Jim Brisco Enterprises, Inc.
Ready-Mix Concrete Batch Plant Project

Health Risk Assessment
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1.0 Introduction

1.1 Description of the Region/Project

This Health Risk Assessment (HRA) has been prepared for the purpose of identifying potential air impacts that may result from the proposed Jim Brisco Enterprises, Inc. Ready-Mix Concrete Batch Plant Project ("Project") in the City of Atwater. The Project consists of the development of a concrete batch plant facility located on +/-10.8 acres also known as Merced County Assessors Parcel Number (APN) 056-241-007. The project will include a ready-mix batch plant, concrete reclaimer, concrete recycling plant, truck and equipment maintenance building with wash rack, truck scale, concrete product warehouse building, office/showroom building, and customer/employee parking lots.

Jim Brisco Enterprises, INC. is a construction and building materials group that currently operates a concrete batch plant in Livingston California. They wish to construct a new concrete batch plant and materials yard in the City of Atwater. This will allow them to offer the sale of concrete and landscaping material to the construction industry and homeowners in the City of Atwater. Normal hours of operation will be Monday thru Friday from 6am to 5pm with the occasional need to open prior to and close after those hours. Saturday and Sunday hours will be on an as needed basis but to contractor and delivery requirements these hours of operation will be extended or altered as needed. Figures 1 and 2 show the location of the Project along with major roadways and highways. The components of the Project include:

- ✓ **Recycling Operation**

  Broken concrete is dropped off from customers and stockpiled for periodic recycling. The material is sized down with the pulverizer then crushed in the impact crusher. The impact crusher sizes the material to meet state specifications for base rock and the base rock is moved from the impact crusher to the stockpile via a 60-foot-long radial stacker (conveyor). The stockpile area will have a volume of approximately 5,153 yards.

- ✓ **Concrete Reclaimer Operation**

  Concrete mixer trucks and equipment returning to the site with wet material will be washed out in the concrete reclaimer. The concrete reclaimer washes the Portland cement off the rock and sand, the rock and sand are then stockpiled for reuse. The Portland cement slurry is put in a settling pond. The slurry settles out of the water and the water is recycled for use in the batch plant operation and the slurry is dried and recycled for base rock.

- ✓ **Concrete Batch Plant**

  The batch plant is made up of several pieces of individual equipment, the tallest being the

silos for Portland cement and fly ash. These silos can be as tall as 80 feet. The batch plant is a dry plant or Transit mix plant. Sand and gravel are stored in bins and Portland cement and fly ash are stored in air tight silos. These silos are used to reduce the impact to air quality. The sand, gravel, Portland cement and fly ash are then loaded on a conveyor and discharged into the mixer truck along with water. The trucks then transport the concrete mix to job sites. When the Mixer returns to the plant it is washed out at the Concrete Reclaimer.

- ✓ **Shop Buildings**

Each shop will be 12,000 square feet and have approximately 1,600 square feet of storage and 400 square feet of office space. These buildings will be used for equipment maintenance and repair, and fabrication. The storage space will be for storage of parts and tools used to repair, maintain and fabricate.

- ✓ **Office, Showroom and Warehouse**

The office/showroom will be 5,000 square feet and will include offices for operations of the business and a showroom are for sales of tools, equipment and materials. The warehouse building will be adjacent to the office/showroom and will be 12,000 square feet. This building will warehouse tools, equipment and materials for sale.

Adjacent to these building will be customer parking areas with Cal Green and ADA designated parking stalls meeting all building condes applicable to such. The parking area will be paved include concrete sidewalks and landscape areas between the parking area and Industry Way. Ingress/Egress will be onto Industry Way.

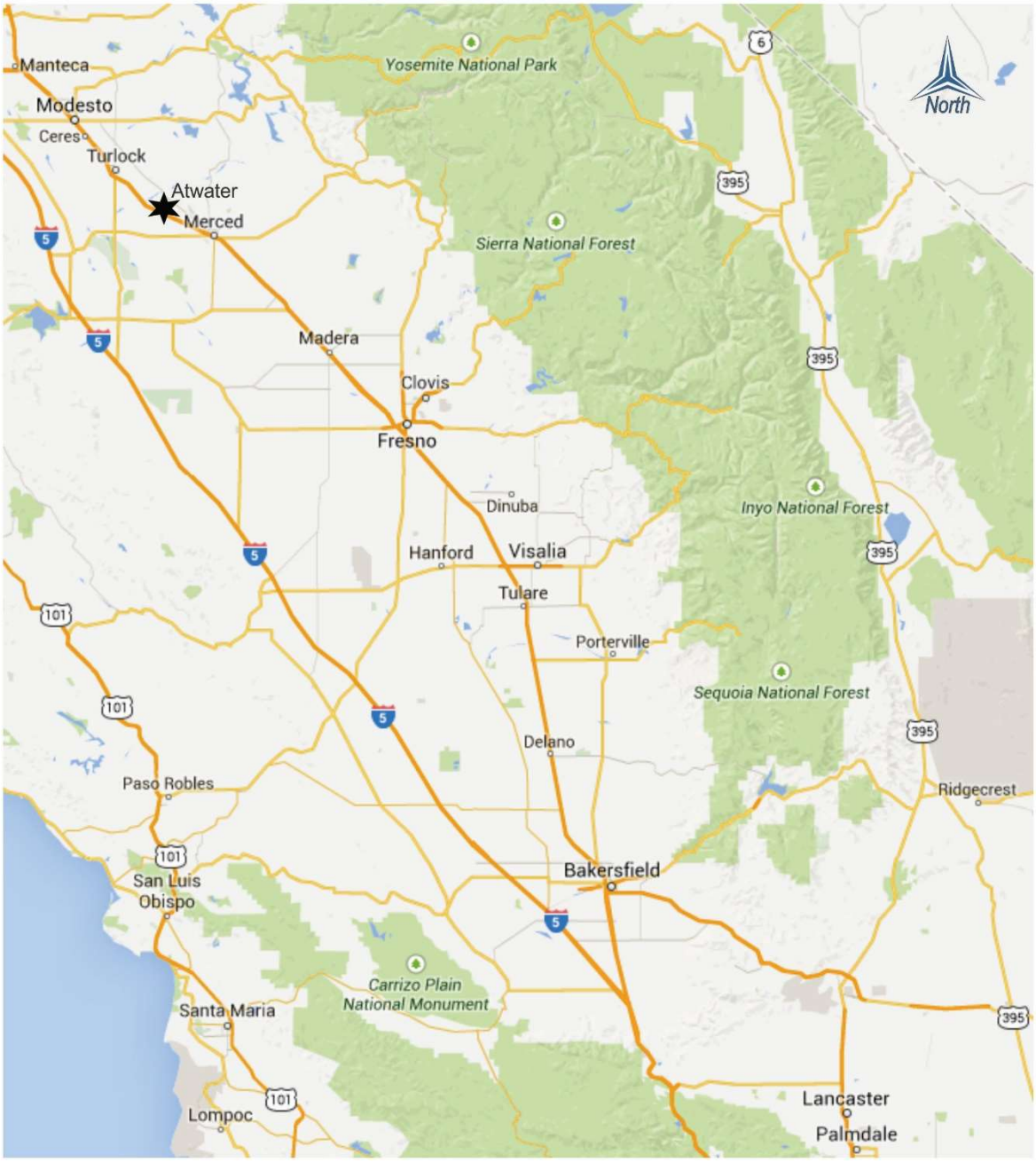
- ✓ **Bulk Material Area**

The bulk materials area will be paved in concrete and include 26 24’x10’ bins and 6 rental equipment parking spaces. The bins will be constructed of concrete wall and hold bulk materials such as, bark, rocks, fill dirt, potting soil, etc. These materials will be loaded into customer vehicles and trailers. This area will have 2 points of ingress/egress and they will be gated.

- ✓ **Scale and Truck Parking**

The site will include a truck parking area that will provide 21 parking spaces. The area will be paved, and the spaces are 15 feet wide and 75 feet deep. This area will be paved in asphalt concrete. Adjacent to the truck parking spaces will be a scale used for weighing trucks in and out.

Jim Brisco Enterprises, Inc. Ready-Mix Concrete Batch Plant Project **Figure 1**
Regional Location

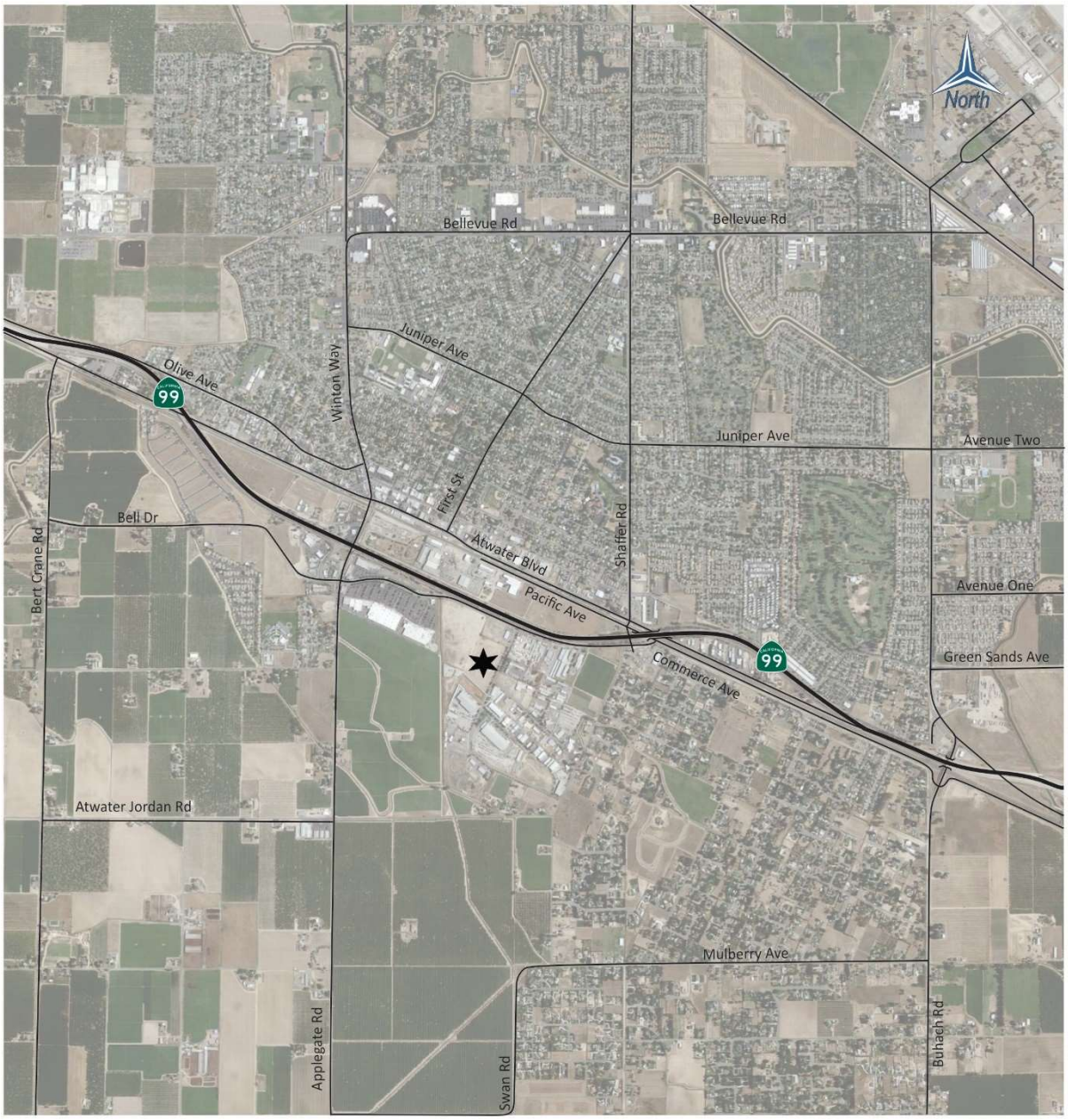


LEGEND

★ Project Location

VRPA TECHNOLOGIES, INC.

Jim Brisco Enterprises, Inc. Ready-Mix Concrete Batch Plant Project **Figure 2**
Project Location



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★ Project Location

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1.2 Regulatory

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the City of Atwater are discussed below along with their individual responsibilities.

1.2.1 *Federal Agencies*

✓ **U.S. Environmental Protection Agency (EPA)**

The Federal Clean Air Bill first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the Bill set a deadline for the attainment of these standards. That deadline has since passed. The other Clean Air Act (CAA) Bill Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments.

The CAA and the national ambient air quality standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead.

The City of Atwater is located in a nonattainment area for the 8-hour ozone standard, 1997, 2006 and 2012 PM2.5 standards, and has a maintenance plan for PM10 standard.

1.2.2 *Federal Regulations*

✓ **National Environmental Policy Act (NEPA)**

NEPA provides general information on the effects of federally funded projects. The Act was implemented by regulations included in the Code of Federal Regulations (40CFR6). The code requires careful consideration concerning environmental impacts of federal actions or plans, including projects that receive federal funds. The regulations address impacts on land uses and conflicts with state, regional, or local plans and policies, among others. They also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and to restore and enhance environmental quality as much as possible.

✓ **State Implementation Plan (SIP)/ Air Quality Management Plans (AQMPs)**

To ensure compliance with the NAAQS, EPA requires states to adopt SIP aimed at improving air quality in areas of nonattainment or a Maintenance Plan aimed at maintaining air quality

in areas that have attained a given standard. New and previously submitted plans, programs, district rules, state regulations, and federal controls are included in the SIPs. Amendments made in 1990 to the federal CAA established deadlines for attainment based on an area's current air pollution levels. States must enact additional regulatory programs for nonattainment's areas in order to adhere with the CAA Section 172. In California, the SIPs must adhere to both the NAAQS and the California Ambient Air Quality Standards (CAAQS).

To ensure that State and federal air quality regulations are being met, Air Quality Management Plans (AQMPs) are required. AQMPs present scientific information and use analytical tools to identify a pathway towards attainment of NAAQS and CAAQS. The San Joaquin Valley Air Pollution Control District (SJVAPCD) develops the AQMPs for the region where the Merced County Association of Governments (MCAG) operates. The regional air districts begin the SIP process by submitting their AQMPs to the California Air Resources Board (CARB). CARB is responsible for revising the SIP and submitting it to EPA for approval. EPA then acts on the SIP in the Federal Register. The items included in the California SIP are listed in the Code of Federal Regulations Title 40, Chapter 1, Part 52, Subpart 7, Section 52.220.

1.2.3 *State Agencies*

✓ **California Air Resources Board (CARB)**

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing its own air quality legislation called the CCAA, adopted in 1988. CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Whereas CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management District's (AQMDs) and approved by CARB.

States may establish their own standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code (CH&SC) [§39606(b)] and its predecessor statutes.

The CH&SC [§39608] requires CARB to "identify" and "classify" each air basin in the State on

a pollutant-by-pollutant basis. Subsequently, CARB designated areas in California as nonattainment based on violations of the CAAQSs. Designations and classifications specific to the SJVAB can be found in the next section of this document. Areas in the State were also classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

1.2.4 *State Regulations*

✓ **CARB Mobile-Source Regulation**

The State of California is responsible for controlling emissions from the operation of motor vehicles in the State. Rather than mandating the use of specific technology or the reliance on a specific fuel, CARB's motor vehicle standards specify the allowable grams of pollutant per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved.

✓ **California Clean Air Act**

The CCAA was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CCAA establishes more stringent ambient air quality standards than those included in the Federal CAA. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the CH&SC [§39606(b)], which are similar to the federal standards. The SJVAPCD is one of 35 AQMDs that have prepared air quality management plans to accomplish a five percent (5%) annual reduction in emissions documenting progress toward the State ambient air quality standards.

✓ **Tanner Air Toxics Act**

California regulates Toxic Air Contaminants (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted EPA's list of Hazardous Air Pollutants (HAPs) as TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must

reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

These rules and standards provide for:

- More stringent emission standards for some new urban bus engines, beginning with 2002 model year engines.
- Zero-emission bus demonstration and purchase requirements applicable to transit agencies
- Reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule.

✓ **California Environmental Quality Act (CEQA)**

CEQA defines a significant impact on the environment as a substantial, or potentially substantial, adverse change in the physical conditions within the area affected by the project. Land use is a required impact assessment category under CEQA. CEQA documents generally evaluate land use in terms of compatibility with the existing land uses and consistency with local general plans and other local land use controls (zoning, specific plans, etc.).

1.2.5 *Regional Agencies*

✓ **San Joaquin Valley Air Pollution Control District**

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within Merced County and throughout the SJVAB. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law.

The District was formed in mid-1991 and prepared and adopted the San Joaquin Valley Air Quality Attainment Plan (AQAP), dated January 30, 1992, in response to the requirements of the State CCAA. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least five percent (5%) per year until new, more stringent, 1988 State air quality standards are met.

Activities of the SJVAPCD include the preparation of plans for the attainment of ambient air

quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the FCAA and CCAA.

The SJVAPCD has prepared the *Guide for Assessing and Mitigation Air Quality Impacts* (GAMAQI), dated March 19, 2015. The GAMAQI is an advisory document that provides Lead Agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. Local jurisdictions are not required to utilize the methodology outlined therein. This document describes the criteria that SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

1.2.6 *Regional Regulations*

The SJVAPCD has adopted numerous rules and regulations to implement its air quality plans. Following, are significant rules that will apply to the Project.

- ✓ **Regulation VIII – Fugitive PM10 Prohibitions**

Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc. The proposed Project will be required to comply with this regulation. Regulation VIII control measures are provided below:

1. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.*
2. *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
3. *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
4. *When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.*
5. *All operations shall limit or expeditiously remove the accumulation of mud or dirt from*

adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.

6. *Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.*
7. *Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.*

✓ **Rule 8021 – Construction, Demolition, Excavation, and Other Earthmoving Activities**

District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at any time the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The proposed project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.

✓ **Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations**

If asphalt paving will be used, then paving operations of the proposed project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

✓ **Rule 9510 – Indirect Source Review (ISR)**

The purpose of this rule is to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans, achieve emission reductions from construction activities, and to provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures.

1.2.7 *Local Plans*

✓ **Merced County General Plan**

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a "constitution for development"— the document that serves as the foundation for all land use decisions. The 2030 Merced County General Plan includes various elements, including air quality and greenhouse gases, that address local concerns and provides goals and policies to achieve its development goals.

2.0 Environmental Setting

This section describes existing air quality within the San Joaquin Valley Air Basin and in Merced County, including the identification of air pollutant standards, meteorological and topological conditions affecting air quality, and current air quality conditions. Air quality is described in relation to ambient air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas.

2.1 Geographical Location

The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the State's geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), the Coastal Range on the west (4,500 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

2.2 Topographic Conditions

Merced County is located within the San Joaquin Valley Air Basin [as determined by the California Air Resources Board (CARB)]. Air basins are geographic areas sharing a common "air shed." A description of the Air Basin in the County, as designated by CARB, is provided in paragraph below. Air pollution is directly related to the region's topographic features, which impact air movement within the Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapi's prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographic features result in weak airflow that becomes restricted vertically by high barometric pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

2.3 Climatic Conditions

Merced County is located in one of the most polluted air basins in the country. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Merced County is classified as Mediterranean, with moist cool winters and dry warm summers.

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO), for example, may form high concentrations when wind speed is low. During the winter, Merced County experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble, so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high- pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces considerable precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. This is primarily because the Pacific storm track often passes through the northern part of the state while the southern part of the state remains protected by the Pacific High. Precipitation in the San Joaquin Valley Air Basin (SJVAB) is confined primarily to the winter months with some also occurring in late summer and fall. Average annual rainfall for the entire San Joaquin Valley is approximately 5 to 16 inches. Snowstorms, hailstorms, and ice storms occur infrequently in the San Joaquin Valley and severe occurrences of any of these are very rare.

The winds and unstable air conditions experienced during the passage of storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong

low-level temperature inversions and very stable air conditions. This situation leads to the San Joaquin Valley's famous Tule Fogs. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog is more likely to occur inland. Cooling may also be accomplished by heat radiation losses or by horizontal movement of a mass of air over a colder surface. This second type of fog, known as advection fog, generally occurs along the coast.

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM10. Ozone levels are low during these periods because of the lack of sunlight to drive the photochemical reaction. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large numbers of fireplaces are in use. A secondary peak in CO concentrations occurs during morning commute hours when a large number of motorists are on the road and the surface inversion has not yet broken.

The water droplets in fog, however, can act as a sink for CO and nitrogen oxides (NOx), lowering pollutant concentrations. At the same time, fog could help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of winter season violations of the PM10 and PM2.5 standards.

2.4 Anthropogenic (Man-made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the SJVAB can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

Carbon monoxide emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contributed 34 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles, contribute another 20 percent in 2012 according to emission projections from the CARB. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between Oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute 86 percent of all NOx emitted from anthropogenic sources in 2015 based on data provided in Appendix B of the Air District's 2016 Ozone Plan. In addition, mobile sources contribute 26 percent of all the ROG emitted from

sources within the San Joaquin Valley.

The principal factors that affect air quality in and around Merced County are:

1. The sink effect, climatic subsidence and temperature inversions and low wind speeds
2. Automobile and truck travel
3. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

The primary contributors of PM10 emissions in the San Joaquin Valley are farming activities (22%) and road dust, both paved and unpaved (35%) in 2020 according to emission projections from the CARB. Fugitive windblown dust from "open" fields contributed 14 percent of the PM10.

The four major sources of air pollutant emissions in the SJVAB include industrial plants, motor vehicles, construction activities, and agricultural activities. Industrial plants account for significant portions of regional gaseous and particulate emissions. Motor vehicles, including those from large employers, generate substantial regional gaseous and particulate emissions. Finally, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.). In addition to these primary sources of air pollution, urban areas upwind from Merced County, including areas north and west of the San Joaquin Valley, can cause or generate emissions that are transported into Merced County. All four of the major pollutant sources affect ambient air quality throughout the Air Basin.

2.4.1 *Motor Vehicles*

Automobiles, trucks, buses and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

2.4.2 *Agricultural and Other Miscellaneous Activities*

Other sources that affect air quality in Merced County include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. These sources include several agricultural related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities.

2.4.3 *Industrial Plants*

Industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major

sources of industrial emissions in Merced County consist of agricultural production and processing operations, wine production, and marketing operations.

2.5 San Joaquin Valley Air Basin Monitoring

SJVAPCD and the CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, PM2.5, and PM10. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. The closest monitoring station to the Project is located at Merced's Coffee Avenue and Turlock's Minaret Street monitoring stations. The stations monitor particulates, ozone, and nitrogen dioxide. Monitoring data for the most recent three years on record is summarized in Tables 1a and 1b.

Table 2 identifies Merced County's attainment status. As indicated previously, the SJVAB is nonattainment for Ozone (1 hour and 8 hour) and PM. In accordance with the FCAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. The FCAA contains provisions for changing the classifications using factors such as clean air progress rates and requests from states to move areas to a higher classification.

On April 16, 2004 EPA issued a final rule classifying the SJVAB as extreme nonattainment for Ozone, effective May 17, 2004 (69 FR 20550). The (federal) 1-hour ozone standard was revoked on June 6, 2005. However, many of the requirements in the 1-hour attainment plan (SIP) continue to apply to the SJVAB. The current ozone plan is the (federal) 8-hour ozone plan adopted in 2007. The SJVAB was reclassified from a "serious" nonattainment area for the 8-hour ozone standard to "extreme' effective June 4, 2010.

