MTPY), the Project results in a net increase of 622,235 TPY, or a 62.22-percent share of the total permitted annual production quantity. As such, the high-end estimate of daily tonnage at the site is approximately 4,000 tons per day (TPD), with approximately 1,511 TPD associated with the mine's existing operations (i.e., baseline) and 2,489 TPD attributable to the proposed Project (62.22-percent of 4,000 TPD). The Project is anticipated to be in operation by the end of 2019.

Exhibit 1-B shows the proposed Project mining operations and physical disturbance boundaries. The on-site Project-related emissions sources are expected to include: on-site equipment, mobile source (passenger cars and trucks) emissions, fugitive dust from material processing, and blasting. This analysis is intended to describe emissions associated with the expected typical operational activities at the Project site.

1.3 PROJECT TRIP GENERATION

According to the *Gilman Springs Mine Traffic Impact Analysis* (TIA) prepared by Urban Crossroads, Inc. the Project is expected to generate a net total of approximately 218 two-way trips per day (109 inbound and 109 outbound). The Project trip generation includes 199 two-way truck trips per day and 19 two-way passenger vehicles per day (4).

EXHIBIT 1-A: LOCATION MAP

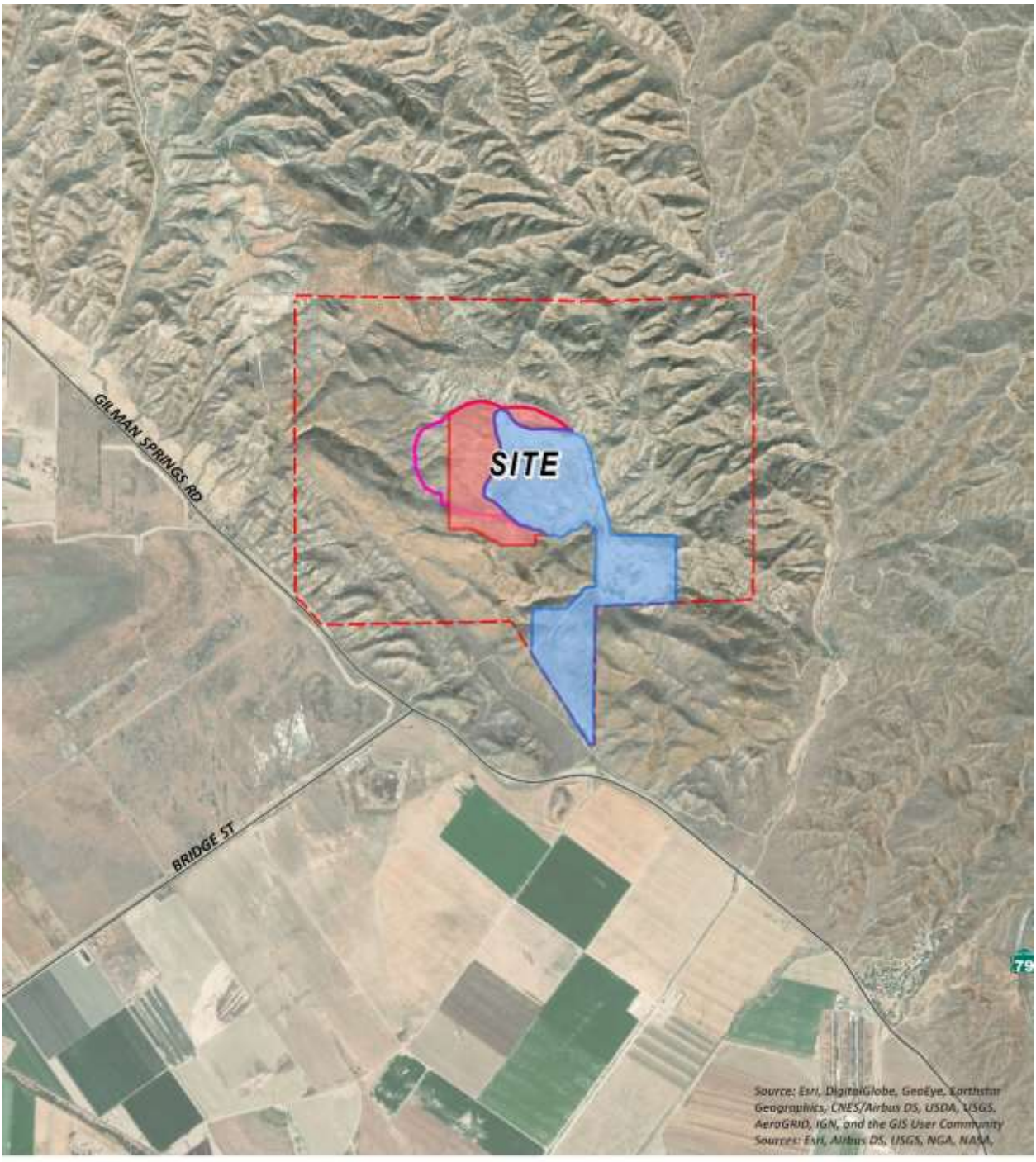
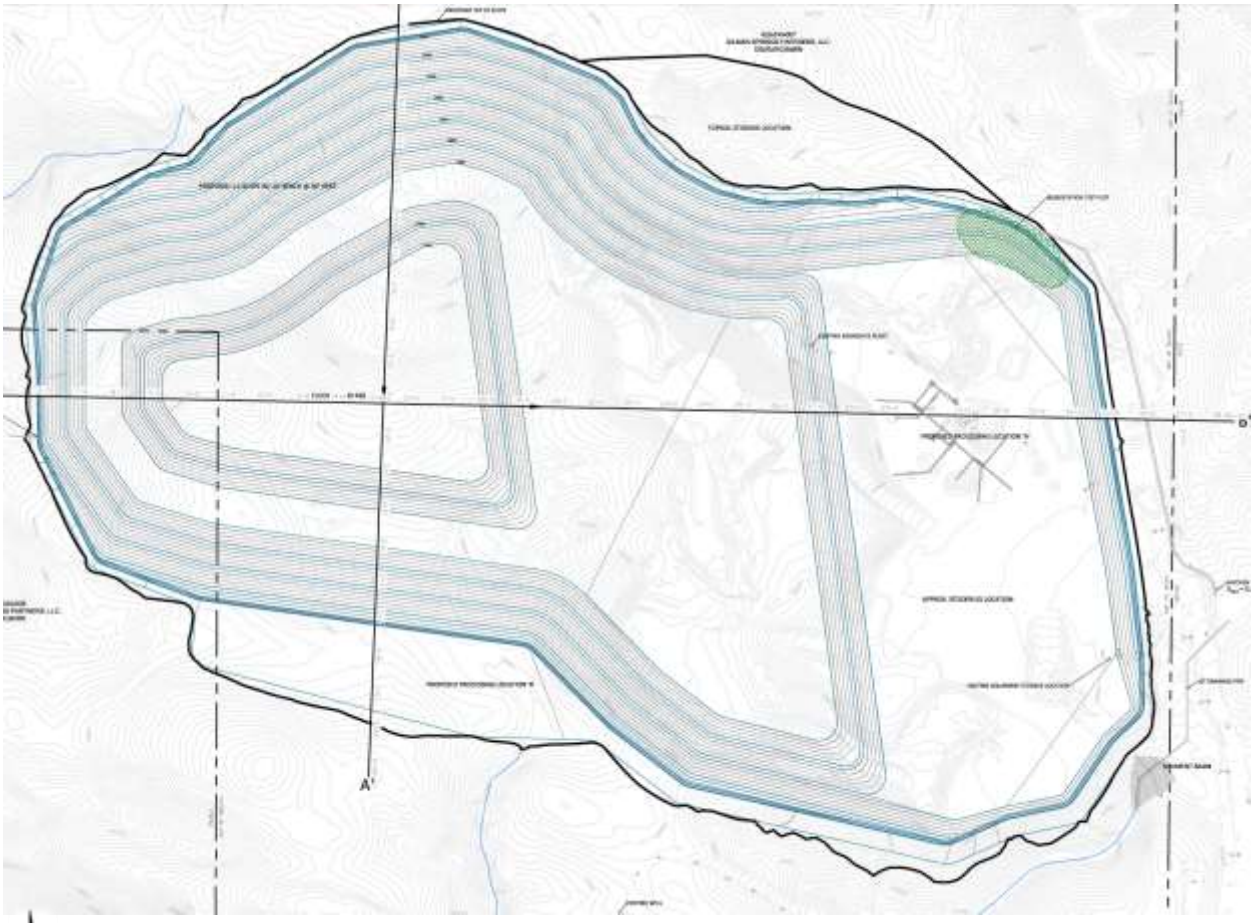


EXHIBIT 1-B: PROPOSED PHYSICAL DISTURBANCE PLAN



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2 AIR QUALITY SETTING

This section provides an overview of the existing AQ conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (5). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing AQ in areas under its jurisdiction into conformity with federal and state AQ standards. As previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on AQ in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the AQ.

The annual average temperatures throughout the SCAB vary from the low to middle 60s degrees Fahrenheit (°F). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO_2) to sulfates is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent along the coast and 59 percent inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90 percent of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer

rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as NO_X and CO from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

2.4 CRITERIA POLLUTANTS

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (6):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone (O_3), motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.
SO_2	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high	Coal or oil burning power plants and industries,	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are

Criteria Pollutant	Description	Sources	Health Effects
	sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X)	refineries, diesel engines	sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.
NO_X	NO_X consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and NO_2, to 170	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels

Criteria Pollutant	Description	Sources	Health Effects
	years for nitrous oxide. NO_X are typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.		found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	Formed when reactive organic gases (ROG) and NO_X react in the presence of sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung

Criteria Pollutant	Description	Sources	Health Effects
			tissue, and some immunological changes. Elevated O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high O_3 levels. O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.
Particulate Matter	PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. Particulate matter pollution is a major cause of reduce visibility (haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles,	A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association

Criteria Pollutant	Description	Sources	Health Effects
	deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to particulate matter. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
VOCs	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation CO, carbon dioxide	Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.

Criteria Pollutant	Description	Sources	Health Effects
	(CO_2), carbonic acid (H_2CO_3), metallic carbides (MC) or carbonates, and ammonium carbonate ($(NH_4)_2CO_3$). VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) interchangeably.	degree, when they are stored.	
ROG	Similar to VOC, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_X react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Pb is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of Pb in the air was emissions from vehicles burning leaded gasoline. The major sources of Pb emissions are ore and metals processing, particularly Pb smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include operational activities such as metal processing or Pb acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of Pb emissions.	Metal smelters, resource recovery, leaded gasoline, deterioration of Pb paint.	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure. Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure,

Criteria Pollutant	Description	Sources	Health Effects
			and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves (7).	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.5 EXISTING AIR QUALITY

Existing AQ is measured at established SCAQMD AQ monitoring stations. Monitored AQ is evaluated in the context of ambient AQ standards. These standards are the levels of AQ that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (8).

The determination of whether a region's AQ is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards were updated by the California Air Resources Board (CARB) on May 4, 2016 and are presented in Table 2-2. The AQ in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how the State assigns attainment status. Attainment status for a pollutant means that the Air District meets the standards set by the EPA or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored AQ that does not meet the NAAQS or CAAQS standards. In order to improve AQ in nonattainment areas, a State Implementation Plan (SIP) is drafted by CARB. The SIP outlines the measures that the state will take to improve AQ. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA will designate the area as a maintenance area (9).

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

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TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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2.6 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: carbon monoxide, Pb, O_3, particulate matter (PM_{10} and $PM_{2.5}$), NO_2, and SO_2 which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district (10). On February 21, 2019, CARB posted the 2018 amendments to the state and national area designations. See Table 2-3 for attainment designations for the SCAB (11). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb[1]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005.

2.7 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term AQ monitoring site in relation to the project for O_3, NO_2 , and PM_{10} is carried out by the SCAQMD at the San Gorgonio Pass monitoring station located in Source Receptor Area (SRA) 29 approximately 10 miles east of the Project site (12). The Metropolitan Riverside County 1 (SRA 23) station, located approximately 22 miles northwest of the Project site, is the nearest station that monitors data for CO and $PM_{2.5}$.

The most recent three (3) years of data available is shown on Table 2-4 and identifies the number of days ambient AQ standards were exceeded for the study area, which is considered to be representative of the local AQ at the Project site. Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ for 2016 through 2018 was obtained from the SCAQMD AQ Data Tables (13). Additionally, data for SO_2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO_2 concentrations.

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2016-2018

POLLUTANT	STANDARD	YEAR		
		2016	2017	2018
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.128	0.128	0.119
Maximum Federal 8-Hour Concentration (ppm)		0.106	0.105	0.106
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	26	50	33
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.07 ppm	52	82	69
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	1.7	1.9	2.2
Maximum Federal 8-Hour Concentration	> 20 ppm	1.3	1.7	2.0
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.047	0.056	0.051
Annual Federal Standard Design Value		0.008	0.008	0.009
PM_{10}				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 150 $\mu g/m^3$	65	97	39
Annual Federal Arithmetic Mean ($\mu g/m^3$)		24.0	22.4	19.4
Number of Days Exceeding Federal 24-Hour Standard	> 150 $\mu g/m^3$	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 $\mu g/m^3$	3	1	0
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 35 $\mu g/m^3$	39.12	50.30	50.70
Annual Federal Arithmetic Mean ($\mu g/m^3$)	> 12 $\mu g/m^3$	12.54	12.18	12.41
Number of Days Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	4	6	2

ppm = Parts Per Million
Source: Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ was obtained from SCAQMD Air Quality Data Tables.

2.8 REGULATORY BACKGROUND

2.8.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (14). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal AQ standards, the NAAQS, and specifies future dates for achieving compliance (15). The CAA also mandates that states submit and implement SIPs for local areas not meeting these standards.

These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (16) (17). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 2-3 (previously presented) provides the NAAQS within the SCAB.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process.

2.8.2 CALIFORNIA REGULATIONS

California Air Resource Board. The CARB, which became part of the CalEPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient AQ standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However, at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional AQ problem. Generally, the CAAQS are more stringent than the NAAQS (18) (14).

Local AQ management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare AQ management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;

- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

Title 24 Energy Efficiency Standards and California Green Building Standards. CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that will be effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided, they establish a minimum 65 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and will become effective on January 1, 2020. The proposed Project does not include the construction of any structure or building components, such as windows; roof systems: electrical and lighting systems. As such, the Title 24 standards are not applicable to the proposed Project.

The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the SCAB and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7 percent less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53 percent less energy than homes built under the 2016 standards. Nonresidential buildings (such as the proposed Project) will use approximately 30 percent less energy due to lighting upgrade requirements (19).

Because the Project will be constructed after January 1,2019, the 2019 CALGreen standards are applicable to the Project and require, among other items (20):

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of note more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).

- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 square feet (sf) or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gal/day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.8.4 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient AQ standards (21). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.9.

2.9 REGIONAL AIR QUALITY IMPROVEMENT

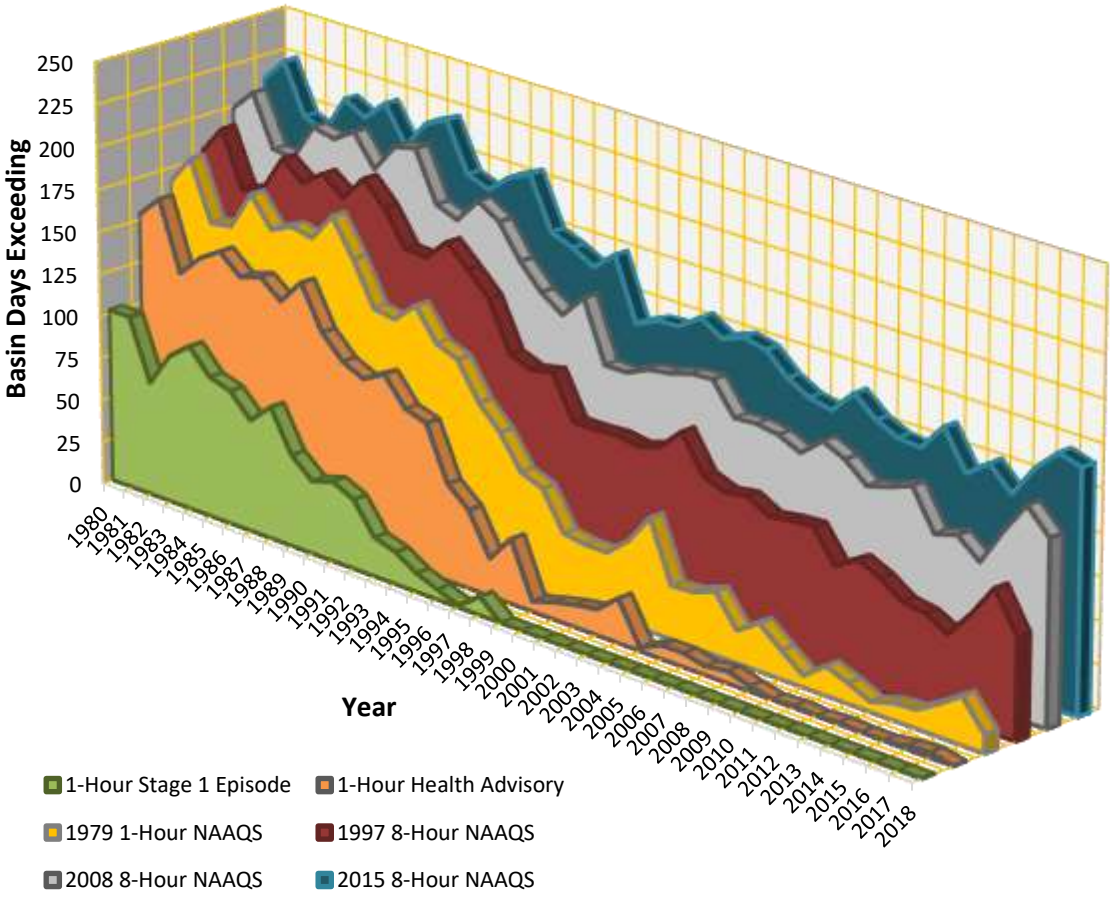
The Project is within the jurisdiction of the SCAQMD. In 1976, California adopted the Lewis Air Quality Management Act which created SCAQMD from a voluntary association of air pollution control districts in Los Angeles, Orange, Riverside, and San Bernardino counties. The geographic area of which SCAQMD consists is known as the SCAB. SCAQMD develops comprehensive plans and regulatory programs for the region to attain federal standards by dates specified in federal law. The agency is also responsible for meeting state standards by the earliest date achievable, using reasonably available control measures.

SCAQMD rule development through the 1970s and 1980s resulted in dramatic improvement in SCAB air quality. Nearly all control programs developed through the early 1990s relied on (i) the development and application of cleaner technology; (ii) add-on emission controls, and (iii) uniform CEQA review throughout the SCAB. Industrial emission sources have been significantly reduced by this approach and vehicular emissions have been reduced by technologies implemented at the state level by CARB.

As discussed above, the SCAQMD is the lead agency charged with regulating air quality emission reductions for the entire SCAB. SCAQMD created AQMPs which represent a regional blueprint for achieving healthful air on behalf of the 16 million residents of the SCAB. The 2012 AQMP states, "the remarkable historical improvement in air quality since the 1970's is the direct result of Southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs," (22).

Emissions of O_3, NO_X, VOC, and CO have been decreasing in the SCAB since 1975 and are projected to continue to decrease through 2020 (23). These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although VMT in the SCAB continue to increase, NO_X and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO_X emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. O_3 contour maps show that the number of days exceeding the 8-hour NAAQS has decreased between 1997 and 2007. In the 2007 period, there was an overall decrease in exceedance days compared with the 1997 period. However, as shown on Table 2-5, O_3 levels have increased in the past two years due to higher temperatures and stagnant weather conditions. Notwithstanding, O_3 levels in the SCAB have decreased substantially over the last 30 years with the current maximum measured concentrations being approximately one-third of concentrations within the late 70's (24).

TABLE 2-5: SCAB O_3 TREND

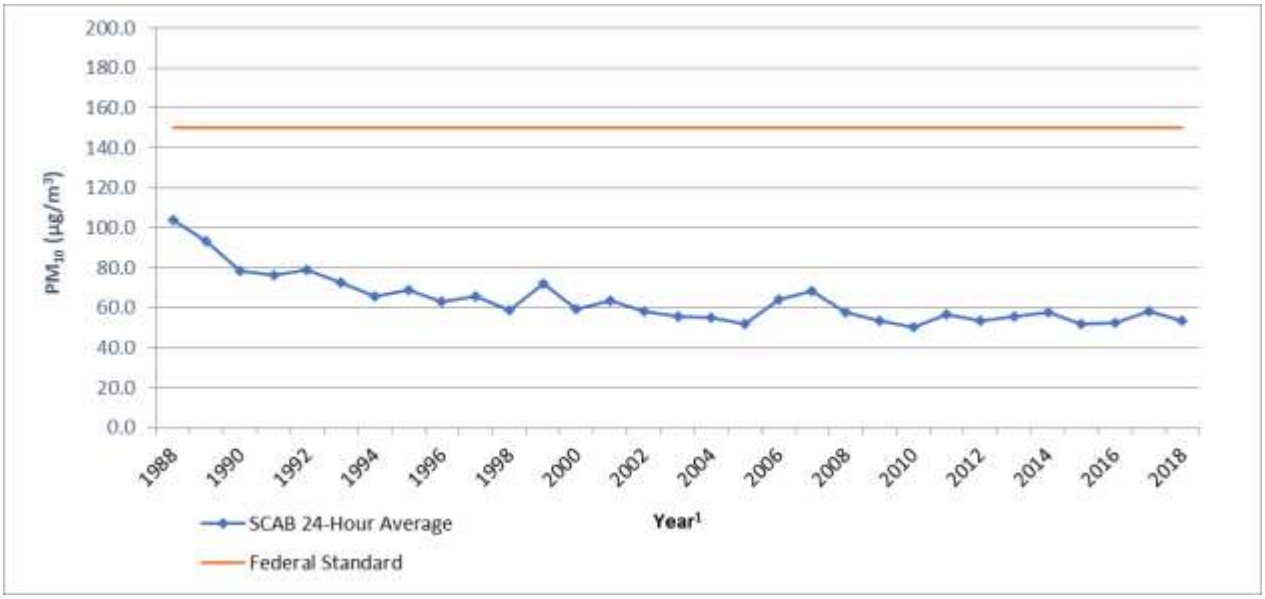


Source: SCAQMD

The overall trends of PM_{10} and $PM_{2.5}$ levels in the air (not emissions) show an overall improvement since 1975. Direct emissions of PM_{10} have remained somewhat constant in the SCAB and direct emissions of $PM_{2.5}$ have decreased slightly since 1975. Area wide sources (fugitive dust from roads, dust from construction and demolition, and other sources) contribute the greatest amount of direct particulate matter emissions.

As with other pollutants, the most recent PM_{10} statistics show an overall improvement as illustrated in Tables 2-6 and 2-7. During the period for which data are available, the 24-hour national annual average concentration for PM_{10} decreased by approximately 48 percent, from 103.7 microgram per cubic meter (µg/m³) in 1988 to 53.5 µg/m³ in 2018 (25). Although the values are below the federal standard, it should be noted that there are days within the year where the concentrations will exceed the threshold. The 24-hour state annual average for emissions for PM_{10}, have decreased by approximately 53 percent since 1988 (25). Although data in the late 1990's show some variability, this is probably due to the advances in meteorological science rather than a change in emissions. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also shown an overall drop.

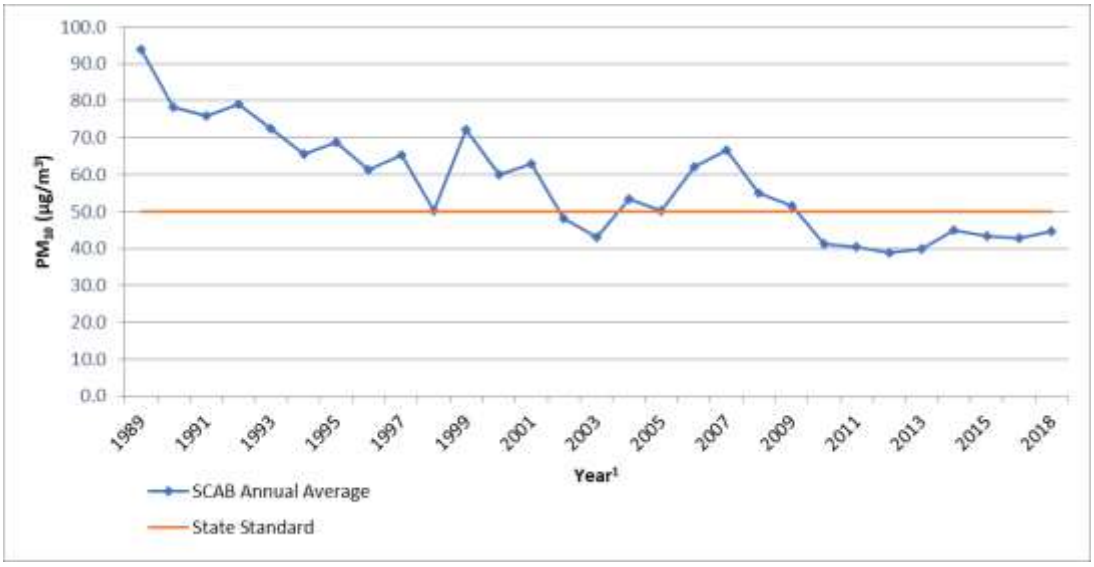
TABLE 2-6: SCAB AVERAGE 24-HOUR CONCENTRATION PM_{10} TREND (BASED ON FEDERAL STANDARD)



Source: CARB

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

TABLE 2-7: SCAB ANNUAL AVERAGE CONCENTRATION PM_{10} TREND (BASED ON STATE STANDARD)

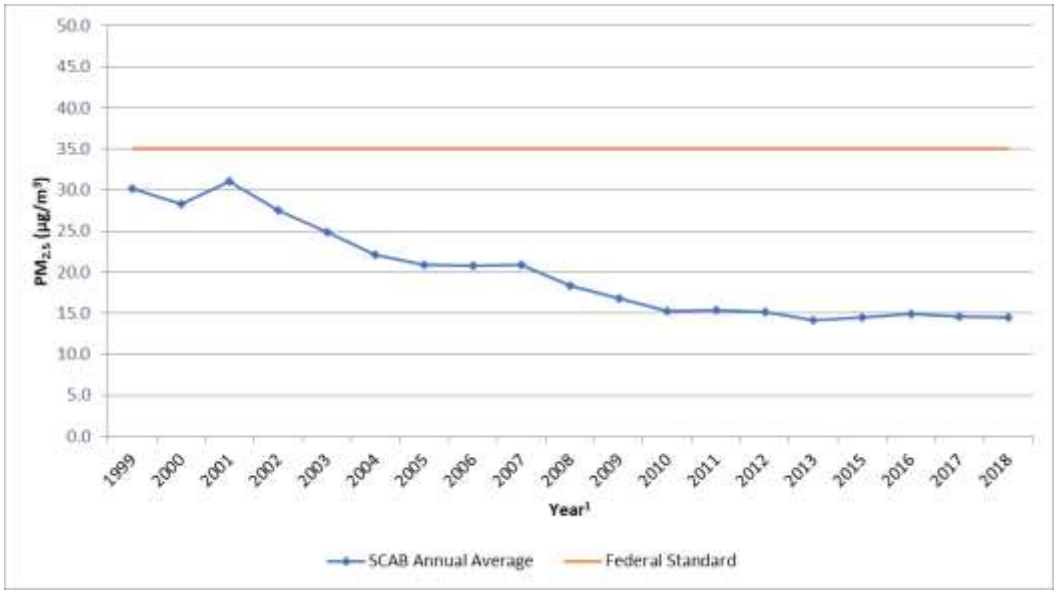


Source: CARB

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

Tables 2-8 and 2-9 shows the most recent 24-hour average $PM_{2.5}$ concentrations in the SCAB from 1999 through 2018. Overall, the national and state annual average concentrations have decreased by almost 52 percent and 33 percent respectively (25). It should be noted that the SCAB is currently designated as nonattainment for the state and federal $PM_{2.5}$ standards.

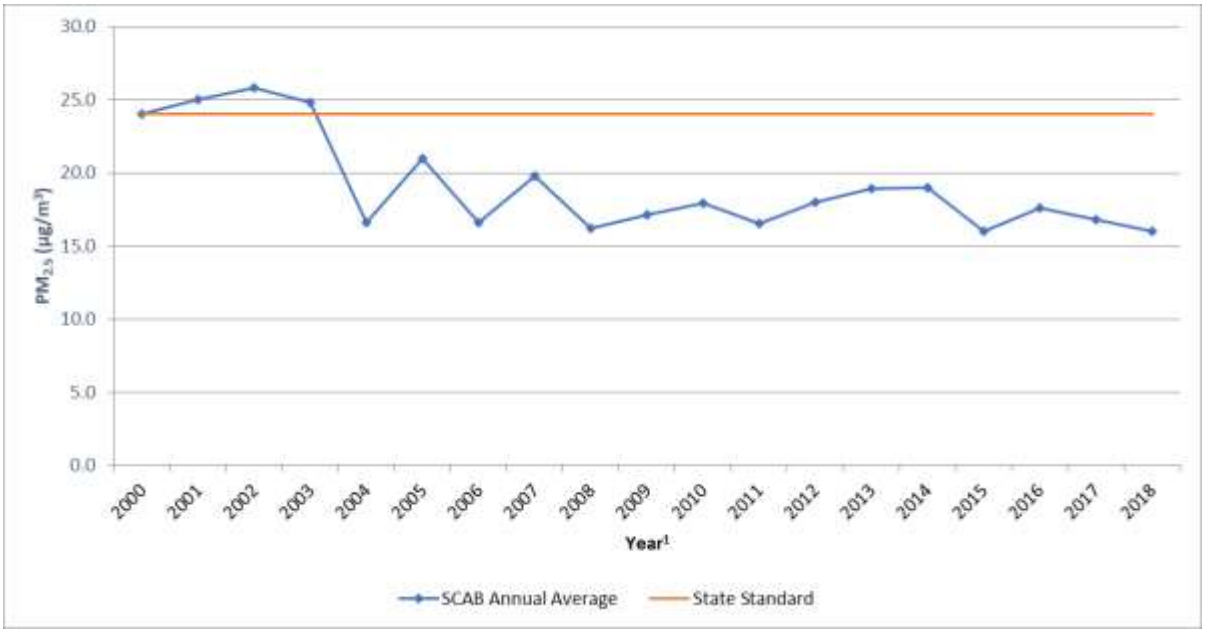
TABLE 2-8: SCAB 24-HOUR AVERAGE CONCENTRATION $PM_{2.5}$ TREND (BASED ON FEDERAL STANDARD)



Source: CARB

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

TABLE 2-9: SCAB ANNUAL AVERAGE CONCENTRATION $PM_{2.5}$ TREND (BASED ON STATE STANDARD)



Source: CARB

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

While the 2012 AQMP PM_{10} attainment demonstration and the 2015 associated supplemental SIP submission indicated that attainment of the 24-hour standard was predicted to occur by the end of 2015, it could not anticipate the effect of the ongoing drought on the measured $PM_{2.5}$.

The 2006 to 2010 base period used for the 2012 attainment demonstration had near-normal rainfall. While the trend of $PM_{2.5}$-equivalent emission reductions continued through 2015, the severe drought conditions contributed to the $PM_{2.5}$ increases observed after 2012. As a result of the disrupted progress toward attainment of the federal 24-hour $PM_{2.5}$ standard, SCAQMD submitted a request and the EPA approved, in January 2016, a "bump up" to the nonattainment classification from "moderate" to "serious," with a new attainment deadline as soon as practicable, but not beyond December 31, 2019.

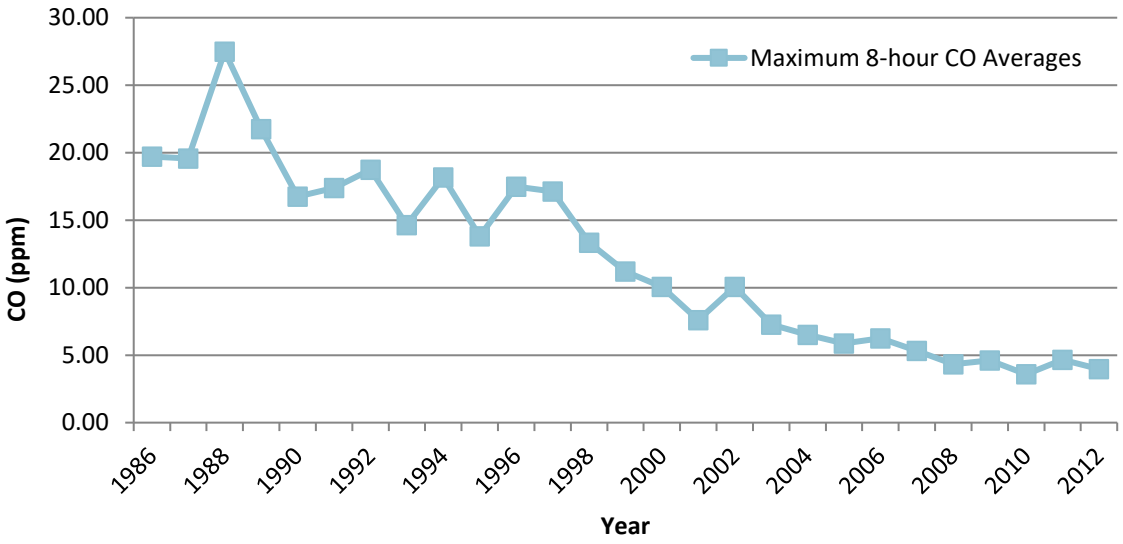
In March 2017, the SCAQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (26). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories (27).

The most recent CO concentrations in the SCAB are shown in Table 2-10 (25). CO concentrations in the SCAB have decreased markedly — a total decrease of more about 80 percent in the peak

8-hour concentration since 1986. It should be noted 2012 is the most recent year where 8-hour CO averages and related statistics are available in the SCAB. The number of exceedance days has also declined. The entire SCAB is now designated as attainment for both the state and national CO standards. Ongoing reductions from motor vehicle control programs should continue the downward trend in ambient CO concentrations.

Part of the control process of the SCAQMD's duty to greatly improve the air quality in the SCAB is the uniform CEQA review procedures required by SCAQMD's CEQA Handbook (28). The single threshold of significance used to assess Project direct and cumulative impacts has in fact "worked" as evidenced by the track record of the air quality in the SCAB dramatically improving over the course of the past decades. As stated by the SCAQMD, the District's thresholds of significance are based on factual and scientific data and are therefore appropriate thresholds of significance to use for this Project.

TABLE 2-10: SCAB 24-HOUR AVERAGE CONCENTRATION CO TREND[1]

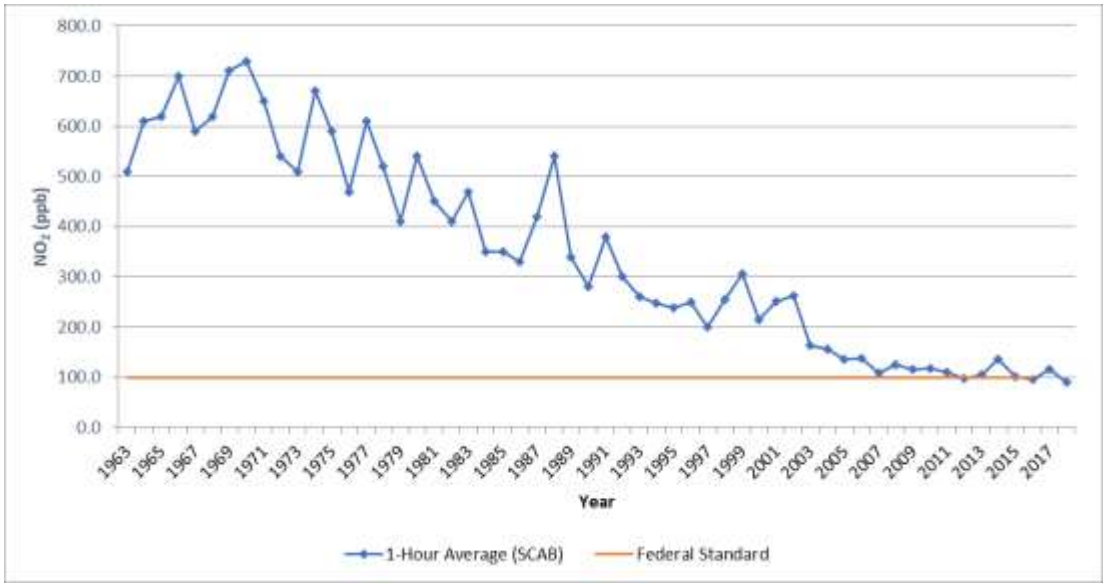


Source: CARB

[1] The most recent year where 8-hour concentration data is available is 2012.

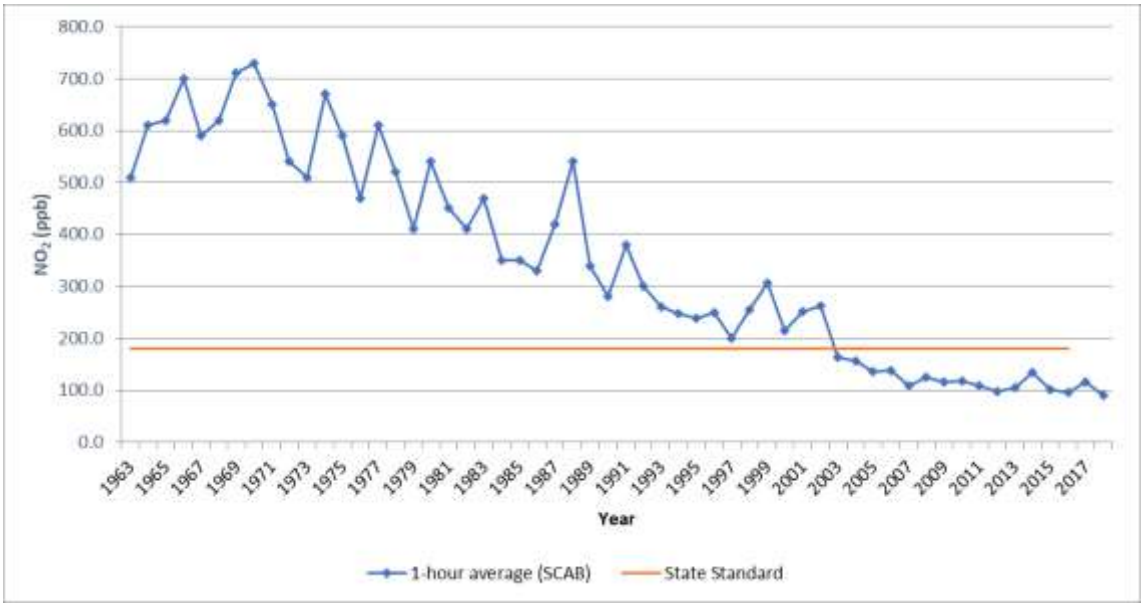
The most recent NO_2 data for the SCAB is shown in Tables 2-11 and 2-12 (25). Over the last 50 years, NO_2 values have decreased significantly; the peak 1-hour national and state averages for 2018 is approximately 82 percent lower than what it was during 1963. The SCAB attained the State 1-hour NO_2 standard in 1994, bringing the entire state into attainment. A new state annual average standard of 0.030 ppm was adopted by the ARB in February 2007 (29). The new standard is just barely exceeded in the SCAQMD. NO_2 is formed from NO_X emissions, which also contribute to O_3. As a result, the majority of the future emission control measures will be implemented as part of the overall O_3 control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO_X emissions. These measures are expected to bring the SCAQMD into attainment of the state annual average standard.

TABLE 2-11: SCAB 1-HOUR AVERAGE CONCENTRATION NO_2 TREND (BASED ON FEDERAL STANDARD)



Source: CARB

TABLE 2-12: SCAB 1-HOUR AVERAGE CONCENTRATION NO_2 TREND (BASED ON STATE STANDARD)



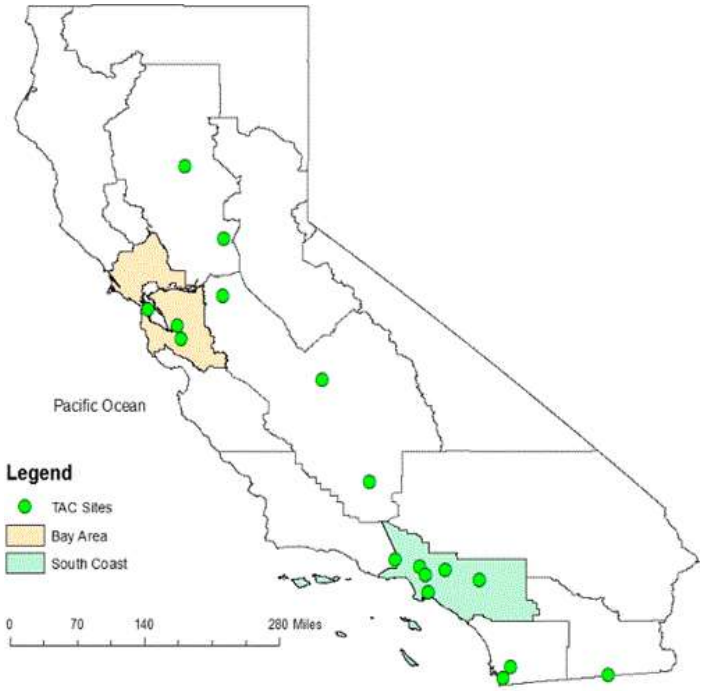
Source: CARB

The American Lung Association website includes data collected from state air quality monitors that are used to compile an annual State of the Air Report. The latest State of the Air Report compiled for the SCAB was in 2019 (30). As noted in this report, air quality in the SCAB has significantly improved in terms of both pollution levels and high pollution days over the past three decades.

TOXIC AIR CONTAMINANTS TRENDS

In 1984, as a result of public concern for exposure to airborne carcinogens, the CARB adopted regulations to reduce the amount of toxic air contaminant (TAC) emissions resulting from mobile and area sources, such as cars, trucks, stationary products, and consumer products. According to the *Ambient and Emission Trends of Toxic Air Contaminants in California* journal article (31) which was prepared for CARB, results show that between 1990-2012, ambient concentration and emission trends for the seven TACs responsible for most of the known cancer risk associated with airborne exposure in California have declined significantly (between 1990 and 2012). The seven TACs studied include those that are derived from mobile sources: diesel particulate matter (DPM), benzene (C_6H_6), and 1,3-butadiene (C_4H_6); those that are derived from stationary sources: perchloroethylene (C_2Cl_4) and hexavalent chromium (Cr^{+6}); and those derived from photochemical reactions of emitted VOCs: formaldehyde (CH_2O) and acetaldehyde(C_2H_4O)[2]. TACs data was gathered at monitoring sites from both the Bay Area and SCAB, as shown on Exhibit 2-A; Several of the sites in the SCAB include Reseda, Compton, Rubidoux, Burbank, and Fontana. The decline in ambient concentration and emission trends of these TACs are a result of various regulations CARB has implemented to address cancer risk.

EXHIBIT 2-A: CALIFORNIA TAC SITES



Source: CARB

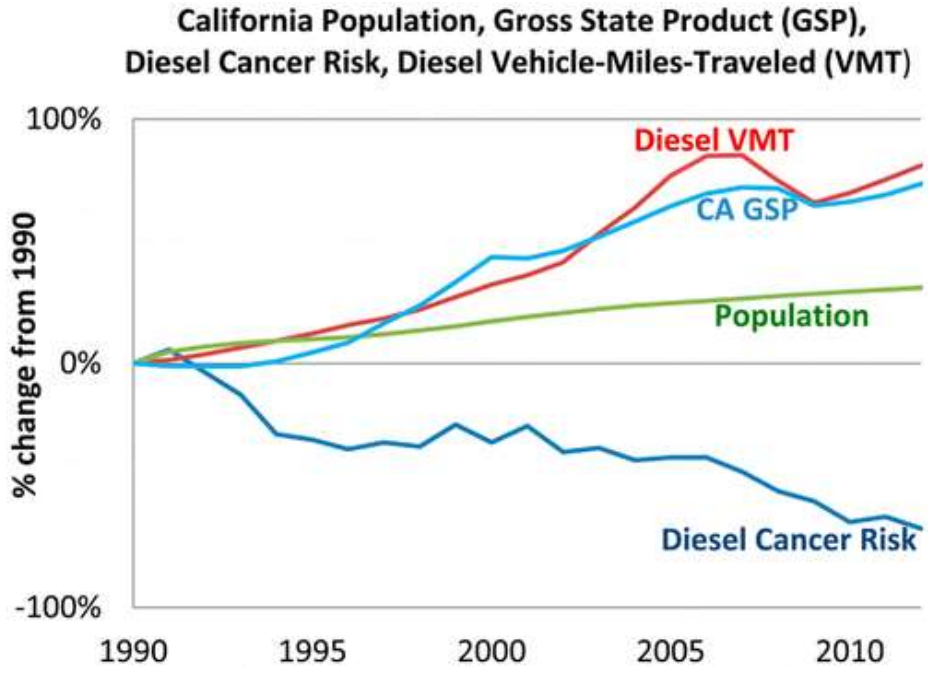
[2] It should be noted that ambient DPM concentrations are not measured directly. Rather, a surrogate method using the coefficient of haze (COH) and elemental carbon (EC) is used to estimate DPM concentrations.

Mobile Source TACs

CARB introduced two programs that aimed at reducing mobile emissions for light and medium duty vehicles through vehicle emissions controls and cleaner fuel. In California, light-duty vehicles sold after 1996 are equipped with California's second-generation On-Board Diagnostic (OBD-II) system. The OBD-II system monitors virtually every component that can affect the emission performance of the vehicle to ensure that the vehicle remains as clean as possible over its entire life and assists repair technicians in diagnosing and fixing problems with the computerized engine controls. If a problem is detected, the OBD-II system illuminates a warning lamp on the vehicle instrument panel to alert the driver. This warning lamp typically contains the phrase "Check Engine" or "Service Engine Soon". The system will also store important information about the detected malfunction so that a repair technician can accurately find and fix the problem. CARB has recently developed similar OBD requirements for heavy-duty vehicles over 14,000 lbs. CARB's phase II Reformulated Gasoline Regulation (RFG-2), adopted in 1996, also led to a reduction of mobile source emissions. Through such regulations, benzene levels declined 88% from 1990-2012. C_4H_6 concentrations also declined 85% from 1990-2012 as a result of the use of reformulated gasoline and motor vehicle regulations (31).

In 2000, CARB's Diesel Risk Reduction Plan (DRRP) recommended the replacement and retrofit of diesel-fueled engines and the use of ultra-low-sulfur (<15ppm) diesel fuel. As a result of these measures, DPM concentrations have declined 68% since 2000, even though the state's population increased 31% and the amount of diesel vehicles miles traveled increased 81%, as shown on Exhibit 2-B. With the implementation of these diesel-related control regulations, CARB expects a DPM decline of 71% for 2000-2020.

EXHIBIT 2-B: DPM AND DIESEL VEHICLE MILES TREND



Source: CARB

DIESEL REGULATIONS

The CARB and the Ports of Los Angeles and Long Beach (POLA and POLB) have adopted several iterations of regulations for diesel trucks that are aimed at reducing DPM. More specifically, the CARB Drayage Truck Regulation (32), the CARB statewide On-road Truck and Bus Regulation (33), and the POLA and POLB "Clean Truck Program" (CTP) require accelerated implementation of "clean trucks" into the statewide truck fleet (34). In other words, older more polluting trucks will be replaced with newer, cleaner trucks as a function of these regulatory requirements.

Moreover, the average statewide DPM emissions for Heavy Duty Trucks (HDT), in terms of grams of DPM generated per mile traveled, will dramatically be reduced due to the aforementioned regulatory requirements.

Diesel emissions identified in this analysis would therefore overstate future DPM emissions since not all the regulatory requirements are reflected in the modeling.

CANCER RISK TRENDS

Based on information available from CARB, overall cancer risk throughout the SCAB has had a declining trend since 1990. In 1998, following an exhaustive 10-year scientific assessment process, CARB identified particulate matter from diesel-fueled engines as a TAC. The SCAQMD initiated a comprehensive urban toxic air pollution study called the Multiple Air Toxics Exposure Study (MATES). DPM accounts for more than 70 percent of the cancer risk.

In 2008 the SCAQMD prepared an update to the MATES-II study, referred to as MATES-III. MATES-III estimates the average excess cancer risk level from exposure to TACs is an approximately 17% decrease in comparison to the MATES-II study.

In 2015, the SCAQMD published an in-depth analysis of the TACs and the resulting health risks for all of Southern California. The *Multiple Air Toxics Exposure Study in the SCAB, MATES IV,"* which shows that cancer risk has decreased less than 50% since MATES III (2005) (35).

MATES-IV study represents the baseline health risk for a cumulative analysis. MATES-IV calculated cancer risks based on monitoring data collected at ten fixed sites within the SCAB. None of the fixed monitoring sites are within the local area of the Project site. However, MATES-IV has extrapolated the excess cancer risk levels throughout the SCAB by modeling the specific grids. MATES-IV modeling predicted an excess cancer risk of 421.91 in one million for the geographic grid containing the Project site. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68% of the total risk shown in MATES-IV. Cumulative Project generated TACs are limited to DPM.

In January 2018, as part of the overall effort to reduce air toxics exposure in the SCAB, SCAQMD began conducting the MATES V Program. MATES V field measurements will be conducted over a one-year period at ten fixed sites (the same sites selected for MATES III and IV) to assess trends in air toxics levels. MATES V will also include measurements of ultrafine particles (UFP) and black carbon (BC) concentrations, which can be compared to the UFP levels measured in MATES IV (36). The final report for the MATES V study was expected to be available at the end of 2019, however it has not yet been published and no definitive date has been provided.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an AQ standard or contribute to an existing or projected AQ violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable NAAQS and CAAQS. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related AQ impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to AQ if it would (1):

- Conflict with or obstruct implementation of the applicable AQ plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient AQ standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. affecting a substantial number of people.

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 3-1 (37). The SCAQMD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant AQ impact.

TABLE 3-1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Operations
Regional Thresholds	
NO_X	55 lbs/day
VOC	55 lbs/day
PM_{10}	150 lbs/day
$PM_{2.5}$	55 lbs/day
SO_X	150 lbs/day
CO	550 lbs/day
Pb	3 lbs/day

lbs/day = Pounds Per Day
Source: Regional Thresholds presented are based on the SCAQMD Air Quality Significance Thresholds, April 2019

3.3 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ANALYZE AIR QUALITY

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod) v2016.3.2. The purpose of this model is to calculate criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable AQ and GHG reductions achieved from MMs (38). Accordingly, the latest version of CalEEMod has been used for this Project to determine operational AQ emissions. It should be noted that the CalEEMod "construction" input parameters were utilized to calculate the Project's operational emissions since the "construction" input parameters allow for more appropriate inclusion of the haul trucks and on-site operational equipment associated with the Project. Output from the model runs for operational activity are provided in Appendix 3.1.

3.3.1 EMISSION FACTORS MODEL

On August 19, 2019, the EPA approved the 2017 version of the Emission Factor model (EMFAC) web database for use in SIP and transportation conformity analyses. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (39). This AQIA utilizes summer, winter, and annual EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season. As summary of the EMFAC2017 emissions calculations are provided in Appendix 3.2

3.4 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- On-Site Equipment
- Mobile Source (Passenger Cars and Truck Traffic) Emissions
- Fugitive Dust from Material Processing

The Project will not result in an increase in the amount of natural gas associated with aggregate usage (since aggregate usage does not currently use any natural gas). The Project will result in an increase in electricity associated with the aggregate production. Based on project permits, the proposed increase in aggregate production from approximately 377,675 TPY to 1.0 million TPY represents a 264.8% increase in the quantity of material processed over baseline conditions. In order to process the additional 622,235 TPY, electricity usage is expected to increase proportionally by approximately 264.8%.

Criteria pollutant emissions may be emitted through the generation of electricity. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB,

criteria pollutant emissions from offsite generation of electricity is excluded from the evaluation of significance consistent with SCAQMD guidance.

3.4.1 OPERATIONAL EQUIPMENT

Table 3-2 summarizes the equipment utilized at the Project on a daily basis for the baseline operating period, proposed project operating characteristics, and net new equipment activity. As shown, mining activities during the baseline period results in approximately 30,388 horsepower (HP) hours per day. Based on information provided by the client, the proposed project would result in the generation of approximately 19,292 net new HP hours in addition to the baseline for a net total of 47,400 HP hours.

3.4.2 MOBILE SOURCE EMISSIONS

According to the TIA prepared by Urban Crossroads, Inc., the Project is expected to generate a net total of approximately 218 two-way trips per day (109 inbound and 109 outbound). The Project trip generation includes 199 two-way truck trips per day and 19 two-way passenger vehicles per day (4).

The CalEEMod default of a 20 mile one-way trip length for trucks was increased to 25 miles based on discussion with the Project applicant and based on regional aggregate studies that have found that 25 miles is generally the maximum distance for aggregate to travel before the cost of delivery renders the aggregate material non-economical (40) (41).

The Project is anticipated to serve a regional need and will likely reduce VMT in the long term by diverting trips that would otherwise travel to other aggregate facilities in the region. Notwithstanding, for purposes of this analysis, no "credit" has been taken and emissions associated with the Project are considered "new" as a conservative measure.

The fact is that aggregate will be consumed with or without the proposed Project. The Project will not have an effect on demand for aggregate but will have an effect on the distance that aggregates travel within the region in the long term. Project aggregate made available by the proposed expansion area will replace materials hauled from farther distances in the long term and supply new demand for aggregate that will occur in the Riverside County region. This rationale is supported by Dr. Peter Berck's *Working Paper No. 994 – A Note on the Environmental Costs of Aggregate (Department of Agricultural and Resource Economics and Policy, Division of Agricultural and Natural Resources, University of California Berkley, January 2005)* (40). Dr. Berck states that:

> *"The opening of a new quarry for aggregates will change the pattern of transportation of aggregates in the area served by the quarry. In this note, we will show that, so long as aggregate producers are cost minimizing, the new pattern of transportation requires less truck transport than the pattern of transportation that existed before the opening of the new quarry. Since the costs of providing aggregates falls, it is reasonable to assume that the price of delivered aggregates also will fall. This note also shows that the demand expansion effect is of very small magnitude. Since the demand increase from a new quarry is quite small, the dominant effect is that the quarries are on average closer to the users of*

TABLE 3-2: OPERATIONAL EQUIPMENT

	Baseline Operational Equipment Summary				
Hours/Day	**Equipment**	**Quantity**	**Tier Rating**	**HP**	**Total HP Hours Per Day**
4	Skid Steer	1	T4i	51	204
10	735 Haul Truck	2	T2	394	7,880
8	980K Wheel Loader	1	T4i	318	2,544
8	988H Wheel Loader	1	T3	501	4,008
11	JD 844 Wheel Loader	2	T4i	380	8,360
4	D10R Dozer	1	T2	570	4,560
8	Water Truck 2000 Gal	1	T0	354	2,832
				Total Baseline HP Hours	**30,388**
	Proposed Project Equipment Summary				
Hours/Day	**Equipment**	**Quantity**	**Tier Rating**	**HP**	**Total HP Hours Per Day**
6	Skid Steer	1	T4i	51	306
16	735C Haul Truck	2	T2	394	12,608
16	980K Wheel Loader	1	T4i	318	5,088
14	988H Wheel Loader	1	T3	501	7,014
16	JD 844 Wheel Loader	2	T4i	380	12,160
8	D10R Dozer	1	T2	570	4,560
16	Water Truck 2000 Gal	1	T0	354	5,664
				Subtotal Project HP Hours	**47,400**
	Net New Project Equipment Summary				
Hours/Day	**Equipment**	**Quantity**	**Tier Rating**	**HP**	**Total HP Hours Per Day**
2	Skid Steer	1	T4i	51	102
6	735C Haul Truck	2	T2	394	4,728
8	980K Wheel Loader	1	T4i	318	2,544
6	988H Wheel Loader	1	T3	501	3,006
5	JD 844 Wheel Loader	2	T4i	380	3,800
4	D10R Dozer	1	T2	570	2,280
8	Water Truck 2000 Gal	1	T0	354	2,832
				Total Net New Project HP Hours	**19,292**

aggregates and, as a result, the truck mileage for aggregate hauling decreases. To summarize the effects of a new quarry project:

a) The project in itself will not significantly increase the demand for construction materials in the region through market forces, which include the downward pressure on pricing.

b) Truck traffic (i.e. VMT) in the region will not increase and may decrease as a result of the project."