Table 1a
Maximum Pollutant Levels at Merced's S Coffee Avenue Monitoring Station

Pollutant	Time Averaging	2016 Maximums	2017 Maximums	2018 Maximums	Standards National	Standards State
Ozone (O_3)	1 hour	0.097 ppm	0.093 ppm	0.104 ppm	-	0.09 ppm
Ozone (O_3)	8 hour	0.086 ppm	0.084 ppm	0.083 ppm	0.070 ppm	0.070 ppm
Nitrogen Dioxide (NO_2)	1 hour	35.4 ppb	38.9 ppb	45.8 ppb	100 ppb	0.18 ppm
Nitrogen Dioxide (NO_2)	Annual Average	6.0 ppb	7.0 ppb	7.0 ppb	0.053 ppm	0.030 ppm
Particulates (PM_{10})	24 hour	*	*	*	150 µg/m^3	50 µg/m^3
Particulates (PM_{10})	Federal Annual Arithmetic Mean	*	*	*	-	20 µg/m^3
Particulates ($PM_{2.5}$)	24 hour	43.0 µg/m^3	69.3 µg/m^3	88.2 µg/m^3	35 µg/m^3	-
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	11.9 µg/m^3	13.2 µg/m^3	15.1 µg/m^3	12 µg/m^3	12 µg/m^3

Source: California Air Resources Board (ADAM) Air Pollution Summaries

* Means there was insufficient data available to determine the value.

Table 1b
Maximum Pollutant Levels at Turlock's S Minaret Street Monitoring Station

Pollutant	Time Averaging	2016 Maximums	2017 Maximums	2018 Maximums	Standards National	Standards State
Ozone (O_3)	1 hour	0.102 ppm	0.114 ppm	0.108 ppm	-	0.09 ppm
Ozone (O_3)	8 hour	0.088 ppm	0.099 ppm	0.095 ppm	0.070 ppm	0.070 ppm
Nitrogen Dioxide (NO_2)	1 hour	47.2 ppb	58.6 ppb	67.2 ppb	100 ppb	0.18 ppm
Nitrogen Dioxide (NO_2)	Annual Average	9.0 ppb	9.0 ppb	9.0 ppb	0.053 ppm	0.030 ppm
Particulates (PM_{10})	24 hour	62.7 µg/m^3	111.7 µg/m^3	250.4 µg/m^3	150 µg/m^3	50 µg/m^3
Particulates (PM_{10})	Federal Annual Arithmetic Mean	29.8 µg/m^3	36.4 µg/m^3	36.8 µg/m^3	-	20 µg/m^3
Particulates ($PM_{2.5}$)	24 hour	53.6 µg/m^3	72.3 µg/m^3	187.3 µg/m^3	35 µg/m^3	-
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	12.7 µg/m^3	12.7 µg/m^3	17.2 µg/m^3	12 µg/m^3	12 µg/m^3

Source: California Air Resources Board (ADAM) Air Pollution Summaries

Table 2
Merced County Attainment Status

Pollutant	Federal Standards	State Standards
Ozone - 1 Hour	Revoked in 2005	Nonattainment/Severe
Ozone - 8 Hour	Nonattainment/Extreme [a]	No State Standard
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Unclassified
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
Lead (Particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

Source: ARB Website, 2020

a. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

Notes:

National Designation Categories

Non-Attainment Area: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Unclassified/Attainment Area: Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant or meets the national primary or secondary ambient air quality standard for the pollutant.

State Designation Categories

Unclassified: A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or non-attainment.

Attainment: A pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a three-year period.

Non-attainment: A pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area.

Non-Attainment/Transitional: A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for the pollutant.

2.6 Air Quality Standards

The FCAA, first adopted in 1963, and periodically amended since then, established National Ambient Air Quality Standards (NAAQS). A set of 1977 amendments determined a deadline for the attainment of these standards. That deadline has since passed. Other CAA amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources.

In 1988, the State of California passed the CCAA (State 1988 Statutes, Chapter 568), which set forth a program for achieving more stringent California Ambient Air Quality Standards. The CARB implements State ambient air quality standards, as required in the CCAA, and cooperates with the federal government in implementing pertinent sections of the FCAA Amendments (FCAAA). Further, CARB regulates vehicular emissions throughout the State. The SJVAPCD regulates stationary sources, as well as some mobile sources. Attainment of the more stringent State PM10 Air Quality Standards is not currently required.

The EPA uses six "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called the NAAQS.

The SJVAPCD operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of ten pollutants of importance in Merced County follow.

2.6.1 *Ozone (1-hour and 8-hour)*

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), NOx, and sunlight. ROG and NOx are emitted from various sources throughout Tulare County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NOx and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

- ✓ ***Health Effects***

  While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as: forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

  People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. In addition, children inhale more air per pound of body weight than adults, and they breathe more rapidly than

adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

The CARB found ozone standards in Merced County nonattainment of Federal and State standards.

2.6.2 *Suspended PM (PM10 and PM2.5)*

Particulate matter pollution consists of very small liquid and solid particles that remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM10 refers to particles less than or equal to 10 microns in aerodynamic diameter. PM2.5 refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM10. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM10 in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM10 and PM2.5 can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM10 and PM2.5. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO2) and NOx in the atmosphere to create sulfates (SO4) and nitrates (NO3). Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

The District's 2008 PM2.5 Plan built upon the aggressive emission reduction strategy adopted in the 2007 Ozone Plan and strives to bring the valley into attainment status for the 1997 NAAQS

for PM2.5. The District's 2012 PM2.5 Plan provides multiple control strategies to reduce emissions of PM2.5 and other pollutants that form PM2.5. The plan's comprehensive control strategy includes regulatory actions, incentive programs, technology advancement, policy and legislative positions, public outreach, participation and communication, and additional strategies.

✓ ***Health Effects***

PM10 and PM2.5 particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. PM10 and PM2.5 can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM10. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM10 can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

The CARB found PM10 standards in Merced County in attainment of Federal standards and nonattainment for State standards. The CARB found PM2.5 standards in Merced County nonattainment of Federal and State standards.

2.6.3 *Carbon Monoxide (CO)*

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience

high levels of CO.

✓ ***Health Effects***

CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin (COHb) in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome (SIDS); and increased daily mortality rate.

Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

The CARB found CO standards in Merced County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.4 *Nitrogen Dioxide (NO2)*

Nitrogen oxides (NOx) is a family of highly reactive gases that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NOx is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NOx is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

✓ ***Health Effects***

NOx is an ozone precursor that combines with Reactive Organic Gases (ROG) to form ozone. See the ozone section above for a discussion of the health effects of ozone.

Direct inhalation of NOx can also cause a wide range of health effects. NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO2) may

lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

NO2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO2, can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NOx contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

The CARB found NO2 standards in Merced County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.5 *Sulfur Dioxide (SO2)*

The major source of sulfur dioxide (SO2) is the combustion of high-sulfur fuels for electricity generation, petroleum refining and shipping. High concentrations of SO2 can result in temporary

breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO2 also is a major precursor to PM2.5, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

The CARB found SO2 standards in the Merced County as unclassified/attainment for Federal standards and attainment for State standards.

2.6.6 *Lead (Pb)*

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

The CARB found Lead standards in Merced County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.7 *Toxic Air Contaminants (TAC)*

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another group of pollutants of concern. TAC are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TAC is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TAC are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TAC are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium,

para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans' guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the United States Environmental Protection Agency (USEPA). The six-diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TAC listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TAC in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TAC, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies to estimate concentrations of diesel PM. Table 3 depicts the CARB Handbook's recommended buffer distances associated with various types of common sources.

In addition to DPM, the operation of the Project would also release amounts of fugitive dust that contain several TACs through the various stages of the concrete batch plant process. These TACs include aluminum, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, zinc, and crystalline silica.

- ✓ **Aluminum**

  Exposure to aluminum can occur through inhalation, ingestion, and eye or skin contact. Symptoms of exposure may include the following:
  - Acute exposure: Acute exposure to aluminum dust has resulted in eye irritation.
  - Chronic exposure: The signs and symptoms of chronic exposure to aluminum metal dust include shortness of breath, weakness, and cough.

TABLE 3

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

SOURCE CATEGORY	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads [1]	- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	- Avoid 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). - Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. - Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

1: The recommendation to avoid siting new sensitive land uses within 500 feet of a freeway was identified in CARB's Air Quality and Land Use Handbook published in 2005. CARB recently published a technical advisory to the Air Quality and Land Use Handbook indicating that new research has demonstrated promising strategies to reduce pollution exposure along transportation corridors.

*Notes:
• These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.
• Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
• The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
• These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
• Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
• This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
• A summary of the basis for the distance recommendations can be found in the ARB Handbook: Air Quality and Land Use Handbook: A Community Health Perspective.

Source: SJVAPCD 2020

✓ **Arsenic**

Arsenic occurs naturally in the environment as an element of the earth's crust. Arsenic is combined with other elements such as oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Exposure to high levels of arsenic can cause death. Exposure to arsenic at low levels for extended periods of time can cause a discoloration of the skin and the appearance of small corns or warts.

✓ **Beryllium**

Beryllium is a metal that is found in nature, especially in beryl and bertrandite rock. It is extremely lightweight and hard, is a good conductor of electricity and heat, and is nonmagnetic. Exposure happens when a person breathes in beryllium mists, dusts, or fumes. Beryllium can then travel to the lungs where it can cause damage. Beryllium-related granulomas (non-cancerous tumors or growths) can also develop in other body tissues but these do not usually result in a loss of function. Beryllium disease is caused primarily by breathing air with beryllium mists, dusts, and fumes. Both acute (abrupt, short-term) and chronic (long-term) health problems can occur.

The acute disease starts soon after exposure and resembles pneumonia or bronchitis. It requires relatively high levels of exposure to occur and is now quite rare because protective measures to reduce exposure are usually in place. The chronic form—chronic beryllium disease—takes longer to develop than the acute form. Onset may occur from several months to decades after exposure. This disease can occur after much lower levels of exposure than the acute form. In chronic beryllium disease, inflammation and scarring of the lungs make it more difficult for the lungs to get oxygen to the bloodstream and body. A special type of scarring called granuloma is very typical of this disease. These noncancerous growths look like scars or tumors present in another disease called sarcoidosis. Most people exposed to beryllium will not develop chronic beryllium disease. Chronic beryllium disease can be either mild or severe.

For some, it can be a relatively minor condition, while for others it can be a very serious, even fatal, disease. The amount of length of exposure necessary to cause a specific individual to develop the disease is not known. As with many workplace hazards, it is believed that higher exposures cause more people to become sensitized. In a few people, exposure to even very small amounts of beryllium can pose a problem. In these people, their bodies react and begin the disease process even when exposed to only small amounts of the metal. The reason for this is not well understood.

Beryllium is identified by the International Agency for Research on Cancer and the National Toxicology Program as a human carcinogen. Persons exposures to beryllium are at increased risk of developing lung cancer.

✓ **Cadmium**

Cadmium (Cd) is a soft, malleable, bluish white metal found in zinc ores, and to a much lesser extent, in the cadmium mineral greenockite. Cadmium and its compounds are highly toxic and exposure to this metal is known to cause cancer and targets the body's cardiovascular, renal, gastrointestinal, neurological, reproductive, and respiratory systems.

✓ **Chromium**

Chromium occurs in the environment primarily in two valence states, trivalent chromium (Cr III) and hexavalent chromium (Cr VI). Exposure may occur from natural or industrial sources of chromium. Chromium III is much less toxic than chromium (VI). The respiratory tract is also the major target organ for chromium (III) toxicity, similar to chromium (VI). Chromium (III) is an essential element in humans. The body can detoxify some amount of chromium (VI) to chromium (III).

The respiratory tract is the major target organ for chromium (VI) toxicity, for acute (short-term) and chronic (long-term) inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to chromium (VI), while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled chromium (VI) is a human carcinogen, resulting in an increased risk of lung cancer. Animal studies have shown chromium (VI) to cause lung tumors via inhalation exposure.

✓ **Cobalt**

Cobalt (Co) is a metal that can be stable (non-radioactive, as found in nature), or unstable (radioactive, man-made). The most common radioactive isotope of cobalt is cobalt-60. All ionizing radiation, including that of cobalt-60, is known to cause cancer. Therefore, exposures to gamma radiation from cobalt-60 result in an increased risk of cancer. Because it emits such strong gamma rays, external exposure to cobalt-60 is considered a significant threat. The magnitude of the health risk depends on the quantity of cobalt-60 involved and on exposure conditions: length of exposure, distance from the source (for external exposure), whether the cobalt-60 was ingested or inhaled.

✓ **Copper**

Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. There is inadequate evidence to state whether copper has the potential to cause cancer from a lifetime exposure in drinking water.

✓ **Manganese**

Manganese is a naturally occurring metal that, in pure form, is silver-colored with no taste or smell. Manganese is normally encountered in the environment as a compound with oxygen, sulfur, or chlorine. Manganese is an essential nutrient, required in trace amounts for human health. Intake is normally sufficient with a balanced diet. The primary targets of manganese toxicity are the brain and central nervous system. Manganese has been shown to be deposited in certain regions of the brain, and exposure to high concentrations in occupational studies was associated with permanent damage, with symptoms of impaired neurological and neuromuscular control, mental and emotional disturbances, muscle stiffness, lack of coordination, tremors, difficulties with breathing or swallowing, and other neuromuscular problems. Exposure to very high doses of manganese in experimental animal studies has resulted in impaired male fertility, and birth defects in offspring including cleft palate, impaired bone development, and other effects.

✓ **Nickel**

Nickel occurs naturally in the environment at low levels. Nickel is an essential element in some animal species, and it has been suggested it may be essential for human nutrition. Nickel dermatitis—consisting of itching of the fingers, hands, and forearms—is the most common effect in humans from chronic (long-term) skin contact with nickel. Respiratory effects have also been reported in humans from inhalation exposure to nickel. Human and animal studies have reported an increased risk of lung and nasal cancers from exposure to nickel refinery dusts and nickel subsulfide. Animal studies of soluble nickel compounds (e.g., nickel carbonyl) have reported lung tumors. The EPA has classified nickel refinery dust and nickel subsulfide as Group A, human carcinogens, and nickel carbonyl as a Group B2, probable human carcinogen.

✓ **Selenium**

Selenium is a naturally occurring substance that is toxic at high concentrations but is also a nutritionally essential element. Hydrogen selenide is the most acutely toxic selenium compound. Acute (short-term) exposure to elemental selenium, hydrogen selenide, and selenium dioxide by inhalation results primarily in respiratory effects, such as irritation of the mucous membranes, pulmonary edema, severe bronchitis, and bronchial pneumonia. Epidemiological studies of humans chronically (long-term) exposed to high levels of selenium in food and water have reported discoloration of the skin, pathological deformation and loss of nails, loss of hair, excessive tooth decay and discoloration, lack of mental alertness, and listlessness. Epidemiological studies have reported an inverse association between selenium levels in the blood and cancer occurrence and animal studies have reported that selenium supplementation, as sodium selenate, sodium selenite, and organic forms of selenium, results in a reduced incidence of several tumor types. The only selenium compound that has been shown to be carcinogenic in animals is selenium sulfide, which resulted in an increase in liver

tumors from oral exposure. The EPA has classified elemental selenium as a Group D, not classifiable as to human carcinogenicity, and selenium sulfide as a Group B2, probable human carcinogen.

✓ **Zinc**

Although zinc is an essential requirement for good health, excess zinc can be harmful. Excessive absorption of zinc suppresses copper and iron absorption. The free zinc ion in solution is highly toxic to plants, invertebrates, and even vertebrate fish.

✓ **Crystalline Silica**

The following excerpt is from the United States Occupational Safety & Health Administration (OSHA 2002).

- Crystalline silica is a basic component of soil, sand, granite, and many other minerals. Quartz is the most common form of crystalline silica. Cristobalite and tridymite are two other forms of crystalline silica. All three forms may become respirable size particles when workers chip, cut, drill, or grind objects that contain crystalline silica.

  Silica exposure remains a serious threat to nearly 2 million U.S. workers, including more than 100,000 workers in high risk jobs such as abrasive blasting, foundry work, stonecutting, rock drilling, quarry work and tunneling. The seriousness of the health hazards associated with silica exposure is demonstrated by the fatalities and disabling illnesses that continue to occur in sandblasters and rockdrillers. Crystalline silica has been classified as a human lung carcinogen. Additionally, breathing crystalline silica dust can cause silicosis, which in severe cases can be disabling, or even fatal. The respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs' ability to take in oxygen. There is no cure for silicosis. Since silicosis affects lung function, it makes one more susceptible to lung infections like tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust.

  Silicosis is classified into three types: chronic /classic, accelerated, and acute. Chronic/classic silicosis, the most common, occurs after 15–20 years of moderate to low exposures to respirable crystalline silica. Symptoms associated with chronic silicosis may or may not be obvious; therefore, workers need to have a chest x-ray to determine if there is lung damage. As the disease progresses, the worker may experience shortness of breath upon exercising and have clinical signs of poor oxygen/carbon dioxide exchange. In the later stages, the worker may experience fatigue, extreme shortness of breath, chest pain, or respiratory failure.

  Accelerated silicosis can occur after 5–10 years of high exposures to respirable crystalline silica. Symptoms include severe shortness of breath, weakness, and weight loss. The

onset of symptoms takes longer than in acute silicosis.

Acute silicosis occurs after a few months or as long as 2 years following exposures to extremely high concentrations of respirable crystalline silica. Symptoms of acute silicosis include severe disabling shortness of breath, weakness, and weight loss, which often leads to death.

OSHA has an established Permissible Exposure Limit, or PEL, which is the maximum amount of crystalline silica to which workers may be exposed during an 8-hour work shift (29 CFR 1926.55, 1910.1000). OSHA also requires hazard communication training for workers exposed to crystalline silica, and requires a respirator protection program until engineering controls are implemented. Additionally, OSHA has a National Emphasis Program for Crystalline Silica exposure to identify, reduce, and eliminate health hazards associated with occupational exposures.

2.6.8 *Odors*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor.

Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold

means that the concentration in the air is not detectable by the average human.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB. The types of facilities that are known to produce odors are shown in Table 4 along with a reasonable distance from the source within which, the degree of odors could possibly be significant. Information presented in Table 4 will be used as a screening level of analysis for potential odor sources for the proposed project.

TABLE 4
Screening Levels for Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Compositing Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Source: SJVAPCD 2020

2.6.9 *Naturally Occurring Asbestos (NOA)*

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1% up to approximately 25% and sometimes more. It is released from ultramafic rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways, which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The Project's construction phase may cause asbestos to become airborne due to the construction

activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021.

2.6.10 *Greenhouse Gas Emissions*

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are:

- **Carbon Dioxide (CO2):** Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide (N2O):** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases:** Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring. Every nation emits GHGs; therefore, global cooperation will be required to reduce the rate of GHG emissions.

3.0 Significance Criteria

The SJVAPCD's current thresholds of significance for TAC emissions from the operations of both permitted and non-permitted sources are presented below:

- ✓ **Carcinogens**: Maximally Exposed Individual risk equals or exceeds 10 in one million
- ✓ **Chronic:** Hazard Index equals or exceeds 1 for the Maximally Exposed Individual
- ✓ **Acute**: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual

Carcinogenic (cancer) risk is expressed as cancer cases per one million. Noncarcinogenic (acute and chronic) hazard indices (HI) are expressed as a ratio of expected exposure levels to acceptable exposure levels.

These metrics are generally applied to the maximally exposed individual (MEI). There are separate MEIs for residential exposure (i.e., residential areas) and for worker exposure (i.e., off-site workplaces). Residential exposure is for a worst-case exposure duration of 24 hours a day, 350 days a year for 70 years. For off-site workplaces, the exposure is 8 hours a day, 245 days a year for 40 years.

3.1 Cancer Risk

Cancer risk is defined as the lifetime probability (chance) of developing cancer from exposure to a carcinogen, typically expressed as chances per million. Exposure to cancer-causing substances can be through direct inhalation or other pathway. The cancer risk associated with inhalation of a carcinogen can be estimated by multiplying the inhalation dose in units of milligram per kilogram-day (mg/kg-day) by an inhalation cancer potency factor [(mg/kg/day)-1].

For particulate-bound pollutants, exposure may be possible from indirect environmental pathways (non-inhalation pathways), such as deposition on the soil, followed by exposure through soil ingestion or absorption of the pollutant from soil adhered to the skin. Other ingestion pathways may be possible such as ingestion of crops grown in soil potentially affected by deposited air pollutants and transmittal of a dose to an infant by breast milk due to the mother's cumulative exposure. Non-inhalation cancer risk is calculated from cancer toxicity factors and exposure assumptions.

3.2 Non-cancer Risk

Non-cancer health risk refers to both acute (short-term) and chronic (long-term) adverse health effects other than cancer that may be associated with exposure to air toxics. The commonly employed regulatory metric for assessing noncancer effects is the hazard index (HI), the ratio of the estimated exposure level of an air toxic compound to a scientifically derived reference exposure level (REL) for the same compound. RELs generally represent the highest exposure level

where no adverse effect has been observed or the lowest exposure level where the onset of an adverse effect has been observed, with the inclusion of a safety factor ranging from 10 to 1000, depending on the source and quality of the scientific data.

If the reported concentration or dose of a given chemical is less than its REL, then the hazard index will be less than 1.0. When more than one chemical is considered, it is assumed that the effects are additive provided the associated chemicals are expected to have an adverse impact on the same target organ system (respiratory system, liver, etc). Thus, chemicalspecific hazard indices are summed to arrive at a hazard index for each target organ. For any organ system, a total hazard index exceeding 1.0 indicates a potential health effect.

3.3 Significance for Criteria Pollutants

The SJVAPCD has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to activities that occur as a result of Project operations. Impacts will be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated will be those involving construction emissions of criteria pollutants. The SJVAPCD has established thresholds for certain pollutants shown in Table 5. Results of the Project's impact considering criteria pollutants are included in the Air Quality Impact Assessment prepared for the Project.

Table 5
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2020

4.0 Estimate of Toxic Emissions

As stated previously, the Project proposes to construct and operate a concrete batch plant facility, which will include a ready-mix batch plant, concrete reclaimer, concrete recycling plant, truck and equipment maintenance building with wash rack, truck scale, concrete product warehouse building, office/showroom building, and customer/employee parking lots. The principal sources or processes that have the potential to emit various TACs are as follows:

✓ **Concrete Recycling**

- Material Transport
- Tertiary Crushing
- Conveyor Transfer point
- Recycled Base Pile

✓ **Concrete Batch Plant**

- Material Transport
- Cement unloading to storage silo
- Mixer loading
- Aggregate Stock Pile

✓ **Miscellaneous**

- Pickup and delivery of finished product
- Onsite equipment usage
- Truck delivery of raw material

Cancer and non-cancer health risks are related to the exposure concentration, for example in grams/cubic meter, of various toxic air contaminants that will be generated on the Project site. Exposure occurs primarily via inhalation and to a smaller extent via ingestion, dermal exposure, etc.

The ambient concentration of various TACs at a given location depends on its emission rate, distance from the emission source, local wind speed and direction and local topography, land-use, etc. An air dispersion model that incorporates these variables and parameters was used to calculate the concentration of TACs in the vicinity of the Project.