In its guidance document *CEQA and Climate Change* the CAPCOA lists various MMs that can be implemented to reduce AQ and GHG emissions for various projects. One particular mitigation measure for reducing AQ and GHG emissions during construction activity is Mitigation Measure C-5 "Use of Local Building Materials." The Project will provide local building materials to serve the demand for aggregate resources in the local area, thus resulting in a reduction in emissions associated with transport of materials from sources of aggregate products located further away. However, no "credit" is taken for this measure in this analysis in an effort to be conservative.

3.4.3 FUGITIVE DUST FROM MATERIAL PROCESSING

The emissions from the aggregate processing plant are not accounted for in CalEEMod. An engineering analysis that was prepared for the Project in support of the permitting process required by the SCAQMD was utilized to determine the amount of fugitive dust attributable to the Project.

The *SCAQMD Application to Construct (ATC) for Stationary Rock, Sand, Gravel, Base Crushing and Screening Plant* (*SCAQMD ATC*) by AEIC indicates that the Project operating at a maximum annual capacity of 1,000,000 tons processed would yield approximately 682.88 pounds per day of PM_{10} and 163.17 pounds per day of $PM_{2.5}$ emissions. As such, the amount attributable to the Project is 424.749 pounds per day of PM_{10} and 101.49 pounds of $PM_{2.5}$ (or 62.2%) which indicates the net increase from the existing baseline. The *SCAQMD ATC* report is included in its entirety in Appendix 3.3.

Blasting Activity

Based on discussion with the Project applicant, a maximum of 15,000 sf surface area for blasting is a reasonable working estimate for analytical purposes on days when blasting is expected to occur.

The estimated emissions of NO_x, CO, and SO_x from explosives used for blasting were determined using emission factors in Section 13.3 (Explosives Detonation) of AP-42 (EPA 1980), and PM_{10} and $PM_{2.5}$ emissions were determined using Section 11.9 of AP-42 (42). According to AP-42, "Unburned hydrocarbons also result from explosions, but in most instances, methane is the only species that has been reported" (EPA 1980); methane is not a VOC, and a methane emission factor has not been determined for ammonium nitrate/fuel oil (ANFO). Additional details on the emissions calculation associated with Blasting are provided in Appendix 3.4.

3.4.4 NET NEW EMISSIONS SUMMARY

Impacts Without Mitigation

Net new operational-source emissions without implementation of MMs are summarized on Table 3-3. Detailed operational model outputs are presented in Appendix 3.1. For regional emissions, the Project would exceed the numerical thresholds of significance established by the SCAQMD for emissions of NO_x, PM_{10}, and $PM_{2.5}$.

TABLE 3-3: SUMMARY OF PEAK OPERATIONAL EMISSIONS (WITHOUT MITIGATION)

Operational Activities – Summer Scenario	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Operational Equipment	1.41	34.86	35.09	0.07	0.78	0.78
Mobile Source (Trucks)	1.29	57.92	7.16	0.18	4.58	1.41
Mobile Source (Passenger Cars)	0.10	0.06	0.84	2.17e-03	0.21	0.06
Blasting Emissions	-	12.75	50.25	1.50	6.7	1.4
Fugitive Dust Aggregate Processing	-	-	-	-	283.66	79.86
Total Maximum Daily Emissions	**2.80**	**105.59**	**93.34**	**1.75**	**295.93**	**83.51**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**YES**	**YES**
Operational Activities – Winter Scenario	**Emissions (lbs/day)**					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Operational Equipment	1.41	34.86	35.09	0.07	0.78	0.78
Mobile Source (Trucks)	1.35	58.80	8.23	0.18	4.58	1.41
Mobile Source (Passenger Cars)	0.10	0.07	0.68	1.95e-03	0.21	0.06
Blasting Emissions	-	12.75	50.25	1.50	6.7	1.4
Fugitive Dust Aggregate Processing	-	-	-	-	283.66	79.86
Total Maximum Daily Emissions	**2.86**	**106.48**	**94.25**	**1.75**	**295.93**	**83.51**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**YES**	**YES**

Source: CalEEMod operational-source emissions are presented in Appendix 3.1.

Recommended Mitigation Measures

MM AQ-1

The Project shall ensure that equipment, including heavy-duty equipment, motor vehicles, and portable equipment, will be turned off when not in use for more than 5 minutes. Truck idling shall not exceed 5 minutes in time. All facilities will post signs requiring that trucks shall not be left idling for more than 5 minutes pursuant to Title 13 of the CCR, Section 2485, which limits idle times to not more than 5 minutes.

MM AQ-2

The Project will provide information to the truck fleet operators to encourage the vendor trucks to incorporate energy efficiency improvement features through the Carl Moyer Program—including truck modernization, retrofits, and/or aerodynamic kits and low rolling resistance tires—to reduce fuel consumption.

MM AQ-1 and MM AQ-2 are recommended to reduce the impact to the maximum extent possible. Notwithstanding, the emissions reductions from MM AQ-1 and MM AQ-2 are difficult to quantify in the context of the regional operational emissions estimates and therefore no "credit" has been taken for implementation of these measures. As shown, the Project would exceed regional thresholds of significance established by the SCAQMD for emissions of NO_X, PM_{10}, and $PM_{2.5}$. It is important to note that more than 50 percent of the Project's NO_X emissions are derived from vehicular activity and more than 95 percent of the Project's PM_{10} and $PM_{2.5}$ emissions are associated with dust resulting from aggregate processing and handling. The aforementioned mitigation measures are designed to reduce the operational NO_X emissions but will not be enough to reduce the NO_X emissions to less than the significant impacts. Further, the Project already implements best management practices to reduce fugitive dust-related emissions.

3.5 LOCALIZED SIGNIFICANCE - OPERATIONAL ACTIVITY

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLD (LST) DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (*LST Methodology*) (43). The SCAQMD has established that impacts to AQ are significant if there is a potential to contribute or cause localized exceedances of the NAAQS and CAAQS. Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4[3]. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient AQ standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its AQ impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized AQ impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the *LST Methodology* (43).

[3] The purpose of SCAQMD's Environmental Justice program is to ensure that everyone has the right to equal protection from air pollution and fair access to the decision-making process that works to improve the quality of air within their communities. Further, the SCAQMD defines Environmental Justice as "…equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution."

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate SRA for the LST analysis is Hemet/San Jacinto Valley (SRA 28). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

EMISSIONS CONSIDERED

SCAQMD's *LST Methodology* clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs (43)." Therefore, for purposes of the operational LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

Sensitive Receptors

As previously stated, LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable NAAQS and CAAQS at the nearest residence or sensitive receptor. Receptor locations are off-site locations where individuals may be exposed to emissions from Project activities.

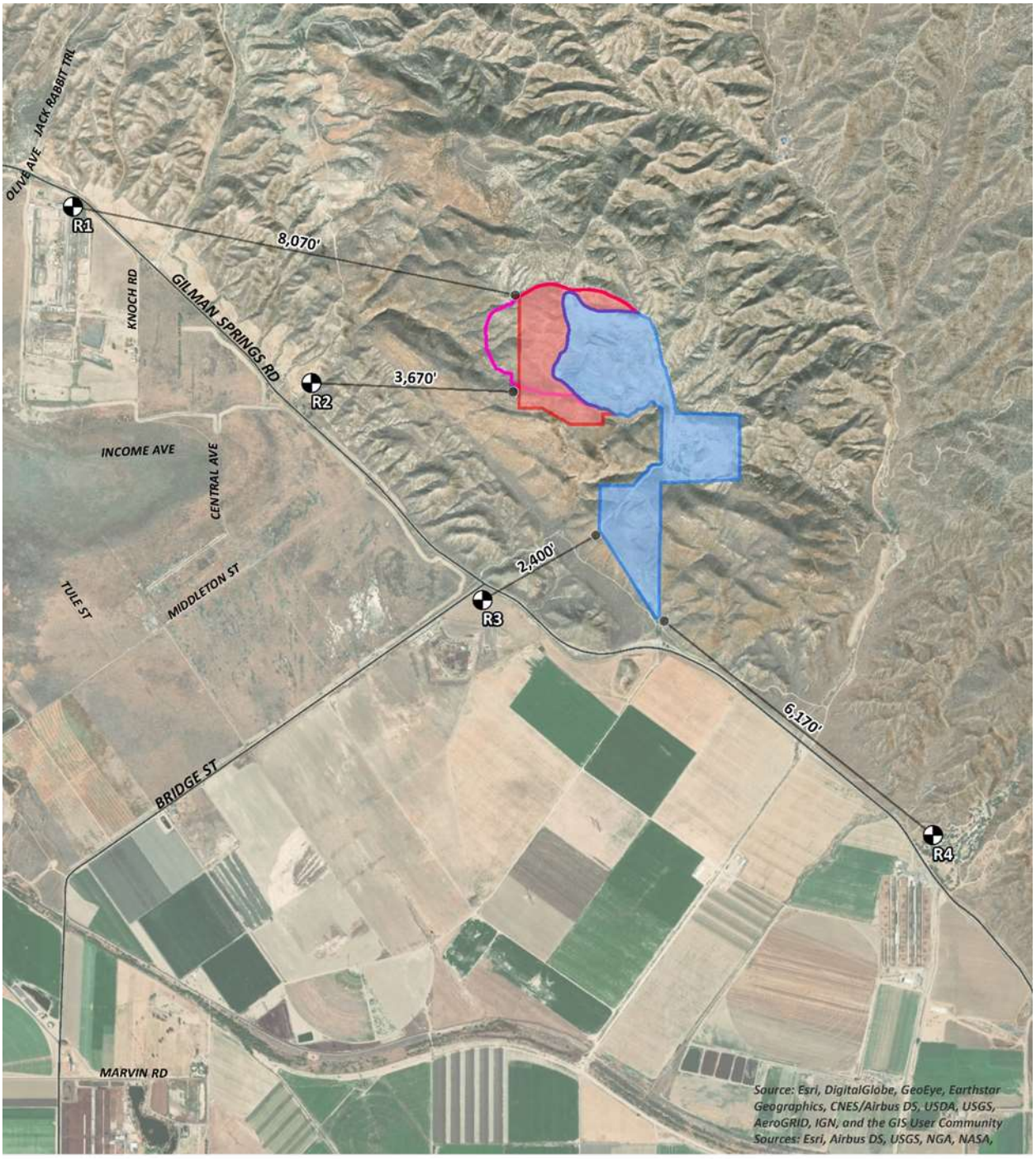
Some people are especially sensitive to air pollution and are given special consideration when evaluating AQ impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors". These structures typically include residences, hotels, hospitals, etc. as they are also known to be locations where an individual can remain for 24 hours. Consistent with the *LST Methodology*, the nearest land use where an individual could remain for 24 hours to the Project site (in this case the nearest residential land use) has been used to determine operational AQ impacts for emissions of PM_{10} and $PM_{2.5}$, since PM_{10} and $PM_{2.5}$ thresholds are based on a 24 hour averaging time.

Commercial and industrial facilities are not included in the definition of sensitive receptor because employees and patrons do not typically remain onsite for a full 24 hours but are typically onsite for eight hours or less. The *LST Methodology* explicitly states that "*LSTs based on shorter averaging periods, such as the NO_2 and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours* (43)." Consistent with the *LST Methodology*, the nearest industrial/commercial use to the Project site is used to determine operational LST air impacts for emissions of NO_2 and CO.

<u>Project-related Sensitive Receptors</u>

The distance to nearby receiver locations from the existing approved mining limits are described below and shown on Exhibit 3-A. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this study will experience lower air concentration levels than those presented in this report due to the additional dispersion due to distance and the shielding of intervening structures.

EXHIBIT 3-A: AIR QUALITY SENSITIVE RECEPTOR LOCATIONS



R1: Located approximately 8,070 feet west of the proposed mining limits, R1 represents existing agricultural use south of Gilman Springs Road.

R2: Location R2 represents an existing residential home located approximately 3,670 feet west of the proposed mining limits north of Gilman Springs Road.

R3: Location R3 represents the existing agricultural use located roughly 2,400 feet south of the proposed mining limits on Bridge Street.

R4: Location R4 represents the existing Victory Ranch Baptist Church Camp located roughly 6,170 feet southeast of the proposed mining limits.

LOCALIZED THRESHOLDS

The SCAQMD has established that impacts to AQ are significant if there is a potential to contribute or cause localized exceedances of the Federal and/or State Ambient AQ Standards (44).

Applicable localized thresholds are as follows:

- California State 1-hour CO standard of 20.0 ppm;
- California State 8-hour CO standard of 9.0 ppm;
- California State 1-hour NO2 standard of 0.18 ppm;
- California State Annual NO2 standard of 0.03 ppm;
- SCAQMD 24-hour PM_{10} LST of 10.4 microgram per cubic meter ($\mu g/m^3$);
- SCAQMD Annual PM_{10} LST of 1.0 $\mu g/m^3$;
- SCAQMD 24-hour $PM_{2.5}$ LST of 10.4 $\mu g/m^3$.

Impacts without Mitigation

For purposes of this analysis, the Lakes AMS/EPA Regulatory Model (AERMOD) version 9.8.3 was used to calculate annual average particulate concentrations associated with site operations (45). Lakes AERMOD View utilizes the EPA's AERMOD Version 19191 (46). Meteorological data was run for each individual year of the five-year meteorological data set to determine maximum potential impacts.

The estimated localized operational emissions without mitigation are summarized on Table 3-4. As shown, Project operational emissions would not exceed the SCAQMD's LSTs. A summary of the LST outputs are provided in Appendix 3.5.

TABLE 3-4: LOCALIZED SIGNIFICANCE SUMMARY OF OPERATIONS (WITHOUT MITIGATION)

Operation	CO		NO_2		PM_{10}		$PM_{2.5}$
	Averaging Time						
	1-Hr	8-Hr	1-Hr	Annual	24-Hr	Annual	24-Hr
Peak Modeled Localized Emissions based on 2011 Meteorological Data	0.004	0.003	0.002	6.92E-5	4.45	0.41	1.26
Peak Modeled Localized Emissions based on 2012 Meteorological Data	0.004	0.003	0.002	5.74E-5	5.06	0.34	1.43
Peak Modeled Localized Emissions based on 2013 Meteorological Data	0.004	0.003	0.002	7.77E-5	4.82	0.46	1.36
Peak Modeled Localized Emissions based on 2014 Meteorological Data	0.004	0.003	0.002	6.46E-5	6.14	0.37	1.73
Peak Modeled Localized Emissions based on 2015 Meteorological Data	0.004	0.003	0.002	7.49E-5	4.92	0.43	1.39
Peak Day Modeled Localized Emissions	***0.004***	***0.003***	***0.002***	***7.77E-5***	***6.14***	***0.43***	***1.73***
Background Concentration [A]	2.2	2.0	0.056	0.009			
Total Concentration	**2.2**	**2.0**	**0.058**	**0.0091**	**6.14**	**0.43**	**1.73**
SCAQMD Localized Significance Threshold	20	9	0.18	0.03	10.4	1	10.4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

[A] Highest concentration from the last three years of available data
Note: PM_{10} and $PM_{2.5}$ concentrations are expressed in $\mu g/m^3$. All others are expressed in ppm

3.6 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific CO "hot spots" is not needed to reach this conclusion.

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the CAAQS and NAAQS for CO (47).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, as previously noted in Table 2-3. Also, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-4. To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted

in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-5.

TABLE 3-5: CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire/Veteran	4.6	3.5	3.7
Sunset/Highland	4	4.5	3.5
La Cienega/Century	3.7	3.1	5.2
Long Beach/Imperial	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Note: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for CO (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 9.3 ppm 8-hr CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 8.6 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (48). In contrast, the ambient 8-hr CO concentration within the Project study area is estimated at 1.3 ppm—2.0 ppm (please refer to previous Table 2-4). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient AQ, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections. Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph) —or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (49).

The 2003 AQMP, and as previously shown in Table 3-5, estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[4] Per the TIA, the highest trips on a segment of road for the Project is 31,200 vph on Gilman Springs Road and Alessandro Boulevard (4). Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Table 3-6. The busiest intersection evaluated for AM traffic volumes was at Wilshire Blvd. and Veteran Ave., which has an AM traffic volume of approximately 8,062 vehicles per hour.

4 Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

Alternatively, the busiest intersection for PM traffic volumes was at La Cienega Boulevard and Century Boulevard, which has a PM traffic volume of 8,674 vph (48). As shown on Table 3-7, the highest trips on a segment of road for the Project is 1,986 vph on Gilman Springs Road and Alessandro Boulevard. As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP. The proposed Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized AQ impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-6: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire/Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset/Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega/Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach/Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

TABLE 3-7: PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Gilman Springs Rd./Alessandro Bl.	1,126/736	575/1,081	86/169	0/0	1,787/1,986
Jack Rabbit Trail/Gilman Springs Rd.	0/0	3/5	661/1,244	1,126/737	1,790/1,985
Bridge St./Gilman Springs Rd.	167/104	0/0	647/1,248	1,042/680	1,856/2,032
SR-79 SB Ramps/Gilman Springs Rd.	0/0	210/347	597/1,159	987/606	1,794/2,111

Bl. = boulevard; Rd. = road; SB = southbound

Source: *Gilman Springs Mine Traffic Impact Analysis* (Urban Crossroads, Inc., 2019).

3.7 AIR QUALITY MANAGEMENT PLANNING

The Project site is located within the SCAB, which is characterized by relatively poor AQ. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county-basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the SCAG, county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient AQ standards.

Currently, these state and federal AQ standards are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the state and federal ambient

AQ standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. The Project's consistency with the AQMP will be determined using the 2016 AQMP as discussed below.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's *CEQA Air Quality Handbook* (1993) (50). These indicators are discussed below:

Consistency Criterion No. 1: The proposed Project will not result in an increase in the frequency or severity of existing AQ violations or cause or contribute to new violations or delay the timely attainment of AQ standards or the interim emissions reductions specified in the AQMP.

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if regional or LSTs were exceeded.

Operational Impacts – Consistency Criterion 1

Consistency Criterion No. 1 refers to violations of the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if LSTs or regional significance thresholds were exceeded. As evaluated, the Project's localized operational-source emissions would not exceed applicable localized significance threshold and LST thresholds. However, the Project would exceed the regional significance threshold during operations. As such, the Project would not be consistent with the AQMP with regard to regional AQ violations.

On the basis of the preceding discussion, the Project is determined to potentially conflict with the first criterion.

Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

The 2016 AQMP demonstrates that the applicable ambient AQ standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the SCAG, which develops regional growth forecasts, which are then used to develop future AQ forecasts for the AQMP. Development consistent with the growth projections in County of Riverside General Plan is considered to be consistent with the AQMP***.***

Operational Impacts – Consistency Criterion 2

The Project site is designated by the General Plan for "Open Space-Rural (OS-RUR)" and "Open Space – Mineral Resources (OS-MIN)" land uses, both of which explicitly allow for mineral extraction. Thus, the Project would be fully consistent with the site's existing General Plan land use designations. The Project site is in fact currently permitted with a maximum 1,000,000 tons per year limit under the existing permit conditions. As such, it can reasonably be assumed that the permitted maximum of 1,000,000 tons per year is programmed into the underlying base assumptions of the AQMP.

Additionally, the location of the Project proximate to local and regional transportation facilities would act to reduce VMTs and associated mobile-source (vehicular) emissions. Additionally, by making additional aggregate reserves available on site, the Project would result in reduced VMTs by reducing the distance aggregate materials need to be transported to serve the local area. These Project attributes and features are consistent with and support AQMP air pollution reduction strategies and promote timely attainment of AQMP AQ standards.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

AQMP Consistency Conclusion

The Project would have the potential to result in or cause NAAQS or CAAQS violations since the Project exceeds the regional operational thresholds established by the SCAQMD. As such, the Project has the potential to conflict with AQMP Consistency Criterion No. 1, resulting in a significant AQ impact with respect to this threshold.

3.8 Potential Impacts to Sensitive Receptors

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities can also be considered as sensitive receptors.

Results of the LST analysis indicate that, with application of mitigation, the Project will not exceed the SCAQMD LSTs during operations. Therefore, sensitive receptors would not be exposed to substantial criteria pollutant concentrations during Project operations.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD LSTs during operational activity. Further Project traffic would not create or result in a CO "hotspot." Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project operations.

Qualitative Diesel Health Risk Assessment

The on-going operation of the proposed project would generate TAC emissions from diesel equipment and truck emissions created by the on-going operations of the proposed project. The CAPCOA has developed TAC health risk assessment (HRA) guidelines to provide consistent, statewide procedures for preparing the health risk assessments required under the Air Toxics "Hot Spots" Act. The title of these guidelines is CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines. The District has prepared a supplement to the CAPCOA guidelines for preparing health risk assessments. The District's supplemental guidelines are titled Supplement to the CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines. District recommends that lead agencies conduct TAC risk assessments in accordance with the CAPCOA Risk Assessment Guidelines, as supplemented by the District's supplemental guidelines. According to SCAQMD/CAPCOA and Office of Environmental Health Hazard Assessment (OEHHA) guidelines, health effects from carcinogenic air toxics are usually described in terms of individual

cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 30-year lifetime will contract cancer, based on the use of OEHHA standard risk-assessment methodology.

The nearest sensitive receptors to the project site are the residential land uses located approximately 3,670 feet west of the proposed mining limits north of Gilman Springs Road. The most recent HRA for Proposed Land Use Projects prepared by CAPCOA (July 2009) recommends avoiding siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). A summary of the basis for the distance recommendations can be found in the CARB Handbook AQ and Land Use Handbook: A Community Health Perspective.

CARB states that based on CARB and SCAQMD emissions and modeling analyses, they estimate an 80 percent drop-off in pollutant concentrations at approximately 1,000 feet from a distribution center. Figure 1-3, Decrease In Relative Concentration of Risk With Distance, on page 14 of the AQ and Land Use Handbook: A Community Health Perspective (51), describes sensitivity of concentration to downwind distance from a distribution center with TRUs, and shows an approximately 60 to 70 percent drop-off in pollutant concentration at a distance of 500 feet)(CARB 2005). Therefore, because of the drop-off in potential site-related DPM concentrations due to distance, TAC impacts from project-related DPM sources are anticipated to be minimal. Therefore, no quantitative HRA is required, and no significant long-term operations-related TAC impacts from the proposed project are anticipated to occur.

3.9 SUPPLEMENTAL AIR QUALITY ASSESSMENT IN RESPONSE TO FRIANT RANCH

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also

A recent Supreme Court of California decision, *Sierra Club v. County of Fresno (Friant Ranch)*, found an environmental impact report (EIR) inadequate and states that:

> *The EIR should be revised to relate the expected adverse AQ impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions regarding the costs and benefits of the Project.*

Given that the analysis for this Project identifies a significant and unavoidable project level and cumulative impacts with regard to NOx, PM_{10}, and $PM_{2.5}$ the following assessment serves to provide an analysis in conformance with the *Friant Ranch* decision which further clarifies, amplifies, and augments the AQ analysis already undertaken for the Project.

As summarized in this AQIA, NOx is an O_3 precursor with the potential to contribute to O_3 non-attainment conditions in the South Coast Air Basin (SCAB). The Project's operational-source NO_X emissions would exceed applicable SCAQMD numeric regional mass daily threshold for the Project's on-going operational activity. Per SCAQMD significance guidance, these impacts at the project level are also considered cumulatively significant and would persist over the life of the proposed project.

SCAQMD ANALYSIS IN ITS BRIEF

As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (April 6, 2015, Appendix 3.6) (*Brief*), SCAQMD has among the most sophisticated AQ modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate AQ impacts with specific health outcomes. (*Brief* at page App-2). SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over AQ (*Brief* at page 7) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month. *Ibid*. Therefore, the analysis herein relies on SCAQMD expertise, thresholds, and guidance to disclose the Project's AQ impacts.

The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence) (*Brief* at pages 9-10). The *Brief* also cites the author of the CARB methodology, which reported that a $PM_{2.5}$ methodology is not suited for small projects and may yield unreliable results (*Brief* at page 14). Similarly, SCAQMD staff does not currently know of a way to accurately quantify O_3-related health impacts caused by NO_X or VOC emissions from relatively small projects due to photochemistry and regional model limitations (*Brief* at page 12). The *Brief* concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful (*Brief* at page 15).

On the other hand, for extremely large regional projects (unlike the Proposed Project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NO_X and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to O_3 (Brief, at page 12).

APPLICATION OF SCAQMD ANALYSIS TO THE PROPOSED PROJECT

The Brief makes it clear that SCAQMD does not believe that there must be a quantification of a project's health risks in all CEQA documents prepared for individual projects. Any attempt to quantify the proposed Project's health risks would be considered unreliable and misleading. The proposed Project is much less intense than the Friant Ranch project and has dramatically fewer AQ emissions, and the SCAQMD determined that an attempt to quantify the Friant Ranch health risks would be unreliable and misleading, due to the aforementioned factors. Also, the proposed Project does not generate anywhere near 6,620 pounds per day of NO_X or 89,190 pounds per day of VOC emissions, which SCAQMD stated was a large enough emission to quantify O_3-related health impacts (see Pages 12-14 of SCAQMD Brief of Amicus Curiae). Therefore, the Project's emissions are not sufficiently high enough to use regional modeling program to correlate health effects on a basin-wide level. Notwithstanding, as previously noted, the AQIA does include a site-specific localized impact analysis that does correlate potential project health impacts on a local level to immediately adjacent land uses.

FURTHER DISCUSSION OF THE PROPOSED PROJECT'S HEALTH RISKS

Although it may be misleading and unreliable to attempt to specifically and numerically quantify the proposed Project's health risks, the assessment herein provides extensive information concerning the proposed Project's potential health risks. While the proposed Project is expected to exceed the SCAQMD's numeric regional mass daily thresholds for NO_X, PM_{10}, and $PM_{2.5}$ this does not in itself constitute a significant health impact to the population adjacent to the Project and within the air basin.

The SCAQMD's numeric regional thresholds are based in part on Section 180 (e) of the federal Clean Air Act (CAA) – it should be noted that the numeric regional mass daily thresholds have not changed since their adoption as part of the *CEQA Air Quality Handbook* published by SCAQMD in 1993 (over 20 years ago). The numeric regional mass daily thresholds are also intended to provide a means of consistency in significance determination within the environmental review process. Notwithstanding, simply exceeding the SCAQMD's numeric regional mass daily thresholds does not constitute a particular health impact to an individual receptor. The reason for this is that the mass daily thresholds are in pounds per day emitted into the air whereas health effects are determined based on the concentration of emissions in the air at a particular receptor (e.g., ppm by volume of air, or $\mu g/m^3$ of air). State and federal ambient AQ standards were developed to protect the most susceptible population groups from adverse health effects and were established in terms of ppm or $\mu g/m^3$for the applicable emissions.

For this reason, the SCAQMD developed a methodology to assist lead agencies in analyzing localized AQ impacts from a proposed project as they relate to CO, NO_X, $PM_{2.5}$ and PM_{10}. This methodology is collectively referred to as the LSTs. The LSTs differ from the numeric regional mass daily thresholds since the LSTs are based on the amount of emissions generated from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient AQ standard, and are based on the ambient concentrations of the pollutant and the relative distance to the nearest sensitive receptor (the SCAQMD performed air dispersion modeling to determine what amount of emissions generated a particular concentration at a particular distance).

The AQIA evaluated the proposed Project's localized impact to AQ for emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$ by comparing the proposed Project's on-site emissions to the SCAQMD's applicable LST thresholds (see Section 3.5). As evaluated in Section 3.5, the Project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the Project would not be expected to exceed the most stringent applicable federal or state ambient AQ standards for emissions of CO, NO_X, PM_{10}, and PM_{10}. It should be noted that the ambient AQ standards are developed and represent levels at which the most susceptible persons (children and the elderly) are protected from health-based impacts. In other words, the ambient AQ standards are purposefully set low to protect children, elderly, and those with existing respiratory problems.

Furthermore, as shown in the previous sections, AQ trends for both emissions of NO_X, VOCs, and O_3 (which is a byproduct of NO_X and VOCs) have been trending downward within the air basin even as development has increased over the last several years. Therefore, although the proposed Project will exceed the SCAQMD's numeric thresholds for emissions of NO_X this does not in itself constitute a basin-wide increase in health effects related to these pollutants.

As noted in the *Brief of Amicus Curiae* by the SCAQMD (April 6, 2015, Appendix 3.6), the SCAQMD has acknowledged that for criteria pollutants it would be extremely difficult, if not impossible to quantify health impacts for various reasons including modeling limitations as well as where in the atmosphere air pollutants interact and form. Furthermore, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Unified Air Pollution Control District (SJVAPCD) (April 13, 2015, Appendix 3.7), SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.[5] (*see Page 4 of SJVAPCD Brief of Amicus Curiae*).

For analytical purposes, the LSTs for emissions of NO_X can be used as a surrogate to determine whether or not there would be a potential health impact related to emissions of VOCs (since there are no ambient AQ standards for VOCs). As shown above, LSTs for NO_X would not exceed the applicable threshold and a less than significant impact to localized (adjacent) sensitive receptors would occur. It should be noted that impacts related to AQ in the general sense are based on a source-receptor relationship – in other words, the further away one moves from the source, the lower the concentration in the ambient air.

The Project does not generate anywhere near 6,620 pounds per day of NO_X or 89,190 pounds per day of VOC emissions. The Project would generate 108.40 pounds per day of NO_X during operations (1.64 percent of 6,620 pounds per day). The Project would also generate 5.77 pounds per day of VOC emissions during operations (approximately 0.01 percent of 89,190 pounds per day).

Therefore, the Project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level. Further, SJVAPCD acknowledges the same: "…the Air District is simply not equipped to analyze and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area…even for projects with relatively high levels of emissions of criteria pollutant precursor emissions." (see Page 8 of SJVAPCD Brief of Amicus Curiae).

Notwithstanding, as previously noted, the AQIA does include a site-specific localized impact analysis that does correlate potential project health impacts on a local level to immediately adjacent land uses. The SCAQMD Brief of Amicus Curiae and SJVAPCD Brief of Amicus Curiae are incorporated by reference into this AQIA and into the environmental documentation for this Project, including all references therein.

Unfortunately, current scientific, technological, and modeling limitations prevent the relation of expected adverse AQ impacts to likely health consequences. For this reason, this assessment explains in meaningful detail why it is not feasible to provide such a numerical analysis, but why health-based impacts are nonetheless anticipated to be less than significant.

5 This is even true for the scope of the Friant Ranch Project which includes the construction of approximately 2,500 single and multi-family residential units, a commercial village center, a recreation center, trails, open space, a neighborhood electric vehicle network, parks and parkways, and 250,000 sf of commercial space on 482 acres.

3.10 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The proposed Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from equipment exhaust and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the County's solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed Project operations would be less than significant and no mitigation is required (52).

3.11 CUMULATIVE IMPACTS

As previously shown in Table 2-3, the CAAQS designate the Project site as nonattainment for O_3 PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

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* (53). In this report the AQMD clearly states (Page D-3):

> *…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for 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.*

Therefore, this analysis assumes that individual projects that do not generate operational emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse AQ impact. Alternatively, individual project-related operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

Operational Impacts

As previously noted, the Project has the potential to exceed the applicable SCAQMD regional threshold for operational-source emissions. As such, the Project has the potential to result in a cumulatively significant impact during operational activity.

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5 CERTIFICATIONS

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Gilman Springs Mine. The information contained in this AQ impact 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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Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
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APPENDIX 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

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APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

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APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for CARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

(Updated 5/4/16)

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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Area Designations for the State Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, CARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, CARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1


2018
Area Designations for State
Ambient Air Quality Standards
OZONE
N
0
50
100
200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Humboldt
Trinity
Tehema
SACRAMENTO VALLEY
SUTTER BUTTES
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
Lake
Sutter
LAKE TAHOE
El Dorado
Yolo
Alpine
Sonoma
Napa
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
San Francisco
Alameda
Mariposa
GREAT BASIN VALLEYS
San Mateo
Stanislaus
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
MOJAVE DESERT
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
Unclassified
Attainment
Nonattainment-Transitional
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 1

California Ambient Air Quality Standards
Area Designations for Ozone [1]

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTHEAST PLATEAU AIR BASIN				X
Alpine County			X		SACRAMENTO VALLEY AIR BASIN				
Inyo County	X				Colusa and Glenn Counties				X
Mono County	X				Sutter/Yuba Counties				
LAKE COUNTY AIR BASIN				X	Sutter Buttes	X			
LAKE TAHOE AIR BASIN				X	Remainder of Sutter County				X
MOJAVE DESERT AIR BASIN	X				Yuba County				X
MOUNTAIN COUNTIES AIR BASIN					Yolo/Solano Counties		X		
Amador County	X				Remainder of Air Basin	X			
Calaveras County	X				SALTON SEA AIR BASIN	X			
El Dorado County (portion)	X				SAN DIEGO AIR BASIN	X			
Mariposa County	X				SAN FRANCISCO BAY AREA AIR BASIN	X			
Nevada County	X				SAN JOAQUIN VALLEY AIR BASIN	X			
Placer County (portion)	X				SOUTH CENTRAL COAST AIR BASIN				
Plumas County			X		San Luis Obispo County	X			
Sierra County			X		Santa Barbara County		X		
Tuolumne County	X				Ventura County	X			
NORTH CENTRAL COAST AIR BASIN		X			SOUTH COAST AIR BASIN	X			
NORTH COAST AIR BASIN				X					

(1) AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2

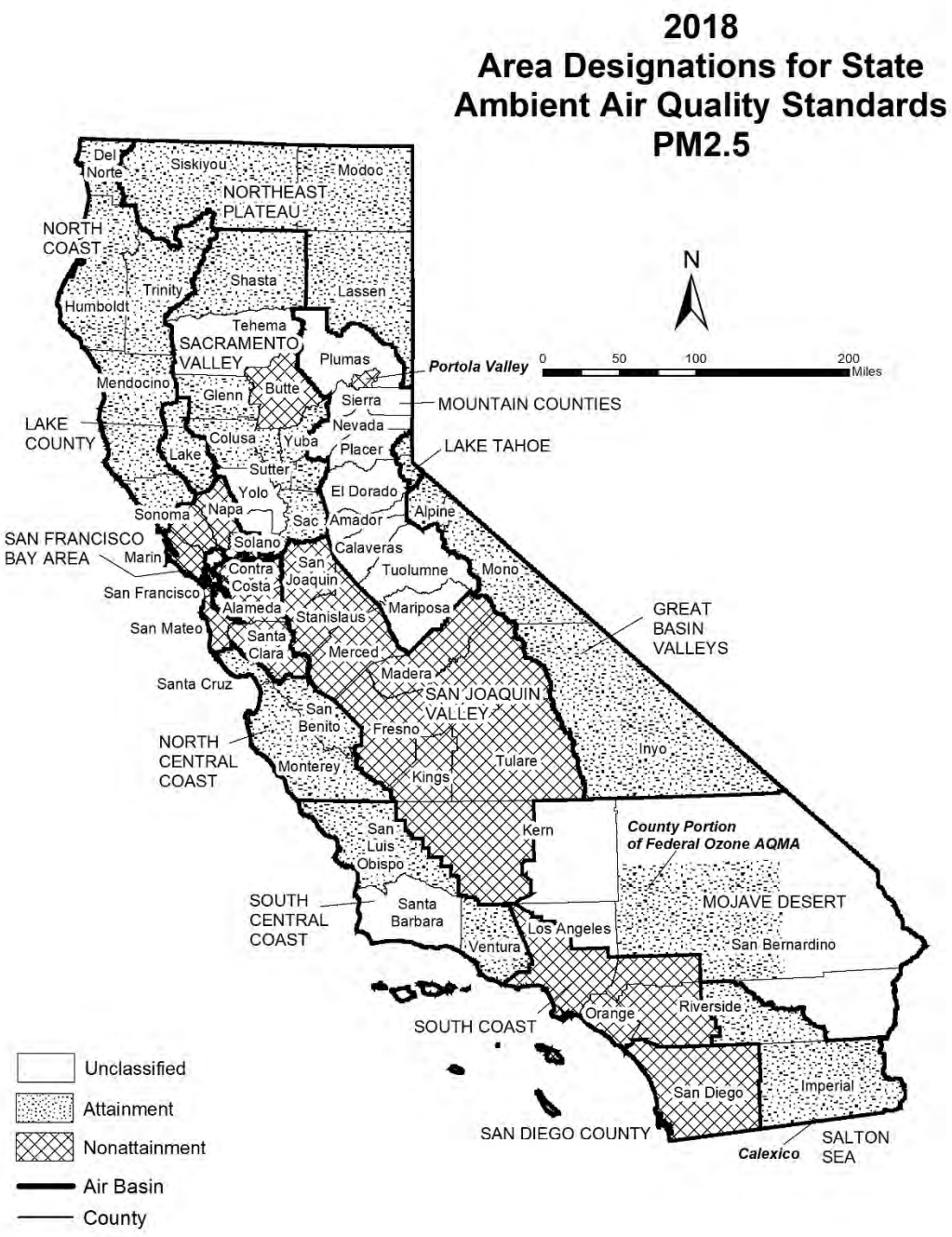

2018
Area Designations for State
Ambient Air Quality Standards
PM10
N
0
50
100
200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
LAKE COUNTY
Colusa
Yuba
Nevada
Lake
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
Yosemite NP
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Monterey
Tulare
Inyo
Kings
San Luis Obispo
Kern
MOJAVE DESERT
Santa Barbara
Los Angeles
San Bernardino
SOUTH CENTRAL COAST
Ventura
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 2

California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM10)

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN	X			NORTH CENTRAL COAST AIR BASIN	X		
LAKE COUNTY AIR BASIN			X	NORTH COAST AIR BASIN			
LAKE TAHOE AIR BASIN	X			Del Norte, Sonoma (portion) and Trinity Counties			X
MOJAVE DESERT AIR BASIN	X			Remainder of Air Basin	X		
MOUNTAIN COUNTIES AIR BASIN				NORTHEAST PLATEAU AIR BASIN			
Amador County		X		Siskiyou County			X
Calaveras County	X			Remainder of Air Basin		X	
El Dorado County (portion)	X			SACRAMENTO VALLEY AIR BASIN			
Mariposa County				Shasta County			X
- Yosemite National Park	X			Remainder of Air Basin	X		
- Remainder of County		X		SALTON SEA AIR BASIN	X		
Nevada County	X			SAN DIEGO AIR BASIN	X		
Placer County (portion)	X			SAN FRANCISCO BAY AREA AIR BASIN	X		
Plumas County	X			SAN JOAQUIN VALLEY AIR BASIN	X		
Sierra County	X			SOUTH CENTRAL COAST AIR BASIN	X		
Tuolumne County		X		SOUTH COAST AIR BASIN	X		

FIGURE 3



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 3

California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)

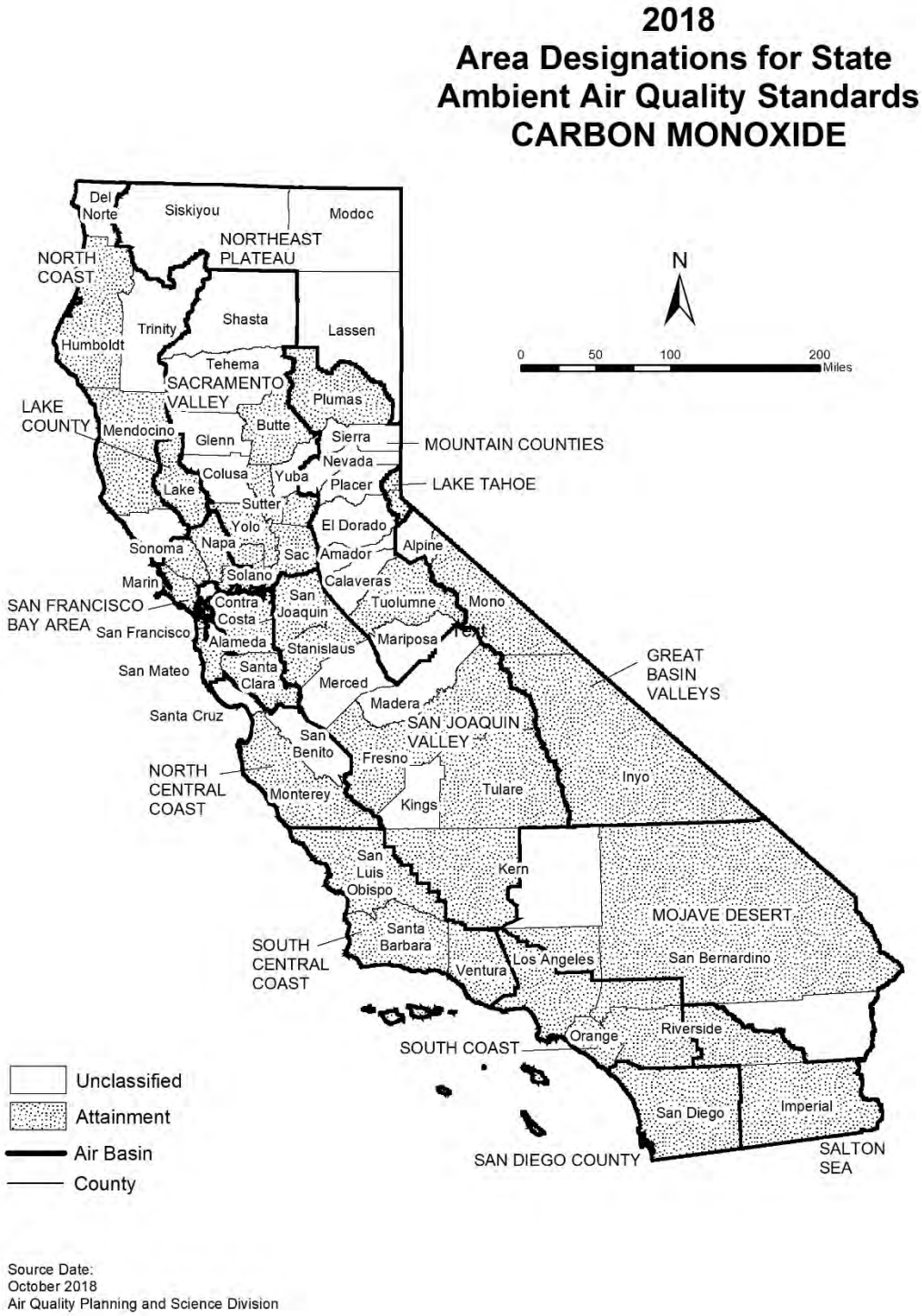
	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			
LAKE COUNTY AIR BASIN			X	Imperial County			
LAKE TAHOE AIR BASIN			X	- City of Calexico (3)	X		
MOJAVE DESERT AIR BASIN				Remainder of Air Basin			X
San Bernardino County				SAN DIEGO AIR BASIN	X		
- County portion of federal Southeast Desert Modified AQMA for Ozone (1)			X	SAN FRANCISCO BAY AREA AIR BASIN	X		
				SAN JOAQUIN VALLEY AIR BASIN	X		
Remainder of Air Basin		X		SOUTH CENTRAL COAST AIR BASIN			
MOUNTAIN COUNTIES AIR BASIN				San Luis Obispo County			X
Plumas County				Santa Barbara County		X	
- Portola Valley (2)	X			Ventura County			X
Remainder of Air Basin		X		SOUTH COAST AIR BASIN	X		
NORTH CENTRAL COAST AIR BASIN			X				
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN							
Butte County	X						
Colusa County			X				
Glenn County			X				
Placer County (portion)			X				
Sacramento County			X				
Shasta County			X				
Sutter and Yuba Counties			X				
Remainder of Air Basin		X					

(1) California Code of Regulations, title 17, section 60200(b)

(2) California Code of Regulations, title 17, section 60200(c)

(3) California Code of Regulations, title 17, section 60200(a)

FIGURE 4



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 4

California Ambient Air Quality Standards
Area Designation for Carbon Monoxide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					SACRAMENTO VALLEY AIR BASIN				
Alpine County			X		Butte County				X
Inyo County				X	Colusa County			X	
Mono County				X	Glenn County			X	
LAKE COUNTY AIR BASIN				X	Placer County (portion)				X
LAKE TAHOE AIR BASIN				X	Sacramento County				X
MOJAVE DESERT AIR BASIN					Shasta County			X	
Kern County (portion)			X		Solano County (portion)				X
Los Angeles County (portion)				X	Sutter County				X
Riverside County (portion)			X		Tehama County			X	
San Bernardino County (portion)				X	Yolo County				X
MOUNTAIN COUNTIES AIR BASIN					Yuba County			X	
Amador County			X		SALTON SEA AIR BASIN				X
Calaveras County			X		SAN DIEGO AIR BASIN				X
El Dorado County (portion)			X		SAN FRANCISCO BAY AREA AIR BASIN				X
Mariposa County			X		SAN JOAQUIN VALLEY AIR BASIN				
Nevada County			X		Fresno County				X
Placer County (portion)			X		Kern County (portion)				X
Plumas County				X	Kings County			X	
Sierra County			X		Madera County			X	
Tuolumne County				X	Merced County			X	
NORTH CENTRAL COAST AIR BASIN					San Joaquin County				X
Monterey County				X	Stanislaus County				X
San Benito County			X		Tulare County				X
Santa Cruz County			X		SOUTH CENTRAL COAST AIR BASIN				X
NORTH COAST AIR BASIN					SOUTH COAST AIR BASIN				X
Del Norte County			X						
Humboldt County				X					
Mendocino County				X					
Sonoma County (portion)			X						
Trinity County			X						
NORTHEAST PLATEAU AIR BASIN			X						

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 5

California Ambient Air Quality Standards
Area Designation for Nitrogen Dioxide

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			
NORTHEAST PLATEAU AIR BASIN			X	CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties	X		
				Remainder of Air Basin			X

FIGURE 6



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 6

California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SALTON SEA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN DIEGO AIR BASIN		X
MOJAVE DESERT AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X			

* The area designated for sulfur dioxide is a county or portion of a county

FIGURE 7



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 7

California Ambient Air Quality Standards
Area Designation for Sulfates

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X				

FIGURE 8



Source Date:
October 2018
Air Quality Planning and Science Division

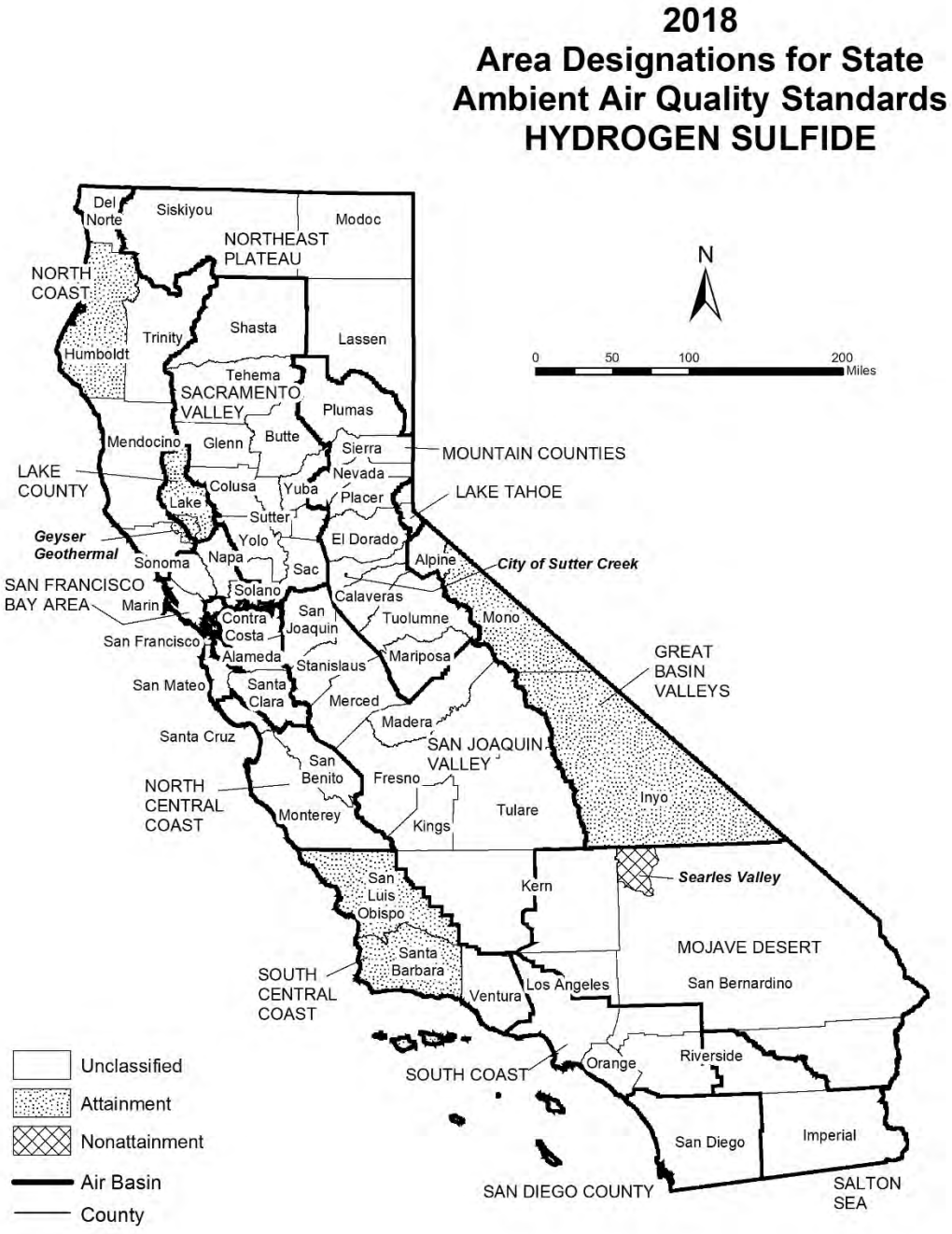
TABLE 8

California Ambient Air Quality Standards
Area Designations for Lead (particulate)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SAN DIEGO AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN			X				

* The area designated for lead is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 9



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 9

California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTH CENTRAL COAST AIR BASIN			X	
Alpine County			X		NORTH COAST AIR BASIN				
Inyo County				X	Del Norte County			X	
Mono County				X	Humboldt County				X
LAKE COUNTY AIR BASIN				X	Mendocino County			X	
LAKE TAHOE AIR BASIN			X		Sonoma County (portion)				
MOJAVE DESERT AIR BASIN					- Geyser Geothermal Area (2)				X
Kern County (portion)			X		- Remainder of County			X	
Los Angeles County (portion)			X		Trinity County			X	
Riverside County (portion)			X		NORTHEAST PLATEAU AIR BASIN			X	
San Bernardino County (portion)					SACRAMENTO VALLEY AIR BASIN			X	
- Searles Valley Planning Area (1)	X				SALTON SEA AIR BASIN			X	
- Remainder of County			X		SAN DIEGO AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN					SAN FRANCISCO BAY AREA AIR BASIN			X	
Amador County					SAN JOAQUIN VALLEY AIR BASIN			X	
- City of Sutter Creek	X				SOUTH CENTRAL COAST AIR BASIN				
- Remainder of County			X		San Luis Obispo County				X
Calaveras County			X		Santa Barbara County				X
El Dorado County (portion)			X		Ventura County			X	
Mariposa County			X		SOUTH COAST AIR BASIN			X	
Nevada County			X						
Placer County (portion)			X						
Plumas County			X						
Sierra County			X						
Tuolumne County			X						

* The area designated for hydrogen sulfide is a county or portion of a county

(1) 52 Federal Register 29384 (August 7, 1987)

(2) California Code of Regulations, title 17, section 60200(d)

FIGURE 10



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 10

California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X		SACRAMENTO VALLEY AIR BASIN			X	
LAKE COUNTY AIR BASIN				X	SALTON SEA AIR BASIN			X	
LAKE TAHOE AIR BASIN			X		SAN DIEGO AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X		SAN FRANCISCO BAY AREA AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X		SAN JOAQUIN VALLEY AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X		SOUTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X		SOUTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X						

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

https://www.epa.gov/green-book

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

https://www.epa.gov/criteria-air-pollutants

Designation Categories

Suspended Particulate Matter (PM_{10}). The U.S. EPA uses three categories to designate areas with respect to PM_{10}:

- Attainment
- Nonattainment
- Unclassifiable

Ozone, Fine Suspended Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment
- Unclassifiable/Attainment

The national 1-hour ozone standard was revoked effective June 15, 2005, and the area designations map reflects the 2015 national 8-hour ozone standard of 0.070 ppm. Original designations were finalized on August 3, 2018.

On December 14, 2012, the U.S. EPA established a new national annual primary $PM_{2.5}$ standard of 12.0 $\mu g/m^3$. New area designations reflecting this revised standard became final in December 2014. The current designation map reflects the most recently revised (2012) annual average standard of 12.0 $\mu g/m^3$ as well as the 24-hour standard of 35 $\mu g/m^3$, revised in 2006.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO_2 standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. Designations for the primary NO_2 standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO_2). The U.S. EPA uses three categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Nonattainment,
- Unclassifiable, and
- Attainment/Unclassifiable.

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO_2 standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual

average standards. Area designations for the 1-hour SO_2 standard were finalized on December 21, 2017 and are reflected in the area designations map.

Lead (particulate). The U.S. EPA promulgated a new rolling 3-month average lead standard in October 2008 of 0.15 µg/m^3. Designations were made for this standard in November 2010.