4.1 Diesel Particulate Matter Emissions

Vehicle DPM emissions were estimated using emission factors for particulate matter less than 10µm in diameter (PM10) generated with the 2017 version of the Emission Factor model (EMFAC)

developed by the ARB. EMFAC 2017 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources. The most recent version of this model, EMFAC 2017, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

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

For this Project, annual average PM10 emission factors were generated by running EMFAC 2017 in EMFAC Mode for vehicles in Merced County. The EMFAC model generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- ✓ Idling (15 minutes) – on-site loading/unloading and truck gate
- ✓ 10 miles per hour – on-site vehicle movement including driving and maneuvering

Tables 6 - 8 show the estimated emissions for the diesel operated equipment and vehicles that will operate on the Project site.

4.2 Concrete Batch Plant Operation Emissions

Operational emissions from concrete batch plant activities were estimated using the EPA AP-42 emission factors as shown in the appendices. The relevant PM10 and TACs for the project operations are identified in Tables 9 and 10 as derived from air pollutant emission factors provided by the EPA AP-42.

Table 6
Onsite On-Road Mobile Source Emissions

Pollutant	Vehicle Type	EMFAC Vehicle Class	Maximum Daily Round-Trips (trips/day)	Total Annual Round-Trips (trips/yr)	Round-Trip Distance (miles)	Emission Factors [1] (gms/mile)	Emission Factors (lbs/VMT)	Annual Emissions (lbs/mile/yr)	Maximum Daily Emission Estimate (lbs/day)	Annual Average Emission Estimate (tons/yr)
ROG Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	1.280	2.822E-03	56.3	0.021	0.0032
							Total ROG Emissions	**56.3**	**0.0206**	**0.0032**
TOG Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	1.458	3.214E-03	64.1	0.023	0.0037
							Total TOG Emissions	**64.1**	**0.0235**	**0.0037**
SO_x Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	0.029	6.418E-05	1.3	0.000	0.0001
							Total SO_x Emissions	**1.3**	**0.0005**	**0.0001**
CO Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	2.789	6.149E-03	122.6	0.045	0.0070
							Total CO Emissions	**122.6**	**0.0449**	**0.0070**
NO_X Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	12.664	2.792E-02	556.8	0.204	0.0318
							Total NO_X Emissions	**556.8**	**0.2037**	**0.0318**
CO_2 Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	3081.442	6.793E+00	135,474.3	49.566	7.7323
							Total CO_2 Emissions	**135,474.3**	**49.5658**	**7.7323**
PM_{10} Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	0.180	3.968E-04	7.9	0.003	0.0005
							Total PM_{10} Emissions	**7.9**	**0.0029**	**0.0005**
$PM_{2.5}$ Exhaust	Product Trucks - Outside Sales	T7	38	9971	0.192004	0.172	3.792E-04	7.6	0.003	0.0004
							Total $PM_{2.5}$ Emissions	**7.6**	**0.0028**	**0.0004**

References:
(1) Emission Factors source: EMFAC2017 for Merced County Year 2021, for speed distribution of 10 mph
Assumptions:
Maximum 38 daily truck trips

Table 7
Onsite On-Road Mobile Source Idling Emissions

Pollutant	Vehicle Type	EMFAC Vehicle Class	Maximum Daily Round-Trips (trips/day)	Total Annual Round-Trips (trips/yr)	Idle Time per Trip [1] (hrs/trip)	Idle Emission Factors [2] (g/hr-veh)	Idle Emission Factors (lbs/hr-veh)	Maximum Daily Emission Estimate (lbs/day)	Annual Average Emission Estimate (tons/yr)
ROG	Product Trucks - Outside Sales	T7	38	9971	0.25	1.578	3.48E-03	0.033	0.0052
							Total ROG Emissions	**0.033**	**0.0052**
TOG	Product Trucks - Outside Sales	T7	38	9971	0.25	1.796	3.96E-03	0.038	0.0059
							Total TOG Emissions	**0.038**	**0.0059**
CO	Product Trucks - Outside Sales	T7	38	9971	0.25	20.042	4.42E-02	0.420	0.0655
							Total CO Emissions	**0.420**	**0.0655**
NO_X	Product Trucks - Outside Sales	T7	38	9971	0.25	22.673	5.00E-02	0.475	0.0741
							Total NO_X Emissions	**0.475**	**0.0741**
CO_2	Product Trucks - Outside Sales	T7	38	9971	0.25	3917.792	8.64E+00	82.054	12.8004
							Total CO_2 Emissions	**82.054**	**12.8004**
HC	Product Trucks - Outside Sales	T7	38	9971	0.25	0.073	1.62E-04	0.002	0.0002
							Total HC Emissions	**0.002**	**0.0002**
SO_X	Product Trucks - Outside Sales	T7	38	9971	0.25	0.037	8.16E-05	0.001	0.0001
							Total SO_X Emissions	**0.001**	**0.0001**
PM_{10}	Product Trucks - Outside Sales	T7	38	9971	0.25	0.032	7.13E-05	0.001	0.0001
							Total PM_{10} Emissions	**0.001**	**0.0001**
$PM_{2.5}$	Product Trucks - Outside Sales	T7	38	9971	0.25	0.031	6.82E-05	0.001	0.0001
							Total $PM_{2.5}$ Emissions	**0.001**	**0.0001**

References:
(1) Assumes 15 minutes idle time
(2) Emission Factors source: EMFAC2017 for Merced County Year 2021.
Assumptions:
Maximum 38 daily truck trips

Table 8
Onsite Off-Road Mobile Source Emissions

Pollutant	Vehicle Type	Quantity	HP	Annual Operation (hrs/year)	Load Factor	Emission Factor (g/hp-hr)	Annual Average Emission Estimate (lbs/yr)	Normalized Hourly Emission Estimate (lbs/hr)
ROG Exhaust	Rubber Tired Loader	1	180	550	0.54	1.00	117.86	0.0135
	Excavator	1	157	600	0.57	1.20	142.05	0.0162
	Crushing Equipment	1	475	360	0.78	0.40	117.62	0.0134
						Total ROG Emissions	**377.52**	**0.0431**
TOG Exhaust	Rubber Tired Loader	1	180	550	0.54	1.00	117.86	0.0135
	Excavator	1	157	600	0.57	1.20	142.05	0.0162
	Crushing Equipment	1	475	360	0.78	0.40	117.62	0.0134
						Total TOG Emissions	**377.52**	**0.0431**
CO Exhaust	Rubber Tired Loader	1	180	550	0.54	6.90	813.21	0.0928
	Excavator	1	157	600	0.57	3.70	437.98	0.0500
	Crushing Equipment	1	475	360	0.78	2.60	764.52	0.0873
						Total CO Emissions	**2,015.72**	**0.2301**
NO_X Exhaust	Rubber Tired Loader	1	180	550	0.54	6.90	813.21	0.0928
	Excavator	1	157	600	0.57	4.30	509.00	0.0581
	Crushing Equipment	1	475	360	0.78	2.60	764.52	0.0873
						Total NO_X Emissions	**2,086.74**	**0.2382**
PM_{10} Exhaust	Rubber Tired Loader	1	180	550	0.54	0.40	47.14	0.0054
	Excavator	1	157	600	0.57	0.22	26.04	0.0030
	Crushing Equipment	1	475	360	0.78	0.15	44.11	0.0050
						Total PM_{10} Emissions	**117.29**	**0.0134**
$PM_{2.5}$ Exhaust	Rubber Tired Loader	1	180	550	0.54	0.40	47.14	0.0054
	Excavator	1	157	600	0.57	0.22	26.04	0.0030
	Crushing Equipment	1	475	360	0.78	0.15	44.11	0.0050
						Total $PM_{2.5}$ Emissions	**117.29**	**0.0134**

Source: Project Representatives
Rubber Tired Loader - Tier 1 Engine
Excavator - Tier 2 Engine
Crushing Equipment - Tier 3
Source for HP: Project Representative; excavator: OFFROAD default
Source for Load Factor: CalEEMod default
Source for Emission Factor: OFFROAD default

Table 9
Concrete Batch Plant Operation Emissions

Source	Hourly Concrete Production (tons/hour)	Daily Concrete Production (tons/day)	Yearly Concrete Production (tons/year)	Emission Factor for Total PM (lb/ton)	Emission Factor for Total PM_{10} (lb/ton)	Total PM Hourly Emission Estimate (lb/hr)	Total PM Daily Emission Estimate (lb/day)	Total PM Yearly Emission Estimate (lb/yr)	Total PM_{10} Hourly Emission Estimate (lb/hr)	Total PM_{10} Daily Emission Estimate (lb/day)	Total PM_{10} Yearly Emission Estimate (lb/yr)
Concrete Batch Plant											
Aggregate transfer	28	313	91,750	0.0069	0.0033	0.19	2.16	633.08	0.09	1.03	302.78
Sand transfer	28	313	91,750	0.0021	0.00099	0.06	0.66	192.68	0.03	0.31	90.83
Cement unloading to elevated storage silo	28	313	91,750	0.0010	0.0003	0.03	0.31	90.83	0.01	0.11	31.20
Cement supplement unloading to elevated storage silo	28	313	91,750	0.0089	0.0049	0.25	2.79	816.58	0.14	1.53	449.58
Weigh hopper loading	28	313	91,750	0.0048	0.0028	0.13	1.50	440.40	0.08	0.88	256.90
Mixer loading	28	313	91,750	0.0184	0.0055	0.52	5.76	1,688.20	0.15	1.72	504.63
Truck loading	28	313	91,750	0.0980	0.0263	2.74	30.67	8,991.50	0.74	8.23	2,413.03
Aggregate Stock Pile	28	313	91,750	0.0000	1.29E-01	0.00	0.00	0.00	3.62	40.44	11,855.25
					Total Emissions	**3.92**	**43.85**	**12,853.26**	**4.85**	**54.26**	**15,904.18**
Concrete Recycling											
Truck Unloading - Fragmented Stone	8	85	25,000	0.0000	1.60E-05	0.00	0.00	0.00	0.00	0.00	0.40
Tertiary Crushing	8	85	25,000	0.0012	5.40E-04	0.01	0.10	30.00	0.00	0.05	13.50
Conveyor Transfer Point	8	85	25,000	0.0001	4.60E-05	0.00	0.01	3.50	0.00	0.00	1.15
Recycled Base Pile	8	85	25,000	0.0000	1.29E-01	0.00	0.00	0.00	1.03	10.98	3,230.31
					Total Emissions	**0.01**	**0.11**	**33.50**	**1.04**	**11.03**	**3,245.36**
Dust From Haul/Access Roads											
Dust - Haul Roads									0.42	4.62	10,516.70
Dust - Access Road									0.59	6.49	1,353.70
					Total Emissions				**1.01**	**11.11**	**11,870.40**

Emission Factor Source: EPA AP-42; Dust from Haul/Access Roads Emissions determined from EPA AP-42 emissions for Unpaved Roads

Table 10
Concrete Batch Plant Organic Pollutant Emissions

Pollutant	Hourly Emission Estimate (lb/hr)	Yearly Emission Estimate (lb/yr)
Recycled Base Pile/Aggregate Stock Pile		
Arsenic	0.00115	0.145
Beryllium	0.0000574	0.00727
Cadmium	0.0000574	0.00727
Chromium Total	0.00287	0.363
Copper	0.00574	0.727
Hexavalent Chromium	0.000143	0.0182
Lead	0.00287	0.363
Manganese	0.0287	3.63
Nickel	0.00115	0.145
Selenium	0.000287	0.0363
Zinc	0.0115	1.45
Concrete Batch Plant Operations		
Aluminum	0.0000127	0.00151
Arsenic	0.0000098	0.00116
Beryllium	0.0000127	0.00151
Cadmium	0.0000098	0.00116
Chromium Total	0.000474	0.0561
Copper	0.000273	0.0323
Hexavalent Chromium	0.0000431	0.0051
Lead	0.000126	0.0149
Manganese	0.00298	0.352
Nickel	0.000207	0.0244
Selenium	0.0000098	0.00116
Zinc	0.000719	0.085

Source: SJVAPCD toxic Emission Factors

5.0 Exposure Assessment

Cancer and non-cancer health risks are related to the exposure concentration, for example in grams/cubic meter, of various toxic air contaminants. Exposure occurs primarily via inhalation and to a smaller extent via ingestion, dermal exposure, etc.

The ambient concentration of various TACs at a given location depends on its emission rate, distance from the emission source, local wind speed and direction and local topography, land-use, etc. An air dispersion model that incorporates these variables and parameters was used to calculate the concentration of TACs in the vicinity of the proposed project.

5.1 Dispersion Modeling

The modeling of emissions for this Project follows guidance from the SJVAPCD. The Health Risk Assessment Standalone Tool Version 2 model was used to estimate the dispersion of the TAC emissions from the Project. The model was then used to estimate cancer risks and non-cancer health hazards from the Project's TAC emissions. In estimating the Project's impacts, it was assumed that the project would operate on a schedule of 12 hours per day, 260 days per year.

The Project emission sources identified in Section 4.0 were modeled using the parameters summarized in Tables 11. Table 11 shows the parameters for the modeling of all concrete batch plant activities that will exist on-site.

5.2 Sensitive Receptors

Health risks such as cancer risk, chronic hazard index, and acute hazard index were calculated for a variety of receptor locations. Receptors of primary interest are those at residential locations, at sensitive population locations, and at off-site worker locations. However, in order to get a more complete picture of the patterns of exposure, and for consistency with the HARP software, concentrations and risk are also calculated along the proposed Project's boundary. The receptors used to analyze project impacts include:

- ✓ Off-site worker locations at the industrial land uses to the south/southeast and the retail locations to the northwest
- ✓ Residence nearest to the facility to the southeast of the Project

Sensitive receptor locations were obtained via an internet search and the Google Earth database.

5.3 Meteorological Data

The meteorological data that was used in this HRA comes from the Merced station and is published by the District. The data from the Merced station, which is approximately 8 miles

southeast of the Project site, includes five years of data from 2013 through 2017. The data from the Merced station provides the best available data for the area.

Table 11
Project Emission Source Modeling Parameters

Source Name	Averaging Period	Number of Identical Source Representations	Source Type	Release Height (m)	Initial Vertical Dimension (m)	Initial Lateral Dimension (m)	Length X (Length of Side) (m)	Length Y (m)	Rotation Angle (deg)	Exit Temperature (k)	Exit Velocity (m/s)	Stack Diameter (m)	Release Type
Concrete Batch Plant (Tranfer Points)	All	1	Volume	4.65	2.16	4.3							
Recycle Plant (Crushing)	All	1	Volume	4.65	2.16	5.81							
Recycle Plant (Transfer Points)	All	1	Volume	4.65	2.16	17.05							
Equipment Haul - Dust	All	6	Line	0	1.7	3.4							
On-road / On-site Trucks - Exhaust	All	32	Line	3.84	0.85	3.4							
On-road / On-site Trucks - Dust	All	32	Line	0	1.7	3.4							
Idling - Trucks	All	1	Point	3.84						366	51.71	0.1	Vertical
Process Area - Vehicles	All	2	Area	3.84	3.66		73	61	0				
Process Area (Crushing) - Dust	Annual	1	Area	0	3.66		25	12	1.89				
Recycled Base Pile	All	1	Area	3.84	3.66		51	22	1.89				
Aggregate Stock Pile	All	1	Area	3.84	3.66		61	30.5	1.89				

5.4 Risk Characterization

The Health Risk Assessment Standalone Tool Version 2 model was used to calculate exposure point concentrations considering the air dispersion run and the maximum estimated TAC emission rates for the Project. For off-site workplaces, the exposure is 8 hours a day, 245 days a year for 40 years. For lifetime excess cancer risk estimates, the 70-year annual average emission rates were used. The Health Risk Assessment Standalone Tool Version 2 model was then used to estimate overall exposure to TAC concentrations and compute estimates of lifetime excess cancer risk, chronic health hazard, and acute health hazard in accordance with OEHHA guidance for conducting risk assessments.

Based on the estimated concentrations from the Project, the Health Risk Assessment Standalone Tool Version 2 model calculated potential exposure levels to people through the various applicable pathways. The software uses the algorithms identified in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines.

The maximum predicted lifetime excess cancer risk, chronic health hazard, and acute health hazard for the modeled sensitive receptors described above are shown in Table 12. Results of the HRA indicated that the maximum predicted cancer risk, chronic health hazard, and acute health hazard for off-site workplaces are below the significance threshold of 10 in one million for cancer risks and 1.0 for non-cancer health risks. Therefore, the Projects health risk impacts are considered less than significant. It should be noted that maximum predicted lifetime excess cancer risk, chronic health hazard, and acute health hazard was modeled at boundary receptors as shown in the appendices. The locations of the modeled receptors are shown in Figure 3.

Table 12
Maximum Human Health Risk Assessment Results

Sensitive Receptor	Type	Cancer Risk	Chronic HI	Acute Simple HI
1	Industrial Land Use Site	6.95E-07	1.66E-01	1.05E-01
2	Winton Disposal Service - Industrial	1.40E-06	3.44E-01	1.13E-01
3	CR Cabinets Inc. - Industrial	2.56E-06	5.41E-01	1.12E-01
4	West Mark - Industrial	3.25E-07	7.18E-02	8.47E-02
5	Industrial Building	3.65E-07	8.90E-02	1.30E-01
6	Wal-Mart - Commercial	2.24E-07	5.45E-02	3.53E-02
7	Industrial Land Use Site	1.56E-06	3.91E-01	1.36E-01
8	Residence	5.24E-07	1.71E-02	1.19E-02

Jim Brisco Enterprises, Inc. Ready-Mix Concrete Batch Plant Project **Figure 3**
Sensitive Receptor Locations

APPENDIX A

Health Risk Assessment Standalone Tool Version 2 Worksheets

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   LOCATION Line9 LINE  712139.9  4135210  712206.7  4135177  43.95
   LOCATION Line10 LINE  712083.7  4135080  712141.1  4135203  43.89
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   LOCATION Line12 LINE  712177.3  4135182  712205  4135169  44.2
   LOCATION Line13 LINE  712116.1  4135051  712170.3  4135181  43.89
   LOCATION Line14 LINE  712157.4  4135020  712117.1  4135045  43.89
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**Wednesday
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**Tuesday
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**Friday
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**Tuesday
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   EMISFACT Line10 HRDOW7  2 2 2 2 2 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 0
   EMISFACT Line10 HRDOW7  0 0 0 0 0 0
**Wednesday
   EMISFACT Line10 HRDOW7  0 0 0 0 0 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 0
   EMISFACT Line10 HRDOW7  0 0 0 0 0 0
**Thursday
   EMISFACT Line10 HRDOW7  0 0 0 0 0 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 0
   EMISFACT Line10 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line10 HRDOW7  0 0 0 0 0 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 0
   EMISFACT Line10 HRDOW7  0 0 0 0 0 0
**Saturday
   EMISFACT Line10 HRDOW7  0 0 0 0 0 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 0
   EMISFACT Line10 HRDOW7  0 0 0 0 0 0
**Sunday
   EMISFACT Line10 HRDOW7  0 0 0 0 0 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 2
   EMISFACT Line10 HRDOW7  2 2 2 2 2 0
   EMISFACT Line10 HRDOW7  0 0 0 0 0 0
**Monday
```

```
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Tuesday
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Wednesday
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Thursday
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Saturday
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Sunday
   EMISFACT Line11 HRDOW7  0 0 0 0 0 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 2
   EMISFACT Line11 HRDOW7  2 2 2 2 2 0
   EMISFACT Line11 HRDOW7  0 0 0 0 0 0
**Monday
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Tuesday
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Wednesday
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Thursday
```

```
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Saturday
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Sunday
   EMISFACT Line12 HRDOW7  0 0 0 0 0 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 2
   EMISFACT Line12 HRDOW7  2 2 2 2 2 0
   EMISFACT Line12 HRDOW7  0 0 0 0 0 0
**Monday
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Tuesday
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Wednesday
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Thursday
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Saturday
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Sunday
```

```
   EMISFACT Line13 HRDOW7  0 0 0 0 0 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 2
   EMISFACT Line13 HRDOW7  2 2 2 2 2 0
   EMISFACT Line13 HRDOW7  0 0 0 0 0 0
**Monday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Tuesday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Wednesday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Thursday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Saturday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Sunday
   EMISFACT Line14 HRDOW7  0 0 0 0 0 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 2
   EMISFACT Line14 HRDOW7  2 2 2 2 2 0
   EMISFACT Line14 HRDOW7  0 0 0 0 0 0
**Monday
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Tuesday
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Wednesday
```

```
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Thursday
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Saturday
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Sunday
   EMISFACT Line15 HRDOW7  0 0 0 0 0 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 2
   EMISFACT Line15 HRDOW7  2 2 2 2 2 0
   EMISFACT Line15 HRDOW7  0 0 0 0 0 0
**Monday
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
**Tuesday
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
**Wednesday
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
**Thursday
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
**Friday
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
**Saturday
```

```
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
**Sunday
   EMISFACT Line16 HRDOW7  0 0 0 0 0 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 2
   EMISFACT Line16 HRDOW7  2 2 2 2 2 0
   EMISFACT Line16 HRDOW7  0 0 0 0 0 0
   SRCGROUP Point1 Point1
   SRCGROUP Area1 Area1
   SRCGROUP Area2 Area2
   SRCGROUP Area3 Area3
   SRCGROUP Area4 Area4
   SRCGROUP Volume1 Volume1
   SRCGROUP Volume2 Volume2
   SRCGROUP Volume3 Volume3
   SRCGROUP Volume4 Volume4
   SRCGROUP Volume5 Volume5
   SRCGROUP Line1 Line1
   SRCGROUP Line2 Line2
   SRCGROUP Line3 Line3
   SRCGROUP Line4 Line4
   SRCGROUP Line5 Line5
   SRCGROUP Line6 Line6
   SRCGROUP Line7 Line7
   SRCGROUP Line8 Line8
   SRCGROUP Line9 Line9
   SRCGROUP Line10 Line10
   SRCGROUP Line11 Line11
   SRCGROUP Line12 Line12
   SRCGROUP Line13 Line13
   SRCGROUP Line14 Line14
   SRCGROUP Line15 Line15
   SRCGROUP Line16 Line16
SO FINISHED
**
**RECEPTORS
RE STARTING
   INCLUDED "C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\BEIBATCH_AERMAP.REC"
RE FINISHED
**
**MET PATHWAY
ME STARTING
ME SURFFILE "C:\Users\jellard\Desktop\BEIv3\Merced_2013-2017.SFC"
ME PROFFILE "C:\Users\jellard\Desktop\BEIv3\Merced_2013-2017.PFL"
ME SURFDATA 23257 2013
ME UAIRDATA 23230 2013
ME SITEDATA 0 2013
ME PROFBASE 46
```

```
ME FINISHED
**
**OUTPUT PATHWAY
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   PLOTFILE 1 Point1 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRPoint1.PLT" 31
   PLOTFILE 1 Area1 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRArea1.PLT" 32
   PLOTFILE 1 Area2 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRArea2.PLT" 33
   PLOTFILE 1 Area3 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRArea3.PLT" 34
   PLOTFILE 1 Area4 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRArea4.PLT" 35
   PLOTFILE 1 Volume1 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRVolume1.PLT" 36
   PLOTFILE 1 Volume2 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRVolume2.PLT" 37
   PLOTFILE 1 Volume3 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRVolume3.PLT" 38
   PLOTFILE 1 Volume4 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRVolume4.PLT" 39
   PLOTFILE 1 Volume5 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRVolume5.PLT" 40
   PLOTFILE 1 Line1 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine1.PLT" 41
   PLOTFILE 1 Line2 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine2.PLT" 42
   PLOTFILE 1 Line3 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine3.PLT" 43
   PLOTFILE 1 Line4 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine4.PLT" 44
   PLOTFILE 1 Line5 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine5.PLT" 45
   PLOTFILE 1 Line6 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine6.PLT" 46
   PLOTFILE 1 Line7 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine7.PLT" 47
   PLOTFILE 1 Line8 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine8.PLT" 48
   PLOTFILE 1 Line9 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine9.PLT" 49
   PLOTFILE 1 Line10 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine10.PLT" 50
   PLOTFILE 1 Line11 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine11.PLT" 51
   PLOTFILE 1 Line12 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine12.PLT" 52
```

```
   PLOTFILE 1 Line13 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine13.PLT" 53
   PLOTFILE 1 Line14 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine14.PLT" 54
   PLOTFILE 1 Line15 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine15.PLT" 55
   PLOTFILE 1 Line16 1ST
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\MAX1HRLine16.PLT" 56
   PLOTFILE PERIOD Point1
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODPoint1.PLT" 57
   PLOTFILE PERIOD Area1
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODArea1.PLT" 58
   PLOTFILE PERIOD Area2
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODArea2.PLT" 59
   PLOTFILE PERIOD Area3
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODArea3.PLT" 60
   PLOTFILE PERIOD Area4
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODArea4.PLT" 61
   PLOTFILE PERIOD Volume1
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODVolume1.PLT" 62
   PLOTFILE PERIOD Volume2
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODVolume2.PLT" 63
   PLOTFILE PERIOD Volume3
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODVolume3.PLT" 64
   PLOTFILE PERIOD Volume4
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODVolume4.PLT" 65
   PLOTFILE PERIOD Volume5
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODVolume5.PLT" 66
   PLOTFILE PERIOD Line1
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine1.PLT" 67
   PLOTFILE PERIOD Line2
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine2.PLT" 68
   PLOTFILE PERIOD Line3
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine3.PLT" 69
   PLOTFILE PERIOD Line4
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine4.PLT" 70
   PLOTFILE PERIOD Line5
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine5.PLT" 71
   PLOTFILE PERIOD Line6
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine6.PLT" 72
   PLOTFILE PERIOD Line7
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine7.PLT" 73
   PLOTFILE PERIOD Line8
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine8.PLT" 74
   PLOTFILE PERIOD Line9
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine9.PLT" 75
   PLOTFILE PERIOD Line10
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine10.PLT" 76
   PLOTFILE PERIOD Line11
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine11.PLT" 77
```

```
   PLOTFILE PERIOD Line12
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine12.PLT" 78
   PLOTFILE PERIOD Line13
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine13.PLT" 79
   PLOTFILE PERIOD Line14
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine14.PLT" 80
   PLOTFILE PERIOD Line15
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine15.PLT" 81
   PLOTFILE PERIOD Line16
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\PERIODLine16.PLT" 82
   POSTFILE 1 Point1 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTPoint1.TXT" 83
   POSTFILE 1 Area1 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTArea1.TXT" 84
   POSTFILE 1 Area2 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTArea2.TXT" 85
   POSTFILE 1 Area3 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTArea3.TXT" 86
   POSTFILE 1 Area4 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTArea4.TXT" 87
   POSTFILE 1 Volume1 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTVolume1.TXT" 88
   POSTFILE 1 Volume2 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTVolume2.TXT" 89
   POSTFILE 1 Volume3 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTVolume3.TXT" 90
   POSTFILE 1 Volume4 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTVolume4.TXT" 91
   POSTFILE 1 Volume5 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTVolume5.TXT" 92
   POSTFILE 1 Line1 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine1.TXT" 93
   POSTFILE 1 Line2 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine2.TXT" 94
   POSTFILE 1 Line3 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine3.TXT" 95
   POSTFILE 1 Line4 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine4.TXT" 96
   POSTFILE 1 Line5 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine5.TXT" 97
   POSTFILE 1 Line6 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine6.TXT" 98
   POSTFILE 1 Line7 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine7.TXT" 99
   POSTFILE 1 Line8 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine8.TXT" 100
   POSTFILE 1 Line9 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine9.TXT" 101
   POSTFILE 1 Line10 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine10.TXT" 102
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   POSTFILE 1 Line11 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine11.TXT" 103
   POSTFILE 1 Line12 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine12.TXT" 104
   POSTFILE 1 Line13 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine13.TXT" 105
   POSTFILE 1 Line14 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine14.TXT" 106
   POSTFILE 1 Line15 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine15.TXT" 107
   POSTFILE 1 Line16 PLOT
"C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\plt\POSTLine16.TXT" 108
OU FINISHED


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

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

 A Total of            0 Fatal Error Message(s)
 A Total of           10 Warning Message(s)
 A Total of            0 Informational Message(s)


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


    ********   WARNING MESSAGES   ********
 ME W186    1051       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
 ME W187    1051       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 OU W565    1127       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1128       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1129       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1130       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1131       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1132       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1133       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565    1134       OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
```

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

↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***       03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
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                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  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 RURAL Dispersion Only.

 **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.

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

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  OTHER

 **Model Calculates  1 Short Term Average(s) of:   1-HR
     and Calculates PERIOD Averages

 **This Run Includes:     26 Source(s);      26 Source Group(s); and      42
Receptor(s)

                with:      1 POINT(s), including
```

```
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:      5 VOLUME source(s)
                and:      4 AREA type source(s)
                and:     16 LINE 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:  18081

 **Output Options Selected:
         Model Outputs Tables of PERIOD 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)

 **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) =    46.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.6 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\BEIBATCH_AERMOD.ERR

↟ *** AERMOD - VERSION  18081 ***   ***  BEI
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 *** AERMET - VERSION  18081 ***   ***  V3
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                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*
```

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR VARY BY	EMIS RATE SCALAR
POINT1	0	0.28767E-05	712146.7	4135164.0	44.0	3.84	366.00	50.00	0.10	YES	NO	NO	HRDOW7

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
VOLUME1	0	0.56614E-02	712141.7	4135126.0	44.0	4.65	4.30	2.16	NO	HRDOW7
VOLUME2	0	0.69152E-02	712153.7	4135231.0	44.1	24.38	4.30	2.16	NO	HRDOW7
VOLUME3	0	0.45660E-01	712121.5	4135202.0	43.9	4.65	4.30	2.16	NO	HRDOW7
VOLUME4	0	0.19417E-03	712159.3	4135068.0	43.9	4.65	5.81	2.16	NO	HRDOW7
VOLUME5	0	0.22294E-04	712156.2	4135046.0	43.9	4.65	17.05	2.16	NO	HRDOW7

```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*


                                                  *** AREA SOURCE DATA ***

              NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM
Y-DIM    ORIENT.    INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC       X         Y       ELEV.    HEIGHT  OF AREA
OF AREA   OF AREA     SZ     SOURCE  SCALAR VARY
     ID         CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   (DEG.)  (METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

 AREA1           0   0.59797E-05  712151.8 4135095.0    43.9     3.84     52.60
37.10    112.60     0.00     NO    HRDOW7
 AREA2           0   0.70954E-05  712142.3 4135108.0    43.9     0.00     60.50
53.30    110.10     0.00     NO    HRDOW7
 AREA3           0   0.11618E-03  712138.5 4135034.0    43.9     3.84     22.00
51.00     22.10     0.00     NO    HRDOW7
 AREA4           0   0.24548E-03  712151.1 4135169.0    44.1     3.84     61.00
30.50    113.30     0.00     NO    HRDOW7
```

```
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*


                                                  *** LINE SOURCE DATA ***

              NUMBER EMISSION RATE     FIRST COORD       SECOND COORD     BASE
RELEASE    WIDTH    INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC        X       Y           X       Y      ELEV.
HEIGHT    OF LINE    SZ     SOURCE SCALAR VARY
     ID         CATS.   /METER**2)   (METERS) (METERS)   (METERS) (METERS) (METERS)
(METERS)  (METERS) (METERS)            BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

 LINE1           0   0.16630E-01  712182.7 4135022.0  712162.5 4135029.0    44.0
 0.00      2.80     3.66     NO    HRDOW7
 LINE2           0   0.93300E-02  712240.7 4135150.0  712206.0 4135166.0    44.4
 0.00      2.80     3.66     NO    HRDOW7
 LINE3           0   0.75300E-02  712159.3 4135023.0  712119.0 4135048.0    43.9
 0.00      2.80     3.66     NO    HRDOW7
 LINE4           0   0.25400E-02  712119.6 4135048.0  712173.8 4135178.0    43.9
 0.00      2.80     3.66     NO    HRDOW7
```

```
LINE5            0   0.11770E-01  712176.4 4135180.0  712204.1 4135167.0    44.2
0.00      2.80     3.66     NO    HRDOW7
LINE6            0   0.34800E-02  712162.6 4135009.0  712085.0 4135076.0    43.9
0.00      2.80     3.66     NO    HRDOW7
LINE7            0   0.26400E-02  712085.5 4135077.0  712142.9 4135199.0    43.9
0.00      2.80     3.66     NO    HRDOW7
LINE8            0   0.47800E-02  712137.3 4135207.0  712204.1 4135173.0    43.9
0.00      2.80     3.66     NO    HRDOW7
LINE9            0   0.47800E-02  712139.9 4135210.0  712206.7 4135177.0    43.9
3.66      2.80     3.66     NO    HRDOW7
LINE10           0   0.26300E-02  712083.7 4135080.0  712141.1 4135203.0    43.9
3.66      2.80     3.66     NO    HRDOW7
LINE11           0   0.34700E-02  712158.0 4135007.0  712080.4 4135075.0    43.9
3.66      2.80     3.66     NO    HRDOW7
LINE12           0   0.11740E-01  712177.3 4135182.0  712205.0 4135169.0    44.2
3.66      2.80     3.66     NO    HRDOW7
LINE13           0   0.25300E-02  712116.1 4135051.0  712170.3 4135181.0    43.9
3.66      2.80     3.66     NO    HRDOW7
LINE14           0   0.75500E-02  712157.4 4135020.0  712117.1 4135045.0    43.9
3.66      2.80     3.66     NO    HRDOW7
LINE15           0   0.16600E-01  712180.8 4135018.0  712160.6 4135025.0    44.0
3.66      2.80     3.66     NO    HRDOW7
LINE16           0   0.92800E-02  712241.9 4135153.0  712207.2 4135169.0    44.4
3.66      2.80     3.66     NO    HRDOW7
*** AERMOD - VERSION  18081 ***   ***  BEI
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*** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

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


 POINT1     POINT1      ,

 AREA1      AREA1       ,

 AREA2      AREA2       ,

 AREA3      AREA3       ,

 AREA4      AREA4       ,

 VOLUME1    VOLUME1     ,
```

```
 VOLUME2    VOLUME2     ,
 VOLUME3    VOLUME3     ,
 VOLUME4    VOLUME4     ,
 VOLUME5    VOLUME5     ,
 LINE1      LINE1       ,
 LINE2      LINE2       ,
 LINE3      LINE3       ,
 LINE4      LINE4       ,
 LINE5      LINE5       ,
 LINE6      LINE6       ,
 LINE7      LINE7       ,
 LINE8      LINE8       ,
 LINE9      LINE9       ,
 LINE10     LINE10      ,
```



```
                                        *** SOURCE IDs DEFINING SOURCE GROUPS ***

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

 LINE11     LINE11      ,
 LINE12     LINE12      ,
 LINE13     LINE13      ,
 LINE14     LINE14      ,
```

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: POINT1

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	0.0,	0.0,	0.0,	0.0,	0.0,	2	0.0,	0.0,	0.0,	0.0,	0.0,
3	0.0,	0.0,	0.0,	0.0,	0.0,	4	12.0,	38.2,	42.8,	-97.0,	21.5,
5	12.0,	42.2,	45.3,	-100.9,	8.0,	6	12.0,	45.0,	46.5,	-101.6,	-5.7,
7	12.0,	46.4,	46.2,	-99.3,	-19.2,	8	12.0,	46.4,	44.6,	-66.0,	8.9,
9	12.0,	45.0,	41.6,	-65.4,	1.2,	10	12.0,	42.2,	37.3,	-62.8,	-6.6,
11	12.0,	38.1,	31.9,	-58.3,	-14.1,	12	12.0,	39.1,	33.1,	-55.8,	-21.2,
13	0.0,	0.0,	0.0,	0.0,	0.0,	14	0.0,	0.0,	0.0,	0.0,	0.0,
15	0.0,	0.0,	0.0,	0.0,	0.0,	16	0.0,	0.0,	0.0,	0.0,	0.0,
17	0.0,	0.0,	0.0,	0.0,	0.0,	18	0.0,	0.0,	0.0,	0.0,	0.0,
19	0.0,	0.0,	0.0,	0.0,	0.0,	20	0.0,	0.0,	0.0,	0.0,	0.0,
21	12.0,	33.1,	39.2,	-96.4,	21.3,	22	12.0,	38.3,	43.0,	-100.8,	7.7,
23	12.0,	42.3,	45.5,	-102.2,	-6.2,	24	12.0,	45.1,	46.6,	-100.5,	-20.0,
25	12.0,	46.5,	46.3,	18.3,	-16.4,	26	12.0,	46.4,	44.6,	21.4,	-8.9,
27	12.0,	45.0,	41.6,	23.8,	-1.2,	28	0.0,	0.0,	0.0,	0.0,	0.0,
29	0.0,	0.0,	0.0,	0.0,	0.0,	30	12.0,	39.1,	33.1,	22.7,	21.2,
31	0.0,	0.0,	0.0,	0.0,	0.0,	32	0.0,	0.0,	0.0,	0.0,	

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = POINT1 ; SOURCE TYPE = POINT :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = WEDNESDY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = THURSDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = AREA1 ; SOURCE TYPE = AREA :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = FRIDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00						

```
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = AREA2        ; SOURCE TYPE = AREA     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
```

```
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
                                               DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

```
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  12
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = AREA3        ; SOURCE TYPE = AREA     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = AREA4   ; SOURCE TYPE = AREA   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = MONDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = TUESDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01

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14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = VOLUME1      ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
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    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = VOLUME2 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR				

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = WEDNESDY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = THURSDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = FRIDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				

```
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = VOLUME3      ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = FRIDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = VOLUME4   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = MONDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = TUESDAY

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    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF

```
WEEK (HRDOW7) *

 SOURCE ID = VOLUME5      ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = LINE1 ; SOURCE TYPE = LINE :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = WEDNESDY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = THURSDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = LINE2 ; SOURCE TYPE = LINE :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = FRIDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00						

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22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  21
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE3        ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
```

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 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

```
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  22
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE4        ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
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                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE5   ; SOURCE TYPE = LINE   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = MONDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = TUESDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
   17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
    9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01

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14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE6        ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
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```
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09
```

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = LINE7 ; SOURCE TYPE = LINE :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR				

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = WEDNESDY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = THURSDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = FRIDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01
14	.2000E+01	15	.2000E+01	16	.2000E+01				
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.2000E+01	7	.2000E+01	8	.2000E+01				

```
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  26
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE8        ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

```
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

                                PAGE  27
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE9        ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = TUESDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
```

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WEEK (HRDOW7) *

 SOURCE ID = LINE10       ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = LINE11 ; SOURCE TYPE = LINE :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = MONDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = TUESDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = WEDNESDY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = THURSDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.2000E+01	7	.2000E+01	8	.2000E+01
9	.2000E+01	10	.2000E+01	11	.2000E+01	12	.2000E+01	13	.2000E+01	14	.2000E+01	15	.2000E+01	16	.2000E+01
17	.2000E+01	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = LINE12 ; SOURCE TYPE = LINE :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = MONDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .2000E+01 7 .2000E+01 8 .2000E+01
9 .2000E+01 10 .2000E+01 11 .2000E+01 12 .2000E+01 13 .2000E+01
14 .2000E+01 15 .2000E+01 16 .2000E+01
17 .2000E+01 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = TUESDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .2000E+01 7 .2000E+01 8 .2000E+01
9 .2000E+01 10 .2000E+01 11 .2000E+01 12 .2000E+01 13 .2000E+01
14 .2000E+01 15 .2000E+01 16 .2000E+01
17 .2000E+01 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = WEDNESDY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = THURSDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = FRIDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .2000E+01   7 .2000E+01   8 .2000E+01
9 .2000E+01   10 .2000E+01   11 .2000E+01   12 .2000E+01   13 .2000E+01
14 .2000E+01   15 .2000E+01   16 .2000E+01
17 .2000E+01   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW7) *

SOURCE ID = LINE13   ; SOURCE TYPE = LINE   :

HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR

```
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                               DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                               DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
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22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  32
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE14       ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
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   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION  18081 ***    ***  BEI
                        ***         03/07/20
 *** AERMET - VERSION  18081 ***    ***  V3
                       ***         16:45:09

                                   PAGE  33
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE15       ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
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14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF
WEEK (HRDOW7) *

 SOURCE ID = LINE16       ; SOURCE TYPE = LINE     :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = MONDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
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    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = TUESDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = WEDNESDY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = THURSDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = FRIDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .2000E+01    7  .2000E+01    8  .2000E+01
    9  .2000E+01   10  .2000E+01   11  .2000E+01   12  .2000E+01   13  .2000E+01
14  .2000E+01   15  .2000E+01   16  .2000E+01
   17  .2000E+01   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09
```

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

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

(712100.8, 4135272.0, 43.9, 43.9, 0.0); (712278.8, 4135105.0, 44.5, 44.5, 0.0);
(712204.2, 4135002.0, 44.0, 44.0, 0.0); (712074.8, 4134973.0, 43.6, 43.6, 0.0);
(712269.6, 4135272.0, 44.5, 44.5, 0.0); (711861.5, 4135295.0, 43.9, 43.9, 0.0);
(712059.1, 4135181.0, 43.9, 43.9, 0.0); (712142.5, 4135304.0, 44.2, 44.2, 0.0);
(712165.1, 4135293.0, 44.2, 44.2, 0.0); (712187.8, 4135283.0, 44.2, 44.2, 0.0);
(712210.4, 4135272.0, 44.2, 44.2, 0.0); (712233.1, 4135262.0, 44.3, 44.3, 0.0);
(712255.7, 4135251.0, 44.5, 44.5, 0.0); (712278.3, 4135240.0, 44.5, 44.5, 0.0);
(712284.1, 4135238.0, 44.5, 44.5, 0.0); (712273.8, 4135215.0, 44.5, 44.5, 0.0);
(712263.4, 4135192.0, 44.5, 44.5, 0.0); (712253.0, 4135169.0, 44.5, 44.5, 0.0);
(712242.7, 4135147.0, 44.4, 44.4, 0.0); (712232.3, 4135124.0, 44.3, 44.3, 0.0);
(712221.9, 4135101.0, 44.2, 44.2, 0.0); (712211.6, 4135078.0, 44.2, 44.2, 0.0);
(712201.3, 4135056.0, 44.2, 44.2, 0.0); (712190.9, 4135033.0, 44.1, 44.1, 0.0);
(712180.5, 4135010.0, 43.9, 43.9, 0.0); (712170.1, 4134987.0, 43.9, 43.9, 0.0);
(712169.5, 4134986.0, 43.9, 43.9, 0.0); (712151.5, 4135003.0, 43.9, 43.9, 0.0);
(712133.5, 4135021.0, 43.9, 43.9, 0.0); (712115.5, 4135038.0, 43.9, 43.9, 0.0);
(712097.4, 4135055.0, 43.9, 43.9, 0.0); (712079.4, 4135073.0, 43.9, 43.9, 0.0);
(712061.4, 4135090.0, 43.9, 43.9, 0.0); (712049.3, 4135102.0, 43.9, 43.9, 0.0);
(712059.8, 4135124.0, 43.9, 43.9, 0.0); (712070.2, 4135147.0, 43.9, 43.9, 0.0);
(712080.7, 4135170.0, 43.9, 43.9, 0.0); (712091.1, 4135192.0, 43.9, 43.9, 0.0);
(712101.6, 4135215.0, 43.9, 43.9, 0.0); (712112.1, 4135238.0, 43.9, 43.9, 0.0);
(712122.5, 4135261.0, 43.9, 43.9, 0.0); (712132.9, 4135283.0, 44.0, 44.0, 0.0);

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↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***       03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09

                                   PAGE  36
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                      * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT
BE PERFORMED *
                        LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR
FASTAREA/FASTALL


                              SOURCE          - - RECEPTOR LOCATION - -
DISTANCE
                                ID            XR (METERS)   YR (METERS)
(METERS)
                            - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - -

                             VOLUME5             712190.9     4135033.0
0.40
                             VOLUME5             712133.5     4135021.0
-2.89
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***       03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09

                                   PAGE  37
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

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

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

1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

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

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54,   3.09,   5.14,   8.23,   10.80,

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

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

Surface file: C:\Users\jellard\Desktop\BEIv3\Merced_2013-2017.SFC
Met Version: 18081
Profile file: C:\Users\jellard\Desktop\BEIv3\Merced_2013-2017.PFL

Surface format: FREE

Profile format: FREE

Surface station no.:   23257   Upper air station no.:   23230
Name: UNKNOWN   Name: UNKNOWN