Designation Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. CARB generally initiates these changes, and they are not always reflected in the U.S. EPA's area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by CARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, CARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter C, Part 81.305. They are available on the web at:

https://ecfr.io/Title-40/se40.20.81_1305

FIGURE 11

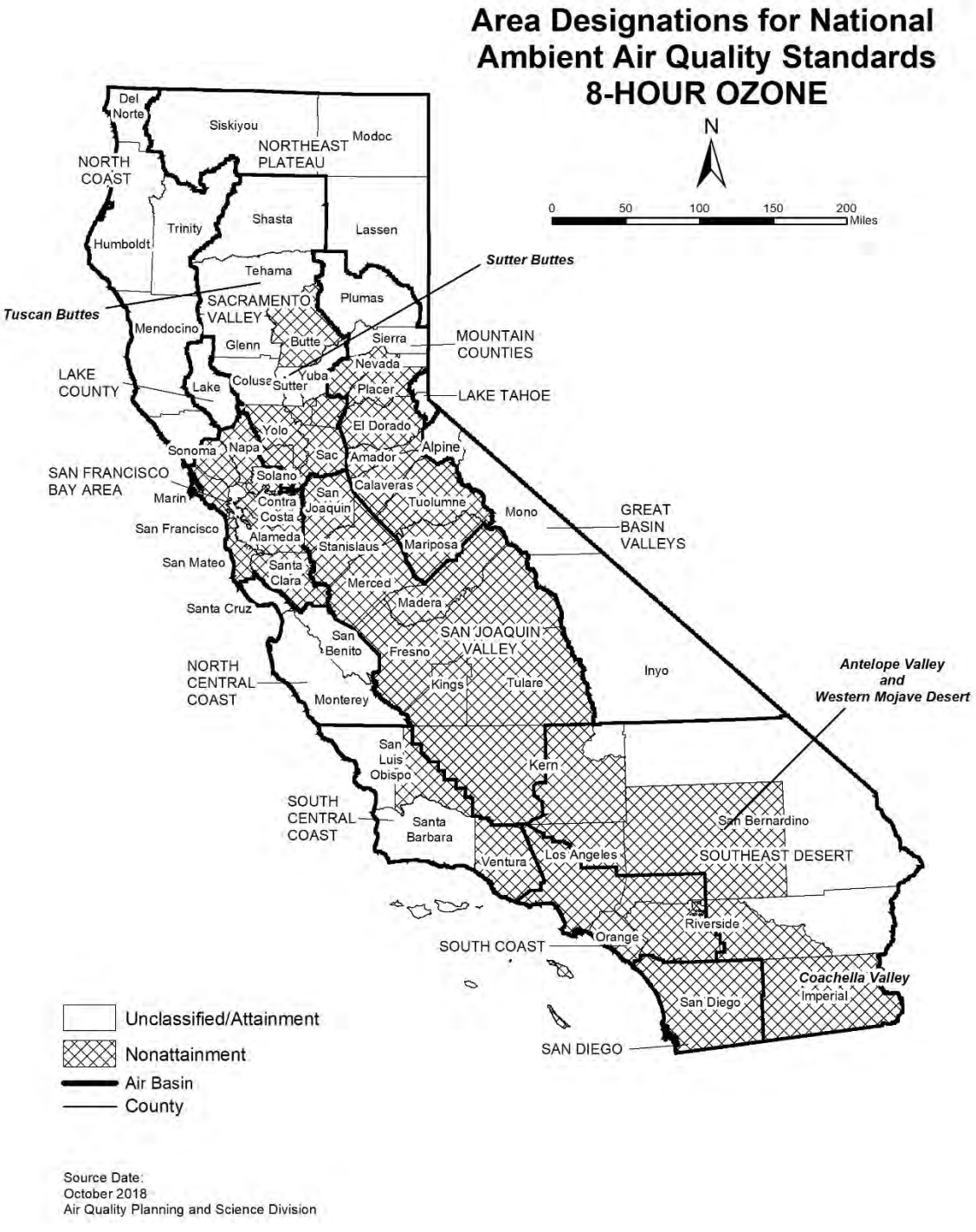

Area Designations for National Ambient Air Quality Standards
8-HOUR OZONE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehama
Sutter Buttes
Tuscan Buttes
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Sutter
Yuba
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Marin
Contra Costa
San Joaquin
Calaveras
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
San Benito
SAN JOAQUIN VALLEY
Fresno
Inyo
NORTH CENTRAL COAST
Kings
Tulare
Antelope Valley and Western Mojave Desert
Monterey
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Orange
SOUTH COAST
Coachella Valley
Imperial
San Diego
SAN DIEGO
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 11

National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN (cont.)		
LAKE COUNTY AIR BASIN		X	Yolo County (2)	X	
LAKE TAHOE AIR BASIN		X	Yuba County		X
MOUNTAIN COUNTIES AIR BASIN			SAN DIEGO COUNTY	X	
Amador County	X		SAN FRANCISCO BAY AREA AIR BASIN	X	
Calaveras County	X		SAN JOAQUIN VALLEY AIR BASIN	X	
El Dorado County (portion) (2)	X		SOUTH CENTRAL COAST AIR BASIN (1)		
Mariposa County	X		San Luis Obispo County		
Nevada County			- Eastern San Luis Obispo County	X	
- Western Nevada County	X		- Remainder of County		X
- Remainder of County		X	Santa Barbara County		X
Placer County (portion) (2)	X		Ventura County		
Plumas County		X	- Area excluding Anacapa and San Nicolas Islands	X	
Sierra County		X	- Channel Islands (1)		X
Tuolumne County	X		SOUTH COAST AIR BASIN (1)	X	
NORTH CENTRAL COAST AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
NORTH COAST AIR BASIN		X	Kern County (portion)	X	
NORTHEAST PLATEAU AIR BASIN		X	- Indian Wells Valley		X
SACRAMENTO VALLEY AIR BASIN			Imperial County	X	
Butte County	X		Los Angeles County (portion)	X	
Colusa County		X	Riverside County (portion)		
Glenn County		X	- Coachella Valley	X	
Sacramento Metro Area (2)	X		- Non-AQMA portion		X
Shasta County		X	San Bernardino County		
Sutter County			- Western portion (AQMA)	X	
- Sutter Buttes	X		- Eastern portion (non-AQMA)		X
- Southern portion of Sutter County (2)	X				
- Remainder of Sutter County		X			
Tehama County					
- Tuscan Buttes	X				
- Remainder of Tehama County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2015 8-hour ozone standard of 0.070 ppm.

(1) South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.

South Coast Air Basin:
Los Angeles County includes San Clemente and Santa Catalina Islands.

(2) For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

FIGURE 12


Area Designations for National Ambient Air Quality Standards PM10
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
LAKE TAHOE
Lake
Sutter
Yolo
El Dorado
Alpine
Sacramento County
Sonoma
Napa
Sac
Amador
Mono
Mono Basin
SAN FRANCISCO BAY AREA
Marin
Solano
Calaveras
Contra Costa
San Joaquin
Tuolumne
Mammoth Lake
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Inyo
Santa Cruz
San Benito
Fresno
SAN JOAQUIN VALLEY
Owens Valley
Coso Junction
Trona
NORTH CENTRAL COAST
Monterey
Kings
Tulare
San Luis Obispo
Kern
Indian Wells Valley
San Bernardino
SOUTH CENTRAL COAST
Santa Barbara
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Coachella Valley
Orange
SOUTH COAST
Imperial
San Diego
SAN DIEGO COUNTY
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 12

National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM10)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN				SAN DIEGO COUNTY		X	
Alpine County		X		SAN FRANCISCO BAY AREA AIR BASIN		X	
Inyo County				SAN JOAQUIN VALLEY AIR BASIN			X
- Owens Valley Planning Area	X			SOUTH CENTRAL COAST AIR BASIN		X	
- Coso Junction			X	SOUTH COAST AIR BASIN			X
- Remainder of County		X		SOUTHEAST DESERT AIR BASIN			
Mono County				Eastern Kern County			
- Mammoth Lake Planning Area			X	- Indian Wells Valley			X
- Mono Lake Basin	X			- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X		- Remainder of County		X	
LAKE COUNTY AIR BASIN		X		Imperial County			
LAKE TAHOE AIR BASIN		X		- Imperial Valley Planning Area	X		
MOUNTAIN COUNTIES AIR BASIN				- Remainder of County		X	
Placer County (portion) (2)		X		Los Angeles County (portion)		X	
Remainder of Air Basin		X		Riverside County (portion)			
NORTH CENTRAL COAST AIR BASIN		X		- Coachella Valley (3)	X		
NORTH COAST AIR BASIN		X		- Non-AQMA portion		X	
NORTHEAST PLATEAU AIR BASIN		X		San Bernardino County			
SACRAMENTO VALLEY AIR BASIN				- Trona	X		
Butte County		X		- Remainder of County	X		
Colusa County		X					
Glenn County		X					
Placer County (portion) (2)		X					
Sacramento County (1)			X				
Shasta County		X					
Solano County (portion)		X					
Sutter County		X					
Tehama County		X					
Yolo County		X					
Yuba County		X					

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
(1) Air quality in Sacramento County meets the national PM10 standards. The request for redesignation to attainment was approved by U.S. EPA in September 2013.
(2) U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.
(3) Air quality in Coachella Valley meets the national PM10 standards. A request for redesignation to attainment has been submitted to U.S. EPA.

FIGURE 13


Area Designations for National Ambient Air Quality Standards PM2.5
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTH COAST
NORTHEAST PLATEAU
Humboldt
Trinity
Shasta
Lassen
Tehama
SACRAMENTO VALLEY
Plumas
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Mendocino
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
Lake
Sutter
LAKE TAHOE
El Dorado
Yolo
Sonoma
Napa
Sacramento
Alpine
Amador
Solano
Calaveras
SAN FRANCISCO BAY AREA
Marin
Tuolumne
GREAT BASIN VALLEYS
Contra Costa
San Joaquin
Mono
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
Fresno
NORTH CENTRAL COAST
San Benito
SAN JOAQUIN VALLEY
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
SOUTHEAST DESERT
Ventura
Los Angeles
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 13

National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN (2)	X	
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN	X	
MOUNTAIN COUNTIES AIR BASIN			SOUTH CENTRAL COAST AIR BASIN		X
Plumas County			SOUTH COAST AIR BASIN (3)	X	
- Portola Valley Portion of Plumas	X		SOUTHEAST DESERT AIR BASIN		
- Remainder of Plumas County		X	Imperial County (portion) (4)	X	
Remainder of Air Basin		X	Remainder of Air Basin		X
NORTH CENTRAL COAST AIR BASIN		X			
NORTH COAST AIR BASIN		X			
NORTHEAST PLATEAU AIR BASIN		X			
SACRAMENTO VALLEY AIR BASIN					
Sacramento Metro Area (1)	X				
Sutter County		X			
Yuba County (portion)		X			
Remainder of Air Basin		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. This map reflects the 2006 24-hour PM2.5 standard as well as the 1997 and 2012 PM2.5 annual standards.

(1) For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(2) Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(3) Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

(4) That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

FIGURE 14


Area Designations for National Ambient Air Quality Standards
CARBON MONOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Trinity
Lassen
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Lake
Sutter
Yuba
Placer
LAKE TAHOE
LAKE COUNTY
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 14

National Ambient Air Quality Standards
Area Designations for Carbon Monoxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15


Area Designations for National Ambient Air Quality Standards
NITROGEN DIOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
Plumas
SACRAMENTO VALLEY
Mendocino
Glenn
Butte
Sierra
Nevada
MOUNTAIN COUNTIES
Colusa
Yuba
Placer
LAKE COUNTY
Lake
Sutter
LAKE TAHOE
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Calaveras
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Tulare
Inyo
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
SOUTHEAST DESERT
Los Angeles
San Bernardino
Ventura
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 15

National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 16

National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		
LAKE COUNTY AIR BASIN		X	San Luis Obispo County		X
LAKE TAHOE AIR BASIN		X	Santa Barbara County		X
MOUNTAIN COUNTIES AIR BASIN		X	Ventura County		X
NORTH CENTRAL COAST AIR BASIN		X	Channel Islands (1)		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
SACRAMENTO VALLEY AIR BASIN		X	Imperial County		X
SAN DIEGO COUNTY		X	Remainder of Air Basin		X
SAN FRANCISCO BAY AREA AIR BASIN		X			
SAN JOAQUIN VALLEY AIR BASIN					
Fresno County		X			
Kern County (portion)		X			
Kings County		X			
Madera County		X			
Merced County		X			
San Joaquin County		X			
Stanislaus County		X			
Tulare County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2010 1-hour SO_2 standard of 75 ppb.

(1) South Central Coast Air Basin Channel Islands:

Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.

Ventura County includes Anacapa and San Nicolas Islands.

Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17


Area Designations for National Ambient Air Quality Standards
LEAD
N
0 50 100 150 200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Lake
Sutter
Yuba
Placer
LAKE TAHOE
LAKE COUNTY
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 17

National Ambient Air Quality Standards
Area Designations for Lead (particulate)

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH COAST AIR BASIN		
NORTH COAST AIR BASIN		X	Los Angeles County (portion) (1)	X	
NORTHEAST PLATEAU AIR BASIN		X	Remainder of Air Basin		X
SACRAMENTO VALLEY AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

(1) Portion of County in Air Basin, not including Channel Islands

APPENDIX 3.1:

CALEEMOD EMISSIONS MODEL OUTPUTS

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Gilman Springs Mine

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Gilman Springs Mine - Riverside-South Coast County, Summer

Project Characteristics -

Land Use -

Construction Phase - 7 day per week 365 per year

Off-road Equipment - Equipment list based on data provided by project applicant

Trips and VMT - Data on TIA

Construction Off-road Equipment Mitigation - Tiers based on data provided by project applicant

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	0.00	365.00

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblOffRoadEquipment	HorsePower	97.00	318.00
tblOffRoadEquipment	HorsePower	402.00	394.00
tblOffRoadEquipment	HorsePower	88.00	354.00
tblOffRoadEquipment	HorsePower	168.00	501.00
tblOffRoadEquipment	HorsePower	247.00	570.00
tblOffRoadEquipment	HorsePower	203.00	380.00
tblOffRoadEquipment	HorsePower	65.00	51.00
tblOffRoadEquipment	LoadFactor	0.37	0.36
tblOffRoadEquipment	LoadFactor	0.34	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.36
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	VendorTripLength	6.90	25.00
tblTripsAndVMT	VendorTripNumber	0.00	199.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	0.00	19.00
tblVehicleEF	HHD	1.61	0.03
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.13	0.00
tblVehicleEF	HHD	3.79	6.83
tblVehicleEF	HHD	0.48	0.50
tblVehicleEF	HHD	1.61	3.9620e-003
tblVehicleEF	HHD	6,587.18	1,372.61
tblVehicleEF	HHD	1,494.29	1,400.02

tblVehicleEF	HHD	4.90	0.04
tblVehicleEF	HHD	29.73	7.44
tblVehicleEF	HHD	3.42	3.94
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.08
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8740e-003	8.9020e-003
tblVehicleEF	HHD	0.02	0.07
tblVehicleEF	HHD	5.2000e-005	1.0000e-006
tblVehicleEF	HHD	1.1100e-004	8.0000e-006
tblVehicleEF	HHD	3.4350e-003	2.2200e-004
tblVehicleEF	HHD	0.98	0.59
tblVehicleEF	HHD	6.0000e-005	4.0000e-006
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.3400e-004	1.0630e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.6000e-005	0.00
tblVehicleEF	HHD	1.1100e-004	8.0000e-006
tblVehicleEF	HHD	3.4350e-003	2.2200e-004
tblVehicleEF	HHD	1.13	0.68
tblVehicleEF	HHD	6.0000e-005	4.0000e-006

tblVehicleEF	HHD	0.12	0.14
tblVehicleEF	HHD	2.3400e-004	1.0630e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.52	0.03
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.13	0.00
tblVehicleEF	HHD	2.77	6.64
tblVehicleEF	HHD	0.48	0.50
tblVehicleEF	HHD	1.54	3.7440e-003
tblVehicleEF	HHD	6,972.69	1,372.01
tblVehicleEF	HHD	1,494.29	1,400.02
tblVehicleEF	HHD	4.90	0.04
tblVehicleEF	HHD	30.66	7.27
tblVehicleEF	HHD	3.23	3.72
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.08
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8740e-003	8.9020e-003
tblVehicleEF	HHD	0.02	0.07
tblVehicleEF	HHD	5.2000e-005	1.0000e-006
tblVehicleEF	HHD	2.1900e-004	1.6000e-005
tblVehicleEF	HHD	4.0040e-003	2.5800e-004
tblVehicleEF	HHD	0.93	0.61

tblVehicleEF	HHD	1.1900e-004	8.0000e-006
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.4100e-004	1.1060e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.5000e-005	0.00
tblVehicleEF	HHD	2.1900e-004	1.6000e-005
tblVehicleEF	HHD	4.0040e-003	2.5800e-004
tblVehicleEF	HHD	1.06	0.70
tblVehicleEF	HHD	1.1900e-004	8.0000e-006
tblVehicleEF	HHD	0.12	0.14
tblVehicleEF	HHD	2.4100e-004	1.1060e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.73	0.03
tblVehicleEF	HHD	0.03	5.2660e-003
tblVehicleEF	HHD	0.13	0.00
tblVehicleEF	HHD	5.20	7.08
tblVehicleEF	HHD	0.48	0.47
tblVehicleEF	HHD	1.61	3.9310e-003
tblVehicleEF	HHD	6,054.82	1,370.69
tblVehicleEF	HHD	1,494.29	1,392.51
tblVehicleEF	HHD	4.90	0.04
tblVehicleEF	HHD	28.43	7.67
tblVehicleEF	HHD	3.40	3.91
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.08
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8740e-003	8.8820e-003
tblVehicleEF	HHD	0.02	0.07
tblVehicleEF	HHD	5.2000e-005	1.0000e-006
tblVehicleEF	HHD	9.4000e-005	7.0000e-006
tblVehicleEF	HHD	3.9000e-003	2.7600e-004
tblVehicleEF	HHD	1.06	0.57
tblVehicleEF	HHD	5.4000e-005	4.0000e-006
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.4800e-004	1.1130e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.6000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	7.0000e-006
tblVehicleEF	HHD	3.9000e-003	2.7600e-004
tblVehicleEF	HHD	1.21	0.65
tblVehicleEF	HHD	5.4000e-005	4.0000e-006
tblVehicleEF	HHD	0.12	0.13
tblVehicleEF	HHD	2.4800e-004	1.1130e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	LDA	5.0030e-003	3.2950e-003
tblVehicleEF	LDA	7.3280e-003	0.06

tblVehicleEF	LDA	0.67	0.80
tblVehicleEF	LDA	1.45	2.25
tblVehicleEF	LDA	276.36	280.63
tblVehicleEF	LDA	62.93	57.89
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	1.6480e-003	1.5390e-003
tblVehicleEF	LDA	2.2760e-003	2.0320e-003
tblVehicleEF	LDA	1.5190e-003	1.4180e-003
tblVehicleEF	LDA	2.0930e-003	1.8690e-003
tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.28
tblVehicleEF	LDA	2.7690e-003	2.7760e-003
tblVehicleEF	LDA	6.5400e-004	5.7300e-004
tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.11	0.30
tblVehicleEF	LDA	5.6890e-003	3.7490e-003
tblVehicleEF	LDA	6.3700e-003	0.05
tblVehicleEF	LDA	0.82	0.98
tblVehicleEF	LDA	1.28	1.99

tblVehicleEF	LDA	301.08	305.29
tblVehicleEF	LDA	62.93	57.35
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	1.6480e-003	1.5390e-003
tblVehicleEF	LDA	2.2760e-003	2.0320e-003
tblVehicleEF	LDA	1.5190e-003	1.4180e-003
tblVehicleEF	LDA	2.0930e-003	1.8690e-003
tblVehicleEF	LDA	0.12	0.17
tblVehicleEF	LDA	0.15	0.14
tblVehicleEF	LDA	0.09	0.12
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.24
tblVehicleEF	LDA	3.0180e-003	3.0200e-003
tblVehicleEF	LDA	6.5100e-004	5.6800e-004
tblVehicleEF	LDA	0.12	0.17
tblVehicleEF	LDA	0.15	0.14
tblVehicleEF	LDA	0.09	0.12
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	4.8190e-003	3.1800e-003
tblVehicleEF	LDA	7.5260e-003	0.06
tblVehicleEF	LDA	0.63	0.75
tblVehicleEF	LDA	1.48	2.30
tblVehicleEF	LDA	269.46	273.80
tblVehicleEF	LDA	62.93	57.99

tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	1.6480e-003	1.5390e-003
tblVehicleEF	LDA	2.2760e-003	2.0320e-003
tblVehicleEF	LDA	1.5190e-003	1.4180e-003
tblVehicleEF	LDA	2.0930e-003	1.8690e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.13	0.13
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.05	0.26
tblVehicleEF	LDA	0.10	0.28
tblVehicleEF	LDA	2.6990e-003	2.7090e-003
tblVehicleEF	LDA	6.5500e-004	5.7400e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.13	0.13
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.26
tblVehicleEF	LDA	0.11	0.31
tblVehicleEF	LDT1	0.02	0.01
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.81	2.09
tblVehicleEF	LDT1	4.20	2.63
tblVehicleEF	LDT1	333.57	334.08
tblVehicleEF	LDT1	75.52	70.49
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	2.8360e-003	2.7180e-003

tblVehicleEF	LDT1	4.1040e-003	3.4020e-003
tblVehicleEF	LDT1	2.6120e-003	2.5020e-003
tblVehicleEF	LDT1	3.7750e-003	3.1290e-003
tblVehicleEF	LDT1	0.24	0.27
tblVehicleEF	LDT1	0.39	0.33
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.04
tblVehicleEF	LDT1	0.30	0.55
tblVehicleEF	LDT1	3.3590e-003	3.3060e-003
tblVehicleEF	LDT1	8.3000e-004	6.9800e-004
tblVehicleEF	LDT1	0.24	0.27
tblVehicleEF	LDT1	0.39	0.33
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	0.23	1.04
tblVehicleEF	LDT1	0.33	0.60
tblVehicleEF	LDT1	0.02	0.01
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	2.17	2.52
tblVehicleEF	LDT1	3.70	2.32
tblVehicleEF	LDT1	362.11	360.42
tblVehicleEF	LDT1	75.52	69.77
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	2.8360e-003	2.7180e-003
tblVehicleEF	LDT1	4.1040e-003	3.4020e-003
tblVehicleEF	LDT1	2.6120e-003	2.5020e-003

tblVehicleEF	LDT1	3.7750e-003	3.1290e-003
tblVehicleEF	LDT1	0.47	0.53
tblVehicleEF	LDT1	0.49	0.41
tblVehicleEF	LDT1	0.30	0.35
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.05
tblVehicleEF	LDT1	0.26	0.48
tblVehicleEF	LDT1	3.6500e-003	3.5670e-003
tblVehicleEF	LDT1	8.2100e-004	6.9000e-004
tblVehicleEF	LDT1	0.47	0.53
tblVehicleEF	LDT1	0.49	0.41
tblVehicleEF	LDT1	0.30	0.35
tblVehicleEF	LDT1	0.06	0.08
tblVehicleEF	LDT1	0.23	1.05
tblVehicleEF	LDT1	0.29	0.52
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.02	0.11
tblVehicleEF	LDT1	1.70	1.96
tblVehicleEF	LDT1	4.27	2.69
tblVehicleEF	LDT1	325.12	326.11
tblVehicleEF	LDT1	75.52	70.64
tblVehicleEF	LDT1	0.17	0.19
tblVehicleEF	LDT1	2.8360e-003	2.7180e-003
tblVehicleEF	LDT1	4.1040e-003	3.4020e-003
tblVehicleEF	LDT1	2.6120e-003	2.5020e-003
tblVehicleEF	LDT1	3.7750e-003	3.1290e-003
tblVehicleEF	LDT1	0.21	0.23

tblVehicleEF	LDT1	0.44	0.36
tblVehicleEF	LDT1	0.13	0.15
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.27	1.21
tblVehicleEF	LDT1	0.31	0.56
tblVehicleEF	LDT1	3.2730e-003	3.2270e-003
tblVehicleEF	LDT1	8.3100e-004	6.9900e-004
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	0.44	0.36
tblVehicleEF	LDT1	0.13	0.15
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.27	1.21
tblVehicleEF	LDT1	0.34	0.62
tblVehicleEF	LDT2	6.8180e-003	5.5100e-003
tblVehicleEF	LDT2	9.5660e-003	0.08
tblVehicleEF	LDT2	0.89	1.20
tblVehicleEF	LDT2	1.93	2.95
tblVehicleEF	LDT2	377.54	363.01
tblVehicleEF	LDT2	86.05	76.74
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	1.5870e-003	1.6130e-003
tblVehicleEF	LDT2	2.2990e-003	2.0910e-003
tblVehicleEF	LDT2	1.4600e-003	1.4850e-003
tblVehicleEF	LDT2	2.1150e-003	1.9230e-003
tblVehicleEF	LDT2	0.08	0.12
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.06	0.10

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.48
tblVehicleEF	LDT2	0.13	0.40
tblVehicleEF	LDT2	3.7830e-003	3.5920e-003
tblVehicleEF	LDT2	8.9300e-004	7.5900e-004
tblVehicleEF	LDT2	0.08	0.12
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.48
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LDT2	7.7320e-003	6.2520e-003
tblVehicleEF	LDT2	8.3130e-003	0.07
tblVehicleEF	LDT2	1.09	1.47
tblVehicleEF	LDT2	1.71	2.61
tblVehicleEF	LDT2	410.83	389.16
tblVehicleEF	LDT2	86.05	76.02
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	1.5870e-003	1.6130e-003
tblVehicleEF	LDT2	2.2990e-003	2.0910e-003
tblVehicleEF	LDT2	1.4600e-003	1.4850e-003
tblVehicleEF	LDT2	2.1150e-003	1.9230e-003
tblVehicleEF	LDT2	0.15	0.24
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.12	0.18
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.48

tblVehicleEF	LDT2	0.11	0.35
tblVehicleEF	LDT2	4.1180e-003	3.8500e-003
tblVehicleEF	LDT2	8.8900e-004	7.5200e-004
tblVehicleEF	LDT2	0.15	0.24
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.12	0.18
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.48
tblVehicleEF	LDT2	0.12	0.38
tblVehicleEF	LDT2	6.5550e-003	5.2920e-003
tblVehicleEF	LDT2	9.8290e-003	0.09
tblVehicleEF	LDT2	0.84	1.12
tblVehicleEF	LDT2	1.97	3.03
tblVehicleEF	LDT2	367.62	355.10
tblVehicleEF	LDT2	86.05	76.89
tblVehicleEF	LDT2	0.09	0.12
tblVehicleEF	LDT2	1.5870e-003	1.6130e-003
tblVehicleEF	LDT2	2.2990e-003	2.0910e-003
tblVehicleEF	LDT2	1.4600e-003	1.4850e-003
tblVehicleEF	LDT2	2.1150e-003	1.9230e-003
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.15	0.17
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6830e-003	3.5130e-003

tblVehicleEF	LDT2	8.9400e-004	7.6100e-004
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.15	0.17
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.55
tblVehicleEF	LDT2	0.15	0.45
tblVehicleEF	LHD1	5.7930e-003	5.0720e-003
tblVehicleEF	LHD1	0.01	6.5060e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.11	0.91
tblVehicleEF	LHD1	2.68	1.04
tblVehicleEF	LHD1	9.27	9.53
tblVehicleEF	LHD1	618.47	652.47
tblVehicleEF	LHD1	31.44	10.97
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.49	1.92
tblVehicleEF	LHD1	9.6100e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9790e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	9.8800e-004	2.7800e-004
tblVehicleEF	LHD1	9.2000e-004	9.0900e-004
tblVehicleEF	LHD1	2.5180e-003	2.4950e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.1000e-004	2.5600e-004
tblVehicleEF	LHD1	4.0170e-003	3.5250e-003

tblVehicleEF	LHD1	0.10	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.9210e-003	1.6800e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD1	9.3000e-005	9.2000e-005
tblVehicleEF	LHD1	6.0720e-003	6.3480e-003
tblVehicleEF	LHD1	3.6500e-004	1.0900e-004
tblVehicleEF	LHD1	4.0170e-003	3.5250e-003
tblVehicleEF	LHD1	0.10	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.9210e-003	1.6800e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.32	0.10
tblVehicleEF	LHD1	5.7930e-003	5.0850e-003
tblVehicleEF	LHD1	0.01	6.6010e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.13	0.93
tblVehicleEF	LHD1	2.55	0.99
tblVehicleEF	LHD1	9.27	9.53
tblVehicleEF	LHD1	618.47	652.49
tblVehicleEF	LHD1	31.44	10.88
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.34	1.80

tblVehicleEF	LHD1	9.6100e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9790e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	9.8800e-004	2.7800e-004
tblVehicleEF	LHD1	9.2000e-004	9.0900e-004
tblVehicleEF	LHD1	2.5180e-003	2.4950e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.1000e-004	2.5600e-004
tblVehicleEF	LHD1	7.5430e-003	6.6270e-003
tblVehicleEF	LHD1	0.12	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.7360e-003	3.2860e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.28	0.09
tblVehicleEF	LHD1	9.3000e-005	9.2000e-005
tblVehicleEF	LHD1	6.0720e-003	6.3480e-003
tblVehicleEF	LHD1	3.6300e-004	1.0800e-004
tblVehicleEF	LHD1	7.5430e-003	6.6270e-003
tblVehicleEF	LHD1	0.12	0.11
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.7360e-003	3.2860e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.30	0.10
tblVehicleEF	LHD1	5.7930e-003	5.0710e-003
tblVehicleEF	LHD1	0.01	6.4920e-003

tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.11	0.91
tblVehicleEF	LHD1	2.67	1.04
tblVehicleEF	LHD1	9.27	9.53
tblVehicleEF	LHD1	618.47	652.46
tblVehicleEF	LHD1	31.44	10.98
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.46	1.89
tblVehicleEF	LHD1	9.6100e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9790e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	9.8800e-004	2.7800e-004
tblVehicleEF	LHD1	9.2000e-004	9.0900e-004
tblVehicleEF	LHD1	2.5180e-003	2.4950e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.1000e-004	2.5600e-004
tblVehicleEF	LHD1	3.6490e-003	3.1890e-003
tblVehicleEF	LHD1	0.12	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7560e-003	1.5290e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.33	0.59
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD1	9.3000e-005	9.2000e-005
tblVehicleEF	LHD1	6.0720e-003	6.3480e-003
tblVehicleEF	LHD1	3.6500e-004	1.0900e-004

tblVehicleEF	LHD1	3.6490e-003	3.1890e-003
tblVehicleEF	LHD1	0.12	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7560e-003	1.5290e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.33	0.59
tblVehicleEF	LHD1	0.32	0.10
tblVehicleEF	LHD2	3.9590e-003	3.3170e-003
tblVehicleEF	LHD2	5.7450e-003	4.5320e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.63
tblVehicleEF	LHD2	1.32	0.60
tblVehicleEF	LHD2	14.58	14.99
tblVehicleEF	LHD2	616.22	651.54
tblVehicleEF	LHD2	24.28	7.56
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	2.18	2.13
tblVehicleEF	LHD2	1.3590e-003	1.4210e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4300e-004	1.2600e-004
tblVehicleEF	LHD2	1.3000e-003	1.3590e-003
tblVehicleEF	LHD2	2.6890e-003	2.7070e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0800e-004	1.1600e-004
tblVehicleEF	LHD2	1.7180e-003	1.8390e-003

tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	8.5600e-004	8.8800e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	1.4200e-004	1.4300e-004
tblVehicleEF	LHD2	5.9930e-003	6.2790e-003
tblVehicleEF	LHD2	2.6800e-004	7.5000e-005
tblVehicleEF	LHD2	1.7180e-003	1.8390e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	8.5600e-004	8.8800e-004
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.15	0.05
tblVehicleEF	LHD2	3.9590e-003	3.3250e-003
tblVehicleEF	LHD2	5.8160e-003	4.5690e-003
tblVehicleEF	LHD2	9.7250e-003	9.8280e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.63
tblVehicleEF	LHD2	1.26	0.58
tblVehicleEF	LHD2	14.58	14.99
tblVehicleEF	LHD2	616.22	651.54
tblVehicleEF	LHD2	24.28	7.51
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	2.05	2.01

tblVehicleEF	LHD2	1.3590e-003	1.4210e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4300e-004	1.2600e-004
tblVehicleEF	LHD2	1.3000e-003	1.3590e-003
tblVehicleEF	LHD2	2.6890e-003	2.7070e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0800e-004	1.1600e-004
tblVehicleEF	LHD2	3.2580e-003	3.4780e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6480e-003	1.7290e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	1.4200e-004	1.4300e-004
tblVehicleEF	LHD2	5.9940e-003	6.2790e-003
tblVehicleEF	LHD2	2.6700e-004	7.4000e-005
tblVehicleEF	LHD2	3.2580e-003	3.4780e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6480e-003	1.7290e-003
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.9590e-003	3.3160e-003
tblVehicleEF	LHD2	5.7300e-003	4.5210e-003

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tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.63
tblVehicleEF	LHD2	1.33	0.61
tblVehicleEF	LHD2	14.58	14.99
tblVehicleEF	LHD2	616.22	651.53
tblVehicleEF	LHD2	24.28	7.57
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	2.15	2.11
tblVehicleEF	LHD2	1.3590e-003	1.4210e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4300e-004	1.2600e-004
tblVehicleEF	LHD2	1.3000e-003	1.3590e-003
tblVehicleEF	LHD2	2.6890e-003	2.7070e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0800e-004	1.1600e-004
tblVehicleEF	LHD2	1.3960e-003	1.4790e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2400e-004	7.3700e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.11	0.29
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	1.4200e-004	1.4300e-004
tblVehicleEF	LHD2	5.9930e-003	6.2790e-003
tblVehicleEF	LHD2	2.6800e-004	7.5000e-005

tblVehicleEF	LHD2	1.3960e-003	1.4790e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	7.3700e-004
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.11	0.29
tblVehicleEF	LHD2	0.15	0.06
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	20.43	20.42
tblVehicleEF	MCY	9.65	8.52
tblVehicleEF	MCY	164.18	208.16
tblVehicleEF	MCY	47.21	61.43
tblVehicleEF	MCY	1.14	1.14
tblVehicleEF	MCY	1.6550e-003	1.6430e-003
tblVehicleEF	MCY	3.5170e-003	2.9350e-003
tblVehicleEF	MCY	1.5510e-003	1.5400e-003
tblVehicleEF	MCY	3.3230e-003	2.7700e-003
tblVehicleEF	MCY	1.68	1.63
tblVehicleEF	MCY	0.86	0.84
tblVehicleEF	MCY	0.92	0.89
tblVehicleEF	MCY	2.20	2.20
tblVehicleEF	MCY	0.60	1.98
tblVehicleEF	MCY	2.11	1.85
tblVehicleEF	MCY	2.0380e-003	2.0600e-003
tblVehicleEF	MCY	6.9200e-004	6.0800e-004
tblVehicleEF	MCY	1.68	1.63

tblVehicleEF	MCY	0.86	0.84
tblVehicleEF	MCY	0.92	0.89
tblVehicleEF	MCY	2.69	2.69
tblVehicleEF	MCY	0.60	1.98
tblVehicleEF	MCY	2.29	2.01
tblVehicleEF	MCY	0.40	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.17	21.08
tblVehicleEF	MCY	9.12	8.00
tblVehicleEF	MCY	164.18	209.10
tblVehicleEF	MCY	47.21	59.93
tblVehicleEF	MCY	0.99	0.99
tblVehicleEF	MCY	1.6550e-003	1.6430e-003
tblVehicleEF	MCY	3.5170e-003	2.9350e-003
tblVehicleEF	MCY	1.5510e-003	1.5400e-003
tblVehicleEF	MCY	3.3230e-003	2.7700e-003
tblVehicleEF	MCY	3.34	3.23
tblVehicleEF	MCY	1.25	1.22
tblVehicleEF	MCY	2.10	2.03
tblVehicleEF	MCY	2.17	2.17
tblVehicleEF	MCY	0.59	1.97
tblVehicleEF	MCY	1.88	1.64
tblVehicleEF	MCY	2.0490e-003	2.0690e-003
tblVehicleEF	MCY	6.7600e-004	5.9300e-004
tblVehicleEF	MCY	3.34	3.23
tblVehicleEF	MCY	1.25	1.22
tblVehicleEF	MCY	2.10	2.03

tblVehicleEF	MCY	2.66	2.65
tblVehicleEF	MCY	0.59	1.97
tblVehicleEF	MCY	2.05	1.79
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.91	19.90
tblVehicleEF	MCY	9.57	8.43
tblVehicleEF	MCY	164.18	207.32
tblVehicleEF	MCY	47.21	61.30
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	1.6550e-003	1.6430e-003
tblVehicleEF	MCY	3.5170e-003	2.9350e-003
tblVehicleEF	MCY	1.5510e-003	1.5400e-003
tblVehicleEF	MCY	3.3230e-003	2.7700e-003
tblVehicleEF	MCY	1.60	1.58
tblVehicleEF	MCY	1.07	1.04
tblVehicleEF	MCY	0.75	0.73
tblVehicleEF	MCY	2.20	2.19
tblVehicleEF	MCY	0.67	2.24
tblVehicleEF	MCY	2.11	1.85
tblVehicleEF	MCY	2.0300e-003	2.0520e-003
tblVehicleEF	MCY	6.9100e-004	6.0700e-004
tblVehicleEF	MCY	1.60	1.58
tblVehicleEF	MCY	1.07	1.04
tblVehicleEF	MCY	0.75	0.73
tblVehicleEF	MCY	2.68	2.68
tblVehicleEF	MCY	0.67	2.24

tblVehicleEF	MCY	2.29	2.01
tblVehicleEF	MDV	0.01	7.3840e-003
tblVehicleEF	MDV	0.02	0.10
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tblVehicleEF	MDV	3.77	3.58
tblVehicleEF	MDV	513.72	445.75
tblVehicleEF	MDV	115.03	94.10
tblVehicleEF	MDV	0.21	0.16
tblVehicleEF	MDV	1.7440e-003	1.6710e-003
tblVehicleEF	MDV	2.5510e-003	2.2050e-003
tblVehicleEF	MDV	1.6090e-003	1.5420e-003
tblVehicleEF	MDV	2.3490e-003	2.0300e-003
tblVehicleEF	MDV	0.12	0.14
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.12	0.52
tblVehicleEF	MDV	0.30	0.53
tblVehicleEF	MDV	5.1540e-003	4.4080e-003
tblVehicleEF	MDV	1.2170e-003	9.3100e-004
tblVehicleEF	MDV	0.12	0.14
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.12	0.52
tblVehicleEF	MDV	0.33	0.58
tblVehicleEF	MDV	0.02	8.2990e-003

tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	2.07	1.77
tblVehicleEF	MDV	3.34	3.16
tblVehicleEF	MDV	557.63	473.46
tblVehicleEF	MDV	115.03	93.21
tblVehicleEF	MDV	0.20	0.15
tblVehicleEF	MDV	1.7440e-003	1.6710e-003
tblVehicleEF	MDV	2.5510e-003	2.2050e-003
tblVehicleEF	MDV	1.6090e-003	1.5420e-003
tblVehicleEF	MDV	2.3490e-003	2.0300e-003
tblVehicleEF	MDV	0.23	0.27
tblVehicleEF	MDV	0.25	0.21
tblVehicleEF	MDV	0.18	0.21
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.12	0.53
tblVehicleEF	MDV	0.26	0.46
tblVehicleEF	MDV	5.5980e-003	4.6820e-003
tblVehicleEF	MDV	1.2090e-003	9.2200e-004
tblVehicleEF	MDV	0.23	0.27
tblVehicleEF	MDV	0.25	0.21
tblVehicleEF	MDV	0.18	0.21
tblVehicleEF	MDV	0.07	0.05
tblVehicleEF	MDV	0.12	0.53
tblVehicleEF	MDV	0.29	0.50
tblVehicleEF	MDV	0.01	7.1140e-003
tblVehicleEF	MDV	0.02	0.11
tblVehicleEF	MDV	1.60	1.37

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tblVehicleEF	MDV	500.72	437.52
tblVehicleEF	MDV	115.03	94.26
tblVehicleEF	MDV	0.20	0.15
tblVehicleEF	MDV	1.7440e-003	1.6710e-003
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tblVehicleEF	MDV	2.3490e-003	2.0300e-003
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.60
tblVehicleEF	MDV	0.31	0.54
tblVehicleEF	MDV	5.0220e-003	4.3260e-003
tblVehicleEF	MDV	1.2190e-003	9.3300e-004
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.13	0.60
tblVehicleEF	MDV	0.34	0.59
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tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	1,008.83	950.70

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tblVehicleEF	MH	0.05	0.15
tblVehicleEF	MH	1.4510e-003	0.00
tblVehicleEF	MH	3.2440e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.15
tblVehicleEF	MH	1.3450e-003	0.00
tblVehicleEF	MH	1.73	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.58	0.00
tblVehicleEF	MH	0.12	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.42	0.00
tblVehicleEF	MH	0.01	8.9880e-003
tblVehicleEF	MH	7.2200e-004	0.00
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tblVehicleEF	MH	0.04	3.4240e-003
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tblVehicleEF	MH	0.05	0.15
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tblVehicleEF	MH	0.04	0.15
tblVehicleEF	MH	1.3450e-003	0.00
tblVehicleEF	MH	3.18	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.16	0.00
tblVehicleEF	MH	0.12	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.01	8.9880e-003
tblVehicleEF	MH	7.1500e-004	0.00
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tblVehicleEF	MH	0.11	0.00
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tblVehicleEF	MH	0.04	3.4240e-003
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tblVehicleEF	MH	0.05	0.15
tblVehicleEF	MH	1.4510e-003	0.00
tblVehicleEF	MH	3.2440e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.15
tblVehicleEF	MH	1.3450e-003	0.00
tblVehicleEF	MH	1.77	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.58	0.00
tblVehicleEF	MH	0.12	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.42	0.00
tblVehicleEF	MH	0.01	8.9880e-003
tblVehicleEF	MH	7.2300e-004	0.00
tblVehicleEF	MH	1.77	0.00
tblVehicleEF	MH	0.11	0.00
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tblVehicleEF	MH	0.16	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.46	0.00
tblVehicleEF	MHD	0.02	3.1400e-003
tblVehicleEF	MHD	8.6800e-003	9.0500e-003
tblVehicleEF	MHD	0.07	9.0140e-003
tblVehicleEF	MHD	0.49	0.34
tblVehicleEF	MHD	0.64	0.83

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tblVehicleEF	MHD	158.32	78.04
tblVehicleEF	MHD	1,070.79	1,032.91
tblVehicleEF	MHD	55.67	8.27
tblVehicleEF	MHD	1.32	0.83
tblVehicleEF	MHD	2.52	3.41
tblVehicleEF	MHD	6.0510e-003	3.7990e-003
tblVehicleEF	MHD	0.09	0.12
tblVehicleEF	MHD	8.9600e-004	1.1000e-004
tblVehicleEF	MHD	5.7900e-003	3.6350e-003
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	8.2500e-004	1.0100e-004
tblVehicleEF	MHD	2.0360e-003	8.5200e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	9.6700e-004	4.0800e-004
tblVehicleEF	MHD	0.11	0.16
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.43	0.05
tblVehicleEF	MHD	1.5220e-003	7.4000e-004
tblVehicleEF	MHD	0.01	9.8290e-003
tblVehicleEF	MHD	6.8100e-004	8.2000e-005
tblVehicleEF	MHD	2.0360e-003	8.5200e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.05	0.03
tblVehicleEF	MHD	9.6700e-004	4.0800e-004
tblVehicleEF	MHD	0.13	0.19

tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.47	0.06
tblVehicleEF	MHD	0.02	2.9730e-003
tblVehicleEF	MHD	8.7590e-003	9.0910e-003
tblVehicleEF	MHD	0.06	8.7130e-003
tblVehicleEF	MHD	0.36	0.28
tblVehicleEF	MHD	0.65	0.83
tblVehicleEF	MHD	6.79	1.04
tblVehicleEF	MHD	167.70	80.31
tblVehicleEF	MHD	1,070.79	1,032.92
tblVehicleEF	MHD	55.67	8.18
tblVehicleEF	MHD	1.37	0.85
tblVehicleEF	MHD	2.38	3.21
tblVehicleEF	MHD	5.1010e-003	3.2050e-003
tblVehicleEF	MHD	0.09	0.12
tblVehicleEF	MHD	8.9600e-004	1.1000e-004
tblVehicleEF	MHD	4.8810e-003	3.0670e-003
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	8.2500e-004	1.0100e-004
tblVehicleEF	MHD	3.9550e-003	1.6370e-003
tblVehicleEF	MHD	0.07	0.03
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	1.9390e-003	8.2000e-004
tblVehicleEF	MHD	0.11	0.16
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.42	0.05
tblVehicleEF	MHD	1.6100e-003	7.6100e-004

tblVehicleEF	MHD	0.01	9.8290e-003
tblVehicleEF	MHD	6.7600e-004	8.1000e-005
tblVehicleEF	MHD	3.9550e-003	1.6370e-003
tblVehicleEF	MHD	0.07	0.03
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tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.46	0.05
tblVehicleEF	MHD	0.02	3.3780e-003
tblVehicleEF	MHD	8.6340e-003	9.0250e-003
tblVehicleEF	MHD	0.07	9.0860e-003
tblVehicleEF	MHD	0.68	0.44
tblVehicleEF	MHD	0.64	0.82
tblVehicleEF	MHD	7.19	1.10
tblVehicleEF	MHD	145.36	74.90
tblVehicleEF	MHD	1,070.79	1,032.91
tblVehicleEF	MHD	55.67	8.29
tblVehicleEF	MHD	1.26	0.81
tblVehicleEF	MHD	2.50	3.38
tblVehicleEF	MHD	7.3630e-003	4.6200e-003
tblVehicleEF	MHD	0.09	0.12
tblVehicleEF	MHD	8.9600e-004	1.1000e-004
tblVehicleEF	MHD	7.0450e-003	4.4200e-003
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	8.2500e-004	1.0100e-004
tblVehicleEF	MHD	1.6250e-003	6.9200e-004

tblVehicleEF	MHD	0.06	0.03
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	7.8100e-004	3.3600e-004
tblVehicleEF	MHD	0.11	0.16
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.44	0.05
tblVehicleEF	MHD	1.3990e-003	7.1000e-004
tblVehicleEF	MHD	0.01	9.8290e-003
tblVehicleEF	MHD	6.8300e-004	8.2000e-005
tblVehicleEF	MHD	1.6250e-003	6.9200e-004
tblVehicleEF	MHD	0.06	0.03
tblVehicleEF	MHD	0.06	0.03
tblVehicleEF	MHD	7.8100e-004	3.3600e-004
tblVehicleEF	MHD	0.13	0.19
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.48	0.06
tblVehicleEF	OBUS	0.01	9.2340e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.28	0.50
tblVehicleEF	OBUS	0.76	1.30
tblVehicleEF	OBUS	7.10	2.73
tblVehicleEF	OBUS	73.80	74.06
tblVehicleEF	OBUS	1,109.07	1,462.79
tblVehicleEF	OBUS	71.94	21.69
tblVehicleEF	OBUS	0.42	0.55
tblVehicleEF	OBUS	1.56	2.45

tblVehicleEF	OBUS	2.2500e-004	3.2370e-003
tblVehicleEF	OBUS	7.9560e-003	0.06
tblVehicleEF	OBUS	9.0400e-004	2.0900e-004
tblVehicleEF	OBUS	2.1500e-004	3.0970e-003
tblVehicleEF	OBUS	7.5980e-003	0.06
tblVehicleEF	OBUS	8.3600e-004	1.9300e-004
tblVehicleEF	OBUS	2.3520e-003	2.6130e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	9.8600e-004	1.1030e-003
tblVehicleEF	OBUS	0.05	0.13
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.45	0.14
tblVehicleEF	OBUS	7.1700e-004	7.0700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.4400e-004	2.1500e-004
tblVehicleEF	OBUS	2.3520e-003	2.6130e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	9.8600e-004	1.1030e-003
tblVehicleEF	OBUS	0.06	0.16
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.49	0.15
tblVehicleEF	OBUS	0.01	9.2250e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.47

tblVehicleEF	OBUS	0.78	1.32
tblVehicleEF	OBUS	6.65	2.55
tblVehicleEF	OBUS	77.15	75.22
tblVehicleEF	OBUS	1,109.07	1,462.82
tblVehicleEF	OBUS	71.94	21.39
tblVehicleEF	OBUS	0.43	0.56
tblVehicleEF	OBUS	1.45	2.29
tblVehicleEF	OBUS	1.8900e-004	2.7320e-003
tblVehicleEF	OBUS	7.9560e-003	0.06
tblVehicleEF	OBUS	9.0400e-004	2.0900e-004
tblVehicleEF	OBUS	1.8100e-004	2.6140e-003
tblVehicleEF	OBUS	7.5980e-003	0.06
tblVehicleEF	OBUS	8.3600e-004	1.9300e-004
tblVehicleEF	OBUS	4.3980e-003	4.7610e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	1.9240e-003	2.1450e-003
tblVehicleEF	OBUS	0.05	0.13
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.43	0.13
tblVehicleEF	OBUS	7.4900e-004	7.1700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.3700e-004	2.1200e-004
tblVehicleEF	OBUS	4.3980e-003	4.7610e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	1.9240e-003	2.1450e-003

tblVehicleEF	OBUS	0.06	0.17
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.47	0.14
tblVehicleEF	OBUS	0.01	9.2730e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.29	0.54
tblVehicleEF	OBUS	0.76	1.29
tblVehicleEF	OBUS	7.14	2.75
tblVehicleEF	OBUS	69.18	72.45
tblVehicleEF	OBUS	1,109.07	1,462.78
tblVehicleEF	OBUS	71.94	21.73
tblVehicleEF	OBUS	0.40	0.54
tblVehicleEF	OBUS	1.55	2.43
tblVehicleEF	OBUS	2.7300e-004	3.9350e-003
tblVehicleEF	OBUS	7.9560e-003	0.06
tblVehicleEF	OBUS	9.0400e-004	2.0900e-004
tblVehicleEF	OBUS	2.6200e-004	3.7650e-003
tblVehicleEF	OBUS	7.5980e-003	0.06
tblVehicleEF	OBUS	8.3600e-004	1.9300e-004
tblVehicleEF	OBUS	2.1010e-003	2.4660e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	9.2100e-004	1.0680e-003
tblVehicleEF	OBUS	0.05	0.13
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.45	0.14

tblVehicleEF	OBUS	6.7300e-004	6.9100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.4500e-004	2.1500e-004
tblVehicleEF	OBUS	2.1010e-003	2.4660e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	9.2100e-004	1.0680e-003
tblVehicleEF	OBUS	0.06	0.16
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.50	0.15
tblVehicleEF	SBUS	0.86	0.08
tblVehicleEF	SBUS	0.01	7.4880e-003
tblVehicleEF	SBUS	0.07	6.8950e-003
tblVehicleEF	SBUS	7.75	2.95
tblVehicleEF	SBUS	0.70	0.62
tblVehicleEF	SBUS	6.83	0.95
tblVehicleEF	SBUS	1,163.20	369.36
tblVehicleEF	SBUS	1,114.68	1,133.14
tblVehicleEF	SBUS	52.56	6.04
tblVehicleEF	SBUS	11.16	3.76
tblVehicleEF	SBUS	5.34	5.18
tblVehicleEF	SBUS	0.01	4.7200e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3400e-004	3.7000e-005
tblVehicleEF	SBUS	0.01	4.5160e-003
tblVehicleEF	SBUS	2.7040e-003	2.6520e-003

tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.9900e-004	3.4000e-005
tblVehicleEF	SBUS	4.4650e-003	1.1980e-003
tblVehicleEF	SBUS	0.03	7.7610e-003
tblVehicleEF	SBUS	0.93	0.35
tblVehicleEF	SBUS	1.9610e-003	5.5200e-004
tblVehicleEF	SBUS	0.12	0.10
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.5270e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.4400e-004	6.0000e-005
tblVehicleEF	SBUS	4.4650e-003	1.1980e-003
tblVehicleEF	SBUS	0.03	7.7610e-003
tblVehicleEF	SBUS	1.34	0.51
tblVehicleEF	SBUS	1.9610e-003	5.5200e-004
tblVehicleEF	SBUS	0.14	0.12
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.41	0.04
tblVehicleEF	SBUS	0.86	0.08
tblVehicleEF	SBUS	0.01	7.5790e-003
tblVehicleEF	SBUS	0.06	5.7750e-003
tblVehicleEF	SBUS	7.61	2.90
tblVehicleEF	SBUS	0.71	0.64
tblVehicleEF	SBUS	4.94	0.69
tblVehicleEF	SBUS	1,216.91	380.74
tblVehicleEF	SBUS	1,114.68	1,133.16

tblVehicleEF	SBUS	52.56	5.60
tblVehicleEF	SBUS	11.51	3.86
tblVehicleEF	SBUS	5.02	4.87
tblVehicleEF	SBUS	0.01	3.9850e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3400e-004	3.7000e-005
tblVehicleEF	SBUS	0.01	3.8130e-003
tblVehicleEF	SBUS	2.7040e-003	2.6520e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.9900e-004	3.4000e-005
tblVehicleEF	SBUS	8.1040e-003	2.1670e-003
tblVehicleEF	SBUS	0.03	8.3370e-003
tblVehicleEF	SBUS	0.93	0.35
tblVehicleEF	SBUS	3.7500e-003	1.0440e-003
tblVehicleEF	SBUS	0.12	0.10
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.31	0.03
tblVehicleEF	SBUS	0.01	3.6340e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.1200e-004	5.5000e-005
tblVehicleEF	SBUS	8.1040e-003	2.1670e-003
tblVehicleEF	SBUS	0.03	8.3370e-003
tblVehicleEF	SBUS	1.34	0.51
tblVehicleEF	SBUS	3.7500e-003	1.0440e-003
tblVehicleEF	SBUS	0.14	0.12
tblVehicleEF	SBUS	0.01	0.05

tblVehicleEF	SBUS	0.34	0.04
tblVehicleEF	SBUS	0.86	0.08
tblVehicleEF	SBUS	0.01	7.4810e-003
tblVehicleEF	SBUS	0.07	7.1280e-003
tblVehicleEF	SBUS	7.94	3.01
tblVehicleEF	SBUS	0.70	0.62
tblVehicleEF	SBUS	7.18	1.00
tblVehicleEF	SBUS	1,089.04	353.65
tblVehicleEF	SBUS	1,114.68	1,133.14
tblVehicleEF	SBUS	52.56	6.11
tblVehicleEF	SBUS	10.66	3.61
tblVehicleEF	SBUS	5.29	5.14
tblVehicleEF	SBUS	0.02	5.7350e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3400e-004	3.7000e-005
tblVehicleEF	SBUS	0.02	5.4870e-003
tblVehicleEF	SBUS	2.7040e-003	2.6520e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.9900e-004	3.4000e-005
tblVehicleEF	SBUS	4.2030e-003	1.1030e-003
tblVehicleEF	SBUS	0.03	8.1650e-003
tblVehicleEF	SBUS	0.94	0.35
tblVehicleEF	SBUS	1.9180e-003	5.4000e-004
tblVehicleEF	SBUS	0.12	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.38	0.04

tblVehicleEF	SBUS	0.01	3.3790e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.5000e-004	6.0000e-005
tblVehicleEF	SBUS	4.2030e-003	1.1030e-003
tblVehicleEF	SBUS	0.03	8.1650e-003
tblVehicleEF	SBUS	1.35	0.51
tblVehicleEF	SBUS	1.9180e-003	5.4000e-004
tblVehicleEF	SBUS	0.14	0.12
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.42	0.04
tblVehicleEF	UBUS	1.69	3.55
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	11.10	24.52
tblVehicleEF	UBUS	17.17	1.45
tblVehicleEF	UBUS	1,862.15	1,636.13
tblVehicleEF	UBUS	155.25	18.72
tblVehicleEF	UBUS	6.40	0.74
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.08	2.9450e-003
tblVehicleEF	UBUS	1.6610e-003	7.1000e-005
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.07	2.8110e-003
tblVehicleEF	UBUS	1.5380e-003	6.5000e-005
tblVehicleEF	UBUS	0.01	2.4860e-003
tblVehicleEF	UBUS	0.14	0.02

tblVehicleEF	UBUS	5.6860e-003	1.1520e-003
tblVehicleEF	UBUS	0.72	0.12
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.32	0.09
tblVehicleEF	UBUS	0.01	5.0960e-003
tblVehicleEF	UBUS	1.8630e-003	1.8500e-004
tblVehicleEF	UBUS	0.01	2.4860e-003
tblVehicleEF	UBUS	0.14	0.02
tblVehicleEF	UBUS	5.6860e-003	1.1520e-003
tblVehicleEF	UBUS	2.48	3.70
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.44	0.09
tblVehicleEF	UBUS	1.70	3.55
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	11.41	24.52
tblVehicleEF	UBUS	14.82	1.23
tblVehicleEF	UBUS	1,862.15	1,636.14
tblVehicleEF	UBUS	155.25	18.35
tblVehicleEF	UBUS	5.97	0.74
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.08	2.9450e-003
tblVehicleEF	UBUS	1.6610e-003	7.1000e-005
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.07	2.8110e-003
tblVehicleEF	UBUS	1.5380e-003	6.5000e-005

tblVehicleEF	UBUS	0.02	4.3840e-003
tblVehicleEF	UBUS	0.18	0.02
tblVehicleEF	UBUS	0.01	2.2070e-003
tblVehicleEF	UBUS	0.73	0.12
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.20	0.08
tblVehicleEF	UBUS	0.01	5.0960e-003
tblVehicleEF	UBUS	1.8220e-003	1.8200e-004
tblVehicleEF	UBUS	0.02	4.3840e-003
tblVehicleEF	UBUS	0.18	0.02
tblVehicleEF	UBUS	0.01	2.2070e-003
tblVehicleEF	UBUS	2.49	3.70
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.32	0.08
tblVehicleEF	UBUS	1.69	3.55
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	11.11	24.52
tblVehicleEF	UBUS	17.35	1.44
tblVehicleEF	UBUS	1,862.15	1,636.13
tblVehicleEF	UBUS	155.25	18.70
tblVehicleEF	UBUS	6.36	0.74
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.08	2.9450e-003
tblVehicleEF	UBUS	1.6610e-003	7.1000e-005
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003

tblVehicleEF	UBUS	0.07	2.8110e-003
tblVehicleEF	UBUS	1.5380e-003	6.5000e-005
tblVehicleEF	UBUS	0.01	2.4290e-003
tblVehicleEF	UBUS	0.16	0.02
tblVehicleEF	UBUS	4.9150e-003	1.1960e-003
tblVehicleEF	UBUS	0.73	0.12
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.33	0.08
tblVehicleEF	UBUS	0.01	5.0960e-003
tblVehicleEF	UBUS	1.8660e-003	1.8500e-004
tblVehicleEF	UBUS	0.01	2.4290e-003
tblVehicleEF	UBUS	0.16	0.02
tblVehicleEF	UBUS	4.9150e-003	1.1960e-003
tblVehicleEF	UBUS	2.48	3.70
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.46	0.09