Year: 2013   Year: 2013

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
13	01	01	1	01	-2.8	0.076	-9.000	-9.000	-999.	51.	14.4	0.13	2.13	1.00	0.82	111.	10.0	276.4	2.0
13	01	01	1	02	-9.1	0.131	-9.000	-9.000	-999.	114.	22.3	0.14	2.13	1.00	1.53	122.	10.0	273.8	2.0
13	01	01	1	03	-11.9	0.154	-9.000	-9.000	-999.	145.	27.7	0.24	2.13	1.00	1.52	87.	10.0	275.4	2.0
13	01	01	1	04	-23.3	0.225	-9.000	-9.000	-999.	255.	55.5	0.24	2.13						

```
1.00    2.16   72.   10.0  274.2    2.0
 13 01 01   1 05  -19.2  0.197 -9.000 -9.000 -999.  210.     42.7  0.24   2.13
1.00    1.91   68.   10.0  275.4    2.0
 13 01 01   1 06   -5.0  0.095 -9.000 -9.000 -999.   76.     15.5  0.09   2.13
1.00    1.25   20.   10.0  274.9    2.0
 13 01 01   1 07   -8.6  0.127 -9.000 -9.000 -999.  108.     21.4  0.13   2.13
1.00    1.52  332.   10.0  274.2    2.0
 13 01 01   1 08   -6.5  0.107 -9.000 -9.000 -999.   84.     17.1  0.07   2.13
0.69    1.50  175.   10.0  273.8    2.0
 13 01 01   1 09    2.9  0.141  0.143  0.005   36.  127.    -88.7  0.06   2.13
0.37    1.71  184.   10.0  275.9    2.0
 13 01 01   1 10   75.4  0.182  0.721  0.005  181.  186.     -7.3  0.07   2.13
0.27    1.69  260.   10.0  277.0    2.0
 13 01 01   1 11  123.1  0.173  1.279  0.007  619.  173.     -3.8  0.13   2.13
0.23    1.23  353.   10.0  280.4    2.0
 13 01 01   1 12  148.4  0.187  1.542  0.008  899.  195.     -4.0  0.09   2.13
0.21    1.50    4.   10.0  280.9    2.0
 13 01 01   1 13  143.6  0.332  1.550  0.007  943.  458.    -23.1  0.13   2.13
0.21    3.03  341.   10.0  282.5    2.0
 13 01 01   1 14  122.5  0.396  1.489  0.006  979.  599.    -46.1  0.13   2.13
0.22    3.86  341.   10.0  283.1    2.0
 13 01 01   1 15   79.0  0.425  1.297  0.005 1002.  665.    -88.3  0.13   2.13
0.26    4.32  341.   10.0  283.8    2.0
 13 01 01   1 16   17.2  0.338  0.782  0.005 1006.  477.   -203.9  0.13   2.13
0.35    3.56  343.   10.0  283.8    2.0
 13 01 01   1 17  -29.5  0.322 -9.000 -9.000 -999.  439.    114.0  0.13   2.13
0.60    3.64  342.   10.0  280.9    2.0
 13 01 01   1 18  -11.9  0.152 -9.000 -9.000 -999.  167.     26.8  0.16   2.13
1.00    1.70  320.   10.0  280.9    2.0
 13 01 01   1 19   -8.8  0.126 -9.000 -9.000 -999.  107.     20.4  0.07   2.13
1.00    1.72  250.   10.0  278.1    2.0
 13 01 01   1 20   -9.5  0.133 -9.000 -9.000 -999.  116.     22.4  0.11   2.13
1.00    1.65  291.   10.0  278.8    2.0
 13 01 01   1 21   -8.8  0.123 -9.000 -9.000 -999.  104.     19.3  0.05   2.13
1.00    1.81  235.   10.0  275.9    2.0
 13 01 01   1 22   -2.8  0.076 -9.000 -9.000 -999.   51.     14.0  0.11   2.13
1.00    0.86  289.   10.0  275.9    2.0
 13 01 01   1 23   -2.8  0.075 -9.000 -9.000 -999.   50.     14.0  0.11   2.13
1.00    0.84  288.   10.0  274.9    2.0
 13 01 01   1 24  -10.1  0.139 -9.000 -9.000 -999.  125.     24.4  0.19   2.13
1.00    1.50   51.   10.0  275.4    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 13 01 01 01   10.0 1  111.    0.82   276.5   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***       03/07/20
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*** AERMET - VERSION 18081 *** *** V3
*** 16:45:09

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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: POINT1 ***
INCLUDING SOURCE(S): POINT1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	0.00004	712278.80	4135105.00	0.00008
712204.20	4135002.00	0.00006	712074.80	4134973.00	0.00001
712269.60	4135272.00	0.00002	711861.50	4135295.00	0.00002
712059.10	4135181.00	0.00010	712142.50	4135304.00	0.00002
712165.10	4135293.00	0.00002	712187.80	4135283.00	0.00002
712210.40	4135272.00	0.00002	712233.10	4135262.00	0.00003
712255.70	4135251.00	0.00003	712278.30	4135240.00	0.00003
712284.10	4135238.00	0.00003	712273.80	4135215.00	0.00004
712263.40	4135192.00	0.00005	712253.00	4135169.00	0.00007
712242.70	4135147.00	0.00009	712232.30	4135124.00	0.00014
712221.90	4135101.00	0.00018	712211.60	4135078.00	0.00017
712201.30	4135056.00	0.00013	712190.90	4135033.00	0.00009
712180.50	4135010.00	0.00005	712170.10	4134987.00	0.00003
712169.50	4134986.00	0.00003	712151.50	4135003.00	0.00003
712133.50	4135021.00	0.00003	712115.50	4135038.00	0.00002

712097.40 4135055.00 0.00002 712079.40
4135073.00 0.00003
712061.40 4135090.00 0.00003 712049.30
4135102.00 0.00003
712059.80 4135124.00 0.00004 712070.20
4135147.00 0.00007
712080.70 4135170.00 0.00013 712091.10
4135192.00 0.00011
712101.60 4135215.00 0.00009 712112.10
4135238.00 0.00006
712122.50 4135261.00 0.00004 712132.90
4135283.00 0.00003

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREA1 ***
INCLUDING SOURCE(S): AREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	0.10933	712278.80	4135105.00	0.35949
712204.20	4135002.00	2.31038	712074.80	4134973.00	0.15567
712269.60	4135272.00	0.06814	711861.50	4135295.00	0.06108
712059.10	4135181.00	0.26857	712142.50	4135304.00	0.07105
712165.10	4135293.00	0.07196	712187.80	4135283.00	0.07397
712210.40	4135272.00	0.07719	712233.10	4135262.00	0.07933
712255.70	4135251.00	0.08326	712278.30	4135240.00	0.08815
712284.10	4135238.00	0.08858	712273.80	4135215.00	0.11263

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         712263.40    4135192.00        0.14841                       712253.00
4135169.00        0.20491
         712242.70    4135147.00        0.29739                       712232.30
4135124.00        0.47883
         712221.90    4135101.00        0.87618                       712211.60
4135078.00        1.83935
         712201.30    4135056.00        4.01387                       712190.90
4135033.00        5.24028
         712180.50    4135010.00        3.54149                       712170.10
4134987.00        1.48432
         712169.50    4134986.00        1.42447                       712151.50
4135003.00        1.47945
         712133.50    4135021.00        1.09221                       712115.50
4135038.00        0.92709
         712097.40    4135055.00        0.89653                       712079.40
4135073.00        0.74034
         712061.40    4135090.00        0.56631                       712049.30
4135102.00        0.46985
         712059.80    4135124.00        0.50462                       712070.20
4135147.00        0.44200
         712080.70    4135170.00        0.34450                       712091.10
4135192.00        0.26552
         712101.60    4135215.00        0.20164                       712112.10
4135238.00        0.15174
         712122.50    4135261.00        0.11436                       712132.90
4135283.00        0.08854
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: AREA2    ***
                                  INCLUDING SOURCE(S):     AREA2       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)        CONC                          X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
         712100.80    4135272.00        0.23197                       712278.80
4135105.00        0.77805
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         712204.20    4135002.00        4.44774                        712074.80
4134973.00        0.29060
         712269.60    4135272.00        0.14057                        711861.50
4135295.00        0.13059
         712059.10    4135181.00        0.60980                        712142.50
4135304.00        0.14107
         712165.10    4135293.00        0.14435                        712187.80
4135283.00        0.15274
         712210.40    4135272.00        0.15860                        712233.10
4135262.00        0.16054
         712255.70    4135251.00        0.17274                        712278.30
4135240.00        0.18566
         712284.10    4135238.00        0.18591                        712273.80
4135215.00        0.24005
         712263.40    4135192.00        0.32305                        712253.00
4135169.00        0.45824
         712242.70    4135147.00        0.68795                        712232.30
4135124.00        1.17162
         712221.90    4135101.00        2.32818                        712211.60
4135078.00        5.34997
         712201.30    4135056.00       10.35952                        712190.90
4135033.00       11.55367
         712180.50    4135010.00        6.52123                        712170.10
4134987.00        2.57659
         712169.50    4134986.00        2.47270                        712151.50
4135003.00        2.83771
         712133.50    4135021.00        2.87700                        712115.50
4135038.00        2.22468
         712097.40    4135055.00        1.97748                        712079.40
4135073.00        1.60078
         712061.40    4135090.00        1.22120                        712049.30
4135102.00        1.02180
         712059.80    4135124.00        1.18411                        712070.20
4135147.00        1.06157
         712080.70    4135170.00        0.79895                        712091.10
4135192.00        0.59510
         712101.60    4135215.00        0.44982                        712112.10
4135238.00        0.32885
         712122.50    4135261.00        0.23714                        712132.90
4135283.00        0.17816
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  42
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: AREA3    ***
```

INCLUDING SOURCE(S): AREA3 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	1.11253	712278.80	4135105.00	3.59624
712204.20	4135002.00	29.82238	712074.80	4134973.00	1.95138
712269.60	4135272.00	0.70142	711861.50	4135295.00	0.65506
712059.10	4135181.00	2.65668	712142.50	4135304.00	0.72971
712165.10	4135293.00	0.73822	712187.80	4135283.00	0.75984
712210.40	4135272.00	0.79375	712233.10	4135262.00	0.81261
712255.70	4135251.00	0.84913	712278.30	4135240.00	0.90067
712284.10	4135238.00	0.90635	712273.80	4135215.00	1.14031
712263.40	4135192.00	1.48238	712253.00	4135169.00	2.01106
712242.70	4135147.00	2.85140	712232.30	4135124.00	4.44104
712221.90	4135101.00	7.80377	712211.60	4135078.00	15.93359
712201.30	4135056.00	36.44636	712190.90	4135033.00	62.34109
712180.50	4135010.00	54.27083	712170.10	4134987.00	23.72236
712169.50	4134986.00	22.67397	712151.50	4135003.00	23.61818
712133.50	4135021.00	13.58935	712115.50	4135038.00	14.46854
712097.40	4135055.00	11.92076	712079.40	4135073.00	8.84940
712061.40	4135090.00	6.39664	712049.30	4135102.00	5.17631
712059.80	4135124.00	5.15448	712070.20	4135147.00	4.31034
712080.70	4135170.00	3.33912	712091.10	4135192.00	2.60601

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREA4 ***
INCLUDING SOURCE(S): AREA4 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712101.60	4135215.00	1.99969	712112.10	4135238.00	1.51634
712122.50	4135261.00	1.15304	712132.90	4135283.00	0.90124
712100.80	4135272.00	9.54355	712278.80	4135105.00	19.55008
712204.20	4135002.00	24.20516	712074.80	4134973.00	3.75310
712269.60	4135272.00	5.11218	711861.50	4135295.00	3.06980
712059.10	4135181.00	22.59006	712142.50	4135304.00	5.48931
712165.10	4135293.00	5.62184	712187.80	4135283.00	5.82563
712210.40	4135272.00	6.14851	712233.10	4135262.00	6.50203
712255.70	4135251.00	6.83356	712278.30	4135240.00	6.83869
712284.10	4135238.00	6.73369	712273.80	4135215.00	9.27541
712263.40	4135192.00	13.42621	712253.00	4135169.00	20.17266
712242.70	4135147.00	30.30863	712232.30	4135124.00	47.20151
712221.90	4135101.00	67.05004	712211.60	4135078.00	74.55067
712201.30	4135056.00	62.63070	712190.90	4135033.00	40.75209

                                *** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: VOLUME1 ***
                                   INCLUDING SOURCE(S):   VOLUME1   ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)   CONC   X-COORD (M)
Y-COORD (M)   CONC
 -
- -
         712100.80   4135272.00   0.10585   712278.80
4135105.00   0.17348
         712204.20   4135002.00   0.30026   712074.80
4134973.00   0.06489
         712269.60   4135272.00   0.05937   711861.50
4135295.00   0.03606
         712059.10   4135181.00   0.29858   712142.50
4135304.00   0.06462
         712165.10   4135293.00   0.06853   712187.80
4135283.00   0.07165

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         712210.40    4135272.00        0.07444                        712233.10
4135262.00        0.07598
         712255.70    4135251.00        0.07669                        712278.30
4135240.00        0.07505
         712284.10    4135238.00        0.07376                        712273.80
4135215.00        0.09670
         712263.40    4135192.00        0.13129                        712253.00
4135169.00        0.18430
         712242.70    4135147.00        0.25822                        712232.30
4135124.00        0.35371
         712221.90    4135101.00        0.50146                        712211.60
4135078.00        0.66477
         712201.30    4135056.00        0.67089                        712190.90
4135033.00        0.50347
         712180.50    4135010.00        0.32045                        712170.10
4134987.00        0.19819
         712169.50    4134986.00        0.19396                        712151.50
4135003.00        0.20830
         712133.50    4135021.00        0.21983                        712115.50
4135038.00        0.21902
         712097.40    4135055.00        0.20309                        712079.40
4135073.00        0.19643
         712061.40    4135090.00        0.17982                        712049.30
4135102.00        0.16800
         712059.80    4135124.00        0.27667                        712070.20
4135147.00        0.44258
         712080.70    4135170.00        0.47741                        712091.10
4135192.00        0.36553
         712101.60    4135215.00        0.25216                        712112.10
4135238.00        0.17021
         712122.50    4135261.00        0.11638                        712132.90
4135283.00        0.08427
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: VOLUME2  ***
                                  INCLUDING SOURCE(S):     VOLUME2     ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	0.03620	712278.80	4135105.00	0.10459
712204.20	4135002.00	0.03858	712074.80	4134973.00	0.00832
712269.60	4135272.00	0.04260	711861.50	4135295.00	0.01083
712059.10	4135181.00	0.02220	712142.50	4135304.00	0.03556
712165.10	4135293.00	0.02631	712187.80	4135283.00	0.02578
712210.40	4135272.00	0.03258	712233.10	4135262.00	0.04268
712255.70	4135251.00	0.04880	712278.30	4135240.00	0.04931
712284.10	4135238.00	0.04850	712273.80	4135215.00	0.05815
712263.40	4135192.00	0.07393	712253.00	4135169.00	0.09896
712242.70	4135147.00	0.12262	712232.30	4135124.00	0.12861
712221.90	4135101.00	0.11161	712211.60	4135078.00	0.08498
712201.30	4135056.00	0.06144	712190.90	4135033.00	0.04343
712180.50	4135010.00	0.03110	712170.10	4134987.00	0.02295
712169.50	4134986.00	0.02263	712151.50	4135003.00	0.02063
712133.50	4135021.00	0.01880	712115.50	4135038.00	0.01706
712097.40	4135055.00	0.01563	712079.40	4135073.00	0.01468
712061.40	4135090.00	0.01404	712049.30	4135102.00	0.01382
712059.80	4135124.00	0.01691	712070.20	4135147.00	0.02037
712080.70	4135170.00	0.02308	712091.10	4135192.00	0.02285
712101.60	4135215.00	0.01777	712112.10	4135238.00	0.01144
712122.50	4135261.00	0.01458	712132.90	4135283.00	0.02629

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: VOLUME3 ***

INCLUDING SOURCE(S): VOLUME3 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	3.14759	712278.80	4135105.00	1.21684
712204.20	4135002.00	0.97693	712074.80	4134973.00	0.35458
712269.60	4135272.00	0.80867	711861.50	4135295.00	0.37398
712059.10	4135181.00	2.54948	712142.50	4135304.00	1.31901
712165.10	4135293.00	1.40086	712187.80	4135283.00	1.41801
712210.40	4135272.00	1.37819	712233.10	4135262.00	1.24336
712255.70	4135251.00	1.08950	712278.30	4135240.00	0.92767
712284.10	4135238.00	0.88361	712273.80	4135215.00	1.07236
712263.40	4135192.00	1.27583	712253.00	4135169.00	1.57430
712242.70	4135147.00	1.97494	712232.30	4135124.00	2.31255
712221.90	4135101.00	2.40251	712211.60	4135078.00	2.18096
712201.30	4135056.00	1.78450	712190.90	4135033.00	1.33968
712180.50	4135010.00	0.97308	712170.10	4134987.00	0.70774
712169.50	4134986.00	0.69763	712151.50	4135003.00	0.73717
712133.50	4135021.00	0.77999	712115.50	4135038.00	0.81345
712097.40	4135055.00	0.84309	712079.40	4135073.00	0.85179

712061.40 4135090.00 0.80180 712049.30
4135102.00 0.77358
712059.80 4135124.00 1.13325 712070.20
4135147.00 1.85306
712080.70 4135170.00 3.53892 712091.10
4135192.00 8.17281
712101.60 4135215.00 18.59958 712112.10
4135238.00 8.85511
712122.50 4135261.00 3.77561 712132.90
4135283.00 2.05580

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: VOLUME4 ***
INCLUDING SOURCE(S): VOLUME4 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	0.00198	712278.80	4135105.00	0.00603
712204.20	4135002.00	0.02926	712074.80	4134973.00	0.00301
712269.60	4135272.00	0.00134	711861.50	4135295.00	0.00095
712059.10	4135181.00	0.00443	712142.50	4135304.00	0.00137
712165.10	4135293.00	0.00142	712187.80	4135283.00	0.00148
712210.40	4135272.00	0.00156	712233.10	4135262.00	0.00160
712255.70	4135251.00	0.00164	712278.30	4135240.00	0.00169
712284.10	4135238.00	0.00168	712273.80	4135215.00	0.00213
712263.40	4135192.00	0.00279	712253.00	4135169.00	0.00381

712242.70	4135147.00	0.00544	712232.30	4135124.00	0.00849
712221.90	4135101.00	0.01457	712211.60	4135078.00	0.02683
712201.30	4135056.00	0.05033	712190.90	4135033.00	0.06735
712180.50	4135010.00	0.03816	712170.10	4134987.00	0.01709
712169.50	4134986.00	0.01650	712151.50	4135003.00	0.01696
712133.50	4135021.00	0.01590	712115.50	4135038.00	0.01462
712097.40	4135055.00	0.01264	712079.40	4135073.00	0.01094
712061.40	4135090.00	0.00868	712049.30	4135102.00	0.00727
712059.80	4135124.00	0.00803	712070.20	4135147.00	0.00719
712080.70	4135170.00	0.00574	712091.10	4135192.00	0.00457
712101.60	4135215.00	0.00357	712112.10	4135238.00	0.00276
712122.50	4135261.00	0.00213	712132.90	4135283.00	0.00168

↑ *** AERMOD - VERSION 18081 *** *** BEI *** 03/07/20
*** AERMET - VERSION 18081 *** *** V3 *** 16:45:09

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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: VOLUME5 ***
INCLUDING SOURCE(S): VOLUME5 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	0.00019	712278.80	4135105.00	0.00055
712204.20	4135002.00	0.00434	712074.80	4134973.00	0.00047

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         712269.60    4135272.00        0.00013                      711861.50
4135295.00        0.00010
         712059.10    4135181.00        0.00041                      712142.50
4135304.00        0.00013
         712165.10    4135293.00        0.00014                      712187.80
4135283.00        0.00014
         712210.40    4135272.00        0.00015                      712233.10
4135262.00        0.00015
         712255.70    4135251.00        0.00016                      712278.30
4135240.00        0.00016
         712284.10    4135238.00        0.00016                      712273.80
4135215.00        0.00020
         712263.40    4135192.00        0.00026                      712253.00
4135169.00        0.00034
         712242.70    4135147.00        0.00046                      712232.30
4135124.00        0.00069
         712221.90    4135101.00        0.00111                      712211.60
4135078.00        0.00203
         712201.30    4135056.00        0.00428                      712190.90
4135033.00        0.00000
         712180.50    4135010.00        0.00764                      712170.10
4134987.00        0.00399
         712169.50    4134986.00        0.00385                      712151.50
4135003.00        0.00501
         712133.50    4135021.00        0.00000                      712115.50
4135038.00        0.00343
         712097.40    4135055.00        0.00231                      712079.40
4135073.00        0.00153
         712061.40    4135090.00        0.00104                      712049.30
4135102.00        0.00082
         712059.80    4135124.00        0.00078                      712070.20
4135147.00        0.00065
         712080.70    4135170.00        0.00051                      712091.10
4135192.00        0.00041
         712101.60    4135215.00        0.00032                      712112.10
4135238.00        0.00025
         712122.50    4135261.00        0.00020                      712132.90
4135283.00        0.00016
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE1    ***
                                  INCLUDING SOURCE(S):     LINE1       ,
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*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	6.72479	712278.80	4135105.00	21.41453
712204.20	4135002.00	652.82767	712074.80	4134973.00	16.11959
712269.60	4135272.00	3.89885	711861.50	4135295.00	4.52257
712059.10	4135181.00	13.22833	712142.50	4135304.00	4.36411
712165.10	4135293.00	4.41420	712187.80	4135283.00	4.47125
712210.40	4135272.00	4.77939	712233.10	4135262.00	5.11337
712255.70	4135251.00	4.72174	712278.30	4135240.00	5.19971
712284.10	4135238.00	5.36596	712273.80	4135215.00	6.59182
712263.40	4135192.00	8.31242	712253.00	4135169.00	10.84150
712242.70	4135147.00	14.58107	712232.30	4135124.00	21.11814
712221.90	4135101.00	33.53430	712211.60	4135078.00	61.85250
712201.30	4135056.00	143.50149	712190.90	4135033.00	610.40182
712180.50	4135010.00	1829.45085	712170.10	4134987.00	240.10155
712169.50	4134986.00	222.96152	712151.50	4135003.00	142.63116
712133.50	4135021.00	143.73386	712115.50	4135038.00	127.80100
712097.40	4135055.00	84.01695	712079.40	4135073.00	55.37660
712061.40	4135090.00	38.73011	712049.30	4135102.00	31.24296
712059.80	4135124.00	28.23303	712070.20	4135147.00	21.10136
712080.70	4135170.00	15.82496	712091.10	4135192.00	13.97025
712101.60	4135215.00	11.56329	712112.10	4135238.00	8.79760

712122.50	4135261.00	6.68673	712132.90	4135283.00	5.28750

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE2 ***
INCLUDING SOURCE(S): LINE2 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	22.61441	712278.80	4135105.00	220.51922
712204.20	4135002.00	15.40183	712074.80	4134973.00	3.80194
712269.60	4135272.00	17.22999	711861.50	4135295.00	4.91933
712059.10	4135181.00	17.40143	712142.50	4135304.00	16.88609
712165.10	4135293.00	21.31933	712187.80	4135283.00	23.54208
712210.40	4135272.00	23.85029	712233.10	4135262.00	24.30675
712255.70	4135251.00	25.92358	712278.30	4135240.00	28.55122
712284.10	4135238.00	28.85938	712273.80	4135215.00	49.79428
712263.40	4135192.00	104.48317	712253.00	4135169.00	311.61072
712242.70	4135147.00	2434.19845	712232.30	4135124.00	488.26427
712221.90	4135101.00	126.40095	712211.60	4135078.00	52.18834
712201.30	4135056.00	29.14953	712190.90	4135033.00	18.56780
712180.50	4135010.00	12.92703	712170.10	4134987.00	9.54623

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         712169.50    4134986.00        9.41432                       712151.50
4135003.00        8.09329
         712133.50    4135021.00        7.25846                       712115.50
4135038.00        7.68592
         712097.40    4135055.00        7.99052                       712079.40
4135073.00        7.70839
         712061.40    4135090.00        7.40143                       712049.30
4135102.00        7.40410
         712059.80    4135124.00        9.61045                       712070.20
4135147.00       13.21658
         712080.70    4135170.00       20.30874                       712091.10
4135192.00       29.57652
         712101.60    4135215.00       34.96839                       712112.10
4135238.00       35.06945
         712122.50    4135261.00       28.25719                       712132.90
4135283.00       20.41708
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE3    ***
                                  INCLUDING SOURCE(S):     LINE3       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)        CONC                       X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - -
         712100.80    4135272.00        6.29770                       712278.80
4135105.00       17.94663
         712204.20    4135002.00      181.36843                       712074.80
4134973.00       21.99655
         712269.60    4135272.00        4.41855                       711861.50
4135295.00        5.07302
         712059.10    4135181.00       17.18803                       712142.50
4135304.00        4.28698
         712165.10    4135293.00        4.45995                       712187.80
4135283.00        4.77741
         712210.40    4135272.00        4.78794                       712233.10
4135262.00        4.72139
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         712255.70    4135251.00        5.19858                       712278.30
4135240.00        5.52883
         712284.10    4135238.00        5.53231                       712273.80
4135215.00        6.76057
         712263.40    4135192.00        8.47890                       712253.00
4135169.00       10.98289
         712242.70    4135147.00       14.64834                       712232.30
4135124.00       20.75192
         712221.90    4135101.00       31.33338                       712211.60
4135078.00       52.59985
         712201.30    4135056.00       97.48532                       712190.90
4135033.00      200.98751
         712180.50    4135010.00      476.94934                       712170.10
4134987.00      374.25577
         712169.50    4134986.00      360.48863                       712151.50
4135003.00      571.85204
         712133.50    4135021.00      678.04415                       712115.50
4135038.00      449.40113
         712097.40    4135055.00      273.26239                       712079.40
4135073.00      125.28467
         712061.40    4135090.00       70.78723                       712049.30
4135102.00       51.74403
         712059.80    4135124.00       38.73708                       712070.20
4135147.00       27.24537
         712080.70    4135170.00       21.54617                       712091.10
4135192.00       15.82735
         712101.60    4135215.00       11.16392                       712112.10
4135238.00        8.19600
         712122.50    4135261.00        6.32263                       712132.90
4135283.00        5.11376
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  52
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE4    ***
                                  INCLUDING SOURCE(S):     LINE4       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)        CONC                          X-COORD (M)
Y-COORD (M)        CONC
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712100.80	4135272.00	16.88832	712278.80	4135105.00	36.06389
712204.20	4135002.00	76.78814	712074.80	4134973.00	10.14337
712269.60	4135272.00	9.43237	711861.50	4135295.00	6.49511
712059.10	4135181.00	39.25172	712142.50	4135304.00	9.84527
712165.10	4135293.00	10.08351	712187.80	4135283.00	10.84364
712210.40	4135272.00	10.51784	712233.10	4135262.00	12.06668
712255.70	4135251.00	12.61043	712278.30	4135240.00	12.68237
712284.10	4135238.00	12.47617	712273.80	4135215.00	17.15130
712263.40	4135192.00	24.85118	712253.00	4135169.00	36.60595
712242.70	4135147.00	54.32916	712232.30	4135124.00	83.28175
712221.90	4135101.00	113.19512	712211.60	4135078.00	129.93870
712201.30	4135056.00	132.99320	712190.90	4135033.00	124.26647
712180.50	4135010.00	101.88731	712170.10	4134987.00	67.33276
712169.50	4134986.00	65.76409	712151.50	4135003.00	89.46321
712133.50	4135021.00	129.10292	712115.50	4135038.00	92.75816
712097.40	4135055.00	78.61588	712079.40	4135073.00	61.81558
712061.40	4135090.00	45.80445	712049.30	4135102.00	38.43437
712059.80	4135124.00	48.45420	712070.20	4135147.00	53.88837
712080.70	4135170.00	55.83161	712091.10	4135192.00	52.54568
712101.60	4135215.00	41.74335	712112.10	4135238.00	28.71206
712122.50	4135261.00	19.65395	712132.90	4135283.00	13.70023

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE5 ***
INCLUDING SOURCE(S): LINE5 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	31.48070	712278.80	4135105.00	95.73902
712204.20	4135002.00	17.31604	712074.80	4134973.00	3.98278
712269.60	4135272.00	19.69071	711861.50	4135295.00	5.91626
712059.10	4135181.00	22.67386	712142.50	4135304.00	23.05128
712165.10	4135293.00	24.29472	712187.80	4135283.00	23.89272
712210.40	4135272.00	25.51411	712233.10	4135262.00	26.82097
712255.70	4135251.00	29.79504	712278.30	4135240.00	30.01630
712284.10	4135238.00	29.16740	712273.80	4135215.00	46.84821
712263.40	4135192.00	82.68320	712253.00	4135169.00	139.98777
712242.70	4135147.00	266.56300	712232.30	4135124.00	310.20195
712221.90	4135101.00	172.45534	712211.60	4135078.00	76.09585
712201.30	4135056.00	38.50958	712190.90	4135033.00	22.80558
712180.50	4135010.00	15.45690	712170.10	4134987.00	11.36863
712169.50	4134986.00	11.22327	712151.50	4135003.00	11.39339
712133.50	4135021.00	10.40329	712115.50	4135038.00	8.65644
712097.40	4135055.00	8.52421	712079.40	4135073.00	9.25625
712061.40	4135090.00	9.04423	712049.30	4135102.00	8.69847

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE6 ***
INCLUDING SOURCE(S): LINE6 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712059.80	4135124.00	11.59085	712070.20	4135147.00	16.57988
712080.70	4135170.00	26.48453	712091.10	4135192.00	46.72953
712101.60	4135215.00	62.97538	712112.10	4135238.00	59.66160
712122.50	4135261.00	40.31798	712132.90	4135283.00	30.18391
712100.80	4135272.00	6.31560	712278.80	4135105.00	16.55500
712204.20	4135002.00	131.09939	712074.80	4134973.00	27.08767
712269.60	4135272.00	4.49775	711861.50	4135295.00	5.45827
712059.10	4135181.00	20.76201	712142.50	4135304.00	4.47362
712165.10	4135293.00	4.63657	712187.80	4135283.00	4.71119
712210.40	4135272.00	4.94630	712233.10	4135262.00	5.07769
712255.70	4135251.00	5.33262	712278.30	4135240.00	5.60282
712284.10	4135238.00	5.60943	712273.80	4135215.00	6.84820
712263.40	4135192.00	8.53517	712253.00	4135169.00	10.88117
712242.70	4135147.00	14.22465	712232.30	4135124.00	19.75500

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         712221.90    4135101.00       28.81381                              712211.60
4135078.00       44.44600
         712201.30    4135056.00       71.43307                              712190.90
4135033.00      133.25096
         712180.50    4135010.00      312.85324                              712170.10
4134987.00      378.43670
         712169.50    4134986.00      364.17734                              712151.50
4135003.00      573.22688
         712133.50    4135021.00      764.77567                              712115.50
4135038.00      825.07457
         712097.40    4135055.00      731.11446                              712079.40
4135073.00      378.37036
         712061.40    4135090.00      142.74739                              712049.30
4135102.00       86.51997
         712059.80    4135124.00       54.94572                              712070.20
4135147.00       35.72796
         712080.70    4135170.00       23.54605                              712091.10
4135192.00       15.99084
         712101.60    4135215.00       11.18941                              712112.10
4135238.00        8.30532
         712122.50    4135261.00        6.48333                              712132.90
4135283.00        5.29574
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                           PAGE  55
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                       *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE7    ***
                                           INCLUDING SOURCE(S):     LINE7       ,

                                                      *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)        CONC                             X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
         712100.80    4135272.00       23.37442                              712278.80
4135105.00       24.06787
         712204.20    4135002.00       47.96278                              712074.80
4134973.00       14.24194
         712269.60    4135272.00       10.22385                              711861.50
4135295.00        8.08495
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         712059.10    4135181.00       73.73216                       712142.50
4135304.00       11.44753
         712165.10    4135293.00       11.88697                       712187.80
4135283.00       12.58114
         712210.40    4135272.00       13.76833                       712233.10
4135262.00       13.94834
         712255.70    4135251.00       13.47603                       712278.30
4135240.00       12.73364
         712284.10    4135238.00       12.41267                       712273.80
4135215.00       16.18138
         712263.40    4135192.00       21.11802                       712253.00
4135169.00       26.97233
         712242.70    4135147.00       35.54931                       712232.30
4135124.00       47.21062
         712221.90    4135101.00       59.49106                       712211.60
4135078.00       68.10800
         712201.30    4135056.00       71.62092                       712190.90
4135033.00       68.61384
         712180.50    4135010.00       58.99499                       712170.10
4134987.00       45.21387
         712169.50    4134986.00       44.56958                       712151.50
4135003.00       56.48813
         712133.50    4135021.00       76.46636                       712115.50
4135038.00      108.59864
         712097.40    4135055.00      158.75659                       712079.40
4135073.00       97.22598
         712061.40    4135090.00       90.09737                       712049.30
4135102.00       71.07642
         712059.80    4135124.00      104.61658                       712070.20
4135147.00      118.59096
         712080.70    4135170.00      120.85229                       712091.10
4135192.00      115.38654
         712101.60    4135215.00       88.61028                       712112.10
4135238.00       47.77301
         712122.50    4135261.00       25.83512                       712132.90
4135283.00       15.98382
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE8    ***
                                  INCLUDING SOURCE(S):     LINE8       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***
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** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	46.88441	712278.80	4135105.00	68.92261
712204.20	4135002.00	17.26039	712074.80	4134973.00	4.67263
712269.60	4135272.00	21.38244	711861.50	4135295.00	6.68742
712059.10	4135181.00	23.69791	712142.50	4135304.00	26.63286
712165.10	4135293.00	27.99342	712187.80	4135283.00	28.70902
712210.40	4135272.00	31.17732	712233.10	4135262.00	32.33598
712255.70	4135251.00	32.48699	712278.30	4135240.00	30.38478
712284.10	4135238.00	29.23154	712273.80	4135215.00	44.00534
712263.40	4135192.00	66.61738	712253.00	4135169.00	100.91791
712242.70	4135147.00	172.96228	712232.30	4135124.00	183.17487
712221.90	4135101.00	119.93618	712211.60	4135078.00	66.70392
712201.30	4135056.00	37.89709	712190.90	4135033.00	22.75705
712180.50	4135010.00	15.10525	712170.10	4134987.00	10.92609
712169.50	4134986.00	10.77969	712151.50	4135003.00	11.18381
712133.50	4135021.00	11.24164	712115.50	4135038.00	10.47439
712097.40	4135055.00	9.47397	712079.40	4135073.00	9.00811
712061.40	4135090.00	9.11491	712049.30	4135102.00	9.21912
712059.80	4135124.00	12.37216	712070.20	4135147.00	17.79642
712080.70	4135170.00	28.28019	712091.10	4135192.00	53.83786
712101.60	4135215.00	116.92225	712112.10	4135238.00	115.65238
712122.50	4135261.00	66.80923	712132.90	4135283.00	40.87898

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE9   ***
INCLUDING SOURCE(S):   LINE9   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	46.60165	712278.80	4135105.00	65.27224
712204.20	4135002.00	17.87483	712074.80	4134973.00	4.81651
712269.60	4135272.00	22.21116	711861.50	4135295.00	6.39648
712059.10	4135181.00	21.95969	712142.50	4135304.00	27.64538
712165.10	4135293.00	29.74819	712187.80	4135283.00	30.66948
712210.40	4135272.00	32.63438	712233.10	4135262.00	33.69561
712255.70	4135251.00	33.73687	712278.30	4135240.00	31.47378
712284.10	4135238.00	30.28334	712273.80	4135215.00	45.24512
712263.40	4135192.00	69.20474	712253.00	4135169.00	113.12374
712242.70	4135147.00	169.03285	712232.30	4135124.00	153.76247
712221.90	4135101.00	100.13771	712211.60	4135078.00	59.51249
712201.30	4135056.00	36.41041	712190.90	4135033.00	23.05808
712180.50	4135010.00	15.62312	712170.10	4134987.00	11.28536
712169.50	4134986.00	11.12750	712151.50	4135003.00	11.18834

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE10 ***
INCLUDING SOURCE(S): LINE10 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712133.50	4135021.00	11.03602	712115.50	4135038.00	10.35859
712097.40	4135055.00	9.46187	712079.40	4135073.00	8.89346
712061.40	4135090.00	8.73205	712049.30	4135102.00	8.78994
712059.80	4135124.00	11.65632	712070.20	4135147.00	16.43234
712080.70	4135170.00	25.54514	712091.10	4135192.00	45.63655
712101.60	4135215.00	91.26220	712112.10	4135238.00	102.93785
712122.50	4135261.00	66.69212	712132.90	4135283.00	41.86108
712100.80	4135272.00	24.27632	712278.80	4135105.00	24.47000
712204.20	4135002.00	42.60895	712074.80	4134973.00	14.36430
712269.60	4135272.00	10.39477	711861.50	4135295.00	7.95044
712059.10	4135181.00	71.27196	712142.50	4135304.00	11.98004
712165.10	4135293.00	12.53430	712187.80	4135283.00	13.16242
712210.40	4135272.00	14.09461	712233.10	4135262.00	14.16587
712255.70	4135251.00	13.72193	712278.30	4135240.00	12.88183

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         712284.10    4135238.00       12.54496                      712273.80
4135215.00       16.18578
         712263.40    4135192.00       20.87630                      712253.00
4135169.00       27.08832
         712242.70    4135147.00       35.55500                      712232.30
4135124.00       45.99825
         712221.90    4135101.00       55.84058                      712211.60
4135078.00       62.32093
         712201.30    4135056.00       64.45751                      712190.90
4135033.00       61.00729
         712180.50    4135010.00       52.47710                      712170.10
4134987.00       41.08789
         712169.50    4134986.00       40.57692                      712151.50
4135003.00       51.32317
         712133.50    4135021.00       68.45233                      712115.50
4135038.00       93.81879
         712097.40    4135055.00      127.90528                      712079.40
4135073.00       82.15346
         712061.40    4135090.00       74.78163                      712049.30
4135102.00       63.81540
         712059.80    4135124.00       96.40660                      712070.20
4135147.00      110.62775
         712080.70    4135170.00      113.73750                      712091.10
4135192.00      109.64124
         712101.60    4135215.00       87.74566                      712112.10
4135238.00       49.63160
         712122.50    4135261.00       27.02536                      712132.90
4135283.00       16.88079
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                         ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE11   ***
                                    INCLUDING SOURCE(S):     LINE11      ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

       X-COORD (M)   Y-COORD (M)        CONC                          X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
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         712100.80    4135272.00        6.43641                        712278.80
4135105.00       15.62881
         712204.20    4135002.00      109.02702                        712074.80
4134973.00       30.23786
         712269.60    4135272.00        4.51548                        711861.50
4135295.00        5.17945
         712059.10    4135181.00       19.73935                        712142.50
4135304.00        4.51230
         712165.10    4135293.00        4.65874                        712187.80
4135283.00        4.78630
         712210.40    4135272.00        4.97143                        712233.10
4135262.00        5.13897
         712255.70    4135251.00        5.34641                        712278.30
4135240.00        5.52104
         712284.10    4135238.00        5.52182                        712273.80
4135215.00        6.68346
         712263.40    4135192.00        8.26258                        712253.00
4135169.00       10.48296
         712242.70    4135147.00       13.60106                        712232.30
4135124.00       18.50653
         712221.90    4135101.00       26.33959                        712211.60
4135078.00       39.28244
         712201.30    4135056.00       61.24492                        712190.90
4135033.00      107.36959
         712180.50    4135010.00      217.41512                        712170.10
4134987.00      309.68677
         712169.50    4134986.00      304.46039                        712151.50
4135003.00      583.53297
         712133.50    4135021.00      802.51155                        712115.50
4135038.00      871.42013
         712097.40    4135055.00      834.85601                        712079.40
4135073.00      422.47153
         712061.40    4135090.00      128.02392                        712049.30
4135102.00       78.66014
         712059.80    4135124.00       52.58175                        712070.20
4135147.00       33.43201
         712080.70    4135170.00       22.01791                        712091.10
4135192.00       15.39184
         712101.60    4135215.00       11.10654                        712112.10
4135238.00        8.37558
         712122.50    4135261.00        6.56826                        712132.90
4135283.00        5.35698
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*
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*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE12 ***

INCLUDING SOURCE(S): LINE12 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	30.51079	712278.80	4135105.00	89.56441
712204.20	4135002.00	18.77358	712074.80	4134973.00	4.41343
712269.60	4135272.00	19.77288	711861.50	4135295.00	5.82017
712059.10	4135181.00	22.00291	712142.50	4135304.00	22.38236
712165.10	4135293.00	24.84002	712187.80	4135283.00	25.16909
712210.40	4135272.00	26.12339	712233.10	4135262.00	27.45485
712255.70	4135251.00	29.66612	712278.30	4135240.00	30.02564
712284.10	4135238.00	29.35877	712273.80	4135215.00	46.79874
712263.40	4135192.00	80.14342	712253.00	4135169.00	140.53836
712242.70	4135147.00	252.88463	712232.30	4135124.00	257.84371
712221.90	4135101.00	148.61722	712211.60	4135078.00	73.76498
712201.30	4135056.00	39.94124	712190.90	4135033.00	23.93266
712180.50	4135010.00	15.99501	712170.10	4134987.00	11.59041
712169.50	4134986.00	11.43141	712151.50	4135003.00	11.28412
712133.50	4135021.00	10.54889	712115.50	4135038.00	9.30801
712097.40	4135055.00	8.64367	712079.40	4135073.00	8.86986
712061.40	4135090.00	8.94050	712049.30	4135102.00	8.79884
712059.80	4135124.00	11.44841	712070.20	4135147.00	16.13052

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE13 ***
INCLUDING SOURCE(S): LINE13 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712080.70	4135170.00	25.78524	712091.10	4135192.00	42.08681
712101.60	4135215.00	56.62951	712112.10	4135238.00	53.98477
712122.50	4135261.00	40.61257	712132.90	4135283.00	29.98512
712100.80	4135272.00	17.35909	712278.80	4135105.00	34.66114
712204.20	4135002.00	67.09924	712074.80	4134973.00	11.48301
712269.60	4135272.00	9.51917	711861.50	4135295.00	6.39423
712059.10	4135181.00	39.09498	712142.50	4135304.00	10.26214
712165.10	4135293.00	10.51601	712187.80	4135283.00	10.84377
712210.40	4135272.00	11.36511	712233.10	4135262.00	12.04757
712255.70	4135251.00	12.61524	712278.30	4135240.00	12.59153
712284.10	4135238.00	12.40169	712273.80	4135215.00	16.86934
712263.40	4135192.00	23.85310	712253.00	4135169.00	34.42013
712242.70	4135147.00	50.77593	712232.30	4135124.00	74.51024
712221.90	4135101.00	97.39870	712211.60	4135078.00	110.81494

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712201.30	4135056.00	114.12316	712190.90	4135033.00	106.90121
712180.50	4135010.00	87.89765	712170.10	4134987.00	60.95675
712169.50	4134986.00	59.76883	712151.50	4135003.00	80.01131
712133.50	4135021.00	112.30740	712115.50	4135038.00	96.00596
712097.40	4135055.00	67.97188	712079.40	4135073.00	58.61813
712061.40	4135090.00	44.82537	712049.30	4135102.00	37.95011
712059.80	4135124.00	47.78285	712070.20	4135147.00	53.56688
712080.70	4135170.00	55.33732	712091.10	4135192.00	52.10287
712101.60	4135215.00	41.80566	712112.10	4135238.00	29.32669
712122.50	4135261.00	19.97706	712132.90	4135283.00	13.99074

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE14 ***
INCLUDING SOURCE(S): LINE14 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	6.39469	712278.80	4135105.00	17.14643
712204.20	4135002.00	158.27489	712074.80	4134973.00	23.40958
712269.60	4135272.00	4.35629	711861.50	4135295.00	4.75321
712059.10	4135181.00	16.76157	712142.50	4135304.00	4.37414

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         712165.10    4135293.00        4.51246                        712187.80
4135283.00        4.66068
         712210.40    4135272.00        4.79996                        712233.10
4135262.00        4.91186
         712255.70    4135251.00        5.14415                        712278.30
4135240.00        5.40951
         712284.10    4135238.00        5.43510                        712273.80
4135215.00        6.60888
         712263.40    4135192.00        8.22355                        712253.00
4135169.00       10.52956
         712242.70    4135147.00       13.83493                        712232.30
4135124.00       19.23908
         712221.90    4135101.00       28.53609                        712211.60
4135078.00       46.15306
         712201.30    4135056.00       81.28925                        712190.90
4135033.00      161.92711
         712180.50    4135010.00      366.72009                        712170.10
4134987.00      348.17747
         712169.50    4134986.00      338.81233                        712151.50
4135003.00      576.43161
         712133.50    4135021.00      703.01398                        712115.50
4135038.00      457.68130
         712097.40    4135055.00      231.72260                        712079.40
4135073.00      107.13345
         712061.40    4135090.00       61.93007                        712049.30
4135102.00       45.74832
         712059.80    4135124.00       35.68757                        712070.20
4135147.00       26.50457
         712080.70    4135170.00       19.78520                        712091.10
4135192.00       14.77679
         712101.60    4135215.00       10.91933                        712112.10
4135238.00        8.24709
         712122.50    4135261.00        6.42871                        712132.90
4135283.00        5.21087
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  63
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE PERIOD ( 43824 HRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE15   ***
                                  INCLUDING SOURCE(S):     LINE15      ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                          ** CONC OF OTHER    IN MICROGRAMS/M**3
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X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	6.44337	712278.80	4135105.00	19.51410
712204.20	4135002.00	502.07702	712074.80	4134973.00	17.32835
712269.60	4135272.00	4.18101	711861.50	4135295.00	4.21700
712059.10	4135181.00	13.32698	712142.50	4135304.00	4.44801
712165.10	4135293.00	4.45097	712187.80	4135283.00	4.51320
712210.40	4135272.00	4.70411	712233.10	4135262.00	4.84146
712255.70	4135251.00	4.95550	712278.30	4135240.00	5.16267
712284.10	4135238.00	5.20372	712273.80	4135215.00	6.34411
712263.40	4135192.00	7.92737	712253.00	4135169.00	10.21797
712242.70	4135147.00	13.54738	712232.30	4135124.00	19.17865
712221.90	4135101.00	29.38437	712211.60	4135078.00	50.83186
712201.30	4135056.00	104.51931	712190.90	4135033.00	330.59518
712180.50	4135010.00	1787.29712	712170.10	4134987.00	285.44378
712169.50	4134986.00	264.85038	712151.50	4135003.00	148.39056
712133.50	4135021.00	162.85115	712115.50	4135038.00	124.22155
712097.40	4135055.00	77.99583	712079.40	4135073.00	50.78249
712061.40	4135090.00	35.39772	712049.30	4135102.00	28.51122
712059.80	4135124.00	24.92065	712070.20	4135147.00	19.87543
712080.70	4135170.00	15.91939	712091.10	4135192.00	13.09153
712101.60	4135215.00	10.53931	712112.10	4135238.00	8.35903
712122.50	4135261.00	6.62557	712132.90	4135283.00	5.35891

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE16 ***
INCLUDING SOURCE(S): LINE16 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
712100.80	4135272.00	21.24049	712278.80	4135105.00	189.76607
712204.20	4135002.00	15.28440	712074.80	4134973.00	3.78453
712269.60	4135272.00	18.06966	711861.50	4135295.00	4.85631
712059.10	4135181.00	16.42493	712142.50	4135304.00	17.35312
712165.10	4135293.00	20.90028	712187.80	4135283.00	23.73038
712210.40	4135272.00	25.25244	712233.10	4135262.00	25.53463
712255.70	4135251.00	26.99924	712278.30	4135240.00	29.20086
712284.10	4135238.00	29.30504	712273.80	4135215.00	50.11942
712263.40	4135192.00	103.36812	712253.00	4135169.00	291.71861
712242.70	4135147.00	1444.30201	712232.30	4135124.00	346.53402
712221.90	4135101.00	108.48121	712211.60	4135078.00	48.26872
712201.30	4135056.00	27.67374	712190.90	4135033.00	17.91240
712180.50	4135010.00	12.61288	712170.10	4134987.00	9.42788
712169.50	4134986.00	9.30435	712151.50	4135003.00	8.40435
712133.50	4135021.00	7.62204	712115.50	4135038.00	7.44303