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.2711	101.8421	31.0907	0.2517	4.5633	1.8150	6.3783	1.2490	1.6782	2.9271	0.0000	26,220.2180	26,220.2180	3.1395	0.0000	26,298.7046
Maximum	**5.2711**	**101.8421**	**31.0907**	**0.2517**	**4.5633**	**1.8150**	**6.3783**	**1.2490**	**1.6782**	**2.9271**	**0.0000**	**26,220.2180**	**26,220.2180**	**3.1395**	**0.0000**	**26,298.7046**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8068	92.8420	43.1011	0.2517	4.5633	1.0120	5.5753	1.2490	1.0021	2.2510	0.0000	26,220.2180	26,220.2180	3.1395	0.0000	26,298.7045
Maximum	**2.8068**	**92.8420**	**43.1011**	**0.2517**	**4.5633**	**1.0120**	**5.5753**	**1.2490**	**1.0021**	**2.2510**	**0.0000**	**26,220.2180**	**26,220.2180**	**3.1395**	**0.0000**	**26,298.7045**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**46.75**	**8.84**	**-38.63**	**0.00**	**0.00**	**44.24**	**12.59**	**0.00**	**40.29**	**23.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Project Operations	Building Construction	1/1/2019	12/31/2019	7	365	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Project Operations	Cranes	0	4.00	231	0.29
Project Operations	Forklifts	0	6.00	89	0.20
Project Operations	Off-Highway Trucks	2	6.00	394	0.38
Project Operations	Other General Industrial Equipment	1	8.00	354	0.38
Project Operations	Other Material Handling Equipment	1	6.00	501	0.36
Project Operations	Rubber Tired Dozers	1	4.00	570	0.40
Project Operations	Rubber Tired Loaders	2	5.00	380	0.36
Project Operations	Skid Steer Loaders	1	2.00	51	0.37
Project Operations	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Project Operations	Tractors/Loaders/Backhoes	1	8.00	318	0.36

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Project Operations	9	19.00	199.00	0.00	14.70	25.00	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Project Operations - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.8784	43.8596	23.0830	0.0655		1.5869	1.5869		1.4600	1.4600		6,487.9854	6,487.9854	2.0527		6,539.3036
Total	**3.8784**	**43.8596**	**23.0830**	**0.0655**		**1.5869**	**1.5869**		**1.4600**	**1.4600**		**6,487.9854**	**6,487.9854**	**2.0527**		**6,539.3036**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2881	57.9183	7.1636	0.1840	4.3509	0.2268	4.5777	1.1927	0.2170	1.4096		19,516.1034	19,516.1034	1.0807		19,543.1204
Worker	0.1046	0.0642	0.8441	2.1700e-003	0.2124	1.3100e-003	0.2137	0.0563	1.2100e-003	0.0575		216.1292	216.1292	6.0500e-003		216.2805
Total	**1.3927**	**57.9825**	**8.0077**	**0.1862**	**4.5633**	**0.2281**	**4.7914**	**1.2490**	**0.2182**	**1.4672**		**19,732.2326**	**19,732.2326**	**1.0867**		**19,759.4010**

3.2 Project Operations - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4141	34.8595	35.0934	0.0655		0.7839	0.7839		0.7839	0.7839	0.0000	6,487.9854	6,487.9854	2.0527		6,539.3036
Total	**1.4141**	**34.8595**	**35.0934**	**0.0655**		**0.7839**	**0.7839**		**0.7839**	**0.7839**	**0.0000**	**6,487.9854**	**6,487.9854**	**2.0527**		**6,539.3036**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.2881	57.9183	7.1636	0.1840	4.3509	0.2268	4.5777	1.1927	0.2170	1.4096		19,516.1034	19,516.1034	1.0807		19,543.1204
Worker	0.1046	0.0642	0.8441	2.1700e-003	0.2124	1.3100e-003	0.2137	0.0563	1.2100e-003	0.0575		216.1292	216.1292	6.0500e-003		216.2805
Total	**1.3927**	**57.9825**	**8.0077**	**0.1862**	**4.5633**	**0.2281**	**4.7914**	**1.2490**	**0.2182**	**1.4672**		**19,732.2326**	**19,732.2326**	**1.0867**		**19,759.4010**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Gilman Springs Mine

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Gilman Springs Mine - Riverside-South Coast County, Winter

Project Characteristics -

Land Use -

Construction Phase - 7 day per week 365 per year

Off-road Equipment - Equipment list based on data provided by project applicant

Trips and VMT - Data on TIA

Construction Off-road Equipment Mitigation - Tiers based on data provided by project applicant

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	0.00	365.00

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblOffRoadEquipment	HorsePower	97.00	318.00
tblOffRoadEquipment	HorsePower	402.00	394.00
tblOffRoadEquipment	HorsePower	88.00	354.00
tblOffRoadEquipment	HorsePower	168.00	501.00
tblOffRoadEquipment	HorsePower	247.00	570.00
tblOffRoadEquipment	HorsePower	203.00	380.00
tblOffRoadEquipment	HorsePower	65.00	51.00
tblOffRoadEquipment	LoadFactor	0.37	0.36
tblOffRoadEquipment	LoadFactor	0.34	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.36
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	VendorTripLength	6.90	25.00
tblTripsAndVMT	VendorTripNumber	0.00	199.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	0.00	19.00
tblVehicleEF	HHD	1.61	0.03
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.13	0.00
tblVehicleEF	HHD	3.79	6.83
tblVehicleEF	HHD	0.48	0.50
tblVehicleEF	HHD	1.61	3.9620e-003
tblVehicleEF	HHD	6,587.18	1,372.61
tblVehicleEF	HHD	1,494.29	1,400.02

tblVehicleEF	HHD	4.90	0.04
tblVehicleEF	HHD	29.73	7.44
tblVehicleEF	HHD	3.42	3.94
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.08
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8740e-003	8.9020e-003
tblVehicleEF	HHD	0.02	0.07
tblVehicleEF	HHD	5.2000e-005	1.0000e-006
tblVehicleEF	HHD	1.1100e-004	8.0000e-006
tblVehicleEF	HHD	3.4350e-003	2.2200e-004
tblVehicleEF	HHD	0.98	0.59
tblVehicleEF	HHD	6.0000e-005	4.0000e-006
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.3400e-004	1.0630e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.6000e-005	0.00
tblVehicleEF	HHD	1.1100e-004	8.0000e-006
tblVehicleEF	HHD	3.4350e-003	2.2200e-004
tblVehicleEF	HHD	1.13	0.68
tblVehicleEF	HHD	6.0000e-005	4.0000e-006

tblVehicleEF	HHD	0.12	0.14
tblVehicleEF	HHD	2.3400e-004	1.0630e-003
tblVehicleEF	HHD	0.06	1.0000e-006
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tblVehicleEF	HHD	0.03	0.02
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tblVehicleEF	HHD	6,972.69	1,372.01
tblVehicleEF	HHD	1,494.29	1,400.02
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tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.08
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8740e-003	8.9020e-003
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tblVehicleEF	HHD	5.2000e-005	1.0000e-006
tblVehicleEF	HHD	2.1900e-004	1.6000e-005
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tblVehicleEF	HHD	0.93	0.61

tblVehicleEF	HHD	1.1900e-004	8.0000e-006
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.4100e-004	1.1060e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.5000e-005	0.00
tblVehicleEF	HHD	2.1900e-004	1.6000e-005
tblVehicleEF	HHD	4.0040e-003	2.5800e-004
tblVehicleEF	HHD	1.06	0.70
tblVehicleEF	HHD	1.1900e-004	8.0000e-006
tblVehicleEF	HHD	0.12	0.14
tblVehicleEF	HHD	2.4100e-004	1.1060e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.73	0.03
tblVehicleEF	HHD	0.03	5.2660e-003
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tblVehicleEF	HHD	5.20	7.08
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tblVehicleEF	HHD	1,494.29	1,392.51
tblVehicleEF	HHD	4.90	0.04
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tblVehicleEF	HHD	3.40	3.91
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.08
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8740e-003	8.8820e-003
tblVehicleEF	HHD	0.02	0.07
tblVehicleEF	HHD	5.2000e-005	1.0000e-006
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tblVehicleEF	HHD	3.9000e-003	2.7600e-004
tblVehicleEF	HHD	1.06	0.57
tblVehicleEF	HHD	5.4000e-005	4.0000e-006
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.4800e-004	1.1130e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.6000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	7.0000e-006
tblVehicleEF	HHD	3.9000e-003	2.7600e-004
tblVehicleEF	HHD	1.21	0.65
tblVehicleEF	HHD	5.4000e-005	4.0000e-006
tblVehicleEF	HHD	0.12	0.13
tblVehicleEF	HHD	2.4800e-004	1.1130e-003
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	LDA	5.0030e-003	3.2950e-003
tblVehicleEF	LDA	7.3280e-003	0.06

tblVehicleEF	LDA	0.67	0.80
tblVehicleEF	LDA	1.45	2.25
tblVehicleEF	LDA	276.36	280.63
tblVehicleEF	LDA	62.93	57.89
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	1.6480e-003	1.5390e-003
tblVehicleEF	LDA	2.2760e-003	2.0320e-003
tblVehicleEF	LDA	1.5190e-003	1.4180e-003
tblVehicleEF	LDA	2.0930e-003	1.8690e-003
tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.28
tblVehicleEF	LDA	2.7690e-003	2.7760e-003
tblVehicleEF	LDA	6.5400e-004	5.7300e-004
tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.11	0.30
tblVehicleEF	LDA	5.6890e-003	3.7490e-003
tblVehicleEF	LDA	6.3700e-003	0.05
tblVehicleEF	LDA	0.82	0.98
tblVehicleEF	LDA	1.28	1.99

tblVehicleEF	LDA	301.08	305.29
tblVehicleEF	LDA	62.93	57.35
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	1.6480e-003	1.5390e-003
tblVehicleEF	LDA	2.2760e-003	2.0320e-003
tblVehicleEF	LDA	1.5190e-003	1.4180e-003
tblVehicleEF	LDA	2.0930e-003	1.8690e-003
tblVehicleEF	LDA	0.12	0.17
tblVehicleEF	LDA	0.15	0.14
tblVehicleEF	LDA	0.09	0.12
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.24
tblVehicleEF	LDA	3.0180e-003	3.0200e-003
tblVehicleEF	LDA	6.5100e-004	5.6800e-004
tblVehicleEF	LDA	0.12	0.17
tblVehicleEF	LDA	0.15	0.14
tblVehicleEF	LDA	0.09	0.12
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	4.8190e-003	3.1800e-003
tblVehicleEF	LDA	7.5260e-003	0.06
tblVehicleEF	LDA	0.63	0.75
tblVehicleEF	LDA	1.48	2.30
tblVehicleEF	LDA	269.46	273.80
tblVehicleEF	LDA	62.93	57.99

tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	1.6480e-003	1.5390e-003
tblVehicleEF	LDA	2.2760e-003	2.0320e-003
tblVehicleEF	LDA	1.5190e-003	1.4180e-003
tblVehicleEF	LDA	2.0930e-003	1.8690e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.13	0.13
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.05	0.26
tblVehicleEF	LDA	0.10	0.28
tblVehicleEF	LDA	2.6990e-003	2.7090e-003
tblVehicleEF	LDA	6.5500e-004	5.7400e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.13	0.13
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.26
tblVehicleEF	LDA	0.11	0.31
tblVehicleEF	LDT1	0.02	0.01
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.81	2.09
tblVehicleEF	LDT1	4.20	2.63
tblVehicleEF	LDT1	333.57	334.08
tblVehicleEF	LDT1	75.52	70.49
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	2.8360e-003	2.7180e-003

tblVehicleEF	LDT1	4.1040e-003	3.4020e-003
tblVehicleEF	LDT1	2.6120e-003	2.5020e-003
tblVehicleEF	LDT1	3.7750e-003	3.1290e-003
tblVehicleEF	LDT1	0.24	0.27
tblVehicleEF	LDT1	0.39	0.33
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.04
tblVehicleEF	LDT1	0.30	0.55
tblVehicleEF	LDT1	3.3590e-003	3.3060e-003
tblVehicleEF	LDT1	8.3000e-004	6.9800e-004
tblVehicleEF	LDT1	0.24	0.27
tblVehicleEF	LDT1	0.39	0.33
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	0.23	1.04
tblVehicleEF	LDT1	0.33	0.60
tblVehicleEF	LDT1	0.02	0.01
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	2.17	2.52
tblVehicleEF	LDT1	3.70	2.32
tblVehicleEF	LDT1	362.11	360.42
tblVehicleEF	LDT1	75.52	69.77
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	2.8360e-003	2.7180e-003
tblVehicleEF	LDT1	4.1040e-003	3.4020e-003
tblVehicleEF	LDT1	2.6120e-003	2.5020e-003

tblVehicleEF	LDT1	3.7750e-003	3.1290e-003
tblVehicleEF	LDT1	0.47	0.53
tblVehicleEF	LDT1	0.49	0.41
tblVehicleEF	LDT1	0.30	0.35
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.05
tblVehicleEF	LDT1	0.26	0.48
tblVehicleEF	LDT1	3.6500e-003	3.5670e-003
tblVehicleEF	LDT1	8.2100e-004	6.9000e-004
tblVehicleEF	LDT1	0.47	0.53
tblVehicleEF	LDT1	0.49	0.41
tblVehicleEF	LDT1	0.30	0.35
tblVehicleEF	LDT1	0.06	0.08
tblVehicleEF	LDT1	0.23	1.05
tblVehicleEF	LDT1	0.29	0.52
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.02	0.11
tblVehicleEF	LDT1	1.70	1.96
tblVehicleEF	LDT1	4.27	2.69
tblVehicleEF	LDT1	325.12	326.11
tblVehicleEF	LDT1	75.52	70.64
tblVehicleEF	LDT1	0.17	0.19
tblVehicleEF	LDT1	2.8360e-003	2.7180e-003
tblVehicleEF	LDT1	4.1040e-003	3.4020e-003
tblVehicleEF	LDT1	2.6120e-003	2.5020e-003
tblVehicleEF	LDT1	3.7750e-003	3.1290e-003
tblVehicleEF	LDT1	0.21	0.23

tblVehicleEF	LDT1	0.44	0.36
tblVehicleEF	LDT1	0.13	0.15
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.27	1.21
tblVehicleEF	LDT1	0.31	0.56
tblVehicleEF	LDT1	3.2730e-003	3.2270e-003
tblVehicleEF	LDT1	8.3100e-004	6.9900e-004
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	0.44	0.36
tblVehicleEF	LDT1	0.13	0.15
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.27	1.21
tblVehicleEF	LDT1	0.34	0.62
tblVehicleEF	LDT2	6.8180e-003	5.5100e-003
tblVehicleEF	LDT2	9.5660e-003	0.08
tblVehicleEF	LDT2	0.89	1.20
tblVehicleEF	LDT2	1.93	2.95
tblVehicleEF	LDT2	377.54	363.01
tblVehicleEF	LDT2	86.05	76.74
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	1.5870e-003	1.6130e-003
tblVehicleEF	LDT2	2.2990e-003	2.0910e-003
tblVehicleEF	LDT2	1.4600e-003	1.4850e-003
tblVehicleEF	LDT2	2.1150e-003	1.9230e-003
tblVehicleEF	LDT2	0.08	0.12
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.06	0.10

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.48
tblVehicleEF	LDT2	0.13	0.40
tblVehicleEF	LDT2	3.7830e-003	3.5920e-003
tblVehicleEF	LDT2	8.9300e-004	7.5900e-004
tblVehicleEF	LDT2	0.08	0.12
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.48
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LDT2	7.7320e-003	6.2520e-003
tblVehicleEF	LDT2	8.3130e-003	0.07
tblVehicleEF	LDT2	1.09	1.47
tblVehicleEF	LDT2	1.71	2.61
tblVehicleEF	LDT2	410.83	389.16
tblVehicleEF	LDT2	86.05	76.02
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	1.5870e-003	1.6130e-003
tblVehicleEF	LDT2	2.2990e-003	2.0910e-003
tblVehicleEF	LDT2	1.4600e-003	1.4850e-003
tblVehicleEF	LDT2	2.1150e-003	1.9230e-003
tblVehicleEF	LDT2	0.15	0.24
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.12	0.18
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.48

tblVehicleEF	LDT2	0.11	0.35
tblVehicleEF	LDT2	4.1180e-003	3.8500e-003
tblVehicleEF	LDT2	8.8900e-004	7.5200e-004
tblVehicleEF	LDT2	0.15	0.24
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.12	0.18
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.48
tblVehicleEF	LDT2	0.12	0.38
tblVehicleEF	LDT2	6.5550e-003	5.2920e-003
tblVehicleEF	LDT2	9.8290e-003	0.09
tblVehicleEF	LDT2	0.84	1.12
tblVehicleEF	LDT2	1.97	3.03
tblVehicleEF	LDT2	367.62	355.10
tblVehicleEF	LDT2	86.05	76.89
tblVehicleEF	LDT2	0.09	0.12
tblVehicleEF	LDT2	1.5870e-003	1.6130e-003
tblVehicleEF	LDT2	2.2990e-003	2.0910e-003
tblVehicleEF	LDT2	1.4600e-003	1.4850e-003
tblVehicleEF	LDT2	2.1150e-003	1.9230e-003
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.15	0.17
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6830e-003	3.5130e-003

tblVehicleEF	LDT2	8.9400e-004	7.6100e-004
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.15	0.17
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.55
tblVehicleEF	LDT2	0.15	0.45
tblVehicleEF	LHD1	5.7930e-003	5.0720e-003
tblVehicleEF	LHD1	0.01	6.5060e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.11	0.91
tblVehicleEF	LHD1	2.68	1.04
tblVehicleEF	LHD1	9.27	9.53
tblVehicleEF	LHD1	618.47	652.47
tblVehicleEF	LHD1	31.44	10.97
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.49	1.92
tblVehicleEF	LHD1	9.6100e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9790e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	9.8800e-004	2.7800e-004
tblVehicleEF	LHD1	9.2000e-004	9.0900e-004
tblVehicleEF	LHD1	2.5180e-003	2.4950e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.1000e-004	2.5600e-004
tblVehicleEF	LHD1	4.0170e-003	3.5250e-003

tblVehicleEF	LHD1	0.10	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.9210e-003	1.6800e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD1	9.3000e-005	9.2000e-005
tblVehicleEF	LHD1	6.0720e-003	6.3480e-003
tblVehicleEF	LHD1	3.6500e-004	1.0900e-004
tblVehicleEF	LHD1	4.0170e-003	3.5250e-003
tblVehicleEF	LHD1	0.10	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.9210e-003	1.6800e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.32	0.10
tblVehicleEF	LHD1	5.7930e-003	5.0850e-003
tblVehicleEF	LHD1	0.01	6.6010e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.13	0.93
tblVehicleEF	LHD1	2.55	0.99
tblVehicleEF	LHD1	9.27	9.53
tblVehicleEF	LHD1	618.47	652.49
tblVehicleEF	LHD1	31.44	10.88
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.34	1.80

tblVehicleEF	LHD1	9.6100e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9790e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	9.8800e-004	2.7800e-004
tblVehicleEF	LHD1	9.2000e-004	9.0900e-004
tblVehicleEF	LHD1	2.5180e-003	2.4950e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.1000e-004	2.5600e-004
tblVehicleEF	LHD1	7.5430e-003	6.6270e-003
tblVehicleEF	LHD1	0.12	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.7360e-003	3.2860e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.28	0.09
tblVehicleEF	LHD1	9.3000e-005	9.2000e-005
tblVehicleEF	LHD1	6.0720e-003	6.3480e-003
tblVehicleEF	LHD1	3.6300e-004	1.0800e-004
tblVehicleEF	LHD1	7.5430e-003	6.6270e-003
tblVehicleEF	LHD1	0.12	0.11
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.7360e-003	3.2860e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.31	0.55
tblVehicleEF	LHD1	0.30	0.10
tblVehicleEF	LHD1	5.7930e-003	5.0710e-003
tblVehicleEF	LHD1	0.01	6.4920e-003

tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.11	0.91
tblVehicleEF	LHD1	2.67	1.04
tblVehicleEF	LHD1	9.27	9.53
tblVehicleEF	LHD1	618.47	652.46
tblVehicleEF	LHD1	31.44	10.98
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.46	1.89
tblVehicleEF	LHD1	9.6100e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9790e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	9.8800e-004	2.7800e-004
tblVehicleEF	LHD1	9.2000e-004	9.0900e-004
tblVehicleEF	LHD1	2.5180e-003	2.4950e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.1000e-004	2.5600e-004
tblVehicleEF	LHD1	3.6490e-003	3.1890e-003
tblVehicleEF	LHD1	0.12	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7560e-003	1.5290e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.33	0.59
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD1	9.3000e-005	9.2000e-005
tblVehicleEF	LHD1	6.0720e-003	6.3480e-003
tblVehicleEF	LHD1	3.6500e-004	1.0900e-004

tblVehicleEF	LHD1	3.6490e-003	3.1890e-003
tblVehicleEF	LHD1	0.12	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7560e-003	1.5290e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.33	0.59
tblVehicleEF	LHD1	0.32	0.10
tblVehicleEF	LHD2	3.9590e-003	3.3170e-003
tblVehicleEF	LHD2	5.7450e-003	4.5320e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.63
tblVehicleEF	LHD2	1.32	0.60
tblVehicleEF	LHD2	14.58	14.99
tblVehicleEF	LHD2	616.22	651.54
tblVehicleEF	LHD2	24.28	7.56
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	2.18	2.13
tblVehicleEF	LHD2	1.3590e-003	1.4210e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4300e-004	1.2600e-004
tblVehicleEF	LHD2	1.3000e-003	1.3590e-003
tblVehicleEF	LHD2	2.6890e-003	2.7070e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0800e-004	1.1600e-004
tblVehicleEF	LHD2	1.7180e-003	1.8390e-003

tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	8.5600e-004	8.8800e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	1.4200e-004	1.4300e-004
tblVehicleEF	LHD2	5.9930e-003	6.2790e-003
tblVehicleEF	LHD2	2.6800e-004	7.5000e-005
tblVehicleEF	LHD2	1.7180e-003	1.8390e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	8.5600e-004	8.8800e-004
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.15	0.05
tblVehicleEF	LHD2	3.9590e-003	3.3250e-003
tblVehicleEF	LHD2	5.8160e-003	4.5690e-003
tblVehicleEF	LHD2	9.7250e-003	9.8280e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.63
tblVehicleEF	LHD2	1.26	0.58
tblVehicleEF	LHD2	14.58	14.99
tblVehicleEF	LHD2	616.22	651.54
tblVehicleEF	LHD2	24.28	7.51
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	2.05	2.01

tblVehicleEF	LHD2	1.3590e-003	1.4210e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4300e-004	1.2600e-004
tblVehicleEF	LHD2	1.3000e-003	1.3590e-003
tblVehicleEF	LHD2	2.6890e-003	2.7070e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0800e-004	1.1600e-004
tblVehicleEF	LHD2	3.2580e-003	3.4780e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6480e-003	1.7290e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	1.4200e-004	1.4300e-004
tblVehicleEF	LHD2	5.9940e-003	6.2790e-003
tblVehicleEF	LHD2	2.6700e-004	7.4000e-005
tblVehicleEF	LHD2	3.2580e-003	3.4780e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6480e-003	1.7290e-003
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.9590e-003	3.3160e-003
tblVehicleEF	LHD2	5.7300e-003	4.5210e-003

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.63
tblVehicleEF	LHD2	1.33	0.61
tblVehicleEF	LHD2	14.58	14.99
tblVehicleEF	LHD2	616.22	651.53
tblVehicleEF	LHD2	24.28	7.57
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	2.15	2.11
tblVehicleEF	LHD2	1.3590e-003	1.4210e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4300e-004	1.2600e-004
tblVehicleEF	LHD2	1.3000e-003	1.3590e-003
tblVehicleEF	LHD2	2.6890e-003	2.7070e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0800e-004	1.1600e-004
tblVehicleEF	LHD2	1.3960e-003	1.4790e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2400e-004	7.3700e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.11	0.29
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	1.4200e-004	1.4300e-004
tblVehicleEF	LHD2	5.9930e-003	6.2790e-003
tblVehicleEF	LHD2	2.6800e-004	7.5000e-005

tblVehicleEF	LHD2	1.3960e-003	1.4790e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2400e-004	7.3700e-004
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.11	0.29
tblVehicleEF	LHD2	0.15	0.06
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	20.43	20.42
tblVehicleEF	MCY	9.65	8.52
tblVehicleEF	MCY	164.18	208.16
tblVehicleEF	MCY	47.21	61.43
tblVehicleEF	MCY	1.14	1.14
tblVehicleEF	MCY	1.6550e-003	1.6430e-003
tblVehicleEF	MCY	3.5170e-003	2.9350e-003
tblVehicleEF	MCY	1.5510e-003	1.5400e-003
tblVehicleEF	MCY	3.3230e-003	2.7700e-003
tblVehicleEF	MCY	1.68	1.63
tblVehicleEF	MCY	0.86	0.84
tblVehicleEF	MCY	0.92	0.89
tblVehicleEF	MCY	2.20	2.20
tblVehicleEF	MCY	0.60	1.98
tblVehicleEF	MCY	2.11	1.85
tblVehicleEF	MCY	2.0380e-003	2.0600e-003
tblVehicleEF	MCY	6.9200e-004	6.0800e-004
tblVehicleEF	MCY	1.68	1.63

tblVehicleEF	MCY	0.86	0.84
tblVehicleEF	MCY	0.92	0.89
tblVehicleEF	MCY	2.69	2.69
tblVehicleEF	MCY	0.60	1.98
tblVehicleEF	MCY	2.29	2.01
tblVehicleEF	MCY	0.40	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.17	21.08
tblVehicleEF	MCY	9.12	8.00
tblVehicleEF	MCY	164.18	209.10
tblVehicleEF	MCY	47.21	59.93
tblVehicleEF	MCY	0.99	0.99
tblVehicleEF	MCY	1.6550e-003	1.6430e-003
tblVehicleEF	MCY	3.5170e-003	2.9350e-003
tblVehicleEF	MCY	1.5510e-003	1.5400e-003
tblVehicleEF	MCY	3.3230e-003	2.7700e-003
tblVehicleEF	MCY	3.34	3.23
tblVehicleEF	MCY	1.25	1.22
tblVehicleEF	MCY	2.10	2.03
tblVehicleEF	MCY	2.17	2.17
tblVehicleEF	MCY	0.59	1.97
tblVehicleEF	MCY	1.88	1.64
tblVehicleEF	MCY	2.0490e-003	2.0690e-003
tblVehicleEF	MCY	6.7600e-004	5.9300e-004
tblVehicleEF	MCY	3.34	3.23
tblVehicleEF	MCY	1.25	1.22
tblVehicleEF	MCY	2.10	2.03

tblVehicleEF	MCY	2.66	2.65
tblVehicleEF	MCY	0.59	1.97
tblVehicleEF	MCY	2.05	1.79
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.91	19.90
tblVehicleEF	MCY	9.57	8.43
tblVehicleEF	MCY	164.18	207.32
tblVehicleEF	MCY	47.21	61.30
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	1.6550e-003	1.6430e-003
tblVehicleEF	MCY	3.5170e-003	2.9350e-003
tblVehicleEF	MCY	1.5510e-003	1.5400e-003
tblVehicleEF	MCY	3.3230e-003	2.7700e-003
tblVehicleEF	MCY	1.60	1.58
tblVehicleEF	MCY	1.07	1.04
tblVehicleEF	MCY	0.75	0.73
tblVehicleEF	MCY	2.20	2.19
tblVehicleEF	MCY	0.67	2.24
tblVehicleEF	MCY	2.11	1.85
tblVehicleEF	MCY	2.0300e-003	2.0520e-003
tblVehicleEF	MCY	6.9100e-004	6.0700e-004
tblVehicleEF	MCY	1.60	1.58
tblVehicleEF	MCY	1.07	1.04
tblVehicleEF	MCY	0.75	0.73
tblVehicleEF	MCY	2.68	2.68
tblVehicleEF	MCY	0.67	2.24

tblVehicleEF	MCY	2.29	2.01
tblVehicleEF	MDV	0.01	7.3840e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.71	1.46
tblVehicleEF	MDV	3.77	3.58
tblVehicleEF	MDV	513.72	445.75
tblVehicleEF	MDV	115.03	94.10
tblVehicleEF	MDV	0.21	0.16
tblVehicleEF	MDV	1.7440e-003	1.6710e-003
tblVehicleEF	MDV	2.5510e-003	2.2050e-003
tblVehicleEF	MDV	1.6090e-003	1.5420e-003
tblVehicleEF	MDV	2.3490e-003	2.0300e-003
tblVehicleEF	MDV	0.12	0.14
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.12	0.52
tblVehicleEF	MDV	0.30	0.53
tblVehicleEF	MDV	5.1540e-003	4.4080e-003
tblVehicleEF	MDV	1.2170e-003	9.3100e-004
tblVehicleEF	MDV	0.12	0.14
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.12	0.52
tblVehicleEF	MDV	0.33	0.58
tblVehicleEF	MDV	0.02	8.2990e-003

tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	2.07	1.77
tblVehicleEF	MDV	3.34	3.16
tblVehicleEF	MDV	557.63	473.46
tblVehicleEF	MDV	115.03	93.21
tblVehicleEF	MDV	0.20	0.15
tblVehicleEF	MDV	1.7440e-003	1.6710e-003
tblVehicleEF	MDV	2.5510e-003	2.2050e-003
tblVehicleEF	MDV	1.6090e-003	1.5420e-003
tblVehicleEF	MDV	2.3490e-003	2.0300e-003
tblVehicleEF	MDV	0.23	0.27
tblVehicleEF	MDV	0.25	0.21
tblVehicleEF	MDV	0.18	0.21
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.12	0.53
tblVehicleEF	MDV	0.26	0.46
tblVehicleEF	MDV	5.5980e-003	4.6820e-003
tblVehicleEF	MDV	1.2090e-003	9.2200e-004
tblVehicleEF	MDV	0.23	0.27
tblVehicleEF	MDV	0.25	0.21
tblVehicleEF	MDV	0.18	0.21
tblVehicleEF	MDV	0.07	0.05
tblVehicleEF	MDV	0.12	0.53
tblVehicleEF	MDV	0.29	0.50
tblVehicleEF	MDV	0.01	7.1140e-003
tblVehicleEF	MDV	0.02	0.11
tblVehicleEF	MDV	1.60	1.37

tblVehicleEF	MDV	3.84	3.65
tblVehicleEF	MDV	500.72	437.52
tblVehicleEF	MDV	115.03	94.26
tblVehicleEF	MDV	0.20	0.15
tblVehicleEF	MDV	1.7440e-003	1.6710e-003
tblVehicleEF	MDV	2.5510e-003	2.2050e-003
tblVehicleEF	MDV	1.6090e-003	1.5420e-003
tblVehicleEF	MDV	2.3490e-003	2.0300e-003
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.60
tblVehicleEF	MDV	0.31	0.54
tblVehicleEF	MDV	5.0220e-003	4.3260e-003
tblVehicleEF	MDV	1.2190e-003	9.3300e-004
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.13	0.60
tblVehicleEF	MDV	0.34	0.59
tblVehicleEF	MH	0.04	3.4240e-003
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	1,008.83	950.70

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tblVehicleEF	MH	0.05	0.15
tblVehicleEF	MH	1.4510e-003	0.00
tblVehicleEF	MH	3.2440e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.15
tblVehicleEF	MH	1.3450e-003	0.00
tblVehicleEF	MH	1.73	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.58	0.00
tblVehicleEF	MH	0.12	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.42	0.00
tblVehicleEF	MH	0.01	8.9880e-003
tblVehicleEF	MH	7.2200e-004	0.00
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tblVehicleEF	MH	0.09	0.00
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tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	0.04	3.4240e-003
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tblVehicleEF	MH	1.3450e-003	0.00
tblVehicleEF	MH	3.18	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.16	0.00
tblVehicleEF	MH	0.12	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.01	8.9880e-003
tblVehicleEF	MH	7.1500e-004	0.00
tblVehicleEF	MH	3.18	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.16	0.00
tblVehicleEF	MH	0.17	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	3.4240e-003
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tblVehicleEF	MH	1,008.83	950.70

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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.05	0.15
tblVehicleEF	MH	1.4510e-003	0.00
tblVehicleEF	MH	3.2440e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.15
tblVehicleEF	MH	1.3450e-003	0.00
tblVehicleEF	MH	1.77	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.58	0.00
tblVehicleEF	MH	0.12	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.42	0.00
tblVehicleEF	MH	0.01	8.9880e-003
tblVehicleEF	MH	7.2300e-004	0.00
tblVehicleEF	MH	1.77	0.00
tblVehicleEF	MH	0.11	0.00
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tblVehicleEF	MH	0.16	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.46	0.00
tblVehicleEF	MHD	0.02	3.1400e-003
tblVehicleEF	MHD	8.6800e-003	9.0500e-003
tblVehicleEF	MHD	0.07	9.0140e-003
tblVehicleEF	MHD	0.49	0.34
tblVehicleEF	MHD	0.64	0.83

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tblVehicleEF	MHD	6.0510e-003	3.7990e-003
tblVehicleEF	MHD	0.09	0.12
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tblVehicleEF	MHD	5.7900e-003	3.6350e-003
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	8.2500e-004	1.0100e-004
tblVehicleEF	MHD	2.0360e-003	8.5200e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	9.6700e-004	4.0800e-004
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tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.43	0.05
tblVehicleEF	MHD	1.5220e-003	7.4000e-004
tblVehicleEF	MHD	0.01	9.8290e-003
tblVehicleEF	MHD	6.8100e-004	8.2000e-005
tblVehicleEF	MHD	2.0360e-003	8.5200e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.05	0.03
tblVehicleEF	MHD	9.6700e-004	4.0800e-004
tblVehicleEF	MHD	0.13	0.19

tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.47	0.06
tblVehicleEF	MHD	0.02	2.9730e-003
tblVehicleEF	MHD	8.7590e-003	9.0910e-003
tblVehicleEF	MHD	0.06	8.7130e-003
tblVehicleEF	MHD	0.36	0.28
tblVehicleEF	MHD	0.65	0.83
tblVehicleEF	MHD	6.79	1.04
tblVehicleEF	MHD	167.70	80.31
tblVehicleEF	MHD	1,070.79	1,032.92
tblVehicleEF	MHD	55.67	8.18
tblVehicleEF	MHD	1.37	0.85
tblVehicleEF	MHD	2.38	3.21
tblVehicleEF	MHD	5.1010e-003	3.2050e-003
tblVehicleEF	MHD	0.09	0.12
tblVehicleEF	MHD	8.9600e-004	1.1000e-004
tblVehicleEF	MHD	4.8810e-003	3.0670e-003
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	8.2500e-004	1.0100e-004
tblVehicleEF	MHD	3.9550e-003	1.6370e-003
tblVehicleEF	MHD	0.07	0.03
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	1.9390e-003	8.2000e-004
tblVehicleEF	MHD	0.11	0.16
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.42	0.05
tblVehicleEF	MHD	1.6100e-003	7.6100e-004

tblVehicleEF	MHD	0.01	9.8290e-003
tblVehicleEF	MHD	6.7600e-004	8.1000e-005
tblVehicleEF	MHD	3.9550e-003	1.6370e-003
tblVehicleEF	MHD	0.07	0.03
tblVehicleEF	MHD	0.05	0.03
tblVehicleEF	MHD	1.9390e-003	8.2000e-004
tblVehicleEF	MHD	0.13	0.19
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.46	0.05
tblVehicleEF	MHD	0.02	3.3780e-003
tblVehicleEF	MHD	8.6340e-003	9.0250e-003
tblVehicleEF	MHD	0.07	9.0860e-003
tblVehicleEF	MHD	0.68	0.44
tblVehicleEF	MHD	0.64	0.82
tblVehicleEF	MHD	7.19	1.10
tblVehicleEF	MHD	145.36	74.90
tblVehicleEF	MHD	1,070.79	1,032.91
tblVehicleEF	MHD	55.67	8.29
tblVehicleEF	MHD	1.26	0.81
tblVehicleEF	MHD	2.50	3.38
tblVehicleEF	MHD	7.3630e-003	4.6200e-003
tblVehicleEF	MHD	0.09	0.12
tblVehicleEF	MHD	8.9600e-004	1.1000e-004
tblVehicleEF	MHD	7.0450e-003	4.4200e-003
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	8.2500e-004	1.0100e-004
tblVehicleEF	MHD	1.6250e-003	6.9200e-004

tblVehicleEF	MHD	0.06	0.03
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	7.8100e-004	3.3600e-004
tblVehicleEF	MHD	0.11	0.16
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.44	0.05
tblVehicleEF	MHD	1.3990e-003	7.1000e-004
tblVehicleEF	MHD	0.01	9.8290e-003
tblVehicleEF	MHD	6.8300e-004	8.2000e-005
tblVehicleEF	MHD	1.6250e-003	6.9200e-004
tblVehicleEF	MHD	0.06	0.03
tblVehicleEF	MHD	0.06	0.03
tblVehicleEF	MHD	7.8100e-004	3.3600e-004
tblVehicleEF	MHD	0.13	0.19
tblVehicleEF	MHD	0.02	0.12
tblVehicleEF	MHD	0.48	0.06
tblVehicleEF	OBUS	0.01	9.2340e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.28	0.50
tblVehicleEF	OBUS	0.76	1.30
tblVehicleEF	OBUS	7.10	2.73
tblVehicleEF	OBUS	73.80	74.06
tblVehicleEF	OBUS	1,109.07	1,462.79
tblVehicleEF	OBUS	71.94	21.69
tblVehicleEF	OBUS	0.42	0.55
tblVehicleEF	OBUS	1.56	2.45

tblVehicleEF	OBUS	2.2500e-004	3.2370e-003
tblVehicleEF	OBUS	7.9560e-003	0.06
tblVehicleEF	OBUS	9.0400e-004	2.0900e-004
tblVehicleEF	OBUS	2.1500e-004	3.0970e-003
tblVehicleEF	OBUS	7.5980e-003	0.06
tblVehicleEF	OBUS	8.3600e-004	1.9300e-004
tblVehicleEF	OBUS	2.3520e-003	2.6130e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	9.8600e-004	1.1030e-003
tblVehicleEF	OBUS	0.05	0.13
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.45	0.14
tblVehicleEF	OBUS	7.1700e-004	7.0700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.4400e-004	2.1500e-004
tblVehicleEF	OBUS	2.3520e-003	2.6130e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	9.8600e-004	1.1030e-003
tblVehicleEF	OBUS	0.06	0.16
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.49	0.15
tblVehicleEF	OBUS	0.01	9.2250e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.47

tblVehicleEF	OBUS	0.78	1.32
tblVehicleEF	OBUS	6.65	2.55
tblVehicleEF	OBUS	77.15	75.22
tblVehicleEF	OBUS	1,109.07	1,462.82
tblVehicleEF	OBUS	71.94	21.39
tblVehicleEF	OBUS	0.43	0.56
tblVehicleEF	OBUS	1.45	2.29
tblVehicleEF	OBUS	1.8900e-004	2.7320e-003
tblVehicleEF	OBUS	7.9560e-003	0.06
tblVehicleEF	OBUS	9.0400e-004	2.0900e-004
tblVehicleEF	OBUS	1.8100e-004	2.6140e-003
tblVehicleEF	OBUS	7.5980e-003	0.06
tblVehicleEF	OBUS	8.3600e-004	1.9300e-004
tblVehicleEF	OBUS	4.3980e-003	4.7610e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	1.9240e-003	2.1450e-003
tblVehicleEF	OBUS	0.05	0.13
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.43	0.13
tblVehicleEF	OBUS	7.4900e-004	7.1700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.3700e-004	2.1200e-004
tblVehicleEF	OBUS	4.3980e-003	4.7610e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	1.9240e-003	2.1450e-003

tblVehicleEF	OBUS	0.06	0.17
tblVehicleEF	OBUS	0.05	0.25
tblVehicleEF	OBUS	0.47	0.14
tblVehicleEF	OBUS	0.01	9.2730e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.29	0.54
tblVehicleEF	OBUS	0.76	1.29
tblVehicleEF	OBUS	7.14	2.75
tblVehicleEF	OBUS	69.18	72.45
tblVehicleEF	OBUS	1,109.07	1,462.78
tblVehicleEF	OBUS	71.94	21.73
tblVehicleEF	OBUS	0.40	0.54
tblVehicleEF	OBUS	1.55	2.43
tblVehicleEF	OBUS	2.7300e-004	3.9350e-003
tblVehicleEF	OBUS	7.9560e-003	0.06
tblVehicleEF	OBUS	9.0400e-004	2.0900e-004
tblVehicleEF	OBUS	2.6200e-004	3.7650e-003
tblVehicleEF	OBUS	7.5980e-003	0.06
tblVehicleEF	OBUS	8.3600e-004	1.9300e-004
tblVehicleEF	OBUS	2.1010e-003	2.4660e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	9.2100e-004	1.0680e-003
tblVehicleEF	OBUS	0.05	0.13
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.45	0.14

tblVehicleEF	OBUS	6.7300e-004	6.9100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.4500e-004	2.1500e-004
tblVehicleEF	OBUS	2.1010e-003	2.4660e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	9.2100e-004	1.0680e-003
tblVehicleEF	OBUS	0.06	0.16
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.50	0.15
tblVehicleEF	SBUS	0.86	0.08
tblVehicleEF	SBUS	0.01	7.4880e-003
tblVehicleEF	SBUS	0.07	6.8950e-003
tblVehicleEF	SBUS	7.75	2.95
tblVehicleEF	SBUS	0.70	0.62
tblVehicleEF	SBUS	6.83	0.95
tblVehicleEF	SBUS	1,163.20	369.36
tblVehicleEF	SBUS	1,114.68	1,133.14
tblVehicleEF	SBUS	52.56	6.04
tblVehicleEF	SBUS	11.16	3.76
tblVehicleEF	SBUS	5.34	5.18
tblVehicleEF	SBUS	0.01	4.7200e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3400e-004	3.7000e-005
tblVehicleEF	SBUS	0.01	4.5160e-003
tblVehicleEF	SBUS	2.7040e-003	2.6520e-003

tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.9900e-004	3.4000e-005
tblVehicleEF	SBUS	4.4650e-003	1.1980e-003
tblVehicleEF	SBUS	0.03	7.7610e-003
tblVehicleEF	SBUS	0.93	0.35
tblVehicleEF	SBUS	1.9610e-003	5.5200e-004
tblVehicleEF	SBUS	0.12	0.10
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.5270e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.4400e-004	6.0000e-005
tblVehicleEF	SBUS	4.4650e-003	1.1980e-003
tblVehicleEF	SBUS	0.03	7.7610e-003
tblVehicleEF	SBUS	1.34	0.51
tblVehicleEF	SBUS	1.9610e-003	5.5200e-004
tblVehicleEF	SBUS	0.14	0.12
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.41	0.04
tblVehicleEF	SBUS	0.86	0.08
tblVehicleEF	SBUS	0.01	7.5790e-003
tblVehicleEF	SBUS	0.06	5.7750e-003
tblVehicleEF	SBUS	7.61	2.90
tblVehicleEF	SBUS	0.71	0.64
tblVehicleEF	SBUS	4.94	0.69
tblVehicleEF	SBUS	1,216.91	380.74
tblVehicleEF	SBUS	1,114.68	1,133.16

tblVehicleEF	SBUS	52.56	5.60
tblVehicleEF	SBUS	11.51	3.86
tblVehicleEF	SBUS	5.02	4.87
tblVehicleEF	SBUS	0.01	3.9850e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3400e-004	3.7000e-005
tblVehicleEF	SBUS	0.01	3.8130e-003
tblVehicleEF	SBUS	2.7040e-003	2.6520e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.9900e-004	3.4000e-005
tblVehicleEF	SBUS	8.1040e-003	2.1670e-003
tblVehicleEF	SBUS	0.03	8.3370e-003
tblVehicleEF	SBUS	0.93	0.35
tblVehicleEF	SBUS	3.7500e-003	1.0440e-003
tblVehicleEF	SBUS	0.12	0.10
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.31	0.03
tblVehicleEF	SBUS	0.01	3.6340e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.1200e-004	5.5000e-005
tblVehicleEF	SBUS	8.1040e-003	2.1670e-003
tblVehicleEF	SBUS	0.03	8.3370e-003
tblVehicleEF	SBUS	1.34	0.51
tblVehicleEF	SBUS	3.7500e-003	1.0440e-003
tblVehicleEF	SBUS	0.14	0.12
tblVehicleEF	SBUS	0.01	0.05

tblVehicleEF	SBUS	0.34	0.04
tblVehicleEF	SBUS	0.86	0.08
tblVehicleEF	SBUS	0.01	7.4810e-003
tblVehicleEF	SBUS	0.07	7.1280e-003
tblVehicleEF	SBUS	7.94	3.01
tblVehicleEF	SBUS	0.70	0.62
tblVehicleEF	SBUS	7.18	1.00
tblVehicleEF	SBUS	1,089.04	353.65
tblVehicleEF	SBUS	1,114.68	1,133.14
tblVehicleEF	SBUS	52.56	6.11
tblVehicleEF	SBUS	10.66	3.61
tblVehicleEF	SBUS	5.29	5.14
tblVehicleEF	SBUS	0.02	5.7350e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3400e-004	3.7000e-005
tblVehicleEF	SBUS	0.02	5.4870e-003
tblVehicleEF	SBUS	2.7040e-003	2.6520e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.9900e-004	3.4000e-005
tblVehicleEF	SBUS	4.2030e-003	1.1030e-003
tblVehicleEF	SBUS	0.03	8.1650e-003
tblVehicleEF	SBUS	0.94	0.35
tblVehicleEF	SBUS	1.9180e-003	5.4000e-004
tblVehicleEF	SBUS	0.12	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.38	0.04

tblVehicleEF	SBUS	0.01	3.3790e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.5000e-004	6.0000e-005
tblVehicleEF	SBUS	4.2030e-003	1.1030e-003
tblVehicleEF	SBUS	0.03	8.1650e-003
tblVehicleEF	SBUS	1.35	0.51
tblVehicleEF	SBUS	1.9180e-003	5.4000e-004
tblVehicleEF	SBUS	0.14	0.12
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.42	0.04
tblVehicleEF	UBUS	1.69	3.55
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	11.10	24.52
tblVehicleEF	UBUS	17.17	1.45
tblVehicleEF	UBUS	1,862.15	1,636.13
tblVehicleEF	UBUS	155.25	18.72
tblVehicleEF	UBUS	6.40	0.74
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.08	2.9450e-003
tblVehicleEF	UBUS	1.6610e-003	7.1000e-005
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.07	2.8110e-003
tblVehicleEF	UBUS	1.5380e-003	6.5000e-005
tblVehicleEF	UBUS	0.01	2.4860e-003
tblVehicleEF	UBUS	0.14	0.02

tblVehicleEF	UBUS	5.6860e-003	1.1520e-003
tblVehicleEF	UBUS	0.72	0.12
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.32	0.09
tblVehicleEF	UBUS	0.01	5.0960e-003
tblVehicleEF	UBUS	1.8630e-003	1.8500e-004
tblVehicleEF	UBUS	0.01	2.4860e-003
tblVehicleEF	UBUS	0.14	0.02
tblVehicleEF	UBUS	5.6860e-003	1.1520e-003
tblVehicleEF	UBUS	2.48	3.70
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.44	0.09
tblVehicleEF	UBUS	1.70	3.55
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	11.41	24.52
tblVehicleEF	UBUS	14.82	1.23
tblVehicleEF	UBUS	1,862.15	1,636.14
tblVehicleEF	UBUS	155.25	18.35
tblVehicleEF	UBUS	5.97	0.74
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.08	2.9450e-003
tblVehicleEF	UBUS	1.6610e-003	7.1000e-005
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.07	2.8110e-003
tblVehicleEF	UBUS	1.5380e-003	6.5000e-005

tblVehicleEF	UBUS	0.02	4.3840e-003
tblVehicleEF	UBUS	0.18	0.02
tblVehicleEF	UBUS	0.01	2.2070e-003
tblVehicleEF	UBUS	0.73	0.12
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.20	0.08
tblVehicleEF	UBUS	0.01	5.0960e-003
tblVehicleEF	UBUS	1.8220e-003	1.8200e-004
tblVehicleEF	UBUS	0.02	4.3840e-003
tblVehicleEF	UBUS	0.18	0.02
tblVehicleEF	UBUS	0.01	2.2070e-003
tblVehicleEF	UBUS	2.49	3.70
tblVehicleEF	UBUS	0.03	0.08
tblVehicleEF	UBUS	1.32	0.08
tblVehicleEF	UBUS	1.69	3.55
tblVehicleEF	UBUS	0.10	0.02
tblVehicleEF	UBUS	11.11	24.52
tblVehicleEF	UBUS	17.35	1.44
tblVehicleEF	UBUS	1,862.15	1,636.13
tblVehicleEF	UBUS	155.25	18.70
tblVehicleEF	UBUS	6.36	0.74
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.08	2.9450e-003
tblVehicleEF	UBUS	1.6610e-003	7.1000e-005
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003

tblVehicleEF	UBUS	0.07	2.8110e-003
tblVehicleEF	UBUS	1.5380e-003	6.5000e-005
tblVehicleEF	UBUS	0.01	2.4290e-003
tblVehicleEF	UBUS	0.16	0.02
tblVehicleEF	UBUS	4.9150e-003	1.1960e-003
tblVehicleEF	UBUS	0.73	0.12
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.33	0.08
tblVehicleEF	UBUS	0.01	5.0960e-003
tblVehicleEF	UBUS	1.8660e-003	1.8500e-004
tblVehicleEF	UBUS	0.01	2.4290e-003
tblVehicleEF	UBUS	0.16	0.02
tblVehicleEF	UBUS	4.9150e-003	1.1960e-003
tblVehicleEF	UBUS	2.48	3.70
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.46	0.09

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.3261	102.7273	31.9984	0.2477	4.5633	1.8183	6.3816	1.2490	1.6813	2.9303	0.0000	25,795.2996	25,795.2996	3.2344	0.0000	25,876.1598
Maximum	**5.3261**	**102.7273**	**31.9984**	**0.2477**	**4.5633**	**1.8183**	**6.3816**	**1.2490**	**1.6813**	**2.9303**	**0.0000**	**25,795.2996**	**25,795.2996**	**3.2344**	**0.0000**	**25,876.1598**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8619	93.7273	44.0088	0.2477	4.5633	1.0153	5.5786	1.2490	1.0052	2.2542	0.0000	25,795.2996	25,795.2996	3.2344	0.0000	25,876.1598
Maximum	**2.8619**	**93.7273**	**44.0088**	**0.2477**	**4.5633**	**1.0153**	**5.5786**	**1.2490**	**1.0052**	**2.2542**	**0.0000**	**25,795.2996**	**25,795.2996**	**3.2344**	**0.0000**	**25,876.1598**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**46.27**	**8.76**	**-37.53**	**0.00**	**0.00**	**44.16**	**12.58**	**0.00**	**40.21**	**23.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Project Operations	Building Construction	1/1/2019	12/31/2019	7	365	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Project Operations	Cranes	0	4.00	231	0.29
Project Operations	Forklifts	0	6.00	89	0.20
Project Operations	Off-Highway Trucks	2	6.00	394	0.38
Project Operations	Other General Industrial Equipment	1	8.00	354	0.38
Project Operations	Other Material Handling Equipment	1	6.00	501	0.36
Project Operations	Rubber Tired Dozers	1	4.00	570	0.40
Project Operations	Rubber Tired Loaders	2	5.00	380	0.36
Project Operations	Skid Steer Loaders	1	2.00	51	0.37
Project Operations	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Project Operations	Tractors/Loaders/Backhoes	1	8.00	318	0.36

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Project Operations	9	19.00	199.00	0.00	14.70	25.00	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Project Operations - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.8784	43.8596	23.0830	0.0655		1.5869	1.5869		1.4600	1.4600		6,487.9854	6,487.9854	2.0527		6,539.3036
Total	**3.8784**	**43.8596**	**23.0830**	**0.0655**		**1.5869**	**1.5869**		**1.4600**	**1.4600**		**6,487.9854**	**6,487.9854**	**2.0527**		**6,539.3036**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3456	58.8013	8.2313	0.1802	4.3509	0.2301	4.5810	1.1927	0.2201	1.4128		19,113.4160	19,113.4160	1.1764		19,142.8264
Worker	0.1022	0.0665	0.6841	1.9500e-003	0.2124	1.3100e-003	0.2137	0.0563	1.2100e-003	0.0575		193.8983	193.8983	5.2600e-003		194.0298
Total	**1.4478**	**58.8678**	**8.9154**	**0.1822**	**4.5633**	**0.2314**	**4.7947**	**1.2490**	**0.2213**	**1.4703**		**19,307.3143**	**19,307.3143**	**1.1817**		**19,336.8562**

3.2 Project Operations - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4141	34.8595	35.0934	0.0655		0.7839	0.7839		0.7839	0.7839	0.0000	6,487.9854	6,487.9854	2.0527		6,539.3036
Total	**1.4141**	**34.8595**	**35.0934**	**0.0655**		**0.7839**	**0.7839**		**0.7839**	**0.7839**	**0.0000**	**6,487.9854**	**6,487.9854**	**2.0527**		**6,539.3036**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3456	58.8013	8.2313	0.1802	4.3509	0.2301	4.5810	1.1927	0.2201	1.4128		19,113.4160	19,113.4160	1.1764		19,142.8264
Worker	0.1022	0.0665	0.6841	1.9500e-003	0.2124	1.3100e-003	0.2137	0.0563	1.2100e-003	0.0575		193.8983	193.8983	5.2600e-003		194.0298
Total	**1.4478**	**58.8678**	**8.9154**	**0.1822**	**4.5633**	**0.2314**	**4.7947**	**1.2490**	**0.2213**	**1.4703**		**19,307.3143**	**19,307.3143**	**1.1817**		**19,336.8562**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX 3.2:

EMFAC2017 OUTPUTS

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EMFAC2017 Derived CalEEMod Annual Emission Rates: Year 2019[1,2]