        712100.80   4135272.00   0.00271 (16012117)   712278.80
4135105.00   0.00779 (14110706)
        712204.20   4135002.00   0.00178 (16062906)   712074.80
4134973.00   0.00296 (17121707)
        712269.60   4135272.00   0.00642 (16112217)   711861.50
4135295.00   0.00344 (14022108)
        712059.10   4135181.00   0.00844 (13021306)   712142.50
4135304.00   0.00230 (16011708)
        712165.10   4135293.00   0.00263 (14121017)   712187.80
4135283.00   0.00259 (17012308)
        712210.40   4135272.00   0.00389 (16091506)   712233.10
4135262.00   0.00594 (15100506)
        712255.70   4135251.00   0.00656 (15090906)   712278.30
4135240.00   0.00635 (14100306)
        712284.10   4135238.00   0.00661 (14100306)   712273.80
4135215.00   0.00655 (17011707)

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        712263.40   4135192.00        0.00764  (14101907)                712253.00
4135169.00        0.00784  (16091106)
        712242.70   4135147.00        0.00843  (16110206)                712232.30
4135124.00        0.00869  (14110706)
        712221.90   4135101.00        0.00623  (16110606)                712211.60
4135078.00        0.00277  (16072806)
        712201.30   4135056.00        0.00253  (13071406)                712190.90
4135033.00        0.00219  (14091406)
        712180.50   4135010.00        0.00197  (14060506)                712170.10
4134987.00        0.00210  (16090707)
        712169.50   4134986.00        0.00211  (16090707)                712151.50
4135003.00        0.00214  (16090707)
        712133.50   4135021.00        0.00235  (14020517)                712115.50
4135038.00        0.00231  (13120508)
        712097.40   4135055.00        0.00491  (14012808)                712079.40
4135073.00        0.00676  (17122708)
        712061.40   4135090.00        0.00739  (16103106)                712049.30
4135102.00        0.00719  (17102507)
        712059.80   4135124.00        0.00786  (13011908)                712070.20
4135147.00        0.00719  (14040607)
        712080.70   4135170.00        0.00882  (14100307)                712091.10
4135192.00        0.00459  (16011409)
        712101.60   4135215.00        0.00423  (17020908)                712112.10
4135238.00        0.00390  (16021706)
        712122.50   4135261.00        0.00314  (14121008)                712132.90
4135283.00        0.00257  (15020517)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  AREA1    ***
                                  INCLUDING SOURCE(S):     AREA1       ,

                                           *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
        712100.80   4135272.00       34.31219  (17121507)                712278.80
4135105.00       68.86539  (17122917)
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        712204.20   4135002.00      103.86242  (17062206)                712074.80
4134973.00       54.42218  (17121908)
        712269.60   4135272.00       34.78524  (16020908)                711861.50
4135295.00       16.67699  (13011909)
        712059.10   4135181.00       53.42609  (13011909)                712142.50
4135304.00       31.34550  (16120317)
        712165.10   4135293.00       33.91275  (15011308)                712187.80
4135283.00       34.33204  (15121208)
        712210.40   4135272.00       35.65954  (13021307)                712233.10
4135262.00       38.52873  (16020908)
        712255.70   4135251.00       40.79042  (16020908)                712278.30
4135240.00       44.68117  (13013117)
        712284.10   4135238.00       48.53404  (13013117)                712273.80
4135215.00       60.16993  (13013117)
        712263.40   4135192.00       73.77901  (13013117)                712253.00
4135169.00       88.04183  (13013117)
        712242.70   4135147.00       99.04501  (13013117)                712232.30
4135124.00      108.04459  (13022008)
        712221.90   4135101.00      112.64980  (15021206)                712211.60
4135078.00      141.29379  (17122917)
        712201.30   4135056.00      162.09844  (13021607)                712190.90
4135033.00      146.37919  (14060906)
        712180.50   4135010.00      141.89490  (15051606)                712170.10
4134987.00      108.21540  (14020408)
        712169.50   4134986.00      107.14374  (14020408)                712151.50
4135003.00      137.46392  (17123008)
        712133.50   4135021.00      163.13915  (13032507)                712115.50
4135038.00      145.33357  (15122008)
        712097.40   4135055.00      109.70765  (13021306)                712079.40
4135073.00       89.18388  (13021707)
        712061.40   4135090.00       71.17546  (13010708)                712049.30
4135102.00       61.72471  (14022108)
        712059.80   4135124.00       64.84853  (15021108)                712070.20
4135147.00       77.52200  (13011909)
        712080.70   4135170.00       56.16325  (13011909)                712091.10
4135192.00       54.68359  (14121406)
        712101.60   4135215.00       48.46171  (17022406)                712112.10
4135238.00       42.89722  (14120508)
        712122.50   4135261.00       39.21542  (14120508)                712132.90
4135283.00       35.51976  (16120317)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