Season	Pollutant	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH
Annual	CH4_IDLEX	0	0	0	0	0.0050716	0.003317201	0.003139661	0.028539622	0.0092339	0	0	0.0761629	0
Annual	CH4_RUNEX	0.0032954	0.0107596	0.0055098	0.0073842	0.0065064	0.004531758	0.009049561	0.017202294	0.01217	3.5468977	0.3227285	0.0074876	0.0034241
Annual	CH4_STREX	0.0603265	0.1048303	0.0835824	0.1043122	0.0179544	0.010169399	0.009013608	1.50584E-07	0.0260311	0.021856	0.2444994	0.0068948	0
Annual	CO_IDLEX	0	0	0	0	0.1733008	0.134377148	0.344734577	6.831853262	0.4994043	0	0	2.9456478	0
Annual	CO_RUNEX	0.7990361	2.0889844	1.2044154	1.463245	0.9147217	0.627313536	0.825439181	0.503457523	1.3007455	24.518127	20.418508	0.6246833	0.3527272
Annual	CO_STREX	2.2510123	2.62799	2.9526464	3.5767976	1.0365676	0.603085523	1.087028584	0.00396231	2.726439	1.4521263	8.5176789	0.9530403	0
Annual	CO2_NBIO_IDLEX	0	0	0	0	9.5276114	14.99308177	78.03784078	1372.609297	74.058597	0	0	369.36057	0
Annual	CO2_NBIO_RUNEX	280.62655	334.07874	363.00948	445.74758	652.46905	651.5357246	1032.913416	1400.019209	1462.7884	1636.1329	208.15932	1133.1411	950.70341
Annual	CO2_NBIO_STREX	57.886173	70.492525	76.735478	94.097761	10.97272	7.560338213	8.265140983	0.039291731	21.689036	18.720462	61.432716	6.0375816	0
Annual	NOX_IDLEX	0	0	0	0	0.086656	0.128987999	0.834874514	7.44193747	0.5518881	0	0	3.7568965	0
Annual	NOX_RUNEX	0.0532175	0.1939817	0.1198943	0.1569969	1.9160099	2.129616391	3.410429139	3.941225603	2.4499562	0.7448147	1.1355452	5.1810331	4.6861862
Annual	NOX_STREX[3]	0.2162097	0.3648147	0.3731486	0.4636121	0.3286934	0.202013707	0.918286294	1.634169859	0.4992495	0.2020888	0.260731	0.5824082	0
Annual	PM10_IDLEX	0	0	0	0	0.00095	0.001420937	0.003799344	0.022626376	0.0032375	0	0	0.0047202	0
Annual	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061069828	0.13034	0.0878825	0.01176	0.7448002	0.13034
Annual	PM10_PMTW	0.008	0.008	0.008	0.008	0.0099787	0.010829228	0.012000003	0.035606387	0.012	0.0219127	0.004	0.0106078	0.016
Annual	PM10_RUNEX	0.0015388	0.0027177	0.001613	0.0016707	0.0122293	0.015163899	0.118834415	0.077487391	0.0607947	0.0029448	0.0016431	0.0320802	0.1542623
Annual	PM10_STREX	0.0020324	0.0034025	0.0020911	0.0022046	0.0002778	0.000125892	0.000109884	1.24725E-06	0.0002091	7.052E-05	0.0029348	3.706E-05	0
Annual	PM25_IDLEX	0	0	0	0	0.0009089	0.001359468	0.003634986	0.021647569	0.0030974	0	0	0.004516	0
Annual	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026172783	0.05586	0.0376639	0.00504	0.3192001	0.05586
Annual	PM25_PMTW	0.002	0.002	0.002	0.002	0.0024947	0.002707307	0.003000001	0.008901597	0.003	0.0054782	0.001	0.0026519	0.004
Annual	PM25_RUNEX	0.0014181	0.0025022	0.0014849	0.0015421	0.0116792	0.014497648	0.113690196	0.07413531	0.0581519	0.0028108	0.00154	0.0306832	0.1475889
Annual	PM25_STREX	0.0018689	0.0031291	0.0019232	0.0020296	0.0002563	0.000115777	0.000101271	1.16188E-06	0.0001932	6.484E-05	0.0027702	3.408E-05	0
Annual	ROG_DIURN	0.085258	0.2742062	0.1234033	0.1391615	0.0035253	0.001839284	0.000851526	7.66825E-06	0.0026129	0.0024859	1.6331314	0.0011984	0
Annual	ROG_HTSK	0.1201238	0.3261096	0.15872	0.1810693	0.0892078	0.045842626	0.023355891	0.000221863	0.0241327	0.0164679	0.8391322	0.0077612	0
Annual	ROG_IDLEX	0	0	0	0	0.0216735	0.016690776	0.023385271	0.594409147	0.0602067	0	0	0.3534369	0
Annual	ROG_RESTL	0.0629929	0.1788955	0.0963739	0.1140445	0.0016799	0.000887618	0.000407624	3.95653E-06	0.001103	0.0011518	0.8916351	0.0005516	0
Annual	ROG_RUNEX	0.0132615	0.0485337	0.0234002	0.0341923	0.0717624	0.06950909	0.161890707	0.113799563	0.1341503	0.1210194	2.2009537	0.104285	0.0737185
Annual	ROG_RUNLS	0.2334977	1.0411303	0.4813576	0.5234809	0.5487944	0.274959072	0.116164317	0.001063449	0.2491535	0.0794098	1.9787906	0.0530104	0
Annual	ROG_STREX	0.2763976	0.5496631	0.3980419	0.5265913	0.0906608	0.05008573	0.050308295	7.73556E-07	0.1376969	0.0851869	1.8489903	0.0397559	0
Annual	SO2_IDLEX	0	0	0	0	9.214E-05	0.000143201	0.000739752	0.012941645	0.0007065	0	0	0.003527	0
Annual	SO2_RUNEX	0.0027762	0.0033059	0.0035917	0.0044079	0.0063482	0.006278822	0.009829124	0.013155931	0.0142442	0.005096	0.0020599	0.0108457	0.0089876
Annual	SO2_STREX	0.0005728	0.0006976	0.0007594	0.0009312	0.0001086	7.48157E-05	8.17903E-05	3.88824E-07	0.0002146	0.0001853	0.0006079	5.975E-05	0
Annual	TOG_DIURN	0.085258	0.2742062	0.1234033	0.1391615	0.0035253	0.001839284	0.000851526	7.66825E-06	0.0026129	0.0024859	1.6331314	0.0011984	0
Annual	TOG_HTSK	0.1201238	0.3261096	0.15872	0.1810693	0.0892078	0.045842626	0.023355891	0.000221863	0.0241327	0.0164679	0.8391322	0.0077612	0
Annual	TOG_IDLEX	0	0	0	0	0.0303826	0.022521972	0.029800268	0.67762713	0.0779322	0	0	0.5086425	0
Annual	TOG_RESTL	0.0629929	0.1788955	0.0963739	0.1140445	0.0016799	0.000887618	0.000407624	3.95653E-06	0.001103	0.0011518	0.8916351	0.0005516	0
Annual	TOG_RUNEX	0.0192803	0.0704957	0.0338616	0.0476201	0.0874182	0.081484319	0.187357876	0.141593426	0.1640003	3.6998856	2.6868161	0.1242558	0.0839236
Annual	TOG_RUNLS	0.2334977	1.0411303	0.4813576	0.5234809	0.5487944	0.274959072	0.116164317	0.001063449	0.2491535	0.0794098	1.9787906	0.0530104	0
Annual	TOG_STREX	0.3026173	0.6017991	0.4357958	0.5764718	0.0992251	0.054836567	0.055066672	8.46946E-07	0.1507051	0.093269	2.0114501	0.0435277	0
Summer	CH4_IDLEX	0	0	0	0	0.0050848	0.003325036	0.002973175	0.029485201	0.0092251	0	0	0.0762365	0
Summer	CH4_RUNEX	0.0037493	0.0121465	0.0062519	0.0082987	0.006601	0.004569401	0.0090905	0.017203032	0.0123305	3.5469335	0.3198713	0.0075789	0.0034241
Summer	CH4_STREX	0.0530616	0.0916403	0.0735205	0.0916216	0.0173419	0.009827599	0.008713439	1.44418E-07	0.0249362	0.0198733	0.2186194	0.0057754	0
Summer	CO_IDLEX	0	0	0	0	0.1733008	0.134377148	0.276079915	6.641319248	0.4668391	0	0	2.902038	0
Summer	CO_RUNEX	0.9779593	2.5234436	1.4698817	1.7679874	0.9295632	0.631669787	0.831381259	0.50370948	1.3212547	24.51998	21.078115	0.6352273	0.3527272
Summer	CO_STREX	1.9863238	2.3218438	2.6101981	3.1552522	0.9874174	0.576078062	1.035945303	0.003744301	2.5481841	1.2349125	7.9982189	0.6888643	0
Summer	CO2_NBIO_IDLEX	0	0	0	0	9.5276114	14.99308177	80.3102323	1372.007209	75.221215	0	0	380.73613	0
Summer	CO2_NBIO_RUNEX	305.29369	360.41881	389.16418	473.46458	652.49461	651.5433705	1032.923715	1400.019631	1462.8242	1636.1362	209.10268	1133.1599	950.70341
Summer	CO2_NBIO_STREX	57.34946	69.769497	76.024562	93.205396	10.883769	7.511424949	8.178180779	0.03894607	21.38618	18.34978	59.927309	5.5969908	0
Summer	NOX_IDLEX	0	0	0	0	0.086656	0.128987999	0.85287656	7.265463246	0.559526	0	0	3.8614172	0
Summer	NOX_RUNEX	0.0495745	0.1799813	0.1121666	0.1461778	1.8029117	2.009976206	3.213862464	3.72076076	2.2928171	0.7364559	0.9855767	4.8737308	4.4222396
Summer	NOX_STREX[3]	0.2081695	0.3510527	0.3601817	0.4461083	0.3171728	0.195362145	0.915460982	1.634129663	0.4894916	0.1921722	0.2465513	0.5781094	0
Summer	PM10_IDLEX	0	0	0	0	0.00095	0.001420937	0.003205303	0.021647745	0.0027323	0	0	0.0039852	0
Summer	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061069828	0.13034	0.0878825	0.01176	0.7448002	0.13034
Summer	PM10_PMTW	0.008	0.008	0.008	0.008	0.0099787	0.010829228	0.012000003	0.035606387	0.012	0.0219127	0.004	0.0106078	0.016
Summer	PM10_RUNEX	0.0015388	0.0027177	0.001613	0.0016707	0.0122293	0.015163899	0.118834415	0.077487391	0.0607947	0.0029448	0.0016431	0.0320802	0.1542623
Summer	PM10_STREX	0.0020324	0.0034025	0.0020911	0.0022046	0.0002778	0.000125892	0.000109884	1.24725E-06	0.0002091	7.052E-05	0.0029348	3.706E-05	0
Summer	PM25_IDLEX	0	0	0	0	0.0009089	0.001359468	0.003066643	0.020711273	0.0026141	0	0	0.0038128	0
Summer	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026172783	0.05586	0.0376639	0.00504	0.3192001	0.05586
Summer	PM25_PMTW	0.002	0.002	0.002	0.002	0.0024947	0.002707307	0.003000001	0.008901597	0.003	0.0054782	0.001	0.0026519	0.004
Summer	PM25_RUNEX	0.0014181	0.0025022	0.0014849	0.0015421	0.0116792	0.014497648	0.113690196	0.07413531	0.0581519	0.0028108	0.00154	0.0306832	0.1475889
Summer	PM25_STREX	0.0018689	0.0031291	0.0019232	0.0020296	0.0002563	0.000115777	0.000101271	1.16188E-06	0.0001932	6.484E-05	0.0027702	3.408E-05	0
Summer	ROG_DIURN	0.1659332	0.5349608	0.2403422	0.2700061	0.0066275	0.003478481	0.00163716	1.56209E-05	0.0047609	0.0043844	3.2333172	0.002167	0
Summer	ROG_HTSK	0.1436431	0.4092762	0.1898784	0.2116463	0.1063741	0.055578643	0.028507683	0.000257768	0.0268944	0.0185577	1.2193321	0.0083374	0
Summer	ROG_IDLEX	0	0	0	0	0.0216735	0.016690776	0.022266461	0.614290005	0.0595596	0	0	0.3527995	0
Summer	ROG_RESTL	0.1206664	0.3493395	0.1819498	0.2130071	0.003286	0.00172861	0.000819991	8.27119E-06	0.002145	0.002207	2.0289258	0.0010445	0
Summer	ROG_RUNEX	0.0150134	0.0548301	0.0264819	0.0379042	0.0722152	0.069680207	0.162094447	0.113804422	0.1348941	0.1211198	2.1713313	0.1047502	0.0737185
Summer	ROG_RUNLS	0.2335513	1.0453828	0.4834318	0.5253899	0.5546376	0.278787163	0.118811148	0.001105621	0.2503867	0.0771185	1.972321	0.0488384	0
Summer	ROG_STREX	0.2414915	0.4788259	0.3479564	0.4597897	0.0873709	0.048267068	0.04852435	7.4387E-07	0.1316456	0.0773273	1.6436728	0.0332458	0
Summer	SO2_IDLEX	0	0	0	0	9.214E-05	0.000143201	0.000761327	0.012935891	0.0007175	0	0	0.0036344	0
Summer	SO2_RUNEX	0.0030204	0.0035666	0.0038505	0.0046822	0.0063484	0.006278898	0.009829226	0.013155935	0.0142445	0.005096	0.0020692	0.0108459	0.0089876
Summer	SO2_STREX	0.0005675	0.0006904	0.0007523	0.0009223	0.0001077	7.43316E-05	8.09297E-05	3.85403E-07	0.0002116	0.0001816	0.000593	5.539E-05	0
Summer	TOG_DIURN	0.1659332	0.5349608	0.2403422	0.2700061	0.0066275	0.003478481	0.00163716	1.56209E-05	0.0047609	0.0043844	3.2333172	0.002167	0
Summer	TOG_HTSK	0.1436431	0.4092762	0.1898784	0.2116463	0.1063741	0.055578643	0.028507683	0.000257768	0.0268944	0.0185577	1.2193321	0.0083374	0
Summer	TOG_IDLEX	0	0	0	0	0.0303826	0.022521972	0.028335924	0.700282123	0.0771955	0	0	0.5079168	0
Summer	TOG_RESTL	0.1206664	0.3493395	0.1819498	0.2130071	0.003286	0.00172861	0.000819991	8.27119E-06	0.002145	0.002207	2.0289258	0.0010445	0
Summer	TOG_RUNEX	0.0218311	0.0796369	0.0383285	0.0530542	0.0881093	0.081735066	0.187655858	0.141600795	0.165103	3.7000322	2.6525034	0.1249346	0.0839236
Summer	TOG_RUNLS	0.2335513	1.0453828	0.4834318	0.5253899	0.5546376	0.278787163	0.118811148	0.001105621	0.2503867	0.0771185	1.972321	0.0488384	0
Summer	TOG_STREX	0.2643999	0.5242424	0.3809596	0.5033407	0.0956228	0.052845372	0.05311319	8.14444E-07	0.1440803	0.0846636	1.7881405	0.0364	0

Winter	CH4_IDLEX	0	0	0	0	0.0050711	0.003315535	0.003377816	0.026330781	0.0092726	0	0	0.0761802	0
Winter	CH4_RUNEX	0.0031798	0.0103549	0.0052918	0.0071137	0.0064921	0.004521356	0.009024883	0.005266064	0.0121211	3.5469009	0.3218927	0.0074806	0.0034241
Winter	CH4_STREX	0.0617982	0.1076007	0.0858689	0.1069312	0.0179673	0.010242978	0.009085827	1.51297E-07	0.0261907	0.0217548	0.2447468	0.0071279	0
Winter	CO_IDLEX	0	0	0	0	0.1733008	0.134377148	0.44028363	7.07952561	0.5443753	0	0	3.0058707	0
Winter	CO_RUNEX	0.7498771	1.9582775	1.1243482	1.3694465	0.9108303	0.626031458	0.822329368	0.474141296	1.2942152	24.518289	19.903701	0.6241715	0.3527272
Winter	CO_STREX	2.2986083	2.6897561	3.0267621	3.6527685	1.0382694	0.60871445	1.099901563	0.003930519	2.7538677	1.4394371	8.4341152	0.9962429	0
Winter	CO2_NBIO_IDLEX	0	0	0	0	9.5276114	14.99308177	74.89526203	1370.689057	72.453077	0	0	353.65147	0
Winter	CO2_NBIO_RUNEX	273.79525	326.11062	355.09694	437.51521	652.46252	651.5334803	1032.907978	1392.511285	1462.777	1636.1332	207.3206	1133.1402	950.70341
Winter	CO2_NBIO_STREX	57.985907	70.637876	76.89037	94.263127	10.975457	7.570551318	8.287076323	0.039241351	21.734729	18.698947	61.299795	6.1103893	0
Winter	NOX_IDLEX	0	0	0	0	0.086656	0.128987999	0.81001395	7.667724301	0.5413406	0	0	3.6125584	0
Winter	NOX_RUNEX	0.0512384	0.1880848	0.1160607	0.1518619	1.8936021	2.108164321	3.37747094	3.906507922	2.4312542	0.74288	1.1266041	5.1394568	4.6378118
Winter	NOX_STREX[3]	0.2166456	0.3658478	0.3742363	0.464545	0.3274885	0.202689212	0.918769267	1.634175171	0.4988593	0.2003265	0.2611815	0.5831708	0
Winter	PM10_IDLEX	0	0	0	0	0.00095	0.001420937	0.004619686	0.023924023	0.0039351	0	0	0.0057352	0
Winter	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.06093226	0.13034	0.0878825	0.01176	0.7448002	0.13034
Winter	PM10_PMTW	0.008	0.008	0.008	0.008	0.0099787	0.010829228	0.012000003	0.035526173	0.012	0.0219127	0.004	0.0106078	0.016
Winter	PM10_RUNEX	0.0015388	0.0027177	0.001613	0.0016707	0.0122293	0.015163899	0.118834415	0.077470078	0.0607947	0.0029448	0.0016431	0.0320802	0.1542623
Winter	PM10_STREX	0.0020324	0.0034025	0.0020911	0.0022046	0.0002778	0.000125892	0.000109884	1.24725E-06	0.0002091	7.052E-05	0.0029348	3.706E-05	0
Winter	PM25_IDLEX	0	0	0	0	0.0009089	0.001359468	0.00441984	0.02288908	0.0037649	0	0	0.0054871	0
Winter	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026113826	0.05586	0.0376639	0.00504	0.3192001	0.05586
Winter	PM25_PMTW	0.002	0.002	0.002	0.002	0.0024947	0.002707307	0.003000001	0.008881543	0.003	0.0054782	0.001	0.0026519	0.004
Winter	PM25_RUNEX	0.0014181	0.0025022	0.0014849	0.0015421	0.0116792	0.014497648	0.113690196	0.074118745	0.0581519	0.0028108	0.00154	0.0306832	0.1475889
Winter	PM25_STREX	0.0018689	0.0031291	0.0019232	0.0020296	0.0002563	0.000115777	0.000101271	1.16188E-06	0.0001932	6.484E-05	0.0027702	3.408E-05	0
Winter	ROG_DIURN	0.069744	0.2341855	0.0986263	0.1105863	0.0031887	0.001478787	0.000692104	7.47787E-06	0.0024663	0.0024291	1.5770574	0.0011034	0
Winter	ROG_HTSK	0.1292143	0.3632823	0.170461	0.192789	0.1031203	0.05063659	0.025004226	0.000275887	0.026015	0.0180095	1.0383104	0.0081653	0
Winter	ROG_IDLEX	0	0	0	0	0.0216735	0.016690776	0.024941651	0.566894499	0.0611004	0	0	0.3543171	0
Winter	ROG_RESTL	0.0526213	0.1493119	0.0805363	0.0969822	0.0015289	0.000737102	0.000335774	4.01947E-06	0.0010677	0.0011955	0.7318191	0.0005402	0
Winter	ROG_RUNEX	0.0127942	0.0466485	0.022463	0.0329882	0.0716759	0.069459575	0.161774347	0.112888114	0.1339068	0.121029	2.1946991	0.104261	0.0737185
Winter	ROG_RUNLS	0.2610152	1.2060213	0.5508086	0.5960732	0.5880872	0.294836064	0.124994709	0.001112877	0.2647933	0.0923589	2.2409277	0.0645087	0
Winter	ROG_STREX	0.2836343	0.5637986	0.4091883	0.5399809	0.0906711	0.050470236	0.050764117	7.76816E-07	0.1383541	0.0847693	1.8488219	0.0410454	0
Winter	SO2_IDLEX	0	0	0	0	9.214E-05	0.000143201	0.000709914	0.012949591	0.0006913	0	0	0.0033786	0
Winter	SO2_RUNEX	0.0027086	0.0032271	0.0035134	0.0043264	0.0063481	0.0062788	0.00982907	0.01315593	0.0142441	0.005096	0.0020516	0.0108457	0.0089876
Winter	SO2_STREX	0.0005738	0.000699	0.0007609	0.0009328	0.0001086	7.49167E-05	8.20073E-05	3.88325E-07	0.0002151	0.000185	0.0006066	6.047E-05	0
Winter	TOG_DIURN	0.069744	0.2341855	0.0986263	0.1105863	0.0031887	0.001478787	0.000692104	7.47787E-06	0.0024663	0.0024291	1.5770574	0.0011034	0
Winter	TOG_HTSK	0.1292143	0.3632823	0.170461	0.192789	0.1031203	0.05063659	0.025004226	0.000275887	0.026015	0.0180095	1.0383104	0.0081653	0
Winter	TOG_IDLEX	0	0	0	0	0.0303826	0.022521972	0.031839017	0.645366234	0.0789496	0	0	0.5096446	0
Winter	TOG_RESTL	0.0526213	0.1493119	0.0805363	0.0969822	0.0015289	0.000737102	0.000335774	4.01947E-06	0.0010677	0.0011955	0.7318191	0.0005402	0
Winter	TOG_RUNEX	0.0186003	0.0677622	0.0325059	0.0459007	0.0872959	0.081412567	0.187185744	0.128567331	0.1636526	3.6998997	2.679173	0.1242208	0.0839236
Winter	TOG_RUNLS	0.2610152	1.2060213	0.5508086	0.5960732	0.5880872	0.294836064	0.124994709	0.001112877	0.2647933	0.0923589	2.2409277	0.0645087	0
Winter	TOG_STREX	0.3105406	0.617276	0.4479997	0.5911325	0.0992375	0.055257596	0.055565884	8.50516E-07	0.1514267	0.0928117	2.0112863	0.0449395	0

1 Source: California Air Resources Board. EMFAC2017 Web Database. https://www.arb.ca.gov/emfac/2017/; California Air Pollution Control Officers Association (CAPCOA). 2017, November. California Emissions Estimator Model User's Guide, Version 2016.3.2, Appendix A.

2 Unless otherwise noted, per CalEEMod methodology, the calculated CalEEMod emission rates are derived from the emission rates obtained using the EMFAC2017 Web Database for the Los Angeles (SC) region .

3 Because EMFAC2017 provides vehicle trips data for MHDT and HHDT diesel trucks, the formula provided in Appendix A of the CalEEMod User's Guide in calculating the NO_x STREX emission rates are utilized.

APPENDIX 3.3:

SCAQMD ATC

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Controlled Emissions Per ATC Permit

	PM10	PM2.5
Bulldozing, Scraping and Grading of Material	6.187	1.89
Loading of Material(s) Mine/Quarry/Pit	0.062	0.019
Aggregate Handling, Crushing, and Screening #1	2.489	0.781
Stockpiles - Wind Erosion	0.069	0.028
Unpaved Roads - Entrained Dust (2% control efficiency for watering)	78.106	11.976
Wind Erosion from Unpaved Operational Areas and Roads	37.712	15.085
Tons Per Year	124.625	29.779
Pounds Per Day	682.88	163.17
Project Portion (62.2%) pounds per day	424.75	101.49

Additional Watering Requirement for Unpaved Roads (2x day) 55% total reduction per SCAQMD

	PM10	PM2.5
Bulldozing, Scraping and Grading of Material	6.187	1.89
Loading of Material(s) Mine/Quarry/Pit	0.062	0.019
Aggregate Handling, Crushing, and Screening #1	2.489	0.781
Stockpiles - Wind Erosion	0.069	0.028
Unpaved Roads - Entrained Dust (53% additional control efficiency for watering)	36.70982	5.62872
Wind Erosion from Unpaved Operational Areas and Roads	37.712	15.085
Tons Per Year	83.22882	23.43172
Pounds Per Day	456.05	128.39
Project Portion (62.2%) pounds per day	**283.66**	**79.86**

Note: The ATC Permit includes only a nominal 2% reduction for watering of upaved roads, based on SCAQMD guidance, a 55% reduction is achieved by watering 2 x per day.

TABLE XI-D
MITIGATION MEASURE EXAMPLES:
FUGITIVE DUST FROM UNPAVED ROADS

Source Activity	Mitigation Measure[1]	PM10 Control Efficiency	Comments	Estimated Cost[2]
Travel over unpaved roads	Limit maximum speed on unpaved roads to 25 miles per hour.	44%	Assumes linear relationship between PM10 emissions and vehicle speed and an uncontrolled speed of 45 mph.	ND
Travel over unpaved roads	Pave unpaved roads and unpaved parking areas.	99%	Based on comparison of paved road and unpaved road PM10 emission factors.	$44,100/mile-year (useful life of 25 years)
Travel over unpaved roads	Implement watering twice a day for industrial unpaved road.	55%		ND
Travel over unpaved roads	Apply chemical dust suppressant annually to unpaved parking areas.	84%		$5,340/acre-year (useful life of 1 year)

[1]Unless otherwise noted, information presented in this table is from the following reference: *WRAP Fugitive Dust Handbook*, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf). ND = No Data.
[2]2003 dollars.

SCAQMD Application to Construct (ATC)
For
Stationary
ROCK, SAND, GRAVEL,
BASE
CRUSHING & SCREENING PLANT

ATC Submittal and Testing For:

Materials Management & Logistics Inc.
3248 East Willow Street
Signal Hill, CA 90755

Equipment Location:
36060 Gilman Springs Road, Moreno Valley, CA 92551

ATC Applied for

Prepared By:

AEIC
P.O. BOX 147
LLANO, CA 93544

August 1st 2012

ATC Identification No: KHM-080112

Prepared by: _____
Mr. Chris M. Johnson (consultant)

Accepted by: _____
Mr. Kevin Smith (Owner)

Submitted To:

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Attn: Mr. Rodney Millican

Subject: **SCAQMD ATC Submittal for**
Stationary Aggregate Cru, CA 92551
AEIC Project Number: KHM-080112 (BASE PLANT)

August 3rd, 2012

Dear Mr. Millican:

Please accept the contents of this ATC permitting application package for the proposed Materials Management & Logistics facility located at 36060 Gilman Springs Road in Moreno Valley, CA 92551. in the inland area of Riverside County of South Coast Air Quality Management District.

Along with this stationary plant ATC for the new and proposed Materials Management & Logistics BASE stationary rock, sand and gravel, crushing and screening plant is an enclosed copy of the NSPS Subpart OOO testing protocol (edited version) for visible emissions for four feeder bins, one jaw crusher, two dry segregation screens, one cone crusher, and a series of thirty-one shuttle and stacker conveyors.

This proposed rock, sand, gravel BASE crushing and screening plant is located 36060 Gilman Springs Road in Moreno Valley, California. Testing is being conducted to prove the PM reduction of a high-pressure water spray in lieu of BACT for baghouses.

Included with this permitting package is a check for $3,440.06 to proceed with the permitting process for the base permitting cost for an aggregate facility less than 5,000 tons per day).

We do not need expediting of the permit process but would like to have an estimated completion date when it is determined.

Please call me if you have any questions.

Sincerely,

Chris Johnson
American Environmental I & C
P.O. Box 147
Llano, CA 93544
aircmj@aol.com
(661) 917-5565
/CJ
Enclosure

SCAQMD Application to Construct (ATC)
For
Stationary
CRUSHING & SCREENING PLANT
ROCK, SAND, GRAVEL, RECYCLED
(DRY/BASE materials)

ATC Submittal and Testing For:

Materials Management & Logistics Inc.
3248 East Willow Street
Signal Hill, CA 90755

Equipment Location:
36060 Gilman Springs Road, Moreno Valley, California 92551

ATC Applied for

Prepared By:

AEIC
P.O. BOX 147
LLANO, CA 93544

August 1st 2012

ATC Identification No: KHM- 080112

Prepared by: _____
Mr. Chris M. Johnson / AEIC (engineering consultant)

Accepted by: _____
Mr. Kevin Smith / Materials Management & Logistics Inc. (Owner)

Submitted To:

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

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Appendix A - Flow diagram KHM-080112

Appendix B - Aerial overview of facility

Appendix C - Process flow diagram

Appendix D Total Facility Emissions in MINE report(S)

Appendix E - EPA Method IX, NSPS Subpart OOO Protocol (edited version)

1.0 Contact Summary

Contracting Firm:
Materials Management & Logistics Inc.

3248 East Willow Street / Signal Hill, CA 90755
Contact: Mr. Kevin Smith
Phone: (562) 972-6093

Site and Equipment Location:

36060 Gilman Springs Road
Moreno Valley, CA 92551

ATC Submittal and Testing Firm:

AEIC
P.O. Box 147
Llano, CA 93544
Contact: Mr. Chris M. Johnson
(661) 917-5565
aircmj@aol.com

Regulatory Agency:

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Contact: Mr. Rod Millican
(909) 396-2000

2.0 Introduction

AEIC has been contracted by Materials Manangement & Logistics Inc. (formerly Kennedy Hills Materials) to present all SCAQMD forms to properly submit this ATC package including, equipment descriptions, production breakdown and environmental estimates (including process equipment, facilities rolling stock, grounds fugitive emissions and trackout), flow diagram, aerial diagram, process diagram and NSPS Subpart OOO (edited package) for the proposed rock, sand and gravel operation at 36060 Gilman Springs Road in Moreno Valley, California 92551.

3.0 Process Description

The estimated operation of this facility in maximum operation capacities hover in the maximum tonnage estimates of 500 tons per hour, 2000 hours per year for a total estimated production cap of 1,000,000 tons per year, keeping the PM10 emissions from all permittable equipment below four tons per year (2.387 - pm10 tpy – illustrated in the MINE document in attachments).

4.0 Equipment Description:

This operation will use the combination of a two compartment feed hopper, one jaw crusher, one cone crusher, one three deck flat segregating screens (dry), one two-deck segregating screen (dry) , three product splitters and thirty–one shuttle/stackers conveyors, all together with the ability of producing five hundred tons per-hour BASE aggregate for sales and to feed the newly permitted washed product and recycled materials plant into four segregated product stockpiles.

5.0 Rule/Compliance Requirements:

This facility will follow all USEPA. CARB and SCAQMD rules/laws and the State of California Health and Safety Code, OSHA & MSHA Laws.

Materials Management will pay close attention to SCAQMD Rules 401, 402 & 403 for dust and visible emissions and emissions controls along with following all limits and guidelines in 40CFR, Part 60, Subpart OOO of the New Source Performance Standards (NSPS) for initial and normal day to day operations.

6.0 Dust Controls for Process equipment and Facilities area(s) and rolling stock

High pressure water spray system (greater than 150psig with fogging nozzles at **EACH** and **ALL** emission points), offering an estimated ninety-percent (98%) control efficiency at all e-points (substituted for baghouse usage **JUST AT** the crushers and screens) and will increase overall facility dust control and dust control management and insured thorough and successful NSPS monitoring program and offer full compliance at all times.

The complete forty-acre (1,200 acres on property) usable facility will use a three-thousand (3,000) gallon watertruck with surfactant and dispersion additive, along with documentation following the rules and guidelines required in SCAQMD Rule 403 on all access in and around stockpiles, all dirt access roads and all dirt parking areas during all operating hours.

All offroad rolling stock will be registered and documented with the DORS program at California Air Resources Board and will always use ultra-low sulfur diesel during all of these tasks. .

Caterpillar 980 H2 –	DORS # applied for / 300hp / 3.4GPH Ultra Low Sulfur Diesel
Caterpillar 980 H2 –	DORS # applied for / 300hp / 3.4GPH Ultra Low Sulfur Diesel
Caterpillar D9 dozer	DORS #applied for / 275hp / 3.0GPH Ultra Low Sulfur Diesel

6.0 Recycled Materials

This facility will feed in conjunction with up to twenty to twenty-five percent (20-25%) recycled materials to be processed with the remainder of seventy-five to eighty percent (75-80%) all fed in the same hopper at the same time, processed thru one jaw crusher, on cone crusher, one grizzly feeder, three splitters, two screens and a series of thirty-one underbelts, shuttle conveyors and stackers.

7.0 Emission Points and compliance testing/reporting

All feeder and feed points, crusher inlets and outlets, screen top decks and bottom drops with all stream transfers, all splitter and conveyor transfer points and all stockpile drop points will be listed and documented with annual emissions produced at each point in the MINE document in attachments section, and will also be used in the NSPS documentation for the Visible Emissions monitoring program.

The compliance testing will be performed at each crusher and screen inlets and outlets, all feed hopper inlets and outlets, conveyor/shuttle/stacker tail and head drop points and any chute and possible product drop points that could cause an emission will be monitored. These compliance tests will be conducted in accordance with the applicable SCAQMD/EPA and NSPS testing methodologies

The sampling point location, distances and directions will then be measured and detailed in the final test report. A site schematic flow diagram with approximate dimensions is shown in the attachments section.

9.0 Report Format

The final test report will contain:

1. Summary (Site name, application number, date of test)
2. Summary of Results with comparison of test results to rule limits.
3. Introduction
4. Equipment Process Description
5. Test Procedures
6. Test Results and Discussion
7. Quality Assurance/Quality Control
8. Appendices contain spreadsheets, field data sheets, flow diagram, and equipment list and certificate sheets.

10.0 Quality Assurance and Quality Control

AEIC applies stringent quality control and quality assurance procedures to ensure the validity of measurements for all projects. AEIC QA/QC procedures are documented in detailed Quality Assurance Project Plans similar to those used by the EPA, SCAQMD, AVAQMD, ICAPCD, SJVAPCD, BAAQMD, KCAPCD, MDAQMD, and SDAPCD.

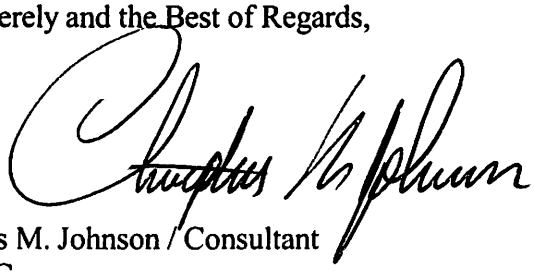
AEIC QA/QC procedures follow guidelines in *Quality Assurance Handbook for Air Pollution Measurement Systems*, Volumes I through III. And guideline presented thru the NSPS Subpart OOO dust and emissions monitoring manual for mining facilities. These procedures outline pretest preparation and calibrations of sampling equipment, post-test sample handling, and post-test calibrations. Standardized, written procedures, calculator programs, and spreadsheets are used for test planning, pre-surveys, equipment checklists, preliminary calculations, data and sample collection, sample tracking, data analysis, and reporting. Pre-test preparations and maintenance include organization of the inspection materials and equipment:

11.0 New Source Review and CEQA documentation

Since all emissions controls will be in place, proper assurance monitoring managed and emissions produced from permitted equipment in this operation estimates will remain below the four-ton limit (4tpy) per year of PM10 while using the high pressure waterspray system in lieu of BACT, this proposed operation will not trigger a new source review nor further CEQA documentation in all categories listed in the CEQA document of this ATC Package submittal.

Thank you for the review of this ATC permitting package and if there are any further questions, or details that need clarity, please call my cell anytime at (661) 917-5565.

Sincerely and the Best of Regards,



Chris M. Johnson / Consultant
AEIC
P.O. Box 147
Llano, Ca 93544
aircmj@aol.com
(661) 917-5565

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit):
MATERIALS MANAGEMENT & LOGISTICS LLC Inc.

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Owner's Business Name (If different from Business Name of Operator):
MATERIALS MANAGEMENT & LOGISTICS LLC

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

36060 GILMAN SPRINGS ROAD
Street Address

MORENO VALLEY , CA 92551
City Zip

KEVIN SMITH OWNER
Contact Name Title

(562) 972-6093 Ext. (562) 972-6090
Phone # Fax #

E-Mail: smikevin@aol.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

3248 EAST WILLOW STREET
Address

Signal Hill , CA 90755
City State Zip

Kevin Smith Owner
Contact Name Title

(562) 972-6093 Ext. (562) 972-6090
Phone # Fax #

E-Mail: smikevin@aol.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:
- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:
- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c, you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 10/01/2012

8b. Estimated End Date of Construction (mm/dd/yyyy): 11/01/2012

8c. Estimated Start Date of Operation (mm/dd/yyyy): 11/01/2012

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
BASE aggregate crushing & screening plant

10. For identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
building materials process (rock, sand & gravel)

14. What is your business primary NAICS Code?
(North American Industrial Classification System) 1422

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official:

18. Title of Responsible Official:
owner

19. I wish to review the permit prior to issuance. (●) No ( ) Yes
(This may cause a delay in the application process.)

20. Print Name:
KEVIN SMITH

21. Date:
08/03/2012

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

© South Coast Air Quality Management District Form 400-A (2009.04)

South Coast Air Quality Management District

Form 400-CEQA

California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765 0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385 or (909) 396-2668.

Section A - Facility Information

1. Facility Name (Business Name of Operator To Appear On The Permit): MATERIALS MANAGEMENT & LOGISTICS LLC Inc.

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Project Description: BASE AGGREGATE CRUSHING AND SCREENING PLANT

Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	○	◉	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**A request for a change of permittee only (without equipment modifications)?**
3.	○	◉	**A functionally identical permit unit replacement with no increase in rating or emissions?**
4.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
5.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
6.	○	◉	**A Title V (i.e., Regulation XXX) permit renewal (without equipment modifications)?**
7.	○	◉	**A Title V administrative permit revision?**
8.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

If "Yes" is checked for any question in Section B, your application does not require additional evaluation for CEQA applicability. Skip to Section D - Signatures on page 2 and sign and date this form.

Section C - Review of Impacts Which May Trigger CEQA

Complete Parts I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Part I - General
1.	○	◉	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	◉	**Is this project part of a larger project?** If yes, attach a separate sheet to briefly describe the larger project.
			Part II - Air Quality
3.	◉	○	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	◉	○	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

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Section C - Review of Impacts Which May Trigger CEQA (cont.)			
	Yes	No	Part II - Air Quality (cont.)
5.	○	◉	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	◉	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	◉	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Part III – Water Resources
8.	○	◉	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	◉	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Part IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	◉	**a. the need for more than 350 new employees?**
	○	◉	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	◉	**c. increase customer traffic by more than 700 visits per day?**
			Part V – Noise
11.	◉	○	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Part VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	◉	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	◉	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

REMINDER: *For each "Yes" response in Section C, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.*

Section D - Signatures

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

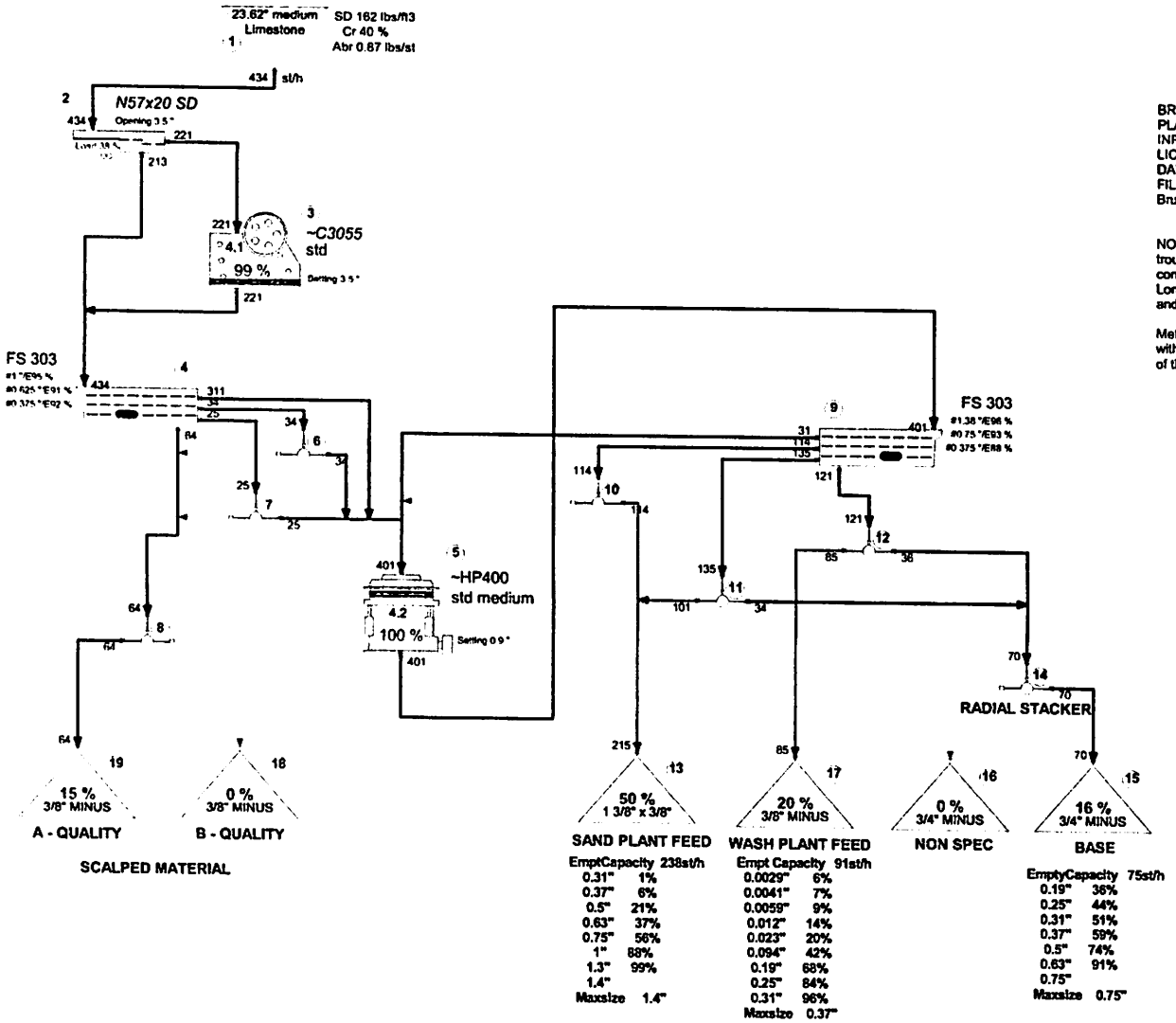
1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm:
		OWNER
3. Print Name of Responsible Official of Firm:		4. Date Signed:
KEVIN SMITH		08/03/2012
5. Phone # of Responsible Official of Firm:	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm:
(562) 972-6093	(562) 972-6090	smikevin@aol.com
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer:
		CONSULTANT
10. Print Name of Preparer:		11. Date Signed:
CHRIS M. JOHNSON		08/03/2012
12. Phone # of Preparer:	13. Fax # of Preparer:	14. Email of Preparer:
(661) 917-5565	(661) 917-5565	aircmj@aol.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

MATERIALS MANAGEMENT & LOGISTICS Inc
36060 GILMAN SPRINGS ROAD
MORENO, VALLEY, CA 92551
CRUSHING / SCREENING BASE PLANT
ROCK, SAND, GRAVEL AND RECYCLED MATERIALS
EQUIPMENT LIST

EQUIP ID#	DESCRIPTION	SIZE	HP	TPH	TPY
FH1	FEED HOPPER	58" X 20'	X	500	1000000
VG1	VIBRATING GRIZLY	58" X 20'	40	500	1000000
H1	1st SPLITTER HOPPER	5 X 12	X	150	300000
H2	2nd SPLITTER HOPPER	5 X 12	X	150	300000
H3	3rd SPLITTER HOPPER	5 X 12	X	150	300000
M1	MAGNET	48" X 8'	5	0.5	1000
S1	2-DECK DRY	8 X 20	40	250	500000
S2	3-DECK DRY	8 X 20	40	550	1100000
CR1	3055 JAW CRUSHER	30" X 55"	200	250	500000
CR2	HP 400 CONE CRUSHER	HP 400	400	550	1100000
C1	GRIZLY UNDERBELT	48 X 45	25	250	500000
C2	JAW UNDERBELT	48 X 24	25	250	500000
C3	S1 SCREEN UNDERBELT	48 X 24	15	125	250000
C4	JAW RETURN BELT	36 X 40	20	200	400000
C5	CONE FEEDBELT	36 X 60	25	550	1100000
C6	CONE UNDERBELT	48 X 24	20	550	1100000
C7	S2 SCREEN FEED SHUTTLE	30 X 62	15	550	1100000
C8	S2 SCREEN FEED BELT	36 X 36	15	550	1100000
C10	S2 2nd DECK SHUTTLE	24 X 10	5	150	300000
C12	S2 3rd DECK FEED TO H2 SHUTTLE	30 X 90	15	150	300000
C13	H1 FEED BELT	30 X 90	15	150	300000
C14	H1 UNDERBELT to 1-3/8 STACKER	30 X 90	15	150	300000
C16	1-3/8 STACKER	36 X 24	10	75	150000
C17	H3 UNDERBELT to 3/4 MINUS	30 X 80	15	75	150000
C18	H3 UNDERBELT to 3/8 MINUS	30 X 110	15	75	150000
C19	H2 to 3/4 MINUS SHUTTLE C23	36 X 24	15	75	150000
C20	3/8 MINUS SHUTLE	30 X 80	15	75	150000
C21	3/8 MINUS STACKER	30 X 85	20	75	150000
C22	C17 to 3/4 MINUS SHUTTLE C23	30 X 90	15	75	150000
C23	3/4 MINUS SHUTTLE #1	36 X 45	15	150	300000
C24	3/4 MINUS SHUTTLE #2	30 X 60	15	150	300000
C25	3/4 MINUS STACKER	30 X 60	10	150	300000
C26	S1 to 3/8 MINUS STACKER C27	30 X 100	15	125	250000
C27	3/8 MINUS STACKER	36 X 60	15	125	250000
C28	H2 to 1-3/8 SHUTTLE C14	30 X 90	15	75	150000
C29	S2 TOP DECK RETURN to C5	30 X 110	20	100	200000
C30	S2 UNDERBELT	42 X 28	15	150	300000
C31	H3 FEED BELT	30 X 60	15	150	300000

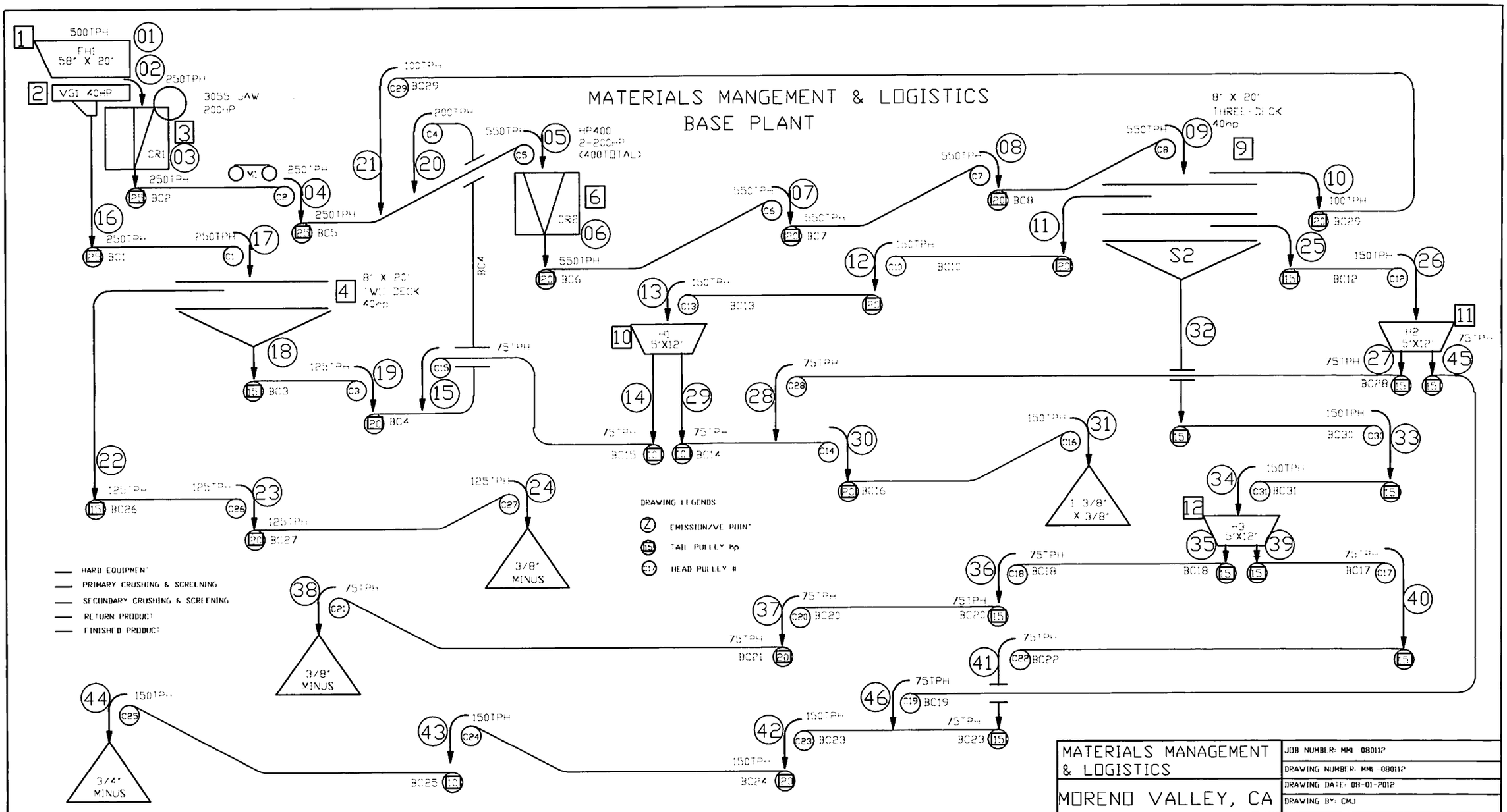


metso

BRUNO Process Simulation
PLANT:
INFO:
LICENSED USER: Jim Gasparo
DATE: 07/09/2012 11:49 AM
FILE: 12.0709 3054-HP400-C
Bruno v3.620, DB v5.60, c1.00 s1.00 nn 211

NOTE! The capacities are maximum capacities in a continuous troublefree operation when feed material quality and grading curve corresponds to the theoretical curve used in this calculation Long term capacities will fluctuate due to the variations in the feed and operating intensity of the plant.

Metso does not guarantee any of the calculation results without our separate written approval based on a detailed study of the case.


MATERIALS MANGEMENT & LOGISTICS
BASE PLANT
1
500TPH
01
FHE
5'8" X 20'
02
250TPH
2
VSI 40HP
3055 JAW
200HP
3
CR1
03
250TPH
04
250TPH
BC2
BC5
16
250TPH
BC1
250TPH
17
4
8' X 20'
TWO DECK
40HP
18
125TPH
19
BC3
BC4
22
125TPH
125TPH
23
BC26
BC27
125TPH
24
3/8"
MINUS
100TPH
BC29
200TPH
21
20
550TPH
05
HP400
2-200HP
(400TOTAL)
6
CR2
06
550TPH
BC6
/5TPH
15
BC4
10
HP1
5'X12'
14
29
/5TPH
75TPH
BC15
BC14
13
150TPH
BC13
550TPH
07
BC7
550TPH
08
BC8
8' X 20'
THREE DECK
40hp
550TPH
09
9
10
100TPH
BC29
11
12
150TPH
BC10
S2
25
150TPH
26
BC12
32
11
HP2
5'X12'
75TPH
27
45
75TPH
BC28
28
75TPH
30
BC16
150TPH
31
1 3/8"
X 3/8"
150TPH
BC30
33
34
150TPH
BC31
12
HP3
5'X12'
35
39
36
75TPH
BC18
BC18
75TPH
BC17
40
37
75TPH
BC20
75TPH
BC21
38
/5TPH
3/8"
MINUS
41
75TPH
BC22
46
75TPH
BC19
75TPH
BC23
42
150TPH
BC24
43
150TPH
BC25
44
150TPH
3/4"
MINUS
DRAWING LEGENDS
EMISSION/VE POINT
TAIL PULLEY hp
HEAD PULLEY #
HARD EQUIPMENT
PRIMARY CRUSHING & SCREENING
SECONDARY CRUSHING & SCREENING
RETURN PRODUCT
FINISHED PRODUCT
MATERIALS MANAGEMENT & LOGISTICS
MORENO VALLEY, CA
JOB NUMBER: MML 080112
DRAWING NUMBER: MML 080112
DRAWING DATE: 08-01-2012
DRAWING BY: CMJ

EMISSION YEAR 201 2	HARP / CEIDARS MINING OPERATIONS FACILITY INFORMATION	FORM MINE FAC

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT
FACILITY LOCATION (address): 36060 GILMAN SPRINGS ROAD
CITY: MORENO VALLEY
STATE: CA ZIP: 92551

COMPANY NUMBER: _____
FACILITY NUMBER: _____
FACID: 0

MAILING ADDRESS: 3248 EAST WILLOW STREET
CITY: SIGNAL HILL
STATE: CA ZIP: 90755

CONTACT PERSON: KEVIN SMITH
562 972 6093 EXT:
FAX NUMBER: 626 408 9805
EMAIL: SMIKEVIN@AOL.COM

MINE TYPE AND PARAMETERS

TYPE OF MINE: BANK RUN (Quarry, Surface, Pit, Bank Run, Shaft, Etc.)

TYPE OF MATERIAL MINED: ROCK, SAND & GRAVEL,RECYCLE BASE (Limestone, Talc, Salts, Sand, Gravel, Rock, Volcanic Cinders, Gold, Silver, Iron Ore, Rear Earth, Etc.)

OVERBURDEN RATIO: 1 to 1 Tons of Overburden per Ton of Ore

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS MINERALS HANDLED - AMOUNT & CHARACTERISTICS	FORM MINE MIN

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Name of Minerals	Amounts (tpy)		Characteristics	
	Shifted by Blasting	Total Handled	Moisture (%)	Silt (%)
SAND		200,000	2.0	30.0
GRAVEL		200,000	2.0	30.0
ROCK		200,000	2.0	30.0
SAND		130,000	2.0	30.0
GRAVEL		130,000	2.0	30.0
ROCK		140,000	2.0	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
TOTAL	0	1,000,000		

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS METEOROLOGICAL DATA	FORM MINE MET-D

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGI
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Parameter	Value	Description	Default Value
Mean Wind Speed	6.0	mph	7.7
u	2.7	meters per second	
Precipitation	30.0	Day per year with at least 0.01 inches of precipitation	20.0
Wind Speed	12.0	Percent of time with wind speed >12mph (%)	13.3
Evaporation	100.0	Annual Pan Evaporation Rate in inches	75.0

EMISSION YEAR 2012	HAP / CEIDARS MINING OPERATIONS BULLDOZING, SCRAPING AND GRADING OF MATERIAL

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDA

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Device ID# 90004

Name of Material	Hours of Operations (hours per year)					Controls			
	Bulldozing	Scraping	Grading	Other	Total	None Check	Water Spray Check	Water Spray New Moisture (%)	Wind Screen Check
SAND		300	400		700		X	2	
GRAVEL	200	300	200		700		X	2	
ROCK	200	200	200		600		X	2	

EMISSION YEAR 2012	H/P / CEIDARS MINING OPERATIONS BULLDOZING, SCRAPING AND GRADING OF MATERIAL

EMISSIONS

Device ID# 90004 SCC 30502599

Emission Factors (pounds per hours of operations)
EmFac = 2.76 * k *(s)^1.5 / (M)^1.4
k = Aerodynamic Factor
s = silt content (%)
M = Moisture content (%)

Aerodynamic factors
TSP = 0.74
PM_{10} = 0.36
$PM_{2.5}$ = 0.11

Material	Hours of Operations	Emission factors - Uncontrolled (pounds per hour)		
		TSP	PM_{10}	$PM_{2.5}$
SAND	700	127.169	61.866	18.903
GRAVEL	700	127.169	61.866	18.903
ROCK	600	127.169	61.866	18.903
TOTAL	2000	127.169	61.866	18.903
Number of Devices	3			

Fractionation Value	
PM_{10}	$PM_{2.5}$
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149

EMISSION YEAR	H. AP / CEIDARS
2012	MINING OPERATIONS
	BULLDOZING, SCRAPING AND GRADING OF MATERIAL

Material	Control		Emission factors - Controlled (pounds per hour)		
	Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$
SAND	Water Spray	90.000	12.717	6.187	1.890
GRAVEL	Water Spray	90.000	12.717	6.187	1.890
ROCK	Water Spray	90.000	12.717	6.187	1.890
	TOTAL	90.00	12.717	6.187	1.890

Emissions - tons per year		
TSP	PM_{10}	$PM_{2.5}$
4.451	2.165	0.662
4.451	2.165	0.662
3.815	1.856	0.567

TOTAL	12.717	6.187	1.890

EMISSION YEAR 2012	HAP / CEIDARS MINING OPERATIONS LOADING OF MATERIAL(S) AT MINE / QUARRY / PIT

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEID

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90005

Name of Material	Amount Loaded tpy
SAND	200,000
GRAVEL	300,000
ROCK	300,000
SAND	130,000
GRAVEL	130,000
ROCK	140,000
	1,200,000

Controls						
None	Water Spray		Wind Screen		Other	
Check	Check	New Moisture (%)	Check	Check	Specify	Efficiency (%)
	X	2				98
	X	2				98
	X	2				98
	X	2				98
	X	2				98
	X	2				98

EMISSION YEAR	H. P / CEIDARS
2012	MINING OPERATIONS
	LOADING OF MATERIAL(S) AT MINE / QUARRY / PIT

EMISSIONS

Device ID# 90005 SCC 30502506

Emission Factors (pounds per ton)
EmFac =0.0032 * k *(U/5)^1.3 / (M/2)^1.4
k = Aerodynamic Factor
U = Mean wind speed in miles per hour
M = Moisture content (%)

Aerodynamic factors
TSP = 0.74
PM_{10} = 0.36
$PM_{2.5}$ = 0.11

Material	Amount Loaded tpy
SAND	200,000
GRAVEL	200,000
ROCK	200,000
SAND	130,000
GRAVEL	130,000
ROCK	140,000
TOTAL	1,000,000
Number of Devices	7

Emission factors - Uncontrolled (pounds per ton)		
TSP	PM_{10}	$PM_{2.5}$
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000

Fractionation Value	
PM_{10}	$PM_{2.5}$
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149

EMISSION YEAR
2012

H. AP / CEIDARS
MINING OPERATIONS
LOADING OF MATERIAL(S) AT MINE / QUARRY / PIT

Material	Control		Emission factors - Controlled (pounds per ton)			Emissions - tons per year		
	Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$
SAND	Water Spray	90.0	0.000	0.000	0.000	0.011	0.005	0.002
GRAVEL	Water Spray	90.0	0.000	0.000	0.000	0.016	0.008	0.002
ROCK	Water Spray	90.0	0.000	0.000	0.000	0.016	0.008	0.002
SAND	Water Spray	90.0	0.000	0.000	0.000	0.007	0.003	0.001
GRAVEL	Water Spray	90.0	0.000	0.000	0.000	0.007	0.003	0.001
ROCK	Water Spray	90.0	0.000	0.000	0.000	0.007	0.004	0.001
	TOTAL	90.00	0.00	0.00	0.00	0.063	0.031	0.009

TOTAL	0.126	0.062	0.019

EMISSION YEAR 2012

HARP / CEIDARS
MINING OPERATIONS
AGGREGATE HANDLING, CRUSHING & SCREENING #1

FORM MINE AGG-1

I - COLOR CODE: DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

III - FACILITY INFORMATION

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTI
FACILITY NAME: KENNEDY HILLS / BASE PLANT
PROCESS NAME: CRUSHING / SCREENING & WASH EQUIP
COMPANY #: 0
FACILITY #: 0
INVENTORY ID #: 0
PERMIT #:
DEVICE ID: 90001
PROCESS ID:

IV - MAP COORDINATES FOR PROCESS

UTM ZONE: 11
UTM EAST (km):
UTM NORTH (km):
LATITUDE (deg.):
LONGITUDE (deg.):

II - MANDATORY INFORMATION
FLOW DIAGRAM
BLOCK III - ALL ITEMS
BLOCK VIII - ACTUAL HOURS OPERATED
BLOCK IX - ANNUAL THROUGHPUT (tpy)
BLOCK X - MOISTURE CONTENT (%) OF MATERIAL ENTERING THE SYSTEM
BLOCK XIII, COLUMNS 'B', 'E', 'F' & 'G'

V - TYPE OF PLANT
STATIONARY: X
PORTABLE:
OTHER:
COMMENTS:

VI - TYPE OF EQUIPMENT, check all that applies:
CRUSHERS: X
SCREENS: X
CONVEYORS: X
OTHERS: X
COMMENTS:
TRANSFER: X
STORAGE: X
LOAD OUT: X

VII - MATERIAL TYPES, check all that applies
ROCK: X
SAND: X
LIMESTONE: X
LAVA ROCK:
OTHER: X

VIII - OPERATING SCHEDULE
HOURS per DAY: 8
DAYS per WEEK: 5
WEEK per YEAR: 50
CAL. HRS per YR: 2000
ACT. HRS per YR: 2000
CAL. Hrs/Yr = Hr/Dy*Dy/Wk*Wk/Yr

IX - THROUGHPUT (tons per year)
ACTUAL ANNUAL: 800,000 Tons/Yr.
HOURLY (average): 400 TPH
MAX. DESIGN RATE: 400 TPH
Hourly (average) = Annual (actual) / Actual Hours per Year (operated)

X - MOISTURE CONTENT (%)
MOISTURE CONTENT ENTERING SYS.: 2 %

XI - TYPE OF OPERATION AND / OR DEVICE

CODE	NAME OF DEVICE OR SYSTEM	CODE	NAME OF DEVICE OR SYSTEM
0	No Device	11	Screening, Wet Washing (Note 4)
1	Dump to Hopper, truck, pile (Note 2)	12	Silo, Filling - Pneumatic
2	Grizzly (Note 2)	13	Silo, Filling - Bucket Elevator
3	Hopper (Note 2)	14	Silo, discharge to Conveyor (Note 2)
4	Transfer Point (Note 2)	15	Silo, discharge to Tank Truck
5	Conveyor (Note 2)	16	Loading Open Top Truck (Note 2)
6	Crushing, Dry - Primary	17	Feeder
7	Crushing, Dry - Secondary	18	See Lookup Table "EmFac" for data
8	Crushing, Dry - Tertiary	19	See Lookup Table "EmFac" for data
9	Crushing, Wet (Note 3)	20	See Lookup Table "EmFac" for data
10	Screening, Dry	21	See Lookup Table "EmFac" for data

XII - TYPE OF EMISSION CONTROL EQUIPMENT

CODE	TYPE OF CONTROL	CODE	TYPE OF CONTROL
0	None	11	Gravel Bed Filters
1	Water Spray, Point of Application	12	Spray Tower (Low Efficiency)
2	Spray with Additives, Point of Application	13	Wet Scrubber (Med Efficiency)
3	Conveyor with Half Cover	14	Venturi Scrubber (High Efficiency)
4	Conveyor with Three Quarter Cover	15	Baghouse with Multiple Pickups
5	Conveyor with Full Cover	16	Baghouse with Single Pickup (Unenclosed)
6	Process Enclosure	17	Baghouse with Single Pickup (Partial Enclosed)
7	Gravity Separator	18	Baghouse with Single Pickup (Full Enclosed)
8	Cyclone - Simple	19	Baghouse with Single Pickup (Attached)
9	Cyclone - Multiple	20	Electrostatic Precipitator
10	Windscreen, Windward Side	21	See Lookup Table "ConEff" for data

XIII - EMISSION CALCULATIONS

EQUIPMENT ID NUMBER (A)	DEVICE CODE NO (B)	NAME OF DEVICE (C)	MOTOR BHP (D)		THROUGHPUT TONS / YEAR (E)	EMISSION CONTROL DEVICE CODE (F)	DsF (G)	NAME OF DEVICE (H)	EFF % (I)	EMISSION FACTORS POUNDS PER TON PM_{30} (J)	PM_{10} (K)	$PM_{2.5}$ (L)	EMISSION RATE TONS PER YEAR PM_{30} (M)	PM_{10} (N)	$PM_{2.5}$ (O)
FH1	3	Hopper (Note 2)	X	500	1,000,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
VG1	3	Hopper (Note 2)	40	500	1,000,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
H1	3	Hopper (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
H2	3	Hopper (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
H3	3	Hopper (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
S1	10	Screening, Dry	40	250	500,000	1		Baghouse collector	98.5	0.160	0.120	0.038	0.60	0.45	0.14
S2	10	Screening, Dry	40	550	1,100,000	1		Baghouse collector	98.5	0.160	0.120	0.038	1.32	0.99	0.31
CR1	6	Crushing, Dry - Primary	200	250	500,000	1		Baghouse collector	98.5	0.280	0.017	0.005	1.05	0.06	0.02
CR2	6	Crushing, Dry - Primary	400	550	1,100,000	1		Baghouse collector	98.5	0.280	0.017	0.005	2.31	0.14	0.04
1	4	Transfer Point (Note 2)	X	500	1,000,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1

2	4	Transfer Point (Note 2)	40	250	500,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.04	0.02	0.01
3	5	Conveyor (Note 2)	X	250	500,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.04	0.02	0.01
4	4	Transfer Point (Note 2)	25	250	500,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.04	0.02	0.01
5	4	Transfer Point (Note 2)	X	550	1,100,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
6	5	Conveyor (Note 2)	20	550	1,100,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
7	5	Conveyor (Note 2)	20	550	1,100,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
8	5	Conveyor (Note 2)	20	550	1,100,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
9	4	Transfer Point (Note 2)	X	550	1,100,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.08	0.04	0.01
10	5	Conveyor (Note 2)	20	100	200,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
11	5	Conveyor (Note 2)	20	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
12	5	Conveyor (Note 2)	20	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
13	4	Transfer Point (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
14	5	Conveyor (Note 2)	10	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
15	4	Transfer Point (Note 2)	X	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
16	5	Conveyor (Note 2)	25	250	500,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.04	0.02	0.01
17	4	Transfer Point (Note 2)	X	250	500,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.04	0.02	0.01
18	5	Conveyor (Note 2)	15	125	250,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
19	5	Conveyor (Note 2)	20	125	250,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
20	4	Transfer Point (Note 2)	X	200	400,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.03	0.01	0.00
21	4	Transfer Point (Note 2)	X	100	200,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
22	5	Conveyor (Note 2)	15	125	250,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
23	5	Conveyor (Note 2)	20	125	250,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
24	4	Transfer Point (Note 2)	X	125	250,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
25	5	Conveyor (Note 2)	15	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
26	4	Transfer Point (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
27	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
28	4	Transfer Point (Note 2)	X	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
29	5	Conveyor (Note 2)	10	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
30	5	Conveyor (Note 2)	15	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
31	4	Transfer Point (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
32	5	Conveyor (Note 2)	15	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
33	5	Conveyor (Note 2)	15	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
34	4	Transfer Point (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1

35	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
36	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
37	5	Conveyor (Note 2)	20	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
38	4	Transfer Point (Note 2)	X	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
39	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
40	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
41	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
42	5	Conveyor (Note 2)	15	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
43	5	Conveyor (Note 2)	20	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
44	4	Transfer Point (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
45	5	Conveyor (Note 2)	15	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
46	4	Transfer Point (Note 2)	X	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
3/8 MINUS	1	Dump to Hopper, truck, pile (Note 2)	X	125	250,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
3/8 MINUS	1	Dump to Hopper, truck, pile (Note 2)	X	75	150,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.01	0.01	0.00
3/4 MINUS	1	Dump to Hopper, truck, pile (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
1-3/8 X 3/8	1	Dump to Hopper, truck, pile (Note 2)	X	150	300,000	1		Water Spray at E point	95.0	0.003	0.001	0.000	0.02	0.01	0.00
		TOTAL HORSEPOWER	1240												
		AVERAGE THROUGHPUT PER DEVICE			409,322										

BLOCK XIV - EMISSIONS & HARP INPUTS

EMISSION INVENTORY INPUTS

DEVICE DATA

PERMIT ID	
NUMBER OF DEVICES	59
EQUIPMENT SIZE (bhp)	1240

PROCESS DATA

PROCESS RATE (tpy)	800,000
MAX. DESIGN RATE (tph)	400
MAX. HOURLY PRODUCTION RATE (tph)	400
AVE. HOURLY PRODUCTION RATE (tph)	400

EMISSION DATA

ANNUAL EMISSIONS (tpy)	PM	PM_{10}	$PM_{2.5}$
UNCONTROLLED	383.439	124.470	39.073
CONTROLLED	6.852	2.387	0.750
EMISSION FACTOR (lb/ton)			
UNCONTROLLED	0.9586	0.3112	0.0977
CONTROLLED	0.0171	0.0060	0.0019
FRACTIONATION VALUE (PM10 or PM2.5 / PM)		0.3484	0.1094
OVERALL EFFICIENCY	98.21	98.08	98.08

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1

EMISSI[illegible] YEAR 201 2	HARF [illegible]EIDARS MINING OPERATIONS STOCKPILES	F [illegible]M MINE S-PILES

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Device ID# 90006

Name of / Number	Material Type	Stockpile Exposed Surface acres	Silt Loading %	Moisture (uncontrolled) %
CLASS II	R, S & G	0.0100	15	2
3 X 1	R, S & G	0.0100	15	2
4 X 2	R, S & G	0.0100	15	2
2.5 X 7/8	R, S & G	0.0100	15	2
7/8 X 5/8	R, S & G	0.0100	15	2
CAB	R, S & G	0.0100	15	2
7/8 X 7/16	R, S & G	0.0100	15	2
7/16 X 3/16	R, S & G	0.0100	15	2
1/4 MINUS	R, S & G	0.0100	15	2

Stockpile Name / Number	Dust Controls: Water Spray check	Water Spray gal/acre/day	Wind Screen check	Other check	Other Specify	Efficiency (%)
CLASS II	X	200				
3 X 1	X	200				
4 X 2	X	200				
2.5 X 7/8	X	200				
7/8 X 5/8	X	200				
CAB	X	200				
7/8 X 7/16	X	200				
7/16 X 3/16	X	200				
1/4 MINUS	X	200				

EMISSION YEAR 2012	HARCEIDARS MINING OPERATIONS STOCKPILES	FORM MINE S-PILES

EMISSIONS

Device ID# 90006 SCC 30502507

Emission Factors (pounds per acres)

EmFac = J * 1.7 * s/1.5 * (365 - P)/235 * I/15 * 365

J = Aerodynamic factor

s = Silt Loading (%)

P = Day per year with at least 0.01 inches of precipitation

I = Percent of time with wind speed >12mph (%)

Aerodynamic factor	
TSP =	1.0
PM_{10} =	0.5
$PM_{2.5}$ =	0.2

Throughput (acres)		
Stockpile	Material Type	Size (acres)
3/8 MINUS	R, S & G	0.0100
3/8 MINUS	R, S & G	0.0100
3/4 MINUS	R, S & G	0.0100
1-3/8 X 3/8	R, S & G	0.0100
	TOTAL	0.04
Number of Devices	4	

Emission Factor - Uncontrolled (pounds/acre)		
TSP	PM_{10}	$PM_{2.5}$
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268

Fractionation Value	
PM_{10}	$PM_{2.5}$
0.500	0.200
0.500	0.200
0.500	0.200
0.500	0.200
0.500	0.200

Stockpile	Controls		Emission Factor - Controlled (pounds/acre)		
	Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$
3/8 MINUS	Water Spray	2.39	6907.354	3453.677	1381.471
3/8 MINUS	Water Spray	2.39	6907.354	3453.677	1381.471
3/4 MINUS	Water Spray	2.39	6907.354	3453.677	1381.471
1-3/8 X 3/8	Water Spray	2.39	6907.354	3453.677	1381.471
	TOTAL	2.39	6907.354	3453.677	1381.471

Emissions (tpy) = Area * EmFac		
TSP	PM_{10}	$PM_{2.5}$
0.035	0.017	0.007
0.035	0.017	0.007
0.035	0.017	0.007
0.035	0.017	0.007

TOTAL	0.138	0.069	0.028

EMISSIO' YEAR 201 2	HARP / CEIDAR MINING OPERATIONS EXHAUST FROM MOBILE AND VEHICULAR EQUIPMENT	FORM MINE EX-M

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90100

PROCESS NUMBER	CODE (See Code below)	EQUIPMENT TYPE	FUEL TYPE	UNITS OF USAGE	UNITS USED PER YEAR
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	130.0
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	130.0
D9 DOZER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	80.0
WATERTRUCK	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	50.0
SERVICE TRUCK	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	8.0

CODE	EQUIPMENT TYPE	FUEL TYPE		SCC
1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	3-05-025-99
2	HEAVY DUTY - OFF ROAD *	GASOLINE	1000 hp-hr	3-05-025-99
3	MISC - OFF ROAD **	NG / LPG	1000 hp-hr	3-05-025-99
4	LOCOMOTIVES	DIESEL	1000 GAL	3-05-025-99
5	LIGHT DUTY VEHICLES ***	GASOLINE	1000 VMT	3-05-025-99
6	HEAVY DUTY - ON ROAD ****	DIESEL	1000 VMT	3-05-025-99
7	User defined, see Lookup Table	0	0	0
8	User defined, see Lookup Table	0	0	0
9	User defined, see Lookup Table	0	0	0
10	User defined, see Lookup Table	0	0	0
11	User defined, see Lookup Table	0	0	0
12	User defined, see Lookup Table	0	0	0
13	User defined, see Lookup Table	0	0	0
14	User defined, see Lookup Table	0	0	0
15	User defined, see Lookup Table	0	0	0

* OFF ROAD INCLUDES MINING AND EARTH MOVING EQUIPMENT
** MISC - OFF ROAD INCLUDES NG/LPG LOADER, FORKLIFTS, ETC.
*** LIGHT DUTY INCLUDES CARS, VAS, SMALL TRUCKS, ECT
**** ON ROAD INCLUDES TRUCKS, ETC.

1000 hp-hr = THOUSAND OF HORSEPOWER HOURS
1000 GAL = THOUSAND OF GALLONS OF LIQUID FUEL
1000 VTM = THOUSAND VEHICLE MILES TRAVELED
MMCF = MILLION OF CUBIC FEET OF NATURAL GAS

EMISSION YEAR 2012	HARP / CEIDAR MINING OPERATIONS EXHAUST FROM MOBILE AND VEHICULAR EQUIPMENT	FORM MINE EX-M

EMISSIONS

DEVICE # 90100

PROCESS ID	CODE	EQUIPMENT TYPE	PROCESS RATE UNITS PER YEAR	SOURCES CLASSIFICATION CODE SCC /CAS #	EMISSIONS FACTORS (pounds per unit of usage) ANNUAL EMISSIONS (tons per year) ORGANIC GASES TOG 43101	FRAC ROG / VOC	CO 42101	NOx 42603	SOx 42401	PARTICULATE MATTER PM 11101	FRAC PM_{10} / $PM_{2.5}$
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	375	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.4538	0.4390	1.4063	4.5469	0.5456	0.2888	0.2870
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	200	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.2420	0.2342	0.7500	2.4250	0.2910	0.1540	0.1531
D9 DOZER	1	HEAVY DUTY - OFF ROAD *	300	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.3630	0.3512	1.1250	3.6375	0.4365	0.2310	0.2296
WATERTRUCK	1	HEAVY DUTY - OFF ROAD *	300	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.3630	0.3512	1.1250	3.6375	0.4365	0.2310	0.2296
SERVICE TRUCK	1	HEAVY DUTY - OFF ROAD *	31	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.0375	0.0363	0.1163	0.3759	0.0451	0.0239	0.0237

TOTAL EMISSIONS	TOG	ROG / VOC	CO	NOx	SOx	PM	PM_{10} / $PM_{2.5}$
	1.059	1.024	3.281	10.609	1.273	0.674	0.670

EMISSION YEAR 2012	ARP / CEIDARS MINING OPERATIONS UNPAVED ROADS - ENTRAINED DUST

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDA

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90008

Process Number	Vehicle type	Road Type * Ind / Pub	Vehicle Weigh (tons) Empty	Loaded	Mean	Distance Traveled per Year (vmt) Round Trip Miles	Trips per Day	Days per Year	Miles per Year	Mean Vehicle Sped (mph)	Silt Loading * %
1	980H2 LOADER	IND	10	12.5	11.3	0.05	480	200	4,800.0	10	11
2	980H2 LOADER	IND	10	12.5	11.3	0.05	480	200	4,800.0	10	11
3	MATERIAL TRUCK	IND	12	34	23.0	2	80	200	32,000.0	15	11
4	D9 DOZER	IND	12	12.5	12.3	0.05	160	200	1,600.0	10	11
5	WATERTRUCK	IND	12	32	22.0	2	24	200	9,600.0	10	11
6	SERVICE TRUCK	IND	6	10	8.0	0.5	8	200	800.0	15	11

* Road Type
Ind = Unpaved road surfaces a industrial sites
Pub = Publicly accessible roadways dominated by light duty vehicles

* For other Silt Load 'A167' through 'D178

Process Number	Vehicle Type	Road Type	Dust Control Method (Check "X" only one method per emission source (row) and complete appropriate cells below) Method Cells	None none	Water D52-D63 or E52-G63	Water with Suppressants H52 - M63	Surface Improvement D70 - E 81	Wind Screens or Wind Breaks G70 - H81	Other I70 - M81
1	980H2 LOADER	IND				X			
2	980H2 LOADER	IND				X			
3	MATERIAL TRUCK	IND				X			
4	D9 DOZER	IND				X			
5	WATERTRUCK	IND				X			
6	SERVICE TRUCK	IND				X			

Process Number	Vehicle Type	Road Type	Water (Either new moisture content or application rate) New Surface Moisture Content (%)	Water Application Rate Traffic Rate vehicles per hour	Hours between Application	Intensity of water gallons / sq yd of Roadway *	Dust Control Method Type or Name of Suppressant	Intensity of Suppressant Gallons / sq yd of Roadway *	Water with Suppressant Frequency of Application (Check (X) only on Weekly Ever 7 days	Bi-Weekly Every 14 days	Monthly Every 30 - 31 days
1	980H2 LOADER	IND	2	120	2		NALCO POLLO		X		
2	980H2 LOADER	IND	2	120	2		NALCO POLLO		X		
3	MATERIAL TRUCK	IND	2	20	2		NALCO POLLO		X		
4	D9 DOZER	IND	2	30	2		NALCO POLLO		X		
5	WATERTRUCK	IND	2	3	0.3		NALCO POLLO		X		
6	SERVICE TRUCK	IND	2	1	2		NALCO POLLO		X		

(* 0.1 gallons of water or suppressant per square yard of road = 1760 gallons per mile of a 30 foot wide road.)

Process Number	Vehicle Type	Road Type	Dust Control Method Surface Improvement New Silt Content (%) 3 Months after Application	6 Months after Application	Average	Wind Screens or Wind Breaks Height (feet)	Width (feet)	Name/Type	Other Description
1	980H2 LOADER	IND			11				
2	980H2 LOADER	IND			11				
3	MATERIAL TRUCK	IND			11				

EMISSION YEAR 2012	ARP / CEIDARS MINING OPERATIONS UNPAVED ROADS - ENTRAINED DUST								
4	D9 DOZER	IND			11				
5	WATERTRUCK	IND			11				
6	SERVICE TRUCK	IND			11				

EMISSION YEAR 2012	ARP / CEIDARS MINING OPERATIONS UNPAVED ROADS - ENTRAINED DUST

EMISSIONS

DEVICE # 90009

Emission Factor pounds per vehicle miles traveled

Industrial Roads

$$EmFac = k * (s / 12)^a * (W / 3)^b$$

Public Road

$$EmFac = k * (\{[(s / 12)^a * (S / 30)^d] / (M / 0.5)^c\} - C) * [(365 - P)/365]$$

k, a, b, c, & d = Constants - See Lookup Table entitled "Constants for Emission Factor Equations"

s = Silt content of unpaved surface in percent (%)

W = Average vehicle weight in tons

S = Mean vehicle speed (mph)

M = Moisture content of unpaved surface in percent (%)

P = Number of days per year with at least 0.01 inches of precipitation - see MetData worksheet Cell ' C16.

Process Number	Vehicle Type	Throughput Road Type	vmt	Emission Factors Uncontrolled (pounds / vmt) PM	PM_{10}	PM_{10}
1	980H2 LOADER	IND	4,800.0	7.670	2.308	0.354
2	980H2 LOADER	IND	4,800.0	7.670	2.308	0.354
3	MATERIAL TRUCK	IND	32,000.0	10.582	3.184	0.488
4	D9 DOZER	IND	1,600.0	7.970	2.398	0.368
5	WATERTRUCK	IND	9,600.0	10.372	3.120	0.478
6	SERVICE TRUCK	IND	800.0	6.579	1.979	0.303
		TOTAL	53,600.0	9.885	2.974	0.456
	Number of Devices	6				

Fractionation Value PM_{10}	PM_{10}
0.301	0.046
0.301	0.046
0.301	0.046
0.301	0.046
0.301	0.046
0.301	0.046
0.301	0.046

Process Number	Vehicle Type	Road Type	Efficiency percentage (%) of Dust Control Methods None	Water: New Surface Moisture Content (%)	Water: Water Application Rate *	Water with Suppressants	Surface Improvement	Wind Screens or Wind Breaks	Other	Overall
1	980H2 LOADER	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
2	980H2 LOADER	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
3	MATERIAL TRUCK	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
4	D9 DOZER	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
5	WATERTRUCK	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
6	SERVICE TRUCK	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00

* Dust Controls - Water Application Rate

$$C = 100 - (0.0012 * A * D * T) / I$$

C = Control efficiency (%)

A = pan evaporation rate (inches)

D = Vehicles per hour

T = Hours between watering

EMISSION YEAR
2012

ARP / CEIDARS
MINING OPERATIONS
UNPAVED ROADS - ENTRAINED DUST

I = Gallons / sq. yd (Note 0.1 gallon/sq yd = 1760 gallons per mile for a 30 foot wide road.)

Process Number	Vehicle Type	Road Type	Efficiency (%)	Emission Factor - Controlled (pounds/vmt)			Emissions (tpy)		
				PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
1	980H2 LOADER	IND	2.00	7.517	2.261	0.347	18.040	5.427	0.832
2	980H2 LOADER	IND	2.00	7.517	2.261	0.347	18.040	5.427	0.832
3	MATERIAL TRUCK	IND	2.00	10.370	3.120	0.478	165.926	49.917	7.654
4	D9 DOZER	IND	2.00	7.810	2.350	0.360	6.248	1.880	0.288
5	WATERTRUCK	IND	2.00	10.165	3.058	0.469	48.792	14.679	2.251
6	SERVICE TRUCK	IND	2.00	6.448	1.940	0.297	2.579	0.776	0.119
		TOTAL	0.36	1.346	0.405	0.062			

TOTAL	259.627	78.106	11.976

EMISSI YEAR 201 2	HARP EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FORM MINE ERO

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90009

Process Number	Parking Areas acres	Disturbed Areas acres	Vegetative cover fraction	Moisture Natural %	Threshold Friction Velocity Area Use Code *	Threshold Friction Velocity Usage Name	Ratio of Wind Speed to Friction Velocity Area Use Code **	Ratio of Wind Speed to Friction Velocity Usage Name
1		10		0.5	3	Construction Site	3	Moderate Industrial / Mining
2		10		0.5	3	Construction Site	2	Light Industrial / Mining
3	2			0.5	3	Construction Site	1	Open Space
4		18		0.5	3	Construction Site	1	Open Space

* Threshold Friction Velocity Code	Area Usage
0	None
1	Mine Tailings
2	Abandoned Agricultural Land
3	Construction Site
4	Disturbed Desert
5	Scrub Desert
6	Coal Dust
7	Active Agricultural Land
8	Coal Pile
9	User Defined
10	User Defined
11	User Defined
12	User Defined

** Ration of Wind Speed to Friction Velocity Code	Area Usage
0	None
1	Open Space
2	Light Industrial / Mining
3	Moderate Industrial / Mining
4	Heavy Industrial / Mining
5	User Defined
6	User Defined
7	User Defined
8	User Defined
9	User Defined
10	User Defined

Process Number	Total Parking and Disturbed Areas	Dust Controls (Check 'x' only one method) None check (x)	Water Spray check (x)	Water Added gallons per acre per day	New Surface Moisture Content (%) Calculated from Added Water	As Measured (%)	Moisture Content for Calculation	Wind Screen check (x)	Other check (x)	Other Specify	Efficiency (%)
1	10		X	200	1.24		1.24				
2	10		X	200	1.24		1.24				
3	2		X	200	1.24		1.24				
4	18		X	200	1.24		1.24				

EMISSION YEAR 2012	HARP EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FORM MINE ERO

EMISSIONS

Emission Factor - pounds per acre

$EmFac = 2.814 * k * (1 - v) * (u / u_t)^3 * C(x) * 2000$

k = Aerodynamic Factor for Particulate Size
v = Amount of Vegetative cover as a Fraction
u = Mean Wind Speed in Meters per Second (m/s)
u_t = Threshold Value of Wind Speed (m/s)
C(x) = Correction Factor

Aerodynamic Factor
TSP = 1.0
PM_{10} = 0.5
$PM_{2.5}$ = 0.2

$x = u_t/u$

Threshold Value of Wind Speed - u_t

$u_t = u^*_t * u^*$

Process Number	Throughput		Emission Factor							
	Parking Areas	Disturbed Area	Threshold Friction Velocity u^*_t	Ratio u^*	Threshold Wind Speed u_t	x	Correction Factor C(x)	Emission Factors TSP	PM_{10}	$PM_{2.5}$
	Acres	Acres	m/s		m/s			pounds/acre	pounds/acre	pounds/acre
1	0	10	0.26	6.5	1.69	0.56	1.89	42,514.013	21,257.006	8,502.803
2	0	10	0.26	8	2.08	0.69	1.86	22,441.576	11,220.788	4,488.315
3	2	0	0.26	15	3.9	1.29	1.33	2,434.379	1,217.190	486.876
4	0	18	0.26	15	3.9	1.29	1.33	2,434.379	1,217.190	486.876
	INPUTS	38						18,246.703	9,123.351	3,649.341
	Number of Devices	1								

Process Number	Total Parking and Disturbed Areas	Fractionation Value	
	Acres	PM_{10}	$PM_{2.5}$
1	10	0.5	0.2
2	10	0.5	0.2
3	2	0.5	0.2
4	18	0.5	0.2
	INPUTS	0.5	0.2

EMISSION YEAR	HARP EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FORM MINE ERO
2012		

Process Number	Total Parking and Disturbed Areas Acres	Controls		Emission Factor - Controlled (pounds/acre)			Emissions (tpy) = Area * EmFac		
		Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$
1	10	Water Spray	78.2	9,249.233	4,624.616	1,849.847	46.246	23.123	9.249
2	10	Water Spray	78.2	4,882.328	2,441.164	976.466	24.412	12.206	4.882
3	2	Water Spray	78.2	529.617	264.808	105.923	0.000	0.000	0.000
4	18	Water Spray	78.2	529.617	264.808	105.923	4.767	2.383	0.953
		INPUTS	78.24	3,969.703	1,984.851	793.941			

TOTAL	75.424	37.712	15.085

EMISSION YEAR 2012	HARP EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FORM MINE ERO

EMISSION YEAR 2012	HAI CEIDARS MINING OPERATIONS TOTAL EMISSIONS	FORM MINE TOTAL

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

TOTAL

EMISSION SOURCE / OPERATION / ACTIVITY	DEVICE ID #	CRITERIA EMISSIONS (tons per year)							
		TSP	PM_{10}	$PM_{2.5}$	CO	NOx	TOG	ROG / VOC	SOx
BULLDOZING, SCRAPING AND GRADING OF MATERIAL	90004	12.717	6.187	1.890					
LOADING OF MATERIAL(S) MINE / QUARRY / PIT	90005	0.126	0.062	0.019					
AGGREGATE HANDLING, CRUSHING, AND SCREENING #1	90001	6.852	2.387	0.750					
STOCKPILES - WIND EROSION	90006	0.138	0.069	0.028					
EXHAUST - MOBILE AND VEHICULAR EQUIPMENT	90100	0.674	0.670	0.670	3.281	10.609	1.059	1.024	1.273
UNPAVED ROADS - ENTRAINED DUST	90008	259.627	78.106	11.976					
WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	90009	75.424	37.712	15.085					
GRAND TOTAL		355.558	125.193	30.417	3.281	10.609	1.059	1.024	1.273

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS EXHAUST FROM MOBILE AND VEHICULAR EQUIPMENT	FORM MINE EX-M

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90100

PROCESS NUMBER	CODE (See Code below)	EQUIPMENT TYPE	FUEL TYPE	UNITS OF USAGE	UNITS USED PER YEAR
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	130.0
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	130.0
D9 DOZER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	80.0
WATERTRUCK	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	50.0
SERVICE TRUCK	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	8.0

CODE	EQUIPMENT TYPE	FUEL TYPE		SCC
1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	3-05-025-99
2	HEAVY DUTY - OFF ROAD *	GASOLINE	1000 hp-hr	3-05-025-99
3	MISC - OFF ROAD **	NG / LPG	1000 hp-hr	3-05-025-99
4	LOCOMOTIVES	DIESEL	1000 GAL	3-05-025-99
5	LIGHT DUTY VEHICLES ***	GASOLINE	1000 VMT	3-05-025-99
6	HEAVY DUTY - ON ROAD ****	DIESEL	1000 VMT	3-05-025-99
7	User defined, see Lookup Table	0	0	0
8	User defined, see Lookup Table	0	0	0
9	User defined, see Lookup Table	0	0	0
10	User defined, see Lookup Table	0	0	0
11	User defined, see Lookup Table	0	0	0
12	User defined, see Lookup Table	0	0	0
13	User defined, see Lookup Table	0	0	0
14	User defined, see Lookup Table	0	0	0
15	User defined, see Lookup Table	0	0	0

* OFF ROAD INCLUDES MINING AND EARTH MOVING EQUIPMENT
** MISC - OFF ROAD INCLUDES NG/LPG LOADER, FORKLIFTS, ETC.
*** LIGHT DUTY INCLUDES CARS, VAS, SMALL TRUCKS, ECT.
**** ON ROAD INCLUDES TRUCKS, ETC .

1000 hp-hr = THOUSAND OF HORSEPOWER HOURS
1000 GAL = THOUSAND OF GALLONS OF LIQUID FUEL
1000 VTM = THOUSAND VEHICLE MILES TRAVELED
MMCF = MILLION OF CUBIC FEET OF NATURAL GAS

EMISSION YEAR 201 2	HARP / CEIDARS MINING OPERATIONS EXHAUST FROM MOBILE AND VEHICULAR EQUIPMENT	FORM MINE EX-M

EMISSIONS

DEVICE # 90100

PROCESS ID	CODE	EQUIPMENT TYPE	PROCESS RATE UNITS PER YEAR / UNITS	SOURCES CLASSIFICATION CODE SCC /CAS #	EMISSIONS FACTORS (pounds per unit of usage) ANNUAL EMISSIONS (tons per year) ORGANIC GASES TOG 43101	ORGANIC GASES FRAC ROG / VOC	CO 42101	NOx 42603	SOx 42401	PARTICULATE MATTER PM 11101	PARTICULATE MATTER FRAC PM_{10} / $PM_{2.5}$
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	375	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.4538	0.4390	1.4063	4.5469	0.5456	0.2888	0.2870
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	200	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.2420	0.2342	0.7500	2.4250	0.2910	0.1540	0.1531
D9 DOZER	1	HEAVY DUTY - OFF ROAD *	300	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.3630	0.3512	1.1250	3.6375	0.4365	0.2310	0.2296
WATERTRUCK	1	HEAVY DUTY - OFF ROAD *	300	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.3630	0.3512	1.1250	3.6375	0.4365	0.2310	0.2296
SERVICE TRUCK	1	HEAVY DUTY - OFF ROAD *	31	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.0375	0.0363	0.1163	0.3759	0.0451	0.0239	0.0237

TOTAL EMISSIONS	TOG	ROG / VOC	CO	NOx	SOx	PM	PM_{10} / $PM_{2.5}$
	1.059	1.024	3.281	10.609	1.273	0.674	0.670

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS FACILITY INFORMATION	FORM MINE FAC

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT
FACILITY LOCATION (address): 36060 GILMAN SPRINGS ROAD
CITY: MORENO VALLEY
STATE: CA ZIP: 92551

COMPANY NUMBER:
FACILITY NUMBER:
FACID: 0

MAILING ADDRESS: 3248 EAST WILLOW STREET
CITY: SIGNAL HILL
STATE: CA ZIP: 90755

CONTACT PERSON: KEVIN SMITH
562 972 6093 EXT:
FAX NUMBER: 626 408 9805
EMAIL: SMIKEVIN@AOL.COM

MINE TYPE AND PARAMETERS

TYPE OF MINE: BANK RUN (Quarry, Surface, Pit, Bank Run, Shaft, Etc.)

TYPE OF MATERIAL MINED: ROCK, SAND & GRAVEL,RECYCLE BASE (Limestone, Talc, Salts, Sand, Gravel, Rock, Volcanic Cinders, Gold, Silver, Iron Ore, Rear Earth, Etc.)

OVERBURDEN RATIO: 1 to 1 Tons of Overburden per Ton of Ore

EMISSION YEAR 201 2	HARP / CEIDARS MINING OPERATIONS MINERALS HANDLED - AMOUNT & CHARACTERISTICS	FORM MINE MIN

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Name of Minerals	Amounts (tpy)		Characteristics	
	Shifted by Blasting	Total Handled	Moisture (%)	Silt (%)
SAND		200,000	2.0	30.0
GRAVEL		200,000	2.0	30.0
ROCK		200,000	2.0	30.0
SAND		130,000	2.0	30.0
GRAVEL		130,000	2.0	30.0
ROCK		140,000	2.0	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
			0.5	30.0
TOTAL	0	1,000,000		

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS METEOROLOGICAL DATA	FORM MINE MET-D

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGIS
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Parameter	Value	Description	Default Value
Mean Wind Speed	6.0	mph	7.7
u	2.7	meters per second	
Precipitation	30.0	Day per year with at least 0.01 inches of precipitation	20.0
Wind Speed	12.0	Percent of time with wind speed >12mph (%)	13.3
Evaporation	100.0	Annual Pan Evaporation Rate in inches	75.0

EMISSION YEAR	HAP / CEIDARS MINING OPERATIONS BULLDOZING, SCRAPING AND GRADING OF MATERIAL
2012	

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDA

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
COMPANY NUMBER: 0
FACILITY NAME: KENNEDY HILLS / BASE PLANT
FACILITY NUMBER: 0

Device ID# 90004

Name of Material	Hours of Operations (hours per year)					Controls			
	Bulldozing	Scraping	Grading	Other	Total	None Check	Water Spray Check	Water Spray New Moisture (%)	Wind Screen Check
SAND		300	400		700		X	2	
GRAVEL	200	300	200		700		X	2	
ROCK	200	200	200		600		X	2	

EMISSION YEAR	H/ P / CEIDARS MINING OPERATIONS BULLDOZING, SCRAPING AND GRADING OF MATERIAL
2012	

EMISSIONS

Device ID# 90004 SCC 30502599

Emission Factors (pounds per hours of operations)
EmFac = 2.76 * k *(s)^1.5 / (M)^1.4
k = Aerodynamic Factor
s = silt content (%)
M = Moisture content (%)

Aerodynamic factors
TSP = 0.74
PM_{10} = 0.36
$PM_{2.5}$ = 0.11

Material	Hours of Operations	Emission factors - Uncontrolled (pounds per hour)		
		TSP	PM_{10}	$PM_{2.5}$
SAND	700	127.169	61.866	18.903
GRAVEL	700	127.169	61.866	18.903
ROCK	600	127.169	61.866	18.903
TOTAL	2000	127.169	61.866	18.903
Number of Devices	3			

Fractionation Value	
PM_{10}	$PM_{2.5}$
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149

EMISSION YEAR
2012

HAP / CEIDARS
MINING OPERATIONS
BULLDOZING, SCRAPING AND GRADING OF MATERIAL

Material	Control		Emission factors - Controlled (pounds per hour)		
	Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$
SAND	Water Spray	90.000	12.717	6.187	1.890
GRAVEL	Water Spray	90.000	12.717	6.187	1.890
ROCK	Water Spray	90.000	12.717	6.187	1.890
	TOTAL	90.00	12.717	6.187	1.890

Emissions - tons per year		
TSP	PM_{10}	$PM_{2.5}$
4.451	2.165	0.662
4.451	2.165	0.662
3.815	1.856	0.567

TOTAL	12.717	6.187	1.890

EMISSION YEAR	HAP / CEIDARS MINING OPERATIONS LOADING OF MATERIAL(S) AT MINE / QUARRY / PIT
2012	

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEID/

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90005

Name of Material	Amount Loaded tpy
SAND	200,000
GRAVEL	300,000
ROCK	300,000
SAND	130,000
GRAVEL	130,000
ROCK	140,000
	1,200,000

Controls						
None	Water Spray		Wind Screen		Other	
Check	Check	New Moisture (%)	Check	Check	Specify	Efficiency (%)
	X	2				98
	X	2				98
	X	2				98
	X	2				98
	X	2				98
	X	2				98

EMISSION YEAR	H. P / CEIDARS MINING OPERATIONS LOADING OF MATERIAL(S) AT MINE / QUARRY / PIT
2012	

EMISSIONS

Device ID# 90005 SCC 30502506

Emission Factors (pounds per ton)
EmFac =0.0032 * k *(U/5)^1.3 / (M/2)^1.4
k = Aerodynamic Factor
U = Mean wind speed in miles per hour
M = Moisture content (%)

Aerodynamic factors
TSP = 0.74
PM_{10} = 0.36
$PM_{2.5}$ = 0.11

Material	Amount Loaded tpy
SAND	200,000
GRAVEL	200,000
ROCK	200,000
SAND	130,000
GRAVEL	130,000
ROCK	140,000
TOTAL	1,000,000
Number of Devices	7

Emission factors - Uncontrolled (pounds per ton)		
TSP	PM_{10}	$PM_{2.5}$
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000
0.001	0.001	0.000

Fractionation Value	
PM_{10}	$PM_{2.5}$
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149
0.486	0.149

EMISSION YEAR
201 2

H. P / CEIDARS
MINING OPERATIONS
LOADING OF MATERIAL(S) AT MINE / QUARRY / PIT

Material	Control		Emission factors - Controlled (pounds per ton)			Emissions - tons per year		
	Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$
SAND	Water Spray	90.0	0.000	0.000	0.000	0.011	0.005	0.002
GRAVEL	Water Spray	90.0	0.000	0.000	0.000	0.016	0.008	0.002
ROCK	Water Spray	90.0	0.000	0.000	0.000	0.016	0.008	0.002
SAND	Water Spray	90.0	0.000	0.000	0.000	0.007	0.003	0.001
GRAVEL	Water Spray	90.0	0.000	0.000	0.000	0.007	0.003	0.001
ROCK	Water Spray	90.0	0.000	0.000	0.000	0.007	0.004	0.001
	TOTAL	90.00	0.00	0.00	0.00	0.063	0.031	0.009

TOTAL	0.126	0.062	0.019

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1

I - COLOR CODE: DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

II - MANDATORY INFORMATION
FLOW DIAGRAM
BLOCK III - ALL ITEMS
BLOCK VIII - ACTUAL HOURS OPERATED
BLOCK IX - ANNUAL THROUGHPUT (tpy)
BLOCK X - MOISTURE CONTENT (%) OF MATERIAL ENTERING THE SYSTEM
BLOCK XIII, COLUMNS 'B', 'E', 'F' & 'G'

III - FACILITY INFORMATION

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTI — COMPANY #: 0 — PERMIT #:
FACILITY NAME: KENNEDY HILLS / BASE PLANT — FACILITY #: 0 — DEVICE ID: 90001
PROCESS NAME: CRUSHING / SCREENING & WASH EQUIP — INVENTORY ID #: 0 — PROCESS ID:

IV - MAP COORDINATES FOR PROCESS

UTM ZONE: 11 — UTM EAST (km): — UTM NORTH (km):
LATITUDE (deg.): — LONGITUDE (deg.):

V - TYPE OF PLANT

STATIONARY	X
PORTABLE	
OTHER	
COMMENTS	

VI - TYPE OF EQUIPMENT, check all that applies:

CRUSHERS	X	TRANSFER	X
SCREENS	X	STORAGE	X
CONVEYORS	X	LOAD OUT	X
OTHERS	X		
COMMENTS			

VII - MATERIAL TYPES, check all that applies

ROCK	X
SAND	X
LIMESTONE	X
LAVA ROCK	
OTHER	X

VIII - OPERATING SCHEDULE

HOURS per DAY	8
DAYS per WEEK	5
WEEK per YEAR	50
CAL. HRS per YR	2000
ACT. HRS per YR	2000

CAL. Hrs/Yr = Hr/Dy*Dy/Wk*Wk/Yr

IX - THROUGHPUT (tons per year)

ACTUAL ANNUAL	800,000	Tons/Yr.
HOURLY (average)	400	TPH
MAX. DESIGN RATE	400	TPH

Hourly (average) = Annual (actual) / Actual Hours per Year (operated)

X - MOISTURE CONTENT (%)
MOISTURE CONTENT ENTERING SYS.: 2 %

XI - TYPE OF OPERATION AND / OR DEVICE

CODE	NAME OF DEVICE OR SYSTEM	CODE	NAME OF DEVICE OR SYSTEM
0	No Device	11	Screening, Wet Washing (Note 4)
1	Dump to Hopper, truck, pile (Note 2)	12	Silo, Filling - Pneumatic
2	Grizzly (Note 2)	13	Silo, Filling - Bucket Elevator
3	Hopper (Note 2)	14	Silo, discharge to Conveyor (Note 2)
4	Transfer Point (Note 2)	15	Silo, discharge to Tank Truck
5	Conveyor (Note 2)	16	Loading Open Top Truck (Note 2)
6	Crushing, Dry - Primary	17	Feeder
7	Crushing, Dry - Secondary	18	See Lookup Table "EmFac" for data
8	Crushing, Dry - Tertiary	19	See Lookup Table "EmFac" for data
9	Crushing, Wet (Note 3)	20	See Lookup Table "EmFac" for data
10	Screening, Dry	21	See Lookup Table "EmFac" for data

XII - TYPE OF EMISSION CONTROL EQUIPMENT

CODE	TYPE OF CONTROL	CODE	TYPE OF CONTROL
0	None	11	Gravel Bed Filters
1	Water Spray, Point of Application	12	Spray Tower (Low Efficiency)
2	Spray with Additives, Point of Application	13	Wet Scrubber (Med Efficiency)
3	Conveyor with Half Cover	14	Venturi Scrubber (High Efficiency)
4	Conveyor with Three Quarter Cover	15	Baghouse with Multiple Pickups
5	Conveyor with Full Cover	16	Baghouse with Single Pickup (Unenclosed)
6	Process Enclosure	17	Baghouse with Single Pickup (Partial Enclosed)
7	Gravity Separator	18	Baghouse with Single Pickup (Full Enclosed)
8	Cyclone - Simple	19	Baghouse with Single Pickup (Attached)
9	Cyclone - Multiple	20	Electrostatic Precipitator
10	Windscreen, Windward Side	21	See Lookup Table "ConEff" for data

XIII - EMISSION CALCULATIONS

EQUIPMENT ID NUMBER (A)	DEVICE CODE NO (B)	NAME OF DEVICE (C)	MOTOR BHP (D)		THROUGHPUT TONS / YEAR (E)	EMISSION CONTROL DEVICE CODE (F)	DsF (G)	NAME OF DEVICE (H)	EFF % (I)	EMISSION FACTORS POUNDS PER TON PM_{30} (J)	PM_{10} (K)	$PM_{2.5}$ (L)	EMISSION RATE TONS PER YEAR PM_{30} (M)	PM_{10} (N)	$PM_{2.5}$ (O)
FH1	3	Hopper (Note 2)	X	500	1,000,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.01	0.00
VG1	3	Hopper (Note 2)	40	500	1,000,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.01	0.00
H1	3	Hopper (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
H2	3	Hopper (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
H3	3	Hopper (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
S1	10	Screening, Dry	40	250	500,000	1		HP Water Spray at E point	98.0	0.160	0.120	0.038	0.80	0.60	0.19
S2	10	Screening, Dry	40	550	1,100,000	1		HP Water Spray at E point	98.0	0.160	0.120	0.038	1.76	1.32	0.42
CR1	6	Crushing, Dry - Primary	200	250	500,000	1		HP Water Spray at E point	98.0	0.280	0.017	0.005	1.40	0.09	0.03
CR2	6	Crushing, Dry - Primary	400	550	1,100,000	1		HP Water Spray at E point	98.0	0.280	0.017	0.005	3.08	0.19	0.06
1	4	Transfer Point (Note 2)	X	500	1,000,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.01	0.00

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1

2	4	Transfer Point (Note 2)	40	250	500,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.02	0.01	0.00
3	5	Conveyor (Note 2)	X	250	500,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.02	0.01	0.00
4	4	Transfer Point (Note 2)	25	250	500,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.02	0.01	0.00
5	4	Transfer Point (Note 2)	X	550	1,100,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.02	0.00
6	5	Conveyor (Note 2)	20	550	1,100,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.02	0.00
7	5	Conveyor (Note 2)	20	550	1,100,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.02	0.00
8	5	Conveyor (Note 2)	20	550	1,100,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.02	0.00
9	4	Transfer Point (Note 2)	X	550	1,100,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.03	0.02	0.00
10	5	Conveyor (Note 2)	20	100	200,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
11	5	Conveyor (Note 2)	20	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
12	5	Conveyor (Note 2)	20	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
13	4	Transfer Point (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
14	5	Conveyor (Note 2)	10	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
15	4	Transfer Point (Note 2)	X	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
16	5	Conveyor (Note 2)	25	250	500,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.02	0.01	0.00
17	4	Transfer Point (Note 2)	X	250	500,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.02	0.01	0.00
18	5	Conveyor (Note 2)	15	125	250,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
19	5	Conveyor (Note 2)	20	125	250,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
20	4	Transfer Point (Note 2)	X	200	400,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.01	0.00
21	4	Transfer Point (Note 2)	X	100	200,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
22	5	Conveyor (Note 2)	15	125	250,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
23	5	Conveyor (Note 2)	20	125	250,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
24	4	Transfer Point (Note 2)	X	125	250,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
25	5	Conveyor (Note 2)	15	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
26	4	Transfer Point (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
27	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
28	4	Transfer Point (Note 2)	X	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
29	5	Conveyor (Note 2)	10	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
30	5	Conveyor (Note 2)	15	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
31	4	Transfer Point (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
32	5	Conveyor (Note 2)	15	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
33	5	Conveyor (Note 2)	15	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
34	4	Transfer Point (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1

35	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
36	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
37	5	Conveyor (Note 2)	20	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
38	4	Transfer Point (Note 2)	X	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
39	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
40	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
41	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
42	5	Conveyor (Note 2)	15	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
43	5	Conveyor (Note 2)	20	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
44	4	Transfer Point (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
45	5	Conveyor (Note 2)	15	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
46	4	Transfer Point (Note 2)	X	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
3/8 MINUS	1	Dump to Hopper, truck, pile (Note 2)	X	125	250,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
3/8 MINUS	1	Dump to Hopper, truck, pile (Note 2)	X	75	150,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.00	0.00	0.00
3/4 MINUS	1	Dump to Hopper, truck, pile (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00
1-3/8 X 3/8	1	Dump to Hopper, truck, pile (Note 2)	X	150	300,000	1		HP Water Spray at E point	98.0	0.003	0.001	0.000	0.01	0.00	0.00

TOTAL HORSEPOWER	1240
AVERAGE THROUGHPUT PER DEVICE	409,322

BLOCK XIV - EMISSIONS & HARP INPUTS

EMISSION INVENTORY INPUTS

DEVICE DATA

PERMIT ID	
NUMBER OF DEVICES	59
EQUIPMENT SIZE (bhp)	1240

PROCESS DATA

PROCESS RATE (tpy)	800,000
MAX. DESIGN RATE (tph)	400
MAX. HOURLY PRODUCTION RATE (tph)	400
AVE. HOURLY PRODUCTION RATE (tph)	400

EMISSION DATA

ANNUAL EMISSIONS (tpy)	PM	PM_{10}	$PM_{2.5}$
UNCONTROLLED	383.439	124.470	39.073
CONTROLLED	7.669	2.489	0.781
EMISSION FACTOR (lb/ton)			
UNCONTROLLED	0.9586	0.3112	0.0977
CONTROLLED	0.0192	0.0062	0.0020
FRACTIONATION VALUE (PM10 or PM2.5 / PM)		0.3246	0.1019
OVERALL EFFICIENCY	98.00	98.00	98.00

EMISSION YEAR 2012	HARP / CEIDARS MINING OPERATIONS AGGREGATE HANDLING, CRUSHING & SCREENING #1	FORM MINE AGG-1



EMISSION YEAR 2012	HARD CEIDARS MINING OPERATIONS STOCKPILES	FORM MINE S-PILES

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

Device ID# 90006

Name of / Number	Material Type	Stockpile Exposed Surface acres	Silt Loading %	Moisture (uncontrolled) %
CLASS II	R, S & G	0.0100	15	2
3 X 1	R, S & G	0.0100	15	2
4 X 2	R, S & G	0.0100	15	2
2.5 X 7/8	R, S & G	0.0100	15	2
7/8 X 5/8	R, S & G	0.0100	15	2
CAB	R, S & G	0.0100	15	2
7/8 X 7/16	R, S & G	0.0100	15	2
7/16 X 3/16	R, S & G	0.0100	15	2
1/4 MINUS	R, S & G	0.0100	15	2

Stockpile Name / Number	Dust Controls: Water Spray check	Water Spray gal/acre/day	Wind Screen check	Other check	Other Specify	Efficiency (%)
CLASS II	X	200				
3 X 1	X	200				
4 X 2	X	200				
2.5 X 7/8	X	200				
7/8 X 5/8	X	200				
CAB	X	200				
7/8 X 7/16	X	200				
7/16 X 3/16	X	200				
1/4 MINUS	X	200				

EMISSION YEAR 2012	HARCEIDARS MINING OPERATIONS STOCKPILES	RM MINE S-PILES

EMISSIONS

Device ID# 90006 SCC 30502507

Emission Factors (pounds per acres)

EmFac = J * 1.7 * s/1.5 * (365 - P)/235 * I/15 * 365

J = Aerodynamic factor

s = Silt Loading (%)

P = Day per year with at least 0.01 inches of precipitation

I = Percent of time with wind speed >12mph (%)

Aerodynamic factor	
TSP =	1.0
PM_{10} =	0.5
$PM_{2.5}$ =	0.2

Throughput (acres)		
Stockpile	Material Type	Size (acres)
3/8 MINUS	R, S & G	0.0100
3/8 MINUS	R, S & G	0.0100
3/4 MINUS	R, S & G	0.0100
1-3/8 X 3/8	R, S & G	0.0100
	TOTAL	0.04
Number of Devices	4	

Emission Factor - Uncontrolled (pounds/acre)		
TSP	PM_{10}	$PM_{2.5}$
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268
7076.340	3538.170	1415.268

Fractionation Value	
PM_{10}	$PM_{2.5}$
0.500	0.200
0.500	0.200
0.500	0.200
0.500	0.200
0.500	0.200

Stockpile	Controls		Emission Factor - Controlled (pounds/acre)		
	Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$
3/8 MINUS	Water Spray	2.39	6907.354	3453.677	1381.471
3/8 MINUS	Water Spray	2.39	6907.354	3453.677	1381.471
3/4 MINUS	Water Spray	2.39	6907.354	3453.677	1381.471
1-3/8 X 3/8	Water Spray	2.39	6907.354	3453.677	1381.471
	TOTAL	2.39	6907.354	3453.677	1381.471

Emissions (tpy) = Area * EmFac		
TSP	PM_{10}	$PM_{2.5}$
0.035	0.017	0.007
0.035	0.017	0.007
0.035	0.017	0.007
0.035	0.017	0.007

TOTAL	0.138	0.069	0.028

EMISSION YEAR	HARP / CEIDARS MINING OPERATIC.	FORM MINE EX-M
2012	EXHAUST FROM MOBILE AND VEHICULAR EQUIPMENT	

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90100

PROCESS NUMBER	CODE (See Code below)	EQUIPMENT TYPE	FUEL TYPE	UNITS OF USAGE	UNITS USED PER YEAR
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	130.0
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	130.0
D9 DOZER	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	80.0
WATERTRUCK	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	50.0
SERVICE TRUCK	1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	8.0

CODE	EQUIPMENT TYPE	FUEL TYPE		SCC
1	HEAVY DUTY - OFF ROAD *	DIESEL	1000 hp-hr	3-05-025-99
2	HEAVY DUTY - OFF ROAD *	GASOLINE	1000 hp-hr	3-05-025-99
3	MISC - OFF ROAD **	NG / LPG	1000 hp-hr	3-05-025-99
4	LOCOMOTIVES	DIESEL	1000 GAL	3-05-025-99
5	LIGHT DUTY VEHICLES ***	GASOLINE	1000 VMT	3-05-025-99
6	HEAVY DUTY - ON ROAD ****	DIESEL	1000 VMT	3-05-025-99
7	User defined, see Lookup Table	0	0	0
8	User defined, see Lookup Table	0	0	0
9	User defined, see Lookup Table	0	0	0
10	User defined, see Lookup Table	0	0	0
11	User defined, see Lookup Table	0	0	0
12	User defined, see Lookup Table	0	0	0
13	User defined, see Lookup Table	0	0	0
14	User defined, see Lookup Table	0	0	0
15	User defined, see Lookup Table	0	0	0

* OFF ROAD INCLUDES MINING AND EARTH MOVING EQUIPMENT
** MISC - OFF ROAD INCLUDES NG/LPG LOADER, FORKLIFTS, ETC.
*** LIGHT DUTY INCLUDES CARS, VAS, SMALL TRUCKS, ECT.
**** ON ROAD INCLUDES TRUCKS, ETC .

1000 hp-hr = THOUSAND OF HORSEPOWER HOURS
1000 GAL = THOUSAND OF GALLONS OF LIQUID FUEL
1000 VTM = THOUSAND VEHICLE MILES TRAVELED
MMCF = MILLION OF CUBIC FEET OF NATURAL GAS

EMISSION YEAR	HARP / CEIDARS MINING OPERATIC	FORM MINE EX-M
2012	EXHAUST FROM MOBILE AND VEHICULAR EQUIPMENT	

EMISSIONS

DEVICE # 90100

PROCESS ID	CODE	EQUIPMENT TYPE	PROCESS RATE UNITS PER YEAR / UNITS	SOURCES CLASSIFICATION CODE SCC /CAS #	EMISSIONS FACTORS (pounds per unit of usage) ANNUAL EMISSIONS (tons per year) ORGANIC GASES TOG 43101	ORGANIC GASES FRAC ROG / VOC	CO 42101	NOx 42603	SOx 42401	PARTICULATE MATTER PM 11101	PARTICULATE MATTER FRAC PM_{10} / $PM_{2.5}$
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	375	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.4538	0.4390	1.4063	4.5469	0.5456	0.2888	0.2870
980H2 LOADER	1	HEAVY DUTY - OFF ROAD *	200	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.2420	0.2342	0.7500	2.4250	0.2910	0.1540	0.1531
D9 DOZER	1	HEAVY DUTY - OFF ROAD *	300	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.3630	0.3512	1.1250	3.6375	0.4365	0.2310	0.2296
WATERTRUCK	1	HEAVY DUTY - OFF ROAD *	300	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.3630	0.3512	1.1250	3.6375	0.4365	0.2310	0.2296
SERVICE TRUCK	1	HEAVY DUTY - OFF ROAD *	31	3-05-025-99	2.42	0.9676	7.50	24.25	2.91	1.54	0.994
			1000 hp-hr	Annual Emissions	0.0375	0.0363	0.1163	0.3759	0.0451	0.0239	0.0237

TOTAL EMISSIONS	TOG	ROG / VOC	CO	NOx	SOx	PM	PM_{10} / $PM_{2.5}$
	1.059	1.024	3.281	10.609	1.273	0.674	0.670

EMISSION YEAR 2012

ARP / CEIDARS
MINING OPERATIONS
UNPAVED ROADS - ENTRAINED DUST

DATA INPUT BY FACILITY | DATA FROM ANOTHER WORKSHEET | OUTPUT DATA TO CEIDA

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90008

Process Number	Vehicle type	Road Type * Ind / Pub	Vehicle Weigh (tons) Empty	Loaded	Mean	Distance Traveled per Year (vmt) Round Trip Miles	Trips per Day	Days per Year	Miles per Year	Mean Vehicle Sped (mph)	Silt Loading * %
1	980H2 LOADER	IND	10	12.5	11.3	0.05	480	200	4,800.0	10	11
2	980H2 LOADER	IND	10	12.5	11.3	0.05	480	200	4,800.0	10	11
3	MATERIAL TRUCK	IND	12	34	23.0	2	80	200	32,000.0	15	11
4	D9 DOZER	IND	12	12.5	12.3	0.05	160	200	1,600.0	10	11
5	WATERTRUCK	IND	12	32	22.0	2	24	200	9,600.0	10	11
6	SERVICE TRUCK	IND	6	10	8.0	0.5	8	200	800.0	15	11

* Road Type
Ind = Unpaved road surfaces a industrial sites
Pub = Publicly accessible roadways dominated by light duty vehicles

* For other Silt Load 'A167' through 'D178

Process Number	Vehicle Type	Road Type	Dust Control Method (Check "X" only one method per emission source (row) and complete appropriate cells below) Method Cells	None none	Water D52-D63 or E52-G63	Water with Suppressants H52 - M63	Surface Improvement D70 - E 81	Wind Screens or Wind Breaks G70 - H81	Other I70 - M81
1	980H2 LOADER	IND				X			
2	980H2 LOADER	IND				X			
3	MATERIAL TRUCK	IND				X			
4	D9 DOZER	IND				X			
5	WATERTRUCK	IND				X			
6	SERVICE TRUCK	IND				X			

Process Number	Vehicle Type	Road Type	Water (Either new moisture content or application rate) New Surface Moisture Content (%)	Water Application Rate Traffic Rate vehicles per hour	Hours between Application	Intensity of water gallons / sq yd of Roadway *	Dust Control Method Type or Name of Suppressant	Intensity of Suppressant Gallons / sq yd of Roadway *	Water with Suppressant Frequency of Application (Check (X) only on Weekly Ever 7 days	Bi-Weekly Every 14 days	Monthly Every 30 - 31 days
1	980H2 LOADER	IND	2	120	2		NALCO POLLO		X		
2	980H2 LOADER	IND	2	120	2		NALCO POLLO		X		
3	MATERIAL TRUCK	IND	2	20	2		NALCO POLLO		X		
4	D9 DOZER	IND	2	30	2		NALCO POLLO		X		
5	WATERTRUCK	IND	2	3	0.3		NALCO POLLO		X		
6	SERVICE TRUCK	IND	2	1	2		NALCO POLLO		X		

(* 0.1 gallons of water or suppressant per square yard of road = 1760 gallons per mile of a 30 foot wide road.)

Process Number	Vehicle Type	Road Type	Dust Control Method Surface Improvement New Silt Content (%) 3 Months after Application	6 Months after Application	Average	Wind Screens or Wind Breaks Height (feet)	Width (feet)	Name/Type	Other Description
1	980H2 LOADER	IND			11				
2	980H2 LOADER	IND			11				
3	MATERIAL TRUCK	IND			11				

EMISSION YEAR 2012	ARP / CEIDARS MINING OPERATIONS UNPAVED ROADS - ENTRAINED DUST								
4	D9 DOZER	IND			11				
5	WATERTRUCK	IND			11				
6	SERVICE TRUCK	IND			11				

EMISSION YEAR	ARP / CEIDARS MINING OPERATIONS UNPAVED ROADS - ENTRAINED DUST
2012	

EMISSIONS

DEVICE # 90009

Emission Factor pounds per vehicle miles traveled

Industrial Roads

EmFac = k * (s / 12)^a * (W / 3)^b

Public Road

EmFac = k * ({[(s / 12)^a * (S / 30)^d] / (M / 0.5)^c} -C)*[(365 - P)/365]

k, a, b, c, & d = Constants - See Lookup Table entitled "Constants for Emission Factor Equations"

s = Silt content of unpaved surface in percent (%)

W = Average vehicle weight in tons

S = Mean vehicle speed (mph)

M = Moisture content of unpaved surface in percent (%)

P = Number of days per year with at least 0.01 inches of precipitation - see MetData worksheet Cell ' C16.

Process Number	Throughput		Emission Factors Uncontrolled (pounds / vmt)			Fractionation Value	
	Vehicle Type	Road Type	vmt	PM	PM_{10}	PM_{10}	PM_{10}
1	980H2 LOADER	IND	4,800.0	7.670	2.308	0.354	0.301	0.046
2	980H2 LOADER	IND	4,800.0	7.670	2.308	0.354	0.301	0.046
3	MATERIAL TRUCK	IND	32,000.0	10.582	3.184	0.488	0.301	0.046
4	D9 DOZER	IND	1,600.0	7.970	2.398	0.368	0.301	0.046
5	WATERTRUCK	IND	9,600.0	10.372	3.120	0.478	0.301	0.046
6	SERVICE TRUCK	IND	800.0	6.579	1.979	0.303	0.301	0.046
		TOTAL	53,600.0	9.885	2.974	0.456	0.301	0.046
	Number of Devices	6						

Process Number	Vehicle Type	Road Type	Efficiency percentage (%) of Dust Control Methods							
			None	Water		Water with Suppressants	Surface Improvement	Wind Screens or Wind Breaks	Other	Overall
				New Surface Moisture Content (%)	Water Application Rate *					
1	980H2 LOADER	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
2	980H2 LOADER	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
3	MATERIAL TRUCK	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
4	D9 DOZER	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
5	WATERTRUCK	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00
6	SERVICE TRUCK	IND	0.00	2.00	0.00	0.00	0.00	0.00	85.00	2.00

* Dust Controls - Water Application Rate

C = 100 - (0.0012 * A * D * T) / I

C = Control efficiency (%)

A = pan evaporation rate (inches)

D = Vehicles per hour

T = Hours between watering

EMISSION YEAR	ARP / CEIDARS MINING OPERATIONS UNPAVED ROADS - ENTRAINED DUST
2012	

I = Gallons / sq. yd (Note 0.1 gallon/sq yd = 1760 gallons per mile for a 30 foot wide road.)

Process Number	Vehicle Type	Road Type	Efficiency (%)	Emission Factor - Controlled (pounds/vmt)			Emissions (tpy)		
				PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
1	980H2 LOADER	IND	2.00	7.517	2.261	0.347	18.040	5.427	0.832
2	980H2 LOADER	IND	2.00	7.517	2.261	0.347	18.040	5.427	0.832
3	MATERIAL TRUCK	IND	2.00	10.370	3.120	0.478	165.926	49.917	7.654
4	D9 DOZER	IND	2.00	7.810	2.350	0.360	6.248	1.880	0.288
5	WATERTRUCK	IND	2.00	10.165	3.058	0.469	48.792	14.679	2.251
6	SERVICE TRUCK	IND	2.00	6.448	1.940	0.297	2.579	0.776	0.119
		TOTAL	0.36	1.346	0.405	0.062			

TOTAL	259.627	78.106	11.976

EMISSIONS YEAR 2012	HARP CEIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FORM MINE ERO

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

DEVICE # 90009

Process Number	Parking Areas acres	Disturbed Areas acres	Vegetative cover fraction	Moisture Natural %	Threshold Friction Velocity Area Use Code *	Threshold Friction Velocity Usage Name	Ratio of Wind Speed to Friction Velocity Area Use Code **	Ratio of Wind Speed to Friction Velocity Usage Name
1		10		0.5	3	Construction Site	3	Moderate Industrial / Mining
2		10		0.5	3	Construction Site	2	Light Industrial / Mining
3	2			0.5	3	Construction Site	1	Open Space
4		18		0.5	3	Construction Site	1	Open Space

* Threshold Friction Velocity Code	Area Usage
0	None
1	Mine Tailings
2	Abandoned Agricultural Land
3	Construction Site
4	Disturbed Desert
5	Scrub Desert
6	Coal Dust
7	Active Agricultural Land
8	Coal Pile
9	User Defined
10	User Defined
11	User Defined
12	User Defined

** Ration of Wind Speed to Friction Velocity Code	Area Usage
0	None
1	Open Space
2	Light Industrial / Mining
3	Moderate Industrial / Mining
4	Heavy Industrial / Mining
5	User Defined
6	User Defined
7	User Defined
8	User Defined
9	User Defined
10	User Defined

Process Number	Total Parking and Disturbed Areas	Dust Controls (Check 'x' only one method) None check (x)	check (x)	Water Spray Water Added gallons per acre per day	New Surface Moisture Content (%) Calculated from Added Water	As Measured (%)	Moisture Content for Calculation	Wind Screen check (x)	check (x)	Other Specify	Efficiency (%)
1	10		X	200	1.24		1.24				
2	10		X	200	1.24		1.24				
3	2		X	200	1.24		1.24				
4	18		X	200	1.24		1.24				

EMISSIC) YEAR 201 2	HARP) EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FC M MINE ERO

EMISSIONS

Emission Factor - pounds per acre

$EmFac = 2.814 * k * (1 - v) * (u / u_t)^3 * C(x) * 2000$

k = Aerodynamic Factor for Particulate Size
v = Amount of Vegetative cover as a Fraction
u = Mean Wind Speed in Meters per Second (m/s)
u_t = Threshold Value of Wind Speed (m/s)
C(x) = Correction Factor

Aerodynamic Factor
TSP = 1.0
PM_{10} = 0.5
$PM_{2.5}$ = 0.2

$x = u_t/u$

Threshold Value of Wind Speed - u_t
$u_t = u^*_t * u^*$

Process Number	Throughput		Emission Factor					Emission Factors		
	Parking Areas	Disturbed Area	Threshold Friction Velocity u^*_t	Ratio u^*	Threshold Wind Speed u_t	x	Correction Factor C(x)	TSP	PM_{10}	$PM_{2.5}$
	Acres	Acres	m/s		m/s			pounds/acre	pounds/acre	pounds/acre
1	0	10	0.26	6.5	1.69	0.56	1.89	42,514.013	21,257.006	8,502.803
2	0	10	0.26	8	2.08	0.69	1.86	22,441.576	11,220.788	4,488.315
3	2	0	0.26	15	3.9	1.29	1.33	2,434.379	1,217.190	486.876
4	0	18	0.26	15	3.9	1.29	1.33	2,434.379	1,217.190	486.876
	INPUTS	38						18,246.703	9,123.351	3,649.341
	Number of Devices	1								

Process Number	Total Parking and Disturbed Areas	Fractionation Value	
	Acres	PM_{10}	$PM_{2.5}$
1	10	0.5	0.2
2	10	0.5	0.2
3	2	0.5	0.2
4	18	0.5	0.2
	INPUTS	0.5	0.2

EMISSIC) YEAR 201 2	HARP . EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FORM MINE ERO

Process Number	Total Parking and Disturbed Areas Acres	Controls		Emission Factor - Controlled (pounds/acre)		
		Type	Efficiency (%)	TSP	PM_{10}	$PM_{2.5}$
1	10	Water Spray	78.2	9,249.233	4,624.616	1,849.847
2	10	Water Spray	78.2	4,882.328	2,441.164	976.466
3	2	Water Spray	78.2	529.617	264.808	105.923
4	18	Water Spray	78.2	529.617	264.808	105.923
		INPUTS	78.24	3,969.703	1,984.851	793.941

Emissions (tpy) = Area * EmFac		
TSP	PM_{10}	$PM_{2.5}$
46.246	23.123	9.249
24.412	12.206	4.882
0.000	0.000	0.000
4.767	2.383	0.953

TOTAL	75.424	37.712	15.085

EMISSIC) YEAR 201 2	HARP)EIDARS MINING OPERATIONS WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	FC.M MINE ERO

EMISSION YEAR	HAI / CEIDARS MINING OPERATIONS TOTAL EMISSIONS	FORM MINE TOTAL
2012		

DATA INPUT BY FACILITY	DATA FROM ANOTHER WORKSHEET	OUTPUT DATA TO CEIDARS

COMPANY NAME: MATERIALS MANAGEMENT & LOGISTICS Inc.
FACILITY NAME: KENNEDY HILLS / BASE PLANT

COMPANY NUMBER: 0
FACILITY NUMBER: 0

TOTAL

EMISSION SOURCE / OPERATION / ACTIVITY	DEVICE ID #	CRITERIA EMISSIONS (tons per year)							
		TSP	PM_{10}	$PM_{2.5}$	CO	NOx	TOG	ROG / VOC	SOx
BULLDOZING, SCRAPING AND GRADING OF MATERIAL	90004	12.717	6.187	1.890					
LOADING OF MATERIAL(S) MINE / QUARRY / PIT	90005	0.126	0.062	0.019					
AGGREGATE HANDLING, CRUSHING, AND SCREENING #1	90001	7.669	2.489	0.781					
STOCKPILES - WIND EROSION	90006	0.138	0.069	0.028					
EXHAUST - MOBILE AND VEHICULAR EQUIPMENT	90100	0.674	0.670	0.670	3.281	10.609	1.059	1.024	1.273
UNPAVED ROADS - ENTRAINED DUST	90008	259.627	78.106	11.976					
WIND EROSION FROM UNPAVED OPERATIONAL AREAS AND ROADS	90009	75.424	37.712	15.085					
GRAND TOTAL		356.375	125.295	30.449	3.281	10.609	1.059	1.024	1.273

APPENDIX 3.4:

BLASTING CALCULATION

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Gilman Springs Mine-County of Riverside
Blasting Emissions

15 blasts/year[1]
15 days[1]
1500 max charge weight, lbs./blast[1]
15,000 sq ft blasted/day[2]

Pollutant	Source	Emission Factor	Units	Maximum Daily (lbs/day)
ROG	3	NA	lb/ton	-
NOx	3	17	lb/ton	12.75
CO	3	67	lb/ton	50.25
SOx	3	2	lb/ton	1.50
PM_{10}	4	-	lb/blast	6.69
$PM_{2.5}$	4	-	lb/blast	1.404

Sources:

1. Urban Crossroads Noise Study Report 11381-12
2. Information from Project Applicant
3. AP-42, Section 13.4, Table 13,3-1 for ANFO
4. Western Regional Air Partnership
   PM_{10} = .000014(A)^1.5*.52 lbs PM10/lbs TSP *(1- CE)[5]
   PM2.5 = .000014(A)^1.5*.52 lbs PM10/lbs TSP*.21*(1-CE)
5. Control Efficiency (CE) = 50.00%, pre-wetting blasting areas and stabilizing soils once blasting is complete. (Western Regional air Partnership)

APPENDIX 3.5:

AERMOD LST OUTPUTS

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How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.48341
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.002384207

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	0.13017
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	6.92224E-05

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.30972
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.002291841

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	0.10797
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	5.74167E-05

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.53768
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.002413067

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	0.14619
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	7.77415E-05

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.32745
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.00230127

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	0.12154
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	6.46331E-05

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.59096
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.0024414

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	0.14076
MOLECULAR WEIGHT	46.0055
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	7.4854E-05

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.51513
MOLECULAR WEIGHT	28.01
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.003943686

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	2.93853
MOLECULAR WEIGHT	28.01
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.002566624

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	4.51513
MOLECULAR WEIGHT	28.01
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.003943686

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

CONVERSION OF MICROGRAMS PER CUBIC METER TO PPM

MICROGRAMS PER CUBIC METER CONCENTRATION	2.93853
MOLECULAR WEIGHT	28.01
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.002566624

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
The result appears in cell B20.

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MOLECULAR WEIGHT	28.01
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.003943686

How to use:
Column A requests a value. Enter that value in column B.
Be sure to enter all four requested values.
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TEMPERATURE IN DEG CELSIUS	25
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CONCENTRATION IN PPM	0.002566624

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MOLECULAR WEIGHT	28.01
TEMPERATURE IN DEG CELSIUS	25
ATMOSPHERIC PRESSURE IN mmHg (use 760 if unsure)	760
CONCENTRATION IN PPM	0.002566624

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\CO 2011\CO 2011.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc
   MODELOPT DFAULT CONC
   AVERTIME 1 8
   URBANOPT 2189641
   POLLUTID CO
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "CO 2011.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       6.5484E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
```

```
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "CO 2011.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
```

```
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2011 1 1 1 2011 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 8 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "CO 2011.AD\01H1GALL.PLT" 31
   PLOTFILE 8 ALL 1ST "CO 2011.AD\08H1GALL.PLT" 32
   SUMMFILE "CO 2011.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:33:08
```

```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  CO

 **Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Highest Short Term Values by Receptor (RECTABLE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: CO 2011.err

**File for Summary of Results: CO 2011.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
PAREA1	0	0.65484E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs
2189641.	PAREA1 ,	

```
                                  CO 2011
Mine\CO\CO.isc                    ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       16:33:08

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

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

     ( 493604.1, 3749470.0,     448.7,     715.0,       2.0);         ( 494966.5,
3748776.7,     454.9,     715.0,       2.0);
     ( 495914.4, 3747615.9,     444.0,     715.0,       2.0);         ( 498329.3,
3746298.3,     482.4,     789.0,       2.0);
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                    ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       16:33:08

                                   PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1

                       METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2011   1
1  1
                                                     AND END DATE: 2011  12
31 24
```

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5

```
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	2.40907	(11112920)	494966.48	3748776.67	4.40936	(11090520)
495914.36	3747615.90	4.31722	(11011808)	498329.27	3746298.33	2.92231	(11123018)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)

493604.13 3749469.99 0.56559c (11102224) 494966.48 3748776.67 1.95465 (11010224)
495914.36 3747615.90 2.70773 (11010408) 498329.27 3746298.33 0.77112c (11090608)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

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

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	4.40936	ON 11090520: AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

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

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

ALL      HIGH   1ST HIGH VALUE IS       2.70773  ON 11010408: AT (  495914.36,
3747615.90,   444.00,   715.00,    2.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:33:08

                                  PAGE  12
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

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

 A Total of           0 Fatal Error Message(s)
 A Total of           2 Warning Message(s)
 A Total of         177 Informational Message(s)

 A Total of        8760 Hours Were Processed

 A Total of          38 Calm Hours Identified

 A Total of         139 Missing Hours Identified (  1.59 Percent)


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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

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

**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\CO 2012\CO 2012.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc
   MODELOPT DFAULT CONC
   AVERTIME 1 8
   URBANOPT 2189641
   POLLUTID CO
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "CO 2012.err"
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       6.5484E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
```

```
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "CO 2012.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
```

```
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2012 1 1 1 2012 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 8 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "CO 2012.AD\01H1GALL.PLT" 31
   PLOTFILE 8 ALL 1ST "CO 2012.AD\08H1GALL.PLT" 32
   SUMMFILE "CO 2012.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

```
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***         16:33:43

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  CO

 **Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
```

```
                    0 POINTCAP(s) and      0 POINTHOR(s)
               and:      0 VOLUME source(s)
               and:      1 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 Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   CO 2012.err

 **File for Summary of Results:   CO 2012.sum

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:33:43
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR VARY BY	URBAN SOURCE
PAREA1	0	0.65484E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs

-------- --------- ----------

2189641. PAREA1 ,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** *** 16:33:43

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** *** 16:33:43

PAGE 6
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

CO 2011
METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2012 1 1 1
AND END DATE: 2012 12 31 24

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

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

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23						

```
1.00    5.80  113.    9.1  273.8    5.5
 11 01 01   1 03  -50.2  0.519 -9.000 -9.000 -999.  899.    296.1  0.15   4.23
1.00    5.40  112.    9.1  273.1    5.5
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
```

```
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP:  ALL      ***
                                   INCLUDING SOURCE(S):     PAREA1      ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        493604.13   3749469.99        2.40246  (12020306)                494966.48   3748776.67        4.08611  (12091422)
        495914.36   3747615.90        4.23854  (12112407)                498329.27   3746298.33        2.72251  (12120421)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                               *** THE   1ST HIGHEST  8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP:  ALL      ***
                                   INCLUDING SOURCE(S):     PAREA1      ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                         ** CONC OF CO       IN MICROGRAMS/M**3
                    **
```

```
      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        493604.13   3749469.99        0.69920  (12112308)               494966.48
 3748776.67        2.16802  (12020408)
        495914.36   3747615.90        2.93853  (12112408)               498329.27
 3746298.33        0.97622c (12120424)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:33:43

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

                                                *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


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

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

ALL      HIGH   1ST HIGH VALUE IS       4.23854  ON 12112407: AT (  495914.36,
3747615.90,   444.00,   715.00,    2.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:33:43

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

                                                *** THE SUMMARY OF HIGHEST  8-HR
```

RESULTS ***

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

GROUP ID	AVERAGE	CONC OF TYPE	NETWORK GRID-ID	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)
ALL	HIGH	1ST HIGH VALUE IS	2.93853	ON 12112408:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** *** 16:33:43

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 545 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 26 Calm Hours Identified

A Total of 342 Missing Hours Identified (3.89 Percent)

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

```
    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\CO 2013\CO 2013.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc
   MODELOPT DFAULT CONC
   AVERTIME 1 8
   URBANOPT 2189641
   POLLUTID CO
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "CO 2013.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
```

```
                                    CO 2011
   SRCPARAM PAREA1       6.5484E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "CO 2013.rou"
RE FINISHED
**
**************************************
```

```
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2013 1 1 1 2013 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 8 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "CO 2013.AD\01H1GALL.PLT" 31
   PLOTFILE 8 ALL 1ST "CO 2013.AD\08H1GALL.PLT" 32
   SUMMFILE "CO 2013.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:34:18

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  CO

 **Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR
```

```
 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   CO 2013.err

 **File for Summary of Results:   CO 2013.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR VARY BY	URBAN SOURCE
PAREA1	0	0.65484E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

2189641.   PAREA1   ,

*** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc   ***   12/10/19
*** AERMET - VERSION 16216 ***   ***   ***   16:34:18

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0,   448.7,   715.0,   2.0);   (494966.5, 3748776.7,   454.9,   715.0,   2.0);
(495914.4, 3747615.9,   444.0,   715.0,   2.0);   (498329.3, 3746298.3,   482.4,   789.0,   2.0);

*** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc   ***   12/10/19
*** AERMET - VERSION 16216 ***   ***   ***   16:34:18

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1

CO 2011
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2013   1
1 1
AND END DATE: 2013 12
31 24

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

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

1.54,   3.09,   5.14,   8.23,
10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011   Year: 2011

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
- -

```
- - - - - - - - - - - - - - - - - - - -
 11 01 01   1 01  -50.0  0.519 -9.000 -9.000 -999.  897.    296.2  0.15   4.23
1.00    5.40  108.    9.1  274.2    5.5
 11 01 01   1 02  -54.0  0.559 -9.000 -9.000 -999. 1002.    343.7  0.15   4.23
1.00    5.80  113.    9.1  273.8    5.5
 11 01 01   1 03  -50.2  0.519 -9.000 -9.000 -999.  899.    296.1  0.15   4.23
1.00    5.40  112.    9.1  273.1    5.5
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
```

1.00   2.70   76.   9.1 272.5   5.5

First hour of profile data
YR MO DY HR HEIGHT F WDIR   WSPD AMB_TMP sigmaA sigmaW sigmaV
11 01 01 01   5.5 0 -999. -99.00   274.3   99.0 -99.00 -99.00
11 01 01 01   9.1 1 108.   5.40 -999.0   99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc   ***   12/10/19
*** AERMET - VERSION 16216 ***   ***
***   16:34:18

PAGE   8
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   PAREA1   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	2.05452	(13020220)	494966.48	3748776.67	4.46273	(13122804)
495914.36	3747615.90	4.16778	(13032321)	498329.27	3746298.33	2.78955	(13011223)

↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc   ***   12/10/19
*** AERMET - VERSION 16216 ***   ***
***   16:34:18

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

*** THE   1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   PAREA1   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS

***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.88666	(13022724)	494966.48	3748776.67	2.17204	(13112308)
495914.36	3747615.90	2.63763	(13010508)	498329.27	3746298.33	0.77434	(13120108)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

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

GROUP ID	AVERAGE	NETWORK CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	4.46273	ON 13122804:	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

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

GROUP ID	AVERAGE	NETWORK CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	2.63763	ON 13010508: AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 878 Informational Message(s)

A Total of 8760 Hours Were Processed

A Total of 0 Calm Hours Identified

A Total of 333 Missing Hours Identified (3.80 Percent)

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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
**
*****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\CO 2014\CO 2014.ADI
**
*****************************************
**
**
*****************************************
** AERMOD Control Pathway
*****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc
   MODELOPT DFAULT CONC
   AVERTIME 1 8
   URBANOPT 2189641
   POLLUTID CO
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "CO 2014.err"
CO FINISHED
**
*****************************************
** AERMOD Source Pathway
*****************************************
**
**
SO STARTING
** Source Location **
```

```
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       6.5484E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
```

```
   INCLUDED "CO 2014.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2014 1 1 1 2014 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 8 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "CO 2014.AD\01H1GALL.PLT" 31
   PLOTFILE 8 ALL 1ST "CO 2014.AD\08H1GALL.PLT" 32
   SUMMFILE "CO 2014.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       16:35:43

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.
```

```
 **The User Specified a Pollutant Type of:  CO

 **Model Calculates  2 Short Term Average(s) of:   1-HR   8-HR

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out
```

**Detailed Error/Message File: CO 2014.err

**File for Summary of Results: CO 2014.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR VARY BY	URBAN SOURCE
PAREA1	0	0.65484E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

PAGE 4

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

2189641. PAREA1 ,

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:35:43

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:35:43

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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

                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2014   1
1  1
                                                  AND END DATE: 2014  12
31 24

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



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

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       16:35:43

                                   PAGE   7
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

   Surface file:   BNAP_V9_ADJU\BNAP_v9.SFC
                  Met Version:  16216
   Profile file:   BNAP_V9_ADJU\BNAP_v9.PFL

   Surface format: FREE

   Profile format: FREE

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

                  Year:   2011                                 Year:   2011
```

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	85.	9.1	273.1	5.5
11	01	01	1	21	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	82.	9.1	273.1	5.5
11	01	01	1	22	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23						

1.00   2.70   64.   9.1 272.5   5.5
 11 01 01   1 23 -24.5 0.252 -9.000 -9.000 -999. 304.   69.8 0.15   4.23
1.00   2.70   61.   9.1 272.5   5.5
 11 01 01   1 24 -24.5 0.252 -9.000 -9.000 -999. 304.   69.8 0.15   4.23
1.00   2.70   76.   9.1 272.5   5.5

 First hour of profile data
 YR MO DY HR HEIGHT F WDIR   WSPD AMB_TMP sigmaA sigmaW sigmaV
 11 01 01 01   5.5 0 -999. -99.00   274.3   99.0 -99.00 -99.00
 11 01 01 01   9.1 1 108.   5.40 -999.0   99.0 -99.00 -99.00

 F indicates top of profile (=1) or below (=0)

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                              *** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL   ***
                                  INCLUDING SOURCE(S):   PAREA1   ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M) Y-COORD (M)   CONC   (YYMMDDHH)   X-COORD (M)
Y-COORD (M)   CONC   (YYMMDDHH)
 -
- -
        493604.13   3749469.99   2.22555 (14121421)   494966.48
 3748776.67   4.25597 (14080306)
        495914.36   3747615.90   3.87171 (14011722)   498329.27
 3746298.33   2.72168 (14010703)

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                              *** THE   1ST HIGHEST 8-HR AVERAGE CONCENTRATION

CO 2011
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-COORD (M) Y-COORD (M) CONC (YYMMDDHH)
- -
493604.13 3749469.99 0.91632 (14120308) 494966.48 3748776.67 2.90482 (14120308)
495914.36 3747615.90 2.53950 (14122808) 498329.27 3746298.33 0.77286 (14010708)

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** *** 16:35:43

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

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

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

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

ALL HIGH 1ST HIGH VALUE IS 4.25597 ON 14080306: AT (494966.48, 3748776.67, 454.89, 715.00, 2.00) DC

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

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

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

GROUP ID	AVERAGE	CONC OF TYPE	NETWORK GRID-ID	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)
ALL	HIGH 1ST HIGH VALUE IS	2.90482	ON	14120308:	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)

DC

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 1077 Informational Message(s)

A Total of 8760 Hours Were Processed

A Total of 0 Calm Hours Identified

```
 A Total of          199 Missing Hours Identified (  2.27 Percent)


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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
**
*****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\CO 2015\CO 2015.ADI
**
*****************************************
**
**
*****************************************
** AERMOD Control Pathway
*****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc
   MODELOPT DFAULT CONC
   AVERTIME 1 8
   URBANOPT 2189641
   POLLUTID CO
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "CO 2015.err"
CO FINISHED
**
*****************************************
** AERMOD Source Pathway
*****************************************
```

```
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       6.5484E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
```

```
**************************************
**
**
RE STARTING
   INCLUDED "CO 2015.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2015 1 1 1 2015 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   RECTABLE 8 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "CO 2015.AD\01H1GALL.PLT" 31
   PLOTFILE 8 ALL 1ST "CO 2015.AD\08H1GALL.PLT" 32
   SUMMFILE "CO 2015.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       16:36:56

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
```

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: CO

**Model Calculates 2 Short Term Average(s) of: 1-HR 8-HR

**This Run Includes: 1 Source(s); 1 Source Group(s); and 4 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 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 Highest Short Term Values by Receptor (RECTABLE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: CO 2015.err

**File for Summary of Results: CO 2015.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
PAREA1	0	0.65484E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES	

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc ***
*** AERMET - VERSION 16216 *** *** 12/10/19
*** 16:36:56

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

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

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

             2189641.   PAREA1   ,

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

     (493604.1, 3749470.0,   448.7,   715.0,   2.0);   (494966.5,
3748776.7,   454.9,   715.0,   2.0);
     (495914.4, 3747615.9,   444.0,   715.0,   2.0);   (498329.3,
3746298.3,   482.4,   789.0,   2.0);

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

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2015   1
1 1
AND END DATE: 2015 12
31 24

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

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

1.54,   3.09,   5.14,   8.23,
10.80,
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\CO\CO.isc   ***   12/10/19
*** AERMET - VERSION 16216 ***   ***
***   16:36:56

PAGE   7
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Name: UNKNOWN Name: UNKNOWN

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23						

```
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     PAREA1      ,

                                           *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        493604.13   3749469.99        2.03100  (15011024)               494966.48
 3748776.67        4.51513  (15020522)
        495914.36   3747615.90        4.04837  (15123003)               498329.27
 3746298.33        3.02145  (15100923)
```

*** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\CO\CO.isc   ***   12/10/19
 *** AERMET - VERSION 16216 ***   ***
                       ***   16:36:56

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	1.04583	(15012708)	494966.48	3748776.67	2.25627	(15112908)
495914.36	3747615.90	2.40308	(15011724)	498329.27	3746298.33	0.52983	(15101008)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

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

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	4.51513	ON 15020522:	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

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

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	2.40308	ON 15011724:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 1311 Informational Message(s)

```
A Total of         8760 Hours Were Processed

A Total of            0 Calm Hours Identified

A Total of          234 Missing Hours Identified (  2.67 Percent)


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


   ********   WARNING MESSAGES   ********
ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\NO2 2011\NO2 2011.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc
   MODELOPT DFAULT CONC ARM2
   AVERTIME 1 ANNUAL
   URBANOPT 2189641
   POLLUTID NO2
   FLAGPOLE 2.00
   RUNORNOT RUN
** NO2 Conversion Options
   ARMRATIO 0.900 0.900
   ERRORFIL "NO2 2011.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       7.3982E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
```

```
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "NO2 2011.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
```

```
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2011 1 1 1 2011 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "NO2 2011.AD\01H1GALL.PLT" 31
   PLOTFILE ANNUAL ALL "NO2 2011.AD\AN00GALL.PLT" 32
   SUMMFILE "NO2 2011.sum"
OU FINISHED


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

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

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


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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

```
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        16:39:14

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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     1 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. Ambient Ratio Method Ver 2 (ARM2) Used for NO2 Conversion
              with a Minimum NO2/NOx Ratio of  0.900
               and a Maximum NO2/NOx Ratio of  0.900
        7. Urban Roughness Length of 1.0 Meter Assumed.

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

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  NO2

 **Note that special processing requirements apply for the 1-hour NO2 NAAQS - check
available guidance.
   Model will process user-specified ranks of daily maximum 1-hour values averaged
```

across the number of years modeled.
   For annual NO2 NAAQS modeling, the multi-year maximum of PERIOD values can be simulated using the MULTYEAR keyword.
   Multi-year PERIOD and 1-hour values should only be done in a single model run using the MULTYEAR option with a
   single multi-year meteorological data file using STARTEND keyword.

 **Model Calculates 1 Short Term Average(s) of: 1-HR
     and Calculates ANNUAL Averages

 **This Run Includes: 1 Source(s);   1 Source Group(s); and   4 Receptor(s)

                with: 0 POINT(s), including
                           0 POINTCAP(s) and   0 POINTHOR(s)
                 and: 0 VOLUME source(s)
                 and: 1 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 Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
          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) =   660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: NO2 2011.err

**File for Summary of Results: NO2 2011.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR	URBAN SOURCE VARY BY
PAREA1	0	0.73982E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs

```
  ALL        PAREA1      ,
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        16:39:14

                                   PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*


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

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



             2189641.   PAREA1      ,
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        16:39:14

                                   PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

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

     ( 493604.1, 3749470.0,     448.7,     715.0,       2.0);         ( 494966.5,
3748776.7,     454.9,     715.0,       2.0);
     ( 495914.4, 3747615.9,     444.0,     715.0,       2.0);         ( 498329.3,
3746298.3,     482.4,     789.0,       2.0);
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        16:39:14

                                   PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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
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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

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2011 1 1 1

AND END DATE: 2011 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5

```
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     PAREA1      ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF NO2      IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                        X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.03395                       494966.48
3748776.67        0.10089
         495914.36    3747615.90        0.13017                       498329.27
3746298.33        0.01908
```

NO2 2011
*** AERMET - VERSION 16216 *** ***
*** 16:39:14

PAGE 9
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE 1ST-HIGHEST MAX DAILY 1-HR AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	2.44953	494966.48	3748776.67	4.48341
495914.36	3747615.90	4.38972	498329.27	3746298.33	2.97139

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:39:14

PAGE 10
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

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

ALL 1ST HIGHEST VALUE IS 0.13017 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC

```
          2ND HIGHEST VALUE IS       0.10089 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       0.03395 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          4TH HIGHEST VALUE IS       0.01908 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↟ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***         16:39:14

                                   PAGE  11
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                     *** THE SUMMARY OF MAXIMUM   1ST-HIGHEST MAX DAILY  1-HR
RESULTS AVERAGED OVER   1 YEARS ***


                                  ** CONC OF NO2      IN MICROGRAMS/M**3
               **


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

ALL       1ST HIGHEST VALUE IS       4.48341 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
```

```
          2ND HIGHEST VALUE IS       4.38972 AT (  495914.36,  3747615.90,
444.00,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       2.97139 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          4TH HIGHEST VALUE IS       2.44953 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↟ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***         16:39:14

                                   PAGE  12
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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          177 Informational Message(s)

 A Total of         8760 Hours Were Processed

 A Total of           38 Calm Hours Identified

 A Total of          139 Missing Hours Identified (  1.59 Percent)


    ******** FATAL ERROR MESSAGES ********
```

```
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

**
*****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\NO2 2012\NO2 2012.ADI
**
*****************************************
**
**
*****************************************
** AERMOD Control Pathway
*****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc
   MODELOPT DFAULT CONC ARM2
   AVERTIME 1 ANNUAL
   URBANOPT 2189641
   POLLUTID NO2
   FLAGPOLE 2.00
   RUNORNOT RUN
** NO2 Conversion Options
   ARMRATIO 0.900 0.900
   ERRORFIL "NO2 2012.err"
CO FINISHED
**
*****************************************
```

```
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       7.3982E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
```

```
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "NO2 2012.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2012 1 1 1 2012 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "NO2 2012.AD\01H1GALL.PLT" 31
   PLOTFILE ANNUAL ALL "NO2 2012.AD\AN00GALL.PLT" 32
   SUMMFILE "NO2 2012.sum"
OU FINISHED


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

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

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

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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:40:19

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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     1 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. Ambient Ratio Method Ver 2 (ARM2) Used for NO2 Conversion
               with a Minimum NO2/NOx Ratio of  0.900
                and a Maximum NO2/NOx Ratio of  0.900
         7. Urban Roughness Length of 1.0 Meter Assumed.

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

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  NO2

 **Note that special processing requirements apply for the 1-hour NO2 NAAQS - check
available guidance.
   Model will process user-specified ranks of daily maximum 1-hour values averaged
across the number of years modeled.
   For annual NO2 NAAQS modeling, the multi-year maximum of PERIOD values can be
simulated using the MULTYEAR keyword.
   Multi-year PERIOD and 1-hour values should only be done in a single model run
using the MULTYEAR option with a
   single multi-year meteorological data file using STARTEND keyword.

 **Model Calculates  1 Short Term Average(s) of:   1-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
```

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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: NO2 2012.err

**File for Summary of Results: NO2 2012.sum

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** *** 16:40:19

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

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

PAREA1 0 0.73982E-06 496097.8 3749022.3 611.9 5.00 65
0.00 YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs
2189641.	PAREA1 ,	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

NO2 2011

```
     ( 493604.1, 3749470.0,     448.7,     715.0,       2.0);         ( 494966.5,
3748776.7,     454.9,     715.0,       2.0);
     ( 495914.4, 3747615.9,     444.0,     715.0,       2.0);         ( 498329.3,
3746298.3,     482.4,     789.0,       2.0);
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       16:40:19

                                  PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

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

            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1

                       METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2012   1
1  1
                                                        AND END DATE: 2012  12
31 24

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



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

                                                  1.54,   3.09,   5.14,   8.23,
10.80,
```

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** 16:40:19

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23						

```
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                    ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:40:19

                                  PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     PAREA1      ,
```

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	0.03362	494966.48	3748776.67	0.09085
495914.36	3747615.90	0.10797	498329.27	3746298.33	0.01575

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE 1ST-HIGHEST MAX DAILY 1-HR AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	2.44281	494966.48	3748776.67	4.15474
495914.36	3747615.90	4.30972	498329.27	3746298.33	2.76824

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

NETWORK GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.10797 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	0.09085 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	0.03362 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	0.01575 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	7TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	8TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM 1ST-HIGHEST MAX DAILY 1-HR RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	4.30972 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	4.15474 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	2.76824 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	2.44281 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	7TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	8TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 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          545 Informational Message(s)

 A Total of         8784 Hours Were Processed

 A Total of           26 Calm Hours Identified

 A Total of          342 Missing Hours Identified (  3.89 Percent)


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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\NO2 2013\NO2 2013.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
```

```
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc
   MODELOPT DFAULT CONC ARM2
   AVERTIME 1 ANNUAL
   URBANOPT 2189641
   POLLUTID NO2
   FLAGPOLE 2.00
   RUNORNOT RUN
** NO2 Conversion Options
   ARMRATIO 0.900 0.900
   ERRORFIL "NO2 2013.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       7.3982E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
```

```
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "NO2 2013.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2013 1 1 1 2013 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
```

```
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "NO2 2013.AD\01H1GALL.PLT" 31
   PLOTFILE ANNUAL ALL "NO2 2013.AD\AN00GALL.PLT" 32
   SUMMFILE "NO2 2013.sum"
OU FINISHED


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

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

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


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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

↟ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:41:15

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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     1 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. Ambient Ratio Method Ver 2 (ARM2) Used for NO2 Conversion
               with a Minimum NO2/NOx Ratio of  0.900
                and a Maximum NO2/NOx Ratio of  0.900
         7. Urban Roughness Length of 1.0 Meter Assumed.

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

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  NO2

 **Note that special processing requirements apply for the 1-hour NO2 NAAQS - check
available guidance.
   Model will process user-specified ranks of daily maximum 1-hour values averaged
across the number of years modeled.
   For annual NO2 NAAQS modeling, the multi-year maximum of PERIOD values can be
simulated using the MULTYEAR keyword.
   Multi-year PERIOD and 1-hour values should only be done in a single model run
using the MULTYEAR option with a
   single multi-year meteorological data file using STARTEND keyword.

 **Model Calculates  1 Short Term Average(s) of:   1-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
```

```
                    0 POINTCAP(s) and      0 POINTHOR(s)
               and:      0 VOLUME source(s)
               and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   NO2 2013.err

 **File for Summary of Results:   NO2 2013.sum

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
PAREA1	0	0.73982E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

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


             2189641.   PAREA1      ,
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                          ***      16:41:15

                                   PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

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

     ( 493604.1, 3749470.0,     448.7,     715.0,       2.0);         ( 494966.5,
3748776.7,     454.9,     715.0,       2.0);
     ( 495914.4, 3747615.9,     444.0,     715.0,       2.0);         ( 498329.3,
3746298.3,     482.4,     789.0,       2.0);
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                          ***      16:41:15

                                   PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

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

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

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2013 1 1 1

AND END DATE: 2013 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

↟ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19

*** AERMET - VERSION 16216 *** *** *** 16:41:15

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5

```
 11 01 01   1 02  -54.0  0.559 -9.000 -9.000 -999. 1002.    343.7  0.15   4.23
1.00    5.80  113.    9.1  273.8    5.5
 11 01 01   1 03  -50.2  0.519 -9.000 -9.000 -999.  899.    296.1  0.15   4.23
1.00    5.40  112.    9.1  273.1    5.5
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5
```

```
 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       16:41:15

                                   PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     PAREA1      ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF NO2      IN MICROGRAMS/M**3
                     **

       X-COORD (M)   Y-COORD (M)        CONC                        X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.04440                       494966.48
3748776.67        0.12244
         495914.36    3747615.90        0.14619                       498329.27
3746298.33        0.01681
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                     ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       16:41:15

                                   PAGE   9
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

    *** THE   1ST-HIGHEST MAX DAILY 1-HR AVERAGE CONCENTRATION    VALUES AVERAGED
OVER   1 YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     PAREA1      ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF NO2      IN MICROGRAMS/M**3
```

```
                  **

       X-COORD (M)   Y-COORD (M)        CONC                        X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        2.08902                       494966.48
3748776.67        4.53768
         495914.36    3747615.90        4.23778                       498329.27
3746298.33        2.83640
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:41:15

                                  PAGE  10
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                                  *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   1 YEARS ***


                                   ** CONC OF NO2      IN MICROGRAMS/M**3
              **


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

ALL       1ST HIGHEST VALUE IS       0.14619 AT (  495914.36,  3747615.90,
444.00,   715.00,    2.00)  DC
          2ND HIGHEST VALUE IS       0.12244 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       0.04440 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          4TH HIGHEST VALUE IS       0.01681 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
```

9TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
10TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM 1ST-HIGHEST MAX DAILY 1-HR RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	4.53768	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC
	2ND HIGHEST VALUE IS	4.23778	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC
	3RD HIGHEST VALUE IS	2.83640	AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC
	4TH HIGHEST VALUE IS	2.08902	AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC
	5TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)	
	6TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)	
	7TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)	
	8TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)	

```
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                    ***        12/10/19
 *** AERMET - VERSION  16216 ***    ***
                       ***          16:41:15

                                    PAGE  12
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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          878 Informational Message(s)

 A Total of         8760 Hours Were Processed

 A Total of            0 Calm Hours Identified

 A Total of          333 Missing Hours Identified (  3.80 Percent)


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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    **********************************
```

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

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\NO2 2014\NO2 2014.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc
   MODELOPT DFAULT CONC ARM2
   AVERTIME 1 ANNUAL
   URBANOPT 2189641
   POLLUTID NO2
   FLAGPOLE 2.00
   RUNORNOT RUN
** NO2 Conversion Options
   ARMRATIO 0.900 0.900
   ERRORFIL "NO2 2014.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       7.3982E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
```

```
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "NO2 2014.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
```

```
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2014 1 1 1 2014 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "NO2 2014.AD\01H1GALL.PLT" 31
   PLOTFILE ANNUAL ALL "NO2 2014.AD\AN00GALL.PLT" 32
   SUMMFILE "NO2 2014.sum"
OU FINISHED


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

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

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


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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        16:42:05

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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     1 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. Ambient Ratio Method Ver 2 (ARM2) Used for NO2 Conversion
              with a Minimum NO2/NOx Ratio of  0.900
               and a Maximum NO2/NOx Ratio of  0.900
        7. Urban Roughness Length of 1.0 Meter Assumed.

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

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  NO2
```

```
 **Note that special processing requirements apply for the 1-hour NO2 NAAQS - check
available guidance.
   Model will process user-specified ranks of daily maximum 1-hour values averaged
across the number of years modeled.
   For annual NO2 NAAQS modeling, the multi-year maximum of PERIOD values can be
simulated using the MULTYEAR keyword.
   Multi-year PERIOD and 1-hour values should only be done in a single model run
using the MULTYEAR option with a
   single multi-year meteorological data file using STARTEND keyword.

 **Model Calculates  1 Short Term Average(s) of:   1-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: NO2 2014.err

**File for Summary of Results: NO2 2014.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR VARY BY	URBAN SOURCE
PAREA1	0	0.73982E-06	496097.8	3749022.3	611.9	5.00	65	0.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

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

ALL PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

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

2189641. PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***

(1=YES; 0=NO)

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

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2014 1 1 1

AND END DATE: 2014 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23						

```
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                 INCLUDING SOURCE(S):     PAREA1      ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF NO2      IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                        X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.03685                      494966.48
3748776.67        0.09659
         495914.36    3747615.90        0.12154                      498329.27
```

3746298.33 0.01105

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE 1ST-HIGHEST MAX DAILY 1-HR AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	2.26293	494966.48	3748776.67	4.32745
495914.36	3747615.90	3.93673	498329.27	3746298.33	2.76739

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:42:05

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

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

```
ALL       1ST HIGHEST VALUE IS       0.12154 AT (  495914.36,  3747615.90,
444.00,   715.00,    2.00)  DC
          2ND HIGHEST VALUE IS       0.09659 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       0.03685 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          4TH HIGHEST VALUE IS       0.01105 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:42:05

                                  PAGE  11
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*

                     *** THE SUMMARY OF MAXIMUM   1ST-HIGHEST MAX DAILY  1-HR
RESULTS AVERAGED OVER   1 YEARS ***


                                  ** CONC OF NO2      IN MICROGRAMS/M**3
              **


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

```
ALL       1ST HIGHEST VALUE IS       4.32745 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          2ND HIGHEST VALUE IS       3.93673 AT (  495914.36,  3747615.90,
444.00,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       2.76739 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          4TH HIGHEST VALUE IS       2.26293 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:42:05

                                  PAGE  12
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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         1077 Informational Message(s)

 A Total of         8760 Hours Were Processed

 A Total of            0 Calm Hours Identified

 A Total of          199 Missing Hours Identified (  2.27 Percent)
```

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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/10/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\NO2 2015\NO2 2015.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc
   MODELOPT DFAULT CONC ARM2
   AVERTIME 1 ANNUAL
   URBANOPT 2189641
   POLLUTID NO2
   FLAGPOLE 2.00
   RUNORNOT RUN
** NO2 Conversion Options
   ARMRATIO 0.900 0.900
   ERRORFIL "NO2 2015.err"
```

```
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       7.3982E-07     5.000        65     0.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
```

```
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "NO2 2015.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2015 1 1 1 2015 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "NO2 2015.AD\01H1GALL.PLT" 31
   PLOTFILE ANNUAL ALL "NO2 2015.AD\AN00GALL.PLT" 32
   SUMMFILE "NO2 2015.sum"
OU FINISHED


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

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

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

```
 A Total of            0 Informational Message(s)


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


    ********   WARNING MESSAGES   ********
 CO W380      27  ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361      29       COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186     102       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     102       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                   ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        16:43:00

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  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     1 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. Ambient Ratio Method Ver 2 (ARM2) Used for NO2 Conversion
with a Minimum NO2/NOx Ratio of 0.900
and a Maximum NO2/NOx Ratio of 0.900
7. Urban Roughness Length of 1.0 Meter Assumed.

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

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: NO2

**Note that special processing requirements apply for the 1-hour NO2 NAAQS - check available guidance.
Model will process user-specified ranks of daily maximum 1-hour values averaged across the number of years modeled.
For annual NO2 NAAQS modeling, the multi-year maximum of PERIOD values can be simulated using the MULTYEAR keyword.
Multi-year PERIOD and 1-hour values should only be done in a single model run using the MULTYEAR option with a
single multi-year meteorological data file using STARTEND keyword.

**Model Calculates 1 Short Term Average(s) of: 1-HR
and Calculates ANNUAL Averages

**This Run Includes: 1 Source(s); 1 Source Group(s); and 4 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 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 Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: NO2 2015.err

**File for Summary of Results: NO2 2015.sum

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** *** *** 16:43:00

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

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

- -

PAREA1 0 0.73982E-06 496097.8 3749022.3 611.9 5.00 65
0.00 YES
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:43:00

PAGE 3
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

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

ALL PAREA1 ,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:43:00

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

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

2189641. PAREA1 ,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:43:00

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***

NO2 2011
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(493604.1, 3749470.0,   448.7,   715.0,   2.0);   (494966.5, 3748776.7,   454.9,   715.0,   2.0);
(495914.4, 3747615.9,   444.0,   715.0,   2.0);   (498329.3, 3746298.3,   482.4,   789.0,   2.0);

↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc   ***   12/10/19
*** AERMET - VERSION 16216 ***   ***
***   16:43:00

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2015   1 1 1
AND END DATE: 2015 12 31 24

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

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

1.54, 3.09, 5.14, 8.23,
10.80,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\NO2\NO2.isc *** 12/10/19
*** AERMET - VERSION 16216 *** ***
*** 16:43:00

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5

```
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\NO2\NO2.isc                  ***        12/10/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        16:43:00

                                  PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  ARM2  URBAN  ADJ_U*
```

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	0.04038	494966.48	3748776.67	0.12072
495914.36	3747615.90	0.14076	498329.27	3746298.33	0.01696

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE 1ST-HIGHEST MAX DAILY 1-HR AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	2.06511	494966.48	3748776.67	4.59096
495914.36	3747615.90	4.11637	498329.27	3746298.33	3.07220

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.14076 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	0.12072 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	0.04038 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	0.01696 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	7TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	8TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM 1ST-HIGHEST MAX DAILY 1-HR RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

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

ALL 1ST HIGHEST VALUE IS 4.59096 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00) DC
2ND HIGHEST VALUE IS 4.11637 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC
3RD HIGHEST VALUE IS 3.07220 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00) DC
4TH HIGHEST VALUE IS 2.06511 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00) DC
5TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
6TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
7TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
8TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
9TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
10TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL ARM2 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   1311 Informational Message(s)

A Total of   8760 Hours Were Processed

A Total of   0 Calm Hours Identified

A Total of   234 Missing Hours Identified (2.67 Percent)

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

   ********   WARNING MESSAGES   ********
 CO W380   27 ARM2_Ratios: This Input Variable is Out-of-Range:
ARM2Min >0.5
 CO W361   29   COCARD: Multiyear PERIOD/ANNUAL values for NO2/SO2 require
MULTYEAR Opt
 ME W186   102   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
 ME W187   102   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

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

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM10 2011\PM10 2011.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_10
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM10 2011.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       2.0561E-06     0.000        65     1.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
```

```
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP UnMitiga PAREA1
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM10 2011.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
```

```
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2011 1 1 1 2011 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Maximum Annual Average POST files for Each Met Year
   POSTFILE ANNUAL UnMitiga PLOT "PM10 2011.AD\ANNUAL_G001.PLT" 31
** Auto-Generated Plotfiles
   PLOTFILE 24 UnMitiga 1ST "PM10 2011.AD\24H1G001.PLT" 32
   PLOTFILE ANNUAL UnMitiga "PM10 2011.AD\AN00G000.PLT" 33
   SUMMFILE "PM10 2011.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                  ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
```

```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: PM10 2011.err

**File for Summary of Results: PM10 2011.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	X (METERS)	Y (METERS)	ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR VARY BY	URBAN SOURCE
PAREA1	0	0.20561E-05	496097.8	3749022.3	611.9	0.00	65	1.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
UNMITIGA	PAREA1 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs

-------- --------- ----------

2189641. PAREA1 ,

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:38:26

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:38:26

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2011 1 1 1

AND END DATE: 2011 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19

*** AERMET - VERSION 16216 *** *** *** 11:38:26

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23						

```
1.00    5.80  113.    9.1  273.8    5.5
 11 01 01   1 03  -50.2  0.519 -9.000 -9.000 -999.  899.    296.1  0.15   4.23
1.00    5.40  112.    9.1  273.1    5.5
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
```

```
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```


*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: UNMITIGA ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	0.11035	494966.48	3748776.67	0.31885
495914.36	3747615.90	0.41091	498329.27	3746298.33	0.05027

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: UNMITIGA ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

```
      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        493604.13   3749469.99        0.89197  (11010524)               494966.48
 3748776.67        3.73950  (11010224)
        495914.36   3747615.90        4.44975  (11010324)               498329.27
 3746298.33        1.02362  (11123024)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:38:26

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

                                  *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   1 YEARS ***


                                   ** CONC OF PM_10    IN MICROGRAMS/M**3
             **


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

UNMITIGA  1ST HIGHEST VALUE IS      0.41091 AT (  495914.36,  3747615.90,
444.00,   715.00,    2.00)  DC
          2ND HIGHEST VALUE IS      0.31885 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS      0.11035 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          4TH HIGHEST VALUE IS      0.05027 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          5TH HIGHEST VALUE IS      0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS      0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS      0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS      0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS      0.00000 AT (       0.00,        0.00,
```

0.00,   0.00,   0.00)
         10TH HIGHEST VALUE IS   0.00000 AT (0.00,   0.00,
0.00,   0.00,   0.00)

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

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                                                *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***

                                   ** CONC OF PM_10   IN MICROGRAMS/M**3
              **

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

UNMITIGA HIGH   1ST HIGH VALUE IS   4.44975 ON 11010324: AT (495914.36,
3747615.90,   444.00,   715.00,   2.00) DC

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

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of          177 Informational Message(s)

 A Total of         8760 Hours Were Processed

 A Total of           38 Calm Hours Identified

 A Total of          139 Missing Hours Identified (  1.59 Percent)


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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM10 2012\PM10 2012.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc
   MODELOPT DFAULT CONC
```

```
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_10
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM10 2012.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       2.0561E-06     0.000        65     1.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
```

```
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP UnMitiga PAREA1
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM10 2012.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2012 1 1 1 2012 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Maximum Annual Average POST files for Each Met Year
   POSTFILE ANNUAL UnMitiga PLOT "PM10 2012.AD\ANNUAL_G001.PLT" 31
** Auto-Generated Plotfiles
   PLOTFILE 24 UnMitiga 1ST "PM10 2012.AD\24H1G001.PLT" 32
   PLOTFILE ANNUAL UnMitiga "PM10 2012.AD\AN00G000.PLT" 33
   SUMMFILE "PM10 2012.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:39:13

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         Model Outputs External File(s) of Concurrent Values for Postprocessing
(POSTFILE Keyword)
         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) =   660.00 ; 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 =   3.5 MB of RAM.

 **Input Runstream File: aermod.inp

 **Output Print File: aermod.out

 **Detailed Error/Message File: PM10 2012.err

 **File for Summary of Results: PM10 2012.sum

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                                                *** AREAPOLY SOURCE DATA ***

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

 PAREA1   0   0.20561E-05 496097.8 3749022.3   611.9   0.00   65
   1.00   YES

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
UNMITIGA	PAREA1 ,

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

URBAN ID	URBAN POP	SOURCE IDs
2189641.	PAREA1 ,	

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:39:13

PAGE 6
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2012 1 1 1
AND END DATE: 2012 12 31 24

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

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

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23						

```
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       11:39:13

                                  PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: UNMITIGA ***
                                INCLUDING SOURCE(S):     PAREA1      ,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***
```

** CONC OF PM_10 IN MICROGRAMS/M**3

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	0.11678	494966.48	3748776.67	0.28445
495914.36	3747615.90	0.33700	498329.27	3746298.33	0.03935

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: UNMITIGA ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3

X-COORD (M)	Y-COORD (M)	CONC (YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC (YYMMDDHH)
493604.13	3749469.99	1.54552 (12020724)	494966.48	3748776.67	4.75922 (12020424)
495914.36	3747615.90	5.05754c (12112424)	498329.27	3746298.33	1.11140c (12120424)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM_10 IN MICROGRAMS/M**3
**

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

UNMITIGA 1ST HIGHEST VALUE IS 0.33700 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC
2ND HIGHEST VALUE IS 0.28445 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00) DC
3RD HIGHEST VALUE IS 0.11678 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00) DC
4TH HIGHEST VALUE IS 0.03935 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00) DC
5TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
6TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
7TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
8TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
9TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)
10TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00, 0.00)

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3
**

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

UNMITIGA HIGH 1ST HIGH VALUE IS 5.05754c ON 12112424: AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC

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

↟ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:39:13

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 545 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 26 Calm Hours Identified

A Total of 342 Missing Hours Identified (3.89 Percent)

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

******** WARNING MESSAGES ********
ME W186 100 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used

```
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    ************************************
    *** AERMOD Finishes Successfully ***
    ************************************
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM10 2013\PM10 2013.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_10
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM10 2013.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       2.0561E-06     0.000        65     1.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
```

```
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP UnMitiga PAREA1
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM10 2013.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
```

```
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2013 1 1 1 2013 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Maximum Annual Average POST files for Each Met Year
   POSTFILE ANNUAL UnMitiga PLOT "PM10 2013.AD\ANNUAL_G001.PLT" 31
** Auto-Generated Plotfiles
   PLOTFILE 24 UnMitiga 1ST "PM10 2013.AD\24H1G001.PLT" 32
   PLOTFILE ANNUAL UnMitiga "PM10 2013.AD\AN00G000.PLT" 33
   SUMMFILE "PM10 2013.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

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

♠ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       11:39:51

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages
```

```
 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of Concurrent Values for Postprocessing
(POSTFILE Keyword)
          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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   PM10 2013.err
```

**File for Summary of Results: PM10 2013.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	X (METERS)	Y (METERS)	ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE BY	URBAN SOURCE	EMISSION RATE SCALAR VARY
PAREA1	0	0.20561E-05	496097.8	3749022.3	611.9	0.00	65	1.00	YES	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
UNMITIGA	PAREA1 ,

PM10 2011
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

2189641.   PAREA1   ,

↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc   ***   12/26/19
*** AERMET - VERSION 16216 ***   ***
***   11:39:51

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

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

(493604.1, 3749470.0,   448.7,   715.0,   2.0);   (494966.5, 3748776.7,   454.9,   715.0,   2.0);
(495914.4, 3747615.9,   444.0,   715.0,   2.0);   (498329.3, 3746298.3,   482.4,   789.0,   2.0);

↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc   ***   12/26/19
*** AERMET - VERSION 16216 ***   ***
***   11:39:51

PAGE   6
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1

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

                       METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2013   1
1  1
                                                           AND END DATE: 2013  12
31 24

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



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

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***         12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:39:51

                                   PAGE   7
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

   Surface file:   BNAP_V9_ADJU\BNAP_v9.SFC
                  Met Version:  16216
   Profile file:   BNAP_V9_ADJU\BNAP_v9.PFL

   Surface format: FREE

   Profile format: FREE

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

                  Year:   2011                                 Year:   2011

 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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	85.	9.1	273.1	5.5
11	01	01	1	21	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	82.	9.1	273.1	5.5
11	01	01	1	22	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	64.	9.1	272.5	5.5

```
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```

```
                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: UNMITIGA ***
                                 INCLUDING SOURCE(S):     PAREA1      ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                      ** CONC OF PM_10    IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.14934                      494966.48
3748776.67        0.38330
         495914.36    3747615.90        0.45559                      498329.27
3746298.33        0.04547
```

```
                                *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  UNMITIGA ***
```

PM10 2011
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	1.92199	(13022724)	494966.48	3748776.67	4.81906	(13112324)
495914.36	3747615.90	4.51993	(13010524)	498329.27	3746298.33	0.88177	(13120124)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
UNMITIGA	1ST HIGHEST VALUE IS	0.45559 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	0.38330 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	0.14934 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	0.04547 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		

```
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:39:51

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

                                                *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                   ** CONC OF PM_10    IN MICROGRAMS/M**3
               **

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

UNMITIGA HIGH   1ST HIGH VALUE IS       4.81906  ON 13112324: AT (  494966.48,
3748776.67,   454.89,   715.00,    2.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of   0 Fatal Error Message(s)
A Total of   2 Warning Message(s)
A Total of   878 Informational Message(s)

A Total of   8760 Hours Were Processed

A Total of   0 Calm Hours Identified

A Total of   333 Missing Hours Identified (3.80 Percent)

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

   ********   WARNING MESSAGES   ********
ME W186   100   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
ME W187   100   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

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

**
****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM10 2014\PM10 2014.ADI
**
****
**
**

```
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_10
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM10 2014.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       2.0561E-06     0.000        65     1.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
```

```
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP UnMitiga PAREA1
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM10 2014.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2014 1 1 1 2014 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
```

```
   RECTABLE 24 1ST
** Maximum Annual Average POST files for Each Met Year
   POSTFILE ANNUAL UnMitiga PLOT "PM10 2014.AD\ANNUAL_G001.PLT" 31
** Auto-Generated Plotfiles
   PLOTFILE 24 UnMitiga 1ST "PM10 2014.AD\24H1G001.PLT" 32
   PLOTFILE ANNUAL UnMitiga "PM10 2014.AD\AN00G000.PLT" 33
   SUMMFILE "PM10 2014.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       11:40:36

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: PM10 2014.err

**File for Summary of Results: PM10 2014.sum

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:40:36

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

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

PM10 2011
(METERS)   BY
 -
- -

 PAREA1   0   0.20561E-05 496097.8 3749022.3   611.9   0.00   65
   1.00   YES
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc   ***   12/26/19
 *** AERMET - VERSION 16216 ***   ***
                        ***   11:40:36

                                   PAGE   3
 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                                           *** SOURCE IDs DEFINING SOURCE GROUPS
***

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

  UNMITIGA   PAREA1   ,
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc   ***   12/26/19
 *** AERMET - VERSION 16216 ***   ***
                        ***   11:40:36

                                   PAGE   4
 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

             2189641.   PAREA1   ,
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc   ***   12/26/19
 *** AERMET - VERSION 16216 ***   ***
                        ***   11:40:36

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

PM10 2011
*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:40:36

PAGE 6
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2014 1 1 1
AND END DATE: 2014 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23,
10.80,
*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:40:36

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23						

```
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:40:36

                                   PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*
```

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: UNMITIGA ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	0.12607	494966.48	3748776.67	0.30012
495914.36	3747615.90	0.36628	498329.27	3746298.33	0.02756

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: UNMITIGA ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	2.21429	(14120324)	494966.48	3748776.67	6.13737	(14120324)
495914.36	3747615.90	3.77669	(14012124)	498329.27	3746298.33	0.92008	(14010724)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER 1 YEARS ***

** CONC OF PM_10 IN MICROGRAMS/M**3
**

GROUP ID		AVERAGE CONC		RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
UNMITIGA	1ST HIGHEST VALUE IS	0.36628	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC		
	2ND HIGHEST VALUE IS	0.30012	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC		
	3RD HIGHEST VALUE IS	0.12607	AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC		
	4TH HIGHEST VALUE IS	0.02756	AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC		
	5TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)			
	6TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)			
	7TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)			
	8TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)			
	9TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)			
	10TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)			

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	NETWORK CONC OF TYPE	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	GRID-ID
UNMITIGA HIGH	1ST HIGH VALUE IS	6.13737	ON 14120324:	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 1077 Informational Message(s)

A Total of 8760 Hours Were Processed

A Total of 0 Calm Hours Identified

A Total of 199 Missing Hours Identified (2.27 Percent)

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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM10 2015\PM10 2015.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_10
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM10 2015.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
```

```
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Distrurbance Area - Unmitigated
** Source Parameters **
   SRCPARAM PAREA1       2.0561E-06     0.000        65     1.000
   AREAVERT PAREA1       496097.769 3749022.294 496095.718 3749124.927
   AREAVERT PAREA1       496104.066 3749146.764 496098.998 3749239.446
   AREAVERT PAREA1       496160.929 3749279.297 496212.666 3749304.382
   AREAVERT PAREA1       496280.082 3749316.924 496303.600 3749312.221
   AREAVERT PAREA1       496367.880 3749287.136 496380.423 3749282.432
   AREAVERT PAREA1       496471.356 3749287.136 496551.314 3749277.729
   AREAVERT PAREA1       496593.645 3749254.212 496646.951 3749229.127
   AREAVERT PAREA1       496695.553 3749202.474 496715.935 3749175.821
   AREAVERT PAREA1       496788.054 3749138.193 496803.733 3749119.380
   AREAVERT PAREA1       496868.013 3748890.479 496877.420 3748879.504
   AREAVERT PAREA1       496927.590 3748703.909 496935.429 3748625.518
   AREAVERT PAREA1       496943.268 3748619.247 497180.008 3748619.247
   AREAVERT PAREA1       497280.348 3748619.247 497281.916 3748296.277
   AREAVERT PAREA1       496868.013 3748275.895 496858.606 3748271.192
   AREAVERT PAREA1       496854.469 3747561.570 496558.301 3748005.822
   AREAVERT PAREA1       496560.854 3748235.608 496734.470 3748230.501
   AREAVERT PAREA1       496834.044 3748347.947 496885.107 3748358.160
   AREAVERT PAREA1       496892.767 3748669.647 496859.576 3748687.519
   AREAVERT PAREA1       496846.810 3748700.285 496836.597 3748710.498
   AREAVERT PAREA1       496822.983 3748695.147 496808.520 3748688.336
   AREAVERT PAREA1       496789.788 3748675.578 496779.575 3748664.513
   AREAVERT PAREA1       496769.362 3748661.111 496760.862 3748658.562
   AREAVERT PAREA1       496754.063 3748656.857 496743.854 3748653.452
   AREAVERT PAREA1       496731.937 3748645.800 496709.811 3748627.928
   AREAVERT PAREA1       496690.234 3748620.855 496679.614 3748618.485
   AREAVERT PAREA1       496664.319 3748622.327 496654.107 3748633.221
   AREAVERT PAREA1       496627.237 3748626.826 496580.226 3748631.153
   AREAVERT PAREA1       496556.514 3748629.244 496554.252 3748632.245
   AREAVERT PAREA1       496559.506 3748578.383 496372.804 3748573.835
   AREAVERT PAREA1       496223.670 3748654.469 496102.014 3748658.212
   AREAVERT PAREA1       496097.104 3748695.221 496101.652 3748741.301
   AREAVERT PAREA1       496100.437 3748803.940 496100.963 3748916.459
   AREAVERT PAREA1       496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP UnMitiga PAREA1
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
```

```
**
RE STARTING
   INCLUDED "PM10 2015.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2015 1 1 1 2015 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Maximum Annual Average POST files for Each Met Year
   POSTFILE ANNUAL UnMitiga PLOT "PM10 2015.AD\ANNUAL_G001.PLT" 31
** Auto-Generated Plotfiles
   PLOTFILE 24 UnMitiga 1ST "PM10 2015.AD\24H1G001.PLT" 32
   PLOTFILE ANNUAL UnMitiga "PM10 2015.AD\AN00G000.PLT" 33
   SUMMFILE "PM10 2015.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:41:39

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions
```

```
 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of Concurrent Values for Postprocessing
(POSTFILE Keyword)
          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) =   660.00 ;  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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: PM10 2015.err

**File for Summary of Results: PM10 2015.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR	URBAN VARY BY
PAREA1	0	0.20561E-05	496097.8	3749022.3	611.9	0.00	65	1.00	YES

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:41:39

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs

UNMITIGA PAREA1 ,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:41:39

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

2189641. PAREA1 ,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:41:39

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM10\PM10.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:41:39

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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

                   METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2015   1
1  1
                                                 AND END DATE: 2015  12
31 24

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



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

                                          1.54,   3.09,   5.14,   8.23,
10.80,
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       11:41:39

                                   PAGE   7
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

   Surface file:   BNAP_V9_ADJU\BNAP_v9.SFC
                Met Version:  16216
   Profile file:   BNAP_V9_ADJU\BNAP_v9.PFL

   Surface format: FREE
```

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5

```
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: UNMITIGA ***
                                  INCLUDING SOURCE(S):     PAREA1      ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF PM_10    IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.13412                      494966.48
3748776.67        0.37001
         495914.36    3747615.90        0.42875                      498329.27
3746298.33        0.04268
```


```
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                 ***        12/26/19
```

*** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: UNMITIGA ***
INCLUDING SOURCE(S):   PAREA1   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10   IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	2.10613	(15012724)	494966.48	3748776.67	3.36680	(15112924)
495914.36	3747615.90	4.91512	(15010424)	498329.27	3746298.33	1.10697	(15101024)

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER   1 YEARS ***

** CONC OF PM_10   IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
UNMITIGA	1ST HIGHEST VALUE IS	0.42875 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	

```
          2ND HIGHEST VALUE IS       0.37001 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       0.13412 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          4TH HIGHEST VALUE IS       0.04268 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:41:39

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

                                              *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                    ** CONC OF PM_10    IN MICROGRAMS/M**3
               **

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

UNMITIGA HIGH   1ST HIGH VALUE IS       4.91512  ON 15010424: AT (  495914.36,
3747615.90,   444.00,   715.00,    2.00)  DC
```

```
 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM10\PM10.isc                ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                       ***        11:41:39

                                   PAGE  12
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

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

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of         1311 Informational Message(s)

 A Total of         8760 Hours Were Processed

 A Total of            0 Calm Hours Identified

 A Total of          234 Missing Hours Identified (  2.67 Percent)


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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM25 2011\PM25 2011.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_2.5
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM25 2011.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION SRC00001     AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Disturbance Area
** Source Parameters **
   SRCPARAM SRC00001     5.8022E-07     0.000        65     1.000
   AREAVERT SRC00001     496097.769 3749022.294 496095.718 3749124.927
   AREAVERT SRC00001     496104.066 3749146.764 496098.998 3749239.446
   AREAVERT SRC00001     496160.929 3749279.297 496212.666 3749304.382
   AREAVERT SRC00001     496280.082 3749316.924 496303.600 3749312.221
   AREAVERT SRC00001     496367.880 3749287.136 496380.423 3749282.432
   AREAVERT SRC00001     496471.356 3749287.136 496551.314 3749277.729
   AREAVERT SRC00001     496593.645 3749254.212 496646.951 3749229.127
   AREAVERT SRC00001     496695.553 3749202.474 496715.935 3749175.821
```

```
   AREAVERT SRC00001     496788.054 3749138.193 496803.733 3749119.380
   AREAVERT SRC00001     496868.013 3748890.479 496877.420 3748879.504
   AREAVERT SRC00001     496927.590 3748703.909 496935.429 3748625.518
   AREAVERT SRC00001     496943.268 3748619.247 497180.008 3748619.247
   AREAVERT SRC00001     497280.348 3748619.247 497281.916 3748296.277
   AREAVERT SRC00001     496868.013 3748275.895 496858.606 3748271.192
   AREAVERT SRC00001     496854.469 3747561.570 496558.301 3748005.822
   AREAVERT SRC00001     496560.854 3748235.608 496734.470 3748230.501
   AREAVERT SRC00001     496834.044 3748347.947 496885.107 3748358.160
   AREAVERT SRC00001     496892.767 3748669.647 496859.576 3748687.519
   AREAVERT SRC00001     496846.810 3748700.285 496836.597 3748710.498
   AREAVERT SRC00001     496822.983 3748695.147 496808.520 3748688.336
   AREAVERT SRC00001     496789.788 3748675.578 496779.575 3748664.513
   AREAVERT SRC00001     496769.362 3748661.111 496760.862 3748658.562
   AREAVERT SRC00001     496754.063 3748656.857 496743.854 3748653.452
   AREAVERT SRC00001     496731.937 3748645.800 496709.811 3748627.928
   AREAVERT SRC00001     496690.234 3748620.855 496679.614 3748618.485
   AREAVERT SRC00001     496664.319 3748622.327 496654.107 3748633.221
   AREAVERT SRC00001     496627.237 3748626.826 496580.226 3748631.153
   AREAVERT SRC00001     496556.514 3748629.244 496554.252 3748632.245
   AREAVERT SRC00001     496559.506 3748578.383 496372.804 3748573.835
   AREAVERT SRC00001     496223.670 3748654.469 496102.014 3748658.212
   AREAVERT SRC00001     496097.104 3748695.221 496101.652 3748741.301
   AREAVERT SRC00001     496100.437 3748803.940 496100.963 3748916.459
   AREAVERT SRC00001     496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM25 2011.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
```

```
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2011 1 1 1 2011 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST 8TH
   RECTABLE 24 1ST 8TH
** Auto-Generated Plotfiles
   PLOTFILE 24 ALL 1ST "PM25 2011.AD\24H1GALL.PLT" 31
   PLOTFILE 24 ALL 8TH "PM25 2011.AD\24H8GALL.PLT" 32
   PLOTFILE ANNUAL ALL "PM25 2011.AD\AN00GALL.PLT" 33
   SUMMFILE "PM25 2011.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       11:42:29
```

```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR
    and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: PM25 2011.err

**File for Summary of Results: PM25 2011.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR	URBAN SOURCE VARY BY
SRC00001	0	0.58022E-06	496097.8	3749022.3	611.9	0.00	65	1.00	YES

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	SRC00001 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

URBAN ID	URBAN POP	SOURCE IDs

PM25 2011
2189641. SRC00001 ,
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:42:29

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

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);
↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:42:29

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2011 1 1 1
AND END DATE: 2011 12

31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** 11:42:29

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5

```
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00
```

F indicates top of profile (=1) or below (=0)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC00001 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
493604.13	3749469.99	0.03114	494966.48	3748776.67	0.08998
495914.36	3747615.90	0.11596	498329.27	3746298.33	0.01419

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC00001 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)

```
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       493604.13   3749469.99       0.25171  (11010524)                494966.48
 3748776.67       1.05527  (11010224)
       495914.36   3747615.90       1.25569  (11010324)                498329.27
 3746298.33       0.28886  (11123024)
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:42:29

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

                              *** THE   8TH HIGHEST 24-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     SRC00001    ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                    **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
       493604.13   3749469.99       0.19211  (11101224)                494966.48
 3748776.67       0.64442c (11020624)
       495914.36   3747615.90       0.90702  (11112224)                498329.27
 3746298.33       0.15968  (11103024)
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:42:29

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

                                   *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   1 YEARS ***


                                    ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                **
```

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

ALL 1ST HIGHEST VALUE IS 0.11596 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC
2ND HIGHEST VALUE IS 0.08998 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00) DC
3RD HIGHEST VALUE IS 0.03114 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00) DC
4TH HIGHEST VALUE IS 0.01419 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00) DC
5TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00) 0.00
6TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00) 0.00
7TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00) 0.00
8TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00) 0.00
9TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00) 0.00
10TH HIGHEST VALUE IS 0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00) 0.00

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:42:29

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

DATE

PM25 2011
NETWORK
GROUP ID AVERAGE CONC (YYMMDDHH) RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
- -

ALL HIGH 1ST HIGH VALUE IS 1.25569 ON 11010324: AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC
HIGH 8TH HIGH VALUE IS 0.90702 ON 11112224: AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC

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

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:42:29

PAGE 13
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 177 Informational Message(s)

A Total of 8760 Hours Were Processed

A Total of 38 Calm Hours Identified

A Total of 139 Missing Hours Identified (1.59 Percent)

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

******** WARNING MESSAGES ********
ME W186 100 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
ME W187 100 MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

```
    ************************************
    *** AERMOD Finishes Successfully ***
    ************************************
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM25 2012\PM25 2012.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_2.5
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM25 2012.err"
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION SRC00001     AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Disturbance Area
** Source Parameters **
   SRCPARAM SRC00001     5.8022E-07     0.000        65     1.000
   AREAVERT SRC00001     496097.769 3749022.294 496095.718 3749124.927
   AREAVERT SRC00001     496104.066 3749146.764 496098.998 3749239.446
   AREAVERT SRC00001     496160.929 3749279.297 496212.666 3749304.382
   AREAVERT SRC00001     496280.082 3749316.924 496303.600 3749312.221
```

```
   AREAVERT SRC00001     496367.880 3749287.136 496380.423 3749282.432
   AREAVERT SRC00001     496471.356 3749287.136 496551.314 3749277.729
   AREAVERT SRC00001     496593.645 3749254.212 496646.951 3749229.127
   AREAVERT SRC00001     496695.553 3749202.474 496715.935 3749175.821
   AREAVERT SRC00001     496788.054 3749138.193 496803.733 3749119.380
   AREAVERT SRC00001     496868.013 3748890.479 496877.420 3748879.504
   AREAVERT SRC00001     496927.590 3748703.909 496935.429 3748625.518
   AREAVERT SRC00001     496943.268 3748619.247 497180.008 3748619.247
   AREAVERT SRC00001     497280.348 3748619.247 497281.916 3748296.277
   AREAVERT SRC00001     496868.013 3748275.895 496858.606 3748271.192
   AREAVERT SRC00001     496854.469 3747561.570 496558.301 3748005.822
   AREAVERT SRC00001     496560.854 3748235.608 496734.470 3748230.501
   AREAVERT SRC00001     496834.044 3748347.947 496885.107 3748358.160
   AREAVERT SRC00001     496892.767 3748669.647 496859.576 3748687.519
   AREAVERT SRC00001     496846.810 3748700.285 496836.597 3748710.498
   AREAVERT SRC00001     496822.983 3748695.147 496808.520 3748688.336
   AREAVERT SRC00001     496789.788 3748675.578 496779.575 3748664.513
   AREAVERT SRC00001     496769.362 3748661.111 496760.862 3748658.562
   AREAVERT SRC00001     496754.063 3748656.857 496743.854 3748653.452
   AREAVERT SRC00001     496731.937 3748645.800 496709.811 3748627.928
   AREAVERT SRC00001     496690.234 3748620.855 496679.614 3748618.485
   AREAVERT SRC00001     496664.319 3748622.327 496654.107 3748633.221
   AREAVERT SRC00001     496627.237 3748626.826 496580.226 3748631.153
   AREAVERT SRC00001     496556.514 3748629.244 496554.252 3748632.245
   AREAVERT SRC00001     496559.506 3748578.383 496372.804 3748573.835
   AREAVERT SRC00001     496223.670 3748654.469 496102.014 3748658.212
   AREAVERT SRC00001     496097.104 3748695.221 496101.652 3748741.301
   AREAVERT SRC00001     496100.437 3748803.940 496100.963 3748916.459
   AREAVERT SRC00001     496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM25 2012.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
```

```
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2012 1 1 1 2012 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST 8TH
   RECTABLE 24 1ST 8TH
** Auto-Generated Plotfiles
   PLOTFILE 24 ALL 1ST "PM25 2012.AD\24H1GALL.PLT" 31
   PLOTFILE 24 ALL 8TH "PM25 2012.AD\24H8GALL.PLT" 32
   PLOTFILE ANNUAL ALL "PM25 2012.AD\AN00GALL.PLT" 33
   SUMMFILE "PM25 2012.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

```
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:43:58

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
```

PM25 2011
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 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 Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
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) = 660.00 ; 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 = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: PM25 2012.err

**File for Summary of Results: PM25 2012.sum

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
SRC00001	0	0.58022E-06	496097.8	3749022.3	611.9	0.00	65	1.00	YES	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	SRC00001 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

2189641.   SRC00001   ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0,   448.7,   715.0,   2.0);   (494966.5, 3748776.7,   454.9,   715.0,   2.0);
(495914.4, 3747615.9,   444.0,   715.0,   2.0);   (498329.3, 3746298.3,   482.4,   789.0,   2.0);

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2012 1 1 1

AND END DATE: 2012 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19

*** AERMET - VERSION 16216 *** *** *** 11:43:58

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5

```
 11 01 01   1 02  -54.0  0.559 -9.000 -9.000 -999. 1002.    343.7  0.15   4.23
1.00    5.80  113.    9.1  273.8    5.5
 11 01 01   1 03  -50.2  0.519 -9.000 -9.000 -999.  899.    296.1  0.15   4.23
1.00    5.40  112.    9.1  273.1    5.5
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5
```

```
 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1 YEARS FOR SOURCE GROUP: ALL      ***
                                    INCLUDING SOURCE(S):     SRC00001    ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                           ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.03295                     494966.48    3748776.67        0.08027
         495914.36    3747615.90        0.09510                     498329.27    3746298.33        0.01110
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                                *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP:  ALL      ***
                                    INCLUDING SOURCE(S):     SRC00001    ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                           ** CONC OF PM_2.5   IN MICROGRAMS/M**3
```

**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.43614	(12020724)	494966.48	3748776.67	1.34302	(12020424)
495914.36	3747615.90	1.42721c	(12112424)	498329.27	3746298.33	0.31363c	(12120424)

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:43:58

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 8TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC00001 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3

**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.26711	(12112224)	494966.48	3748776.67	0.54419m	(12022424)
495914.36	3747615.90	0.96692	(12020524)	498329.27	3746298.33	0.14548m	(12012424)

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** *** *** 11:43:58

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

PM25 2011
** CONC OF PM_2.5   IN MICROGRAMS/M**3
**

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

ALL       1ST HIGHEST VALUE IS       0.09510 AT (  495914.36,  3747615.90,
444.00,   715.00,    2.00)  DC
          2ND HIGHEST VALUE IS       0.08027 AT (  494966.48,  3748776.67,
454.89,   715.00,    2.00)  DC
          3RD HIGHEST VALUE IS       0.03295 AT (  493604.13,  3749469.99,
448.70,   715.00,    2.00)  DC
          4TH HIGHEST VALUE IS       0.01110 AT (  498329.27,  3746298.33,
482.40,   789.00,    2.00)  DC
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,
0.00,     0.00,    0.00)


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


 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

PM25 2011
** CONC OF PM_2.5 IN MICROGRAMS/M**3
**

GROUP ID (XR, YR, ZELEV, ZHILL, ZFLAG)	AVERAGE OF TYPE	NETWORK CONC GRID-ID	DATE (YYMMDDHH)	RECEPTOR
ALL	HIGH 1ST HIGH VALUE IS	1.42721c	ON 12112424:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC
	HIGH 8TH HIGH VALUE IS	0.96692	ON 12020524:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00) DC

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 545 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 26 Calm Hours Identified

A Total of 342 Missing Hours Identified (3.89 Percent)

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

******** WARNING MESSAGES ********

```
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM25 2013\PM25 2013.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_2.5
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM25 2013.err"
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION SRC00001     AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Disturbance Area
** Source Parameters **
```

```
   SRCPARAM SRC00001     5.8022E-07     0.000        65     1.000
   AREAVERT SRC00001     496097.769 3749022.294 496095.718 3749124.927
   AREAVERT SRC00001     496104.066 3749146.764 496098.998 3749239.446
   AREAVERT SRC00001     496160.929 3749279.297 496212.666 3749304.382
   AREAVERT SRC00001     496280.082 3749316.924 496303.600 3749312.221
   AREAVERT SRC00001     496367.880 3749287.136 496380.423 3749282.432
   AREAVERT SRC00001     496471.356 3749287.136 496551.314 3749277.729
   AREAVERT SRC00001     496593.645 3749254.212 496646.951 3749229.127
   AREAVERT SRC00001     496695.553 3749202.474 496715.935 3749175.821
   AREAVERT SRC00001     496788.054 3749138.193 496803.733 3749119.380
   AREAVERT SRC00001     496868.013 3748890.479 496877.420 3748879.504
   AREAVERT SRC00001     496927.590 3748703.909 496935.429 3748625.518
   AREAVERT SRC00001     496943.268 3748619.247 497180.008 3748619.247
   AREAVERT SRC00001     497280.348 3748619.247 497281.916 3748296.277
   AREAVERT SRC00001     496868.013 3748275.895 496858.606 3748271.192
   AREAVERT SRC00001     496854.469 3747561.570 496558.301 3748005.822
   AREAVERT SRC00001     496560.854 3748235.608 496734.470 3748230.501
   AREAVERT SRC00001     496834.044 3748347.947 496885.107 3748358.160
   AREAVERT SRC00001     496892.767 3748669.647 496859.576 3748687.519
   AREAVERT SRC00001     496846.810 3748700.285 496836.597 3748710.498
   AREAVERT SRC00001     496822.983 3748695.147 496808.520 3748688.336
   AREAVERT SRC00001     496789.788 3748675.578 496779.575 3748664.513
   AREAVERT SRC00001     496769.362 3748661.111 496760.862 3748658.562
   AREAVERT SRC00001     496754.063 3748656.857 496743.854 3748653.452
   AREAVERT SRC00001     496731.937 3748645.800 496709.811 3748627.928
   AREAVERT SRC00001     496690.234 3748620.855 496679.614 3748618.485
   AREAVERT SRC00001     496664.319 3748622.327 496654.107 3748633.221
   AREAVERT SRC00001     496627.237 3748626.826 496580.226 3748631.153
   AREAVERT SRC00001     496556.514 3748629.244 496554.252 3748632.245
   AREAVERT SRC00001     496559.506 3748578.383 496372.804 3748573.835
   AREAVERT SRC00001     496223.670 3748654.469 496102.014 3748658.212
   AREAVERT SRC00001     496097.104 3748695.221 496101.652 3748741.301
   AREAVERT SRC00001     496100.437 3748803.940 496100.963 3748916.459
   AREAVERT SRC00001     496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM25 2013.rou"
RE FINISHED
**
**************************************
```

```
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2013 1 1 1 2013 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST 8TH
   RECTABLE 24 1ST 8TH
** Auto-Generated Plotfiles
   PLOTFILE 24 ALL 1ST "PM25 2013.AD\24H1GALL.PLT" 31
   PLOTFILE 24 ALL 8TH "PM25 2013.AD\24H8GALL.PLT" 32
   PLOTFILE ANNUAL ALL "PM25 2013.AD\AN00GALL.PLT" 33
   SUMMFILE "PM25 2013.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:44:55

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages
```

```
 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   PM25 2013.err
```

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR	URBAN SOURCE VARY BY
SRC00001	0	0.58022E-06	496097.8	3749022.3	611.9	0.00	65	1.00	YES

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	SRC00001 ,

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

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

2189641.   SRC00001   ,
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc   ***   12/26/19
*** AERMET - VERSION 16216 ***   ***
***   11:44:55

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

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

(493604.1, 3749470.0,   448.7,   715.0,   2.0);   (494966.5,
3748776.7,   454.9,   715.0,   2.0);
(495914.4, 3747615.9,   444.0,   715.0,   2.0);   (498329.3,
3746298.3,   482.4,   789.0,   2.0);
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc   ***   12/26/19
*** AERMET - VERSION 16216 ***   ***
***   11:44:55

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2013   1
1 1
AND END DATE: 2013 12
31 24

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

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

1.54,   3.09,   5.14,   8.23,
10.80,
↑ *** AERMOD - VERSION 19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc   ***   12/26/19
*** AERMET - VERSION 16216 ***   ***
***   11:44:55

PAGE   7
*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011   Year: 2011

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
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 11 01 01   1 01  -50.0  0.519 -9.000 -9.000 -999.  897.    296.2  0.15   4.23
1.00    5.40  108.    9.1  274.2    5.5
 11 01 01   1 02  -54.0  0.559 -9.000 -9.000 -999. 1002.    343.7  0.15   4.23
1.00    5.80  113.    9.1  273.8    5.5
 11 01 01   1 03  -50.2  0.519 -9.000 -9.000 -999.  899.    296.1  0.15   4.23
1.00    5.40  112.    9.1  273.1    5.5
 11 01 01   1 04  -45.5  0.469 -9.000 -9.000 -999.  773.    241.8  0.15   4.23
1.00    4.90  111.    9.1  272.5    5.5
 11 01 01   1 05  -13.5  0.164 -9.000 -9.000 -999.  293.     29.5  0.15   4.23
1.00    1.80   78.    9.1  270.9    5.5
 11 01 01   1 06  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   58.    9.1  270.4    5.5
 11 01 01   1 07  -19.9  0.203 -9.000 -9.000 -999.  220.     45.4  0.15   4.23
1.00    2.20   54.    9.1  270.4    5.5
 11 01 01   1 08  -12.2  0.206 -9.000 -9.000 -999.  224.     60.4  0.15   4.23
0.55    2.20   60.    9.1  270.9    5.5
 11 01 01   1 09   45.6  0.455  0.587  0.005  150.  738.   -174.7  0.15   4.23
0.34    4.50   96.    9.1  273.8    5.5
 11 01 01   1 10  126.7  0.592  0.981  0.005  252. 1092.   -138.5  0.15   4.23
0.27    5.80  102.    9.1  274.9    5.5
 11 01 01   1 11  195.5  0.684  1.823  0.009 1048. 1355.   -138.3  0.15   4.23
0.25    6.70  100.    9.1  275.9    5.5
 11 01 01   1 12  229.2  0.688  2.066  0.009 1302. 1370.   -120.1  0.15   4.23
0.24    6.70   96.    9.1  276.4    5.5
 11 01 01   1 13  190.6  0.647  1.999  0.009 1417. 1254.   -120.0  0.15   4.23
0.24    6.30   95.    9.1  277.0    5.5
 11 01 01   1 14  115.4  0.590  1.708  0.009 1459. 1094.   -150.2  0.15   4.23
0.26    5.80   98.    9.1  277.0    5.5
 11 01 01   1 15  101.2  0.588  1.649  0.009 1496. 1081.   -169.0  0.15   4.23
0.29    5.80   99.    9.1  276.4    5.5
 11 01 01   1 16   27.7  0.534  1.074  0.009 1507.  940.   -462.4  0.15   4.23
0.38    5.40  103.    9.1  276.4    5.5
 11 01 01   1 17  -42.8  0.469 -9.000 -9.000 -999.  777.    242.4  0.15   4.23
0.67    4.90  106.    9.1  275.9    5.5
 11 01 01   1 18  -32.7  0.340 -9.000 -9.000 -999.  489.    127.2  0.15   4.23
1.00    3.60  100.    9.1  274.9    5.5
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
```

```
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       11:44:55

                                   PAGE   8
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     SRC00001    ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.04214                      494966.48
3748776.67        0.10817
         495914.36    3747615.90        0.12856                      498329.27
3746298.33        0.01283
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***       11:44:55

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

                              *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     SRC00001    ,
```

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.54238	(13022724)	494966.48	3748776.67	1.35991	(13112324)
495914.36	3747615.90	1.27550	(13010524)	498329.27	3746298.33	0.24883	(13120124)

*** THE 8TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL *** INCLUDING SOURCE(S): SRC00001 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.25274m	(13121124)	494966.48	3748776.67	0.65913	(13022824)
495914.36	3747615.90	1.02375	(13103124)	498329.27	3746298.33	0.14655	(13112424)

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.12856 AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	0.10817 AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	0.04214 AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	0.01283 AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	7TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	8TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)		

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1.35991	ON 13112324:	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	HIGH 8TH HIGH VALUE IS	1.02375	ON 13103124:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 878 Informational Message(s)

A Total of 8760 Hours Were Processed

A Total of 0 Calm Hours Identified

A Total of 333 Missing Hours Identified (3.80 Percent)

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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
**
***************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM25 2014\PM25 2014.ADI
**
***************************************
**
**
***************************************
** AERMOD Control Pathway
***************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_2.5
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM25 2014.err"
CO FINISHED
**
***************************************
** AERMOD Source Pathway
***************************************
**
**
SO STARTING
** Source Location **
```

```
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION SRC00001     AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Disturbance Area
** Source Parameters **
   SRCPARAM SRC00001     5.8022E-07     0.000        65     1.000
   AREAVERT SRC00001     496097.769 3749022.294 496095.718 3749124.927
   AREAVERT SRC00001     496104.066 3749146.764 496098.998 3749239.446
   AREAVERT SRC00001     496160.929 3749279.297 496212.666 3749304.382
   AREAVERT SRC00001     496280.082 3749316.924 496303.600 3749312.221
   AREAVERT SRC00001     496367.880 3749287.136 496380.423 3749282.432
   AREAVERT SRC00001     496471.356 3749287.136 496551.314 3749277.729
   AREAVERT SRC00001     496593.645 3749254.212 496646.951 3749229.127
   AREAVERT SRC00001     496695.553 3749202.474 496715.935 3749175.821
   AREAVERT SRC00001     496788.054 3749138.193 496803.733 3749119.380
   AREAVERT SRC00001     496868.013 3748890.479 496877.420 3748879.504
   AREAVERT SRC00001     496927.590 3748703.909 496935.429 3748625.518
   AREAVERT SRC00001     496943.268 3748619.247 497180.008 3748619.247
   AREAVERT SRC00001     497280.348 3748619.247 497281.916 3748296.277
   AREAVERT SRC00001     496868.013 3748275.895 496858.606 3748271.192
   AREAVERT SRC00001     496854.469 3747561.570 496558.301 3748005.822
   AREAVERT SRC00001     496560.854 3748235.608 496734.470 3748230.501
   AREAVERT SRC00001     496834.044 3748347.947 496885.107 3748358.160
   AREAVERT SRC00001     496892.767 3748669.647 496859.576 3748687.519
   AREAVERT SRC00001     496846.810 3748700.285 496836.597 3748710.498
   AREAVERT SRC00001     496822.983 3748695.147 496808.520 3748688.336
   AREAVERT SRC00001     496789.788 3748675.578 496779.575 3748664.513
   AREAVERT SRC00001     496769.362 3748661.111 496760.862 3748658.562
   AREAVERT SRC00001     496754.063 3748656.857 496743.854 3748653.452
   AREAVERT SRC00001     496731.937 3748645.800 496709.811 3748627.928
   AREAVERT SRC00001     496690.234 3748620.855 496679.614 3748618.485
   AREAVERT SRC00001     496664.319 3748622.327 496654.107 3748633.221
   AREAVERT SRC00001     496627.237 3748626.826 496580.226 3748631.153
   AREAVERT SRC00001     496556.514 3748629.244 496554.252 3748632.245
   AREAVERT SRC00001     496559.506 3748578.383 496372.804 3748573.835
   AREAVERT SRC00001     496223.670 3748654.469 496102.014 3748658.212
   AREAVERT SRC00001     496097.104 3748695.221 496101.652 3748741.301
   AREAVERT SRC00001     496100.437 3748803.940 496100.963 3748916.459
   AREAVERT SRC00001     496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
```

```
   INCLUDED "PM25 2014.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2014 1 1 1 2014 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST 8TH
   RECTABLE 24 1ST 8TH
** Auto-Generated Plotfiles
   PLOTFILE 24 ALL 1ST "PM25 2014.AD\24H1GALL.PLT" 31
   PLOTFILE 24 ALL 8TH "PM25 2014.AD\24H8GALL.PLT" 32
   PLOTFILE ANNUAL ALL "PM25 2014.AD\AN00GALL.PLT" 33
   SUMMFILE "PM25 2014.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       11:46:42

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.
```

```
 **The User Specified a Pollutant Type of:  PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out
```

**Detailed Error/Message File: PM25 2014.err

**File for Summary of Results: PM25 2014.sum

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ SOURCE SCALAR VARY BY	URBAN SOURCE
SRC00001	0	0.58022E-06	496097.8	3749022.3	611.9	0.00	65	1.00	YES

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	SRC00001 ,

PM25 2011
*** 11:46:42

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

2189641. SRC00001 ,

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:46:42

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

(493604.1, 3749470.0, 448.7, 715.0, 2.0); (494966.5, 3748776.7, 454.9, 715.0, 2.0);
(495914.4, 3747615.9, 444.0, 715.0, 2.0); (498329.3, 3746298.3, 482.4, 789.0, 2.0);

↑ *** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc *** 12/26/19
*** AERMET - VERSION 16216 *** ***
*** 11:46:42

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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2014 1 1 1

AND END DATE: 2014 12 31 24

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

Surface file: BNAP_V9_ADJU\BNAP_v9.SFC
Met Version: 16216
Profile file: BNAP_V9_ADJU\BNAP_v9.PFL

Surface format: FREE

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	85.	9.1	273.1	5.5
11	01	01	1	21	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23						

```
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     SRC00001    ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                          ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                        X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.03557                       494966.48
3748776.67        0.08469
         495914.36    3747615.90        0.10336                       498329.27
3746298.33        0.00778
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*
```

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC00001 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.62486	(14120324)	494966.48	3748776.67	1.73193	(14120324)
495914.36	3747615.90	1.06576	(14012124)	498329.27	3746298.33	0.25964	(14010724)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE 8TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC00001 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.25806	(14010524)	494966.48	3748776.67	0.60654	(14110624)
495914.36	3747615.90	0.91647	(14011924)	498329.27	3746298.33	0.12683	(14122524)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.10336	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	0.08469	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	0.03557	AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	0.00778	AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	7TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	8TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	9TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	10TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	NETWORK CONC OF TYPE	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1.73193	ON 14120324:	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC
	HIGH 8TH HIGH VALUE IS	0.91647	ON 14011924:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 1077 Informational Message(s)

A Total of 8760 Hours Were Processed

A Total of 0 Calm Hours Identified

```
 A Total of          199 Missing Hours Identified (  2.27 Percent)


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


    ********   WARNING MESSAGES   ********
 ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

**
*****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.3
** Lakes Environmental Software Inc.
** Date: 12/26/2019
** File: C:\Lakes\AERMOD View\11380 Gilman Mine - 12-10-19\PM25 2015\PM25 2015.ADI
**
*****************************************
**
**
*****************************************
** AERMOD Control Pathway
*****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\11380 Gilman Mine\PM25\PM25.isc
   MODELOPT DFAULT CONC
   AVERTIME 24 ANNUAL
   URBANOPT 2189641
   POLLUTID PM_2.5
   FLAGPOLE 2.00
   RUNORNOT RUN
   ERRORFIL "PM25 2015.err"
CO FINISHED
**
*****************************************
** AERMOD Source Pathway
```

```
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION SRC00001     AREAPOLY   496097.769  3749022.294      611.900
** DESCRSRC Disturbance Area
** Source Parameters **
   SRCPARAM SRC00001     5.8022E-07     0.000        65     1.000
   AREAVERT SRC00001     496097.769 3749022.294 496095.718 3749124.927
   AREAVERT SRC00001     496104.066 3749146.764 496098.998 3749239.446
   AREAVERT SRC00001     496160.929 3749279.297 496212.666 3749304.382
   AREAVERT SRC00001     496280.082 3749316.924 496303.600 3749312.221
   AREAVERT SRC00001     496367.880 3749287.136 496380.423 3749282.432
   AREAVERT SRC00001     496471.356 3749287.136 496551.314 3749277.729
   AREAVERT SRC00001     496593.645 3749254.212 496646.951 3749229.127
   AREAVERT SRC00001     496695.553 3749202.474 496715.935 3749175.821
   AREAVERT SRC00001     496788.054 3749138.193 496803.733 3749119.380
   AREAVERT SRC00001     496868.013 3748890.479 496877.420 3748879.504
   AREAVERT SRC00001     496927.590 3748703.909 496935.429 3748625.518
   AREAVERT SRC00001     496943.268 3748619.247 497180.008 3748619.247
   AREAVERT SRC00001     497280.348 3748619.247 497281.916 3748296.277
   AREAVERT SRC00001     496868.013 3748275.895 496858.606 3748271.192
   AREAVERT SRC00001     496854.469 3747561.570 496558.301 3748005.822
   AREAVERT SRC00001     496560.854 3748235.608 496734.470 3748230.501
   AREAVERT SRC00001     496834.044 3748347.947 496885.107 3748358.160
   AREAVERT SRC00001     496892.767 3748669.647 496859.576 3748687.519
   AREAVERT SRC00001     496846.810 3748700.285 496836.597 3748710.498
   AREAVERT SRC00001     496822.983 3748695.147 496808.520 3748688.336
   AREAVERT SRC00001     496789.788 3748675.578 496779.575 3748664.513
   AREAVERT SRC00001     496769.362 3748661.111 496760.862 3748658.562
   AREAVERT SRC00001     496754.063 3748656.857 496743.854 3748653.452
   AREAVERT SRC00001     496731.937 3748645.800 496709.811 3748627.928
   AREAVERT SRC00001     496690.234 3748620.855 496679.614 3748618.485
   AREAVERT SRC00001     496664.319 3748622.327 496654.107 3748633.221
   AREAVERT SRC00001     496627.237 3748626.826 496580.226 3748631.153
   AREAVERT SRC00001     496556.514 3748629.244 496554.252 3748632.245
   AREAVERT SRC00001     496559.506 3748578.383 496372.804 3748573.835
   AREAVERT SRC00001     496223.670 3748654.469 496102.014 3748658.212
   AREAVERT SRC00001     496097.104 3748695.221 496101.652 3748741.301
   AREAVERT SRC00001     496100.437 3748803.940 496100.963 3748916.459
   AREAVERT SRC00001     496098.589 3748976.635
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
```

```
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "PM25 2015.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
   STARTEND 2015 1 1 1 2015 12 31 24
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST 8TH
   RECTABLE 24 1ST 8TH
** Auto-Generated Plotfiles
   PLOTFILE 24 ALL 1ST "PM25 2015.AD\24H1GALL.PLT" 31
   PLOTFILE 24 ALL 8TH "PM25 2015.AD\24H8GALL.PLT" 32
   PLOTFILE ANNUAL ALL "PM25 2015.AD\AN00GALL.PLT" 33
   SUMMFILE "PM25 2015.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     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                         ***       11:47:31

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  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     1 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
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:      1 Source(s);       1 Source Group(s); and       4
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:      1 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 Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          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) =   660.00 ;  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 =   3.5 MB of RAM.

 **Input Runstream File: aermod.inp

 **Output Print File: aermod.out

 **Detailed Error/Message File: PM25 2015.err

 **File for Summary of Results: PM25 2015.sum

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                                                *** AREAPOLY SOURCE DATA ***

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

 SRC00001   0   0.58022E-06 496097.8 3749022.3   611.9   0.00   65
   1.00   YES

 *** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

                                             *** SOURCE IDs DEFINING SOURCE GROUPS
***

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

```
  ALL        SRC00001    ,
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:47:31

                                   PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*


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

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


              2189641.   SRC00001    ,
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:47:31

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

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

     ( 493604.1, 3749470.0,     448.7,     715.0,       2.0);         ( 494966.5,
3748776.7,     454.9,     715.0,       2.0);
     ( 495914.4, 3747615.9,     444.0,     715.0,       2.0);         ( 498329.3,
3746298.3,     482.4,     789.0,       2.0);
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                        ***        11:47:31

                                   PAGE   6
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

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

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

                   METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2015   1
1  1
                                                     AND END DATE: 2015  12
31 24

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



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

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
 *** AERMET - VERSION  16216 ***   ***
                          ***       11:47:31

                                   PAGE   7
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

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

   Surface file:   BNAP_V9_ADJU\BNAP_v9.SFC
                  Met Version:  16216
   Profile file:   BNAP_V9_ADJU\BNAP_v9.PFL

   Surface format: FREE
```

Profile format: FREE

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

Year: 2011 Year: 2011

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
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5

```
 11 01 01   1 19  -24.4  0.252 -9.000 -9.000 -999.  308.     69.8  0.15   4.23
1.00    2.70   70.    9.1  273.1    5.5
 11 01 01   1 20  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   85.    9.1  273.1    5.5
 11 01 01   1 21  -28.2  0.291 -9.000 -9.000 -999.  377.     93.1  0.15   4.23
1.00    3.10   82.    9.1  273.1    5.5
 11 01 01   1 22  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   64.    9.1  272.5    5.5
 11 01 01   1 23  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   61.    9.1  272.5    5.5
 11 01 01   1 24  -24.5  0.252 -9.000 -9.000 -999.  304.     69.8  0.15   4.23
1.00    2.70   76.    9.1  272.5    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   274.3   99.0  -99.00  -99.00
 11 01 01 01    9.1 1  108.    5.40  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
```



```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   1
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     SRC00001    ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF PM_2.5   IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
         493604.13    3749469.99        0.03785                      494966.48
3748776.67        0.10442
         495914.36    3747615.90        0.12099                      498329.27
3746298.33        0.01204
```


```
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\11380 Gilman
Mine\PM25\PM25.isc                 ***        12/26/19
```

*** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   SRC00001   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5   IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.59434	(15012724)	494966.48	3748776.67	0.95009	(15112924)
495914.36	3747615.90	1.38702	(15010424)	498329.27	3746298.33	0.31238	(15101024)

*** THE   8TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   SRC00001   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5   IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
493604.13	3749469.99	0.29823	(15112224)	494966.48	3748776.67	0.73441	(15021024)

495914.36 3747615.90 1.00241 (15090924) 498329.27 3746298.33 0.12667 (15120824)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	NETWORK	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.12099	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	2ND HIGHEST VALUE IS	0.10442	AT (494966.48, 3748776.67, 454.89, 715.00, 2.00)	DC	
	3RD HIGHEST VALUE IS	0.03785	AT (493604.13, 3749469.99, 448.70, 715.00, 2.00)	DC	
	4TH HIGHEST VALUE IS	0.01204	AT (498329.27, 3746298.33, 482.40, 789.00, 2.00)	DC	
	5TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	7TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	8TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	9TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
	10TH HIGHEST VALUE IS	0.00000	AT (0.00, 0.00, 0.00, 0.00, 0.00)		

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR

DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1.38702	ON 15010424:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	
	HIGH 8TH HIGH VALUE IS	1.00241	ON 15090924:	AT (495914.36, 3747615.90, 444.00, 715.00, 2.00)	DC	

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

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

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

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

```
A Total of         1311 Informational Message(s)

A Total of         8760 Hours Were Processed

A Total of            0 Calm Hours Identified

A Total of          234 Missing Hours Identified (  2.67 Percent)


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


   ********   WARNING MESSAGES   ********
ME W186     100       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
ME W187     100       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


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

APPENDIX 3.6:

SCAQMD AMICUS BRIEF

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
FILED
APR 13 2015
Frank A. McGuire Clerk
Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

Kurt R. Wiese, General Counsel (SBN 127251)
*Barbara Baird, Chief Deputy Counsel (SBN 81507)
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765
Telephone: 909-396-2302; Facsimile: 909-396-2961
Email: bbaird@aqmd.gov
Counsel for [Proposed] Amicus Curiae,
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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APR - 6 2015
CLERK SUPREME COURT

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1, supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*, *supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

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[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

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CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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APPENDIX 3.7:

SJVAPCD AMICUS BRIEF

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SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED
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After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

---

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

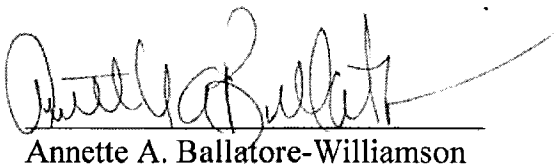
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
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SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club*, *supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

Catherine T. Redmond
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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