                                  PAGE  67
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  AREA2    ***
```

INCLUDING SOURCE(S): AREA2 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	105.60569	(13011606)	712278.80	4135105.00	188.52291	(17122917)
712204.20	4135002.00	251.04395	(17062206)	712074.80	4134973.00	141.00138	(17121908)
712269.60	4135272.00	102.06494	(15010808)	711861.50	4135295.00	50.44674	(15021108)
712059.10	4135181.00	155.07501	(13011909)	712142.50	4135304.00	96.98152	(13022206)
712165.10	4135293.00	103.57803	(15011308)	712187.80	4135283.00	107.96262	(15121208)
712210.40	4135272.00	107.27637	(15010708)	712233.10	4135262.00	117.83347	(16020908)
712255.70	4135251.00	115.85388	(16020908)	712278.30	4135240.00	125.86244	(13013117)
712284.10	4135238.00	144.12763	(13013117)	712273.80	4135215.00	183.14296	(13013117)
712263.40	4135192.00	219.72852	(13013117)	712253.00	4135169.00	247.56025	(13013117)
712242.70	4135147.00	269.66170	(13022008)	712232.30	4135124.00	304.75407	(13022008)
712221.90	4135101.00	341.07189	(17122917)	712211.60	4135078.00	489.00464	(14022308)
712201.30	4135056.00	482.14366	(14022308)	712190.90	4135033.00	451.17646	(17111208)
712180.50	4135010.00	377.30588	(15051606)	712170.10	4134987.00	267.95122	(14020408)
712169.50	4134986.00	264.52876	(14020408)	712151.50	4135003.00	320.01116	(17123008)
712133.50	4135021.00	427.63511	(13032507)	712115.50	4135038.00	424.94056	(13013108)
712097.40	4135055.00	296.14875	(13021306)	712079.40	4135073.00	227.77086	(13021306)
712061.40	4135090.00	191.51698	(13021707)	712049.30	4135102.00	168.15333	(13010708)
712059.80	4135124.00	179.69956	(14022108)	712070.20	4135147.00	215.81084	(13011909)
712080.70	4135170.00	156.47921	(17120208)	712091.10	4135192.00	158.17161	(14121406)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: AREA3 ***
INCLUDING SOURCE(S): AREA3 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	371.46796	(14120508)	712278.80	4135105.00	722.48863	(16021508)
712204.20	4135002.00	1279.39603	(14060906)	712074.80	4134973.00	670.85518	(17121908)
712269.60	4135272.00	383.34142	(16020908)	711861.50	4135295.00	192.76022	(13011909)
712059.10	4135181.00	512.46184	(13011909)	712142.50	4135304.00	335.63470	(16120317)
712165.10	4135293.00	364.26702	(15011308)	712187.80	4135283.00	371.42991	(17121806)
712210.40	4135272.00	389.42979	(13021307)	712233.10	4135262.00	400.37149	(16020908)
712255.70	4135251.00	446.11376	(16020908)	712278.30	4135240.00	431.58587	(13013117)
712284.10	4135238.00	481.70337	(13013117)	712273.80	4135215.00	610.22147	(13013117)
712263.40	4135192.00	771.84582	(13013117)	712253.00	4135169.00	964.48644	(13013117)
712242.70	4135147.00	1156.62340	(13013117)	712232.30	4135124.00	1272.97200	(13013117)
712221.90	4135101.00	1370.96702	(15021206)	712211.60	4135078.00	1642.03253	(17122917)
712201.30	4135056.00	1887.31837	(14022308)	712190.90	4135033.00	1707.25544	(13021607)

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                *** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: AREA4   ***
                                    INCLUDING SOURCE(S):   AREA4   ,

                                         *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M) Y-COORD (M)   CONC   (YYMMDDHH)   X-COORD (M)
Y-COORD (M)   CONC   (YYMMDDHH)
 -
- -
        712100.80   4135272.00   2100.40095 (17022406)   712278.80
4135105.00   2241.72460 (15011917)
        712204.20   4135002.00   2067.01695 (15051606)   712074.80
4134973.00   1642.11806 (13032507)
        712269.60   4135272.00   2705.82729 (13013117)   711861.50
4135295.00   704.15263 (14022108)
        712059.10   4135181.00   2759.07818 (14022108)   712142.50
4135304.00   1927.84504 (16120317)
        712165.10   4135293.00   2128.73803 (17121308)   712187.80
4135283.00   2228.15030 (13021307)
        712180.50   4135010.00   1793.48706 (16111006)   712170.10
4134987.00   1434.96322 (14020408)
        712169.50   4134986.00   1429.05005 (14020408)   712151.50
4135003.00   1983.64936 (17123008)
        712133.50   4135021.00   2372.01771 (13011807)   712115.50
4135038.00   1704.62987 (17022506)
        712097.40   4135055.00   1267.83640 (13021306)   712079.40
4135073.00   1008.63969 (13010708)
        712061.40   4135090.00   809.24815 (14022108)   712049.30
4135102.00   731.58532 (14022108)
        712059.80   4135124.00   769.62685 (13011909)   712070.20
4135147.00   803.74613 (13011909)
        712080.70   4135170.00   542.12078 (13010807)   712091.10
4135192.00   597.70358 (14121406)
        712101.60   4135215.00   525.84407 (17121507)   712112.10
4135238.00   469.72847 (14120508)
        712122.50   4135261.00   417.77324 (14120508)   712132.90
4135283.00   382.39797 (16120317)

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        712210.40   4135272.00     2543.13490  (16020908)                712233.10
4135262.00     2506.62671  (13013117)
        712255.70   4135251.00     3193.22292  (13013117)                712278.30
4135240.00     2530.91360  (13022008)
        712284.10   4135238.00     2351.32986  (13022008)                712273.80
4135215.00     2374.19948  (14120617)
        712263.40   4135192.00     2612.56907  (15111908)                712253.00
4135169.00     3250.67296  (17122917)
        712242.70   4135147.00     3939.97610  (14022308)                712232.30
4135124.00     4214.92023  (14022308)
        712221.90   4135101.00     4145.32373  (17111208)                712211.60
4135078.00     3535.19527  (14060906)
        712201.30   4135056.00     3094.55192  (15051606)                712190.90
4135033.00     2863.27860  (15051606)
        712180.50   4135010.00     2235.53638  (14020408)                712170.10
4134987.00     1974.79273  (14020408)
        712169.50   4134986.00     1957.23650  (14020408)                712151.50
4135003.00     2407.55067  (16012706)
        712133.50   4135021.00     3003.68992  (14021508)                712115.50
4135038.00     3557.82131  (13032507)
        712097.40   4135055.00     3009.10204  (14122217)                712079.40
4135073.00     3024.67228  (13013108)
        712061.40   4135090.00     2376.64954  (13011908)                712049.30
4135102.00     2108.05075  (17022506)
        712059.80   4135124.00     2760.92766  (13021306)                712070.20
4135147.00     3185.19466  (13021707)
        712080.70   4135170.00     3429.73711  (14022108)                712091.10
4135192.00     4112.86539  (13011909)
        712101.60   4135215.00     2957.05173  (13011909)                712112.10
4135238.00     2873.58331  (13013006)
        712122.50   4135261.00     2478.25899  (14120508)                712132.90
4135283.00     2223.15934  (16120317)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  VOLUME1  ***
                                   INCLUDING SOURCE(S):     VOLUME1     ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	18.55820	(14021008)	712278.80	4135105.00	17.27190	(15021507)
712204.20	4135002.00	16.20372	(13021506)	712074.80	4134973.00	14.73480	(14120506)
712269.60	4135272.00	14.78367	(16032407)	711861.50	4135295.00	5.06293	(13012908)
712059.10	4135181.00	23.11231	(16021107)	712142.50	4135304.00	16.12541	(16021208)
712165.10	4135293.00	15.59853	(15011307)	712187.80	4135283.00	17.39826	(15120106)
712210.40	4135272.00	17.80815	(16012708)	712233.10	4135262.00	18.40798	(16021408)
712255.70	4135251.00	17.47436	(13010706)	712278.30	4135240.00	16.17485	(13022008)
712284.10	4135238.00	15.98952	(13020706)	712273.80	4135215.00	18.23412	(14120617)
712263.40	4135192.00	20.94410	(17022407)	712253.00	4135169.00	24.26935	(16021508)
712242.70	4135147.00	25.43093	(14021807)	712232.30	4135124.00	30.48487	(17012607)
712221.90	4135101.00	30.18804	(14012208)	712211.60	4135078.00	27.07063	(15021806)
712201.30	4135056.00	23.74455	(17022408)	712190.90	4135033.00	22.76484	(16120206)
712180.50	4135010.00	18.76493	(14021106)	712170.10	4134987.00	15.66387	(15010408)
712169.50	4134986.00	15.59483	(15010408)	712151.50	4135003.00	19.04393	(16022106)
712133.50	4135021.00	24.98509	(14020406)	712115.50	4135038.00	29.21376	(15011907)
712097.40	4135055.00	29.55680	(14012706)	712079.40	4135073.00	26.39793	(17121006)
712061.40	4135090.00	20.29187	(17120907)	712049.30	4135102.00	18.08055	(17120606)
712059.80	4135124.00	29.59709	(14011608)	712070.20	4135147.00	32.60310	(17121907)
712080.70	4135170.00	31.73481	(16021107)	712091.10	4135192.00	28.82927	(17012908)
712101.60	4135215.00	29.40900	(17012408)	712112.10	4135238.00	24.77173	(14021008)
712122.50	4135261.00	20.68655	(15021708)	712132.90	4135283.00	17.71709	(16021208)

↑ *** AERMOD - VERSION 18081 *** *** BEI *** 03/07/20

*** AERMET - VERSION 18081 *** *** V3 *** 16:45:09

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: VOLUME2 ***
INCLUDING SOURCE(S): VOLUME2 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	3.78935	(16111309)	712278.80	4135105.00	2.61503	(15010509)
712204.20	4135002.00	1.93142	(16121909)	712074.80	4134973.00	2.40184	(14011709)
712269.60	4135272.00	5.11580	(16030208)	711861.50	4135295.00	1.74111	(17122609)
712059.10	4135181.00	4.57530	(17122809)	712142.50	4135304.00	4.62202	(16031608)
712165.10	4135293.00	5.63839	(16102308)	712187.80	4135283.00	4.30602	(16102308)
712210.40	4135272.00	5.06410	(13011911)	712233.10	4135262.00	5.02577	(16030208)
712255.70	4135251.00	4.86662	(16030208)	712278.30	4135240.00	3.96023	(17041507)
712284.10	4135238.00	4.00781	(17041507)	712273.80	4135215.00	4.26958	(16122409)
712263.40	4135192.00	3.39151	(16122409)	712253.00	4135169.00	3.88482	(15011110)
712242.70	4135147.00	4.00289	(13010809)	712232.30	4135124.00	4.26653	(14011309)
712221.90	4135101.00	3.78893	(14011309)	712211.60	4135078.00	3.33473	(16121909)
712201.30	4135056.00	2.97603	(16121909)	712190.90	4135033.00	2.17694	(16121909)
712180.50	4135010.00	1.65421	(14011909)	712170.10	4134987.00	1.61180	(15122609)
712169.50	4134986.00	1.61890	(15122609)	712151.50	4135003.00	2.10786	(14011709)
712133.50	4135021.00	2.95109	(14011709)	712115.50	4135038.00	3.53460	(14011709)
712097.40	4135055.00	3.43347	(14011709)	712079.40	4135073.00	2.49320	(14011709)

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        712061.40   4135090.00        2.62477  (13011409)                712049.30
4135102.00        3.32282  (13011409)
        712059.80   4135124.00        4.09629  (13011409)                712070.20
4135147.00        4.80669  (13011409)
        712080.70   4135170.00        4.66034  (13011409)                712091.10
4135192.00        4.18684  (16110108)
        712101.60   4135215.00        4.43288  (13013109)                712112.10
4135238.00        3.44150  (17052107)
        712122.50   4135261.00        2.98155  (17120810)                712132.90
4135283.00        4.04367  (16122910)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                         ***        16:45:09

                                    PAGE  72
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  VOLUME3  ***
                                    INCLUDING SOURCE(S):     VOLUME3     ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        712100.80   4135272.00      309.47611  (14021008)                712278.80
4135105.00       91.89850  (15021806)
        712204.20   4135002.00       73.63428  (17022607)                712074.80
4134973.00       80.63464  (14021508)
        712269.60   4135272.00      134.35605  (17012817)                711861.50
4135295.00       53.78474  (17121907)
        712059.10   4135181.00      237.98324  (16020406)                712142.50
4135304.00      227.63497  (15011307)
        712165.10   4135293.00      236.59191  (16012708)                712187.80
4135283.00      236.06395  (16021108)
        712210.40   4135272.00      214.82190  (13012907)                712233.10
4135262.00      184.69550  (17022407)
        712255.70   4135251.00      158.82735  (16021508)                712278.30
4135240.00      129.15000  (15021407)
        712284.10   4135238.00      119.95203  (15021407)                712273.80
4135215.00      144.64939  (16020308)
        712263.40   4135192.00      140.68982  (17012607)                712253.00
4135169.00      144.09349  (13012706)
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        712242.70   4135147.00      147.73077  (14012508)                712232.30
4135124.00      122.33695  (16020307)
        712221.90   4135101.00      108.99452  (14032306)                712211.60
4135078.00      103.15720  (15011707)
        712201.30   4135056.00      104.70295  (16120206)                712190.90
4135033.00       91.74021  (17022607)
        712180.50   4135010.00       82.22567  (14021106)                712170.10
4134987.00       71.51430  (13021107)
        712169.50   4134986.00       70.95700  (13021107)                712151.50
4135003.00       80.79714  (15010408)
        712133.50   4135021.00       98.21164  (16022106)                712115.50
4135038.00      123.39484  (16022106)
        712097.40   4135055.00      142.24203  (14021508)                712079.40
4135073.00      155.85727  (13020908)
        712061.40   4135090.00      160.93498  (14012706)                712049.30
4135102.00      127.86105  (15012606)
        712059.80   4135124.00      167.82620  (16121908)                712070.20
4135147.00      232.77340  (14012806)
        712080.70   4135170.00      349.61720  (15122706)                712091.10
4135192.00      486.71922  (16020406)
        712101.60   4135215.00      611.72831  (15021209)                712112.10
4135238.00      462.90980  (16102306)
        712122.50   4135261.00      362.52234  (16021208)                712132.90
4135283.00      271.55268  (14030306)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

                                 PAGE  73
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  VOLUME4  ***
                                 INCLUDING SOURCE(S):     VOLUME4     ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        712100.80   4135272.00        0.42512  (14021008)                712278.80
4135105.00        0.77644  (16011517)
        712204.20   4135002.00        0.97630  (15011707)                712074.80
4134973.00        0.51201  (15010108)
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        712269.60   4135272.00        0.40680  (13012508)               711861.50
4135295.00        0.14292  (17120107)
        712059.10   4135181.00        0.47682  (16011408)               712142.50
4135304.00        0.36667  (15021708)
        712165.10   4135293.00        0.40998  (16021208)               712187.80
4135283.00        0.39594  (17121308)
        712210.40   4135272.00        0.44584  (17122317)               712233.10
4135262.00        0.42731  (13010417)
        712255.70   4135251.00        0.46023  (13012508)               712278.30
4135240.00        0.47543  (16021408)
        712284.10   4135238.00        0.46635  (16021408)               712273.80
4135215.00        0.54626  (16021108)
        712263.40   4135192.00        0.62602  (16021108)               712253.00
4135169.00        0.74385  (13010706)
        712242.70   4135147.00        0.88137  (15122007)               712232.30
4135124.00        1.08733  (13012907)
        712221.90   4135101.00        1.30288  (17012817)               712211.60
4135078.00        1.53390  (15101206)
        712201.30   4135056.00        1.72356  (15030308)               712190.90
4135033.00        1.59820  (17022408)
        712180.50   4135010.00        1.33829  (13021708)               712170.10
4134987.00        1.00671  (15011209)
        712169.50   4134986.00        0.99041  (15011209)               712151.50
4135003.00        1.34408  (14020406)
        712133.50   4135021.00        1.51637  (13030106)               712115.50
4135038.00        1.39333  (15122706)
        712097.40   4135055.00        1.04072  (17120606)               712079.40
4135073.00        1.02207  (14011608)
        712061.40   4135090.00        0.80920  (14121407)               712049.30
4135102.00        0.68744  (17121907)
        712059.80   4135124.00        0.69305  (13012908)               712070.20
4135147.00        0.64803  (15020306)
        712080.70   4135170.00        0.58533  (17012908)               712091.10
4135192.00        0.67310  (15121107)
        712101.60   4135215.00        0.59719  (17012408)               712112.10
4135238.00        0.52999  (14021008)
        712122.50   4135261.00        0.45898  (14120508)               712132.90
4135283.00        0.41581  (15021708)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

                                  PAGE  74
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  VOLUME5  ***
                                  INCLUDING SOURCE(S):     VOLUME5     ,
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*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	0.03954	(14120508)	712278.80	4135105.00	0.06930	(17012817)
712204.20	4135002.00	0.10289	(16123108)	712074.80	4134973.00	0.06074	(17121006)
712269.60	4135272.00	0.03764	(16012708)	711861.50	4135295.00	0.01547	(15020306)
712059.10	4135181.00	0.04724	(15123008)	712142.50	4135304.00	0.03549	(16021208)
712165.10	4135293.00	0.03837	(16021208)	712187.80	4135283.00	0.03763	(17121308)
712210.40	4135272.00	0.04152	(17122317)	712233.10	4135262.00	0.04072	(17013108)
712255.70	4135251.00	0.04240	(16012708)	712278.30	4135240.00	0.04271	(15021906)
712284.10	4135238.00	0.04374	(16021408)	712273.80	4135215.00	0.04978	(16021408)
712263.40	4135192.00	0.05623	(16021408)	712253.00	4135169.00	0.06522	(16021108)
712242.70	4135147.00	0.07512	(16032407)	712232.30	4135124.00	0.08669	(13022008)
712221.90	4135101.00	0.10281	(13022008)	712211.60	4135078.00	0.11600	(17012907)
712201.30	4135056.00	0.12875	(14101907)	712190.90	4135033.00	0.00000	(00000000)
712180.50	4135010.00	0.13002	(16021008)	712170.10	4134987.00	0.11164	(17122707)
712169.50	4134986.00	0.11026	(17122707)	712151.50	4135003.00	0.13105	(16010807)
712133.50	4135021.00	0.00000	(00000000)	712115.50	4135038.00	0.12602	(17120606)
712097.40	4135055.00	0.11468	(15120108)	712079.40	4135073.00	0.09199	(17121907)
712061.40	4135090.00	0.07408	(15120107)	712049.30	4135102.00	0.06445	(16021206)
712059.80	4135124.00	0.06058	(17120107)	712070.20	4135147.00	0.05622	(17012908)
712080.70	4135170.00	0.06255	(15123008)	712091.10	4135192.00	0.05958	(17012408)
712101.60	4135215.00	0.05273	(15122406)	712112.10	4135238.00	0.04810	(14120508)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE1 ***
INCLUDING SOURCE(S): LINE1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	4306.68680	(13011606)	712278.80	4135105.00	10736.62367	(13011407)
712204.20	4135002.00	36667.19798	(14060906)	712074.80	4134973.00	8280.54913	(13010806)
712269.60	4135272.00	3844.82474	(16020908)	711861.50	4135295.00	2321.93053	(13011909)
712059.10	4135181.00	5141.91882	(13021406)	712142.50	4135304.00	4018.46240	(16120317)
712165.10	4135293.00	4171.45799	(13012208)	712187.80	4135283.00	4506.98035	(17121308)
712210.40	4135272.00	4508.52207	(15121208)	712233.10	4135262.00	4563.79179	(17122317)
712255.70	4135251.00	3976.53577	(17013108)	712278.30	4135240.00	5185.52585	(16020908)
712284.10	4135238.00	4770.29829	(16020908)	712273.80	4135215.00	5395.00588	(13021106)
712263.40	4135192.00	6471.10996	(15010808)	712253.00	4135169.00	7856.95197	(15010808)
712242.70	4135147.00	9595.42065	(13010808)	712232.30	4135124.00	12111.23288	(13010808)
712221.90	4135101.00	16232.79374	(17013107)	712211.60	4135078.00	25969.18227	(13013117)
712201.30	4135056.00	40142.12222	(13013117)	712190.90	4135033.00	60385.69487	(17122917)
712180.50	4135010.00	69966.40354	(16111006)	712170.10	4134987.00	31815.46934	(16012706)

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        712169.50   4134986.00    30877.08303  (16012706)                712151.50
4135003.00    38611.35926  (13011807)
        712133.50   4135021.00    33421.65197  (17123006)                712115.50
4135038.00    25499.21573  (13021707)
        712097.40   4135055.00    16445.38286  (14022108)                712079.40
4135073.00    13853.36554  (14022108)
        712061.40   4135090.00     8987.72038  (13020406)                712049.30
4135102.00     7514.28182  (13012006)
        712059.80   4135124.00     9580.27568  (13011909)                712070.20
4135147.00     6852.25903  (17120208)
        712080.70   4135170.00     5449.66860  (15123008)                712091.10
4135192.00     6699.54269  (14121406)
        712101.60   4135215.00     5757.73807  (15122406)                712112.10
4135238.00     5166.01290  (13011606)
        712122.50   4135261.00     4937.70270  (14120508)                712132.90
4135283.00     3921.41860  (17122506)
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↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  76
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE2    ***
                                  INCLUDING SOURCE(S):     LINE2       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
        712100.80   4135272.00     8521.95531  (13011909)                712278.80
4135105.00    18875.67574  (14060906)
        712204.20   4135002.00     6567.09144  (13022807)                712074.80
4134973.00     3019.60423  (16120308)
        712269.60   4135272.00     9873.44779  (16020908)                711861.50
4135295.00     1978.01357  (14011008)
        712059.10   4135181.00     6401.19280  (13012607)                712142.50
4135304.00     6668.47219  (15121107)
        712165.10   4135293.00     8386.36739  (17022406)                712187.80
4135283.00     8977.27094  (13011606)
        712210.40   4135272.00    10674.70401  (16120317)                712233.10
4135262.00    10513.28656  (17121806)
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        712255.70   4135251.00    11134.05329  (16020908)                712278.30
4135240.00    11959.24757  (13013117)
        712284.10   4135238.00    14238.25703  (13013117)                712273.80
4135215.00    18719.23986  (13013117)
        712263.40   4135192.00    21807.47692  (13013117)                712253.00
4135169.00    31445.12188  (17122917)
        712242.70   4135147.00   100236.73032  (17111208)                712232.30
4135124.00    27159.78891  (17102406)
        712221.90   4135101.00    17243.45750  (16012706)                712211.60
4135078.00    13004.29873  (17123008)
        712201.30   4135056.00     9986.55355  (17123008)                712190.90
4135033.00     7554.28532  (16122006)
        712180.50   4135010.00     6224.73851  (13032507)                712170.10
4134987.00     5489.11581  (13032507)
        712169.50   4134986.00     5472.55555  (13032507)                712151.50
4135003.00     5853.91535  (13012008)
        712133.50   4135021.00     5181.30012  (17121708)                712115.50
4135038.00     5215.64806  (17121908)
        712097.40   4135055.00     5497.42680  (13013108)                712079.40
4135073.00     4813.25218  (13021408)
        712061.40   4135090.00     4520.75378  (13011908)                712049.30
4135102.00     4106.99267  (14022306)
        712059.80   4135124.00     4952.77486  (17022506)                712070.20
4135147.00     5823.45189  (13021306)
        712080.70   4135170.00     7187.80184  (16120407)                712091.10
4135192.00     8438.19999  (17122808)
        712101.60   4135215.00    10082.56981  (14022108)                712112.10
4135238.00     9238.83773  (15021108)
        712122.50   4135261.00     9567.92847  (13011909)                712132.90
4135283.00     6748.25837  (13021406)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  77
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE3    ***
                                  INCLUDING SOURCE(S):     LINE3       ,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
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        712100.80   4135272.00     4054.15870  (16120317)                712278.80
4135105.00     6629.15683  (15111908)
        712204.20   4135002.00    25708.49678  (17111208)                712074.80
4134973.00     9215.34145  (17121908)
        712269.60   4135272.00     3675.43723  (15010808)                711861.50
4135295.00     2831.56371  (13011909)
        712059.10   4135181.00     6729.88035  (15121107)                712142.50
4135304.00     3899.94573  (15011308)
        712165.10   4135293.00     3929.89924  (17121806)                712187.80
4135283.00     4084.46404  (13021307)
        712210.40   4135272.00     4096.33615  (17013108)                712233.10
4135262.00     4309.10406  (16020908)
        712255.70   4135251.00     4029.04375  (16020908)                712278.30
4135240.00     4261.60302  (14120807)
        712284.10   4135238.00     4248.19365  (14120807)                712273.80
4135215.00     5359.82536  (13013117)
        712263.40   4135192.00     6940.04478  (13013117)                712253.00
4135169.00     8414.85782  (13013117)
        712242.70   4135147.00     9420.10105  (13013117)                712232.30
4135124.00     9664.49369  (13013117)
        712221.90   4135101.00    11049.35095  (13022008)                712211.60
4135078.00    11527.07254  (17121717)
        712201.30   4135056.00    16763.64909  (17122917)                712190.90
4135033.00    31095.17672  (14022308)
        712180.50   4135010.00    39740.76003  (17111208)                712170.10
4134987.00    22188.87974  (15051606)
        712169.50   4134986.00    22404.28128  (15051606)                712151.50
4135003.00    27106.13141  (15051606)
        712133.50   4135021.00    27270.30669  (17102406)                712115.50
4135038.00    39218.45796  (16100907)
        712097.40   4135055.00    40082.18460  (14022108)                712079.40
4135073.00    20823.47200  (15021108)
        712061.40   4135090.00    15330.02939  (15021108)                712049.30
4135102.00    12492.97102  (15021108)
        712059.80   4135124.00    10351.14861  (13011909)                712070.20
4135147.00     8249.86949  (15123008)
        712080.70   4135170.00     8345.03211  (17022406)                712091.10
4135192.00     7036.60970  (17121507)
        712101.60   4135215.00     6233.40474  (14120508)                712112.10
4135238.00     5411.00721  (16120317)
        712122.50   4135261.00     4633.67957  (16120317)                712132.90
4135283.00     4269.40657  (15011308)
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE4 ***
INCLUDING SOURCE(S): LINE4 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	4071.29201	(16122908)	712278.80	4135105.00	3954.13059	(14022308)
712204.20	4135002.00	4008.63280	(15051606)	712074.80	4134973.00	8280.15700	(17121707)
712269.60	4135272.00	7870.98621	(13013117)	711861.50	4135295.00	1509.76125	(15021108)
712059.10	4135181.00	4022.87954	(13011909)	712142.50	4135304.00	4936.49098	(13022206)
712165.10	4135293.00	6103.76940	(17121308)	712187.80	4135283.00	7461.22365	(13021307)
712210.40	4135272.00	8303.92174	(16020908)	712233.10	4135262.00	8368.48711	(13010808)
712255.70	4135251.00	9311.03698	(13013117)	712278.30	4135240.00	6430.07913	(13022008)
712284.10	4135238.00	6049.75026	(13022008)	712273.80	4135215.00	5647.07216	(13022008)
712263.40	4135192.00	5086.30656	(17121717)	712253.00	4135169.00	4827.22788	(17122917)
712242.70	4135147.00	5271.19200	(14022308)	712232.30	4135124.00	5313.24564	(14022308)
712221.90	4135101.00	5343.78754	(14022308)	712211.60	4135078.00	5337.30323	(14022308)
712201.30	4135056.00	4694.01888	(17111208)	712190.90	4135033.00	4827.37717	(15051606)
712180.50	4135010.00	4878.94469	(15051606)	712170.10	4134987.00	4941.89856	(14020408)
712169.50	4134986.00	4969.05471	(14020408)	712151.50	4135003.00	6789.55811	(14020408)
712133.50	4135021.00	11331.91274	(16012706)	712115.50	4135038.00	32674.84893	(13032507)
712097.40	4135055.00	10709.57117	(13011807)	712079.40	4135073.00	5992.36999	(15122008)
712061.40	4135090.00	4187.32336	(13021707)	712049.30	4135102.00	3724.83400	(13010708)

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        712059.80   4135124.00     4046.02452  (13011909)                712070.20
4135147.00     4656.08206  (13011909)
        712080.70   4135170.00     4694.62364  (13011909)                712091.10
4135192.00     4732.66454  (13011909)
        712101.60   4135215.00     4696.45031  (16122908)                712112.10
4135238.00     4845.15239  (16122908)
        712122.50   4135261.00     4733.60422  (16120317)                712132.90
4135283.00     5091.50827  (16120317)
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE5    ***
                                  INCLUDING SOURCE(S):     LINE5       ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)               X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
        712100.80   4135272.00     9262.66031  (13011909)                712278.80
4135105.00     9861.79348  (17071706)
        712204.20   4135002.00     5783.97692  (15120206)                712074.80
4134973.00     3523.23064  (17121707)
        712269.60   4135272.00    13542.40630  (13013117)                711861.50
4135295.00     2350.48141  (14011008)
        712059.10   4135181.00     8263.34208  (16122907)                712142.50
4135304.00     9046.31522  (17121507)
        712165.10   4135293.00    10756.95593  (14120508)                712187.80
4135283.00    12110.06139  (15011308)
        712210.40   4135272.00    12420.44807  (13021307)                712233.10
4135262.00    14265.21771  (16020908)
        712255.70   4135251.00    17334.86015  (13013117)                712278.30
4135240.00    12298.24054  (15021206)
        712284.10   4135238.00    11773.45730  (14120617)                712273.80
4135215.00    13844.84930  (15111908)
        712263.40   4135192.00    19043.18945  (17122917)                712253.00
4135169.00    30695.54025  (14022308)
        712242.70   4135147.00    33431.32621  (17111208)                712232.30
4135124.00    23128.10690  (17062206)
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712221.90 4135101.00 17077.19306 (15051606) 712211.60
4135078.00 11400.49557 (17102406)
712201.30 4135056.00 9400.01433 (14020408) 712190.90
4135033.00 8037.88907 (16012706)
712180.50 4135010.00 6767.84291 (16012706) 712170.10
4134987.00 5759.10558 (16010807)
712169.50 4134986.00 5714.24797 (16010807) 712151.50
4135003.00 6177.29733 (16122006)
712133.50 4135021.00 7220.09396 (13032507) 712115.50
4135038.00 6553.47075 (17121707)
712097.40 4135055.00 5819.33447 (14122217) 712079.40
4135073.00 6023.17667 (16021506)
712061.40 4135090.00 5917.27922 (15122008) 712049.30
4135102.00 5236.58184 (13010806)
712059.80 4135124.00 6254.28830 (13022806) 712070.20
4135147.00 7590.05038 (17022506)
712080.70 4135170.00 10758.82692 (13021306) 712091.10
4135192.00 12751.20297 (15120108)
712101.60 4135215.00 15455.47401 (14022108) 712112.10
4135238.00 15457.01512 (13011909)
712122.50 4135261.00 10916.18835 (17120208) 712132.90
4135283.00 10497.65211 (14121406)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE6 ***
INCLUDING SOURCE(S): LINE6 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	3697.95932	(16120317)	712278.80	4135105.00	3971.33883	(17122917)
712204.20	4135002.00	16481.27121	(17111208)	712074.80	4134973.00	5807.69716	(13032507)
712269.60	4135272.00	2594.06513	(17013107)	711861.50	4135295.00	2984.83270	(13011909)

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        712059.10   4135181.00     6955.44035  (14121406)                712142.50
4135304.00     2844.23388  (17121308)
        712165.10   4135293.00     2904.17559  (15121208)                712187.80
4135283.00     2628.72022  (17013108)
        712210.40   4135272.00     3020.97735  (16020908)                712233.10
4135262.00     3104.58550  (16020908)
        712255.70   4135251.00     2815.90715  (13013117)                712278.30
4135240.00     3562.36353  (13013117)
        712284.10   4135238.00     3593.52868  (13013117)                712273.80
4135215.00     3869.80322  (13013117)
        712263.40   4135192.00     4141.97624  (13013117)                712253.00
4135169.00     4435.71700  (13013117)
        712242.70   4135147.00     4756.19998  (13013117)                712232.30
4135124.00     5102.06065  (13013117)
        712221.90   4135101.00     5393.05740  (13013117)                712211.60
4135078.00     5928.80861  (17122917)
        712201.30   4135056.00     8498.91527  (14022308)                712190.90
4135033.00    12476.36867  (14022308)
        712180.50   4135010.00    25317.87948  (17111208)                712170.10
4134987.00    21011.14334  (17062206)
        712169.50   4134986.00    19499.19411  (17062206)                712151.50
4135003.00    22053.78097  (16111006)
        712133.50   4135021.00    23125.76871  (16111006)                712115.50
4135038.00    22481.36040  (13010708)
        712097.40   4135055.00    25764.21529  (14022108)                712079.40
4135073.00    32008.90727  (13012108)
        712061.40   4135090.00    24150.15489  (15021108)                712049.30
4135102.00    17735.93404  (13011909)
        712059.80   4135124.00    12230.54506  (13010807)                712070.20
4135147.00     9546.91492  (13013006)
        712080.70   4135170.00     7022.20516  (16122908)                712091.10
4135192.00     5348.65631  (14120508)
        712101.60   4135215.00     4815.24731  (16120317)                712112.10
4135238.00     4137.00686  (15011308)
        712122.50   4135261.00     3740.30738  (15011308)                712132.90
4135283.00     3213.52026  (15011308)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE7    ***
                                   INCLUDING SOURCE(S):     LINE7       ,

                                             *** DISCRETE CARTESIAN RECEPTOR POINTS
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** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	5640.90089	(16120317)	712278.80	4135105.00	3272.40423	(14022308)
712204.20	4135002.00	2895.85188	(15051606)	712074.80	4134973.00	6941.60841	(14021508)
712269.60	4135272.00	5641.35942	(13022008)	711861.50	4135295.00	1710.49464	(15021108)
712059.10	4135181.00	5417.13233	(13011909)	712142.50	4135304.00	6836.59704	(15121208)
712165.10	4135293.00	8684.34322	(17013108)	712187.80	4135283.00	9506.89670	(16020908)
712210.40	4135272.00	9447.94271	(13013117)	712233.10	4135262.00	7769.12153	(13013117)
712255.70	4135251.00	5415.35239	(13022008)	712278.30	4135240.00	3964.78645	(17012907)
712284.10	4135238.00	3766.61838	(15111908)	712273.80	4135215.00	3853.93631	(17122917)
712263.40	4135192.00	4032.60198	(17122917)	712253.00	4135169.00	4305.85825	(14022308)
712242.70	4135147.00	4412.89868	(14022308)	712232.30	4135124.00	4395.80484	(14022308)
712221.90	4135101.00	4151.97305	(14022308)	712211.60	4135078.00	3757.86185	(17111208)
712201.30	4135056.00	3723.07355	(17111208)	712190.90	4135033.00	3366.60178	(15051606)
712180.50	4135010.00	3643.09719	(15051606)	712170.10	4134987.00	3672.44255	(15051606)
712169.50	4134986.00	3670.43870	(15051606)	712151.50	4135003.00	4212.63334	(15051606)
712133.50	4135021.00	5313.27784	(14020408)	712115.50	4135038.00	7215.85095	(16012706)
712097.40	4135055.00	13057.18076	(17123008)	712079.40	4135073.00	28309.67066	(14022307)
712061.40	4135090.00	9661.62425	(13013108)	712049.30	4135102.00	6452.96874	(15122008)
712059.80	4135124.00	6661.45484	(13011909)	712070.20	4135147.00	6786.91326	(13011909)
712080.70	4135170.00	6893.59498	(16122908)	712091.10	4135192.00	7057.36835	(16122908)
712101.60	4135215.00	7322.71628	(16120317)	712112.10	4135238.00	7861.20974	(15011308)
712122.50	4135261.00	8059.54656	(15011308)	712132.90	4135283.00	7318.64354	(17121806)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE8 ***
INCLUDING SOURCE(S): LINE8 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	10280.62972	(17120208)	712278.80	4135105.00	7530.59823	(17071706)
712204.20	4135002.00	4341.58621	(14020408)	712074.80	4134973.00	3353.43912	(13032507)
712269.60	4135272.00	7082.32736	(13013117)	711861.50	4135295.00	2656.48022	(14011008)
712059.10	4135181.00	7176.09126	(13021306)	712142.50	4135304.00	6870.78468	(14120508)
712165.10	4135293.00	7448.10195	(15011308)	712187.80	4135283.00	6915.49753	(16020908)
712210.40	4135272.00	7907.84977	(16020908)	712233.10	4135262.00	8951.86689	(13013117)
712255.70	4135251.00	7862.62016	(13022008)	712278.30	4135240.00	6626.84074	(15111908)
712284.10	4135238.00	6756.86594	(17122917)	712273.80	4135215.00	9333.98493	(17122917)
712263.40	4135192.00	14390.36088	(14022308)	712253.00	4135169.00	16793.23244	(15011917)
712242.70	4135147.00	19837.74677	(17111208)	712232.30	4135124.00	13868.47102	(17062206)
712221.90	4135101.00	9925.21348	(15051606)	712211.60	4135078.00	7191.02026	(13011408)
712201.30	4135056.00	5819.35594	(14020408)	712190.90	4135033.00	5118.69679	(14020408)
712180.50	4135010.00	4128.65291	(14121707)	712170.10	4134987.00	3968.34481	(16012706)
712169.50	4134986.00	3958.10900	(16012706)	712151.50	4135003.00	4011.72288	(13022807)

712133.50 4135021.00 4274.97481 (17123008) 712115.50
4135038.00 5038.69647 (13032507)
712097.40 4135055.00 4485.96233 (13032507) 712079.40
4135073.00 4322.23059 (14122217)
712061.40 4135090.00 4396.03323 (17121908) 712049.30
4135102.00 4603.02347 (13013108)
712059.80 4135124.00 5256.55276 (15122008) 712070.20
4135147.00 6082.43768 (13011908)
712080.70 4135170.00 8076.21481 (17022506) 712091.10
4135192.00 13059.03439 (13021306)
712101.60 4135215.00 20778.51435 (17122906) 712112.10
4135238.00 23791.16764 (13011909)
712122.50 4135261.00 11405.02196 (13013006) 712132.90
4135283.00 9544.62779 (16122908)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE9 ***
INCLUDING SOURCE(S): LINE9 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-COORD (M) Y-COORD (M) CONC (YYMMDDHH)
- -
712100.80 4135272.00 7592.05491 (13011909) 712278.80
4135105.00 4763.73269 (14060906)
712204.20 4135002.00 2844.96924 (14020408) 712074.80
4134973.00 2280.02773 (13032507)
712269.60 4135272.00 5594.46878 (13022008) 711861.50
4135295.00 1452.15163 (14011008)
712059.10 4135181.00 4640.28588 (13021306) 712142.50
4135304.00 5359.02759 (16122908)
712165.10 4135293.00 5980.76670 (15011308) 712187.80
4135283.00 5631.71241 (13021307)
712210.40 4135272.00 6772.58735 (16020908) 712233.10
4135262.00 7455.74093 (13013117)
712255.70 4135251.00 6248.97548 (13022008) 712278.30
4135240.00 5217.88811 (17122917)

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        712284.10   4135238.00     5323.57437  (17122917)                712273.80
4135215.00     6703.15487  (17122917)
        712263.40   4135192.00    10024.36871  (14022308)                712253.00
4135169.00     9758.05073  (15011917)
        712242.70   4135147.00     9878.91821  (17111208)                712232.30
4135124.00     7887.79089  (17062206)
        712221.90   4135101.00     6428.33266  (15051606)                712211.60
4135078.00     4717.05047  (13011408)
        712201.30   4135056.00     4083.36511  (14020408)                712190.90
4135033.00     3440.84636  (14020408)
        712180.50   4135010.00     2970.20617  (16012706)                712170.10
4134987.00     2684.02305  (16012706)
        712169.50   4134986.00     2674.06908  (16012706)                712151.50
4135003.00     2888.47535  (14021508)
        712133.50   4135021.00     3089.28156  (14021508)                712115.50
4135038.00     3609.90622  (13032507)
        712097.40   4135055.00     3382.58308  (13032507)                712079.40
4135073.00     3059.65504  (14122217)
        712061.40   4135090.00     3100.17749  (17121908)                712049.30
4135102.00     3177.53920  (13013108)
        712059.80   4135124.00     3694.19809  (15122008)                712070.20
4135147.00     4140.56172  (13011908)
        712080.70   4135170.00     5270.39659  (17022506)                712091.10
4135192.00     7735.79191  (13021306)
        712101.60   4135215.00    10388.51854  (13010708)                712112.10
4135238.00    12219.89564  (13011909)
        712122.50   4135261.00     7810.04771  (13010807)                712132.90
4135283.00     6794.92279  (16122908)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                   PAGE  84
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE10   ***
                                   INCLUDING SOURCE(S):     LINE10      ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - -
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        712100.80   4135272.00     4596.51299  (16120317)                712278.80
4135105.00     2664.42883  (14022308)
        712204.20   4135002.00     2554.73002  (17062206)                712074.80
4134973.00     4082.21489  (14021508)
        712269.60   4135272.00     3733.50583  (13022008)                711861.50
4135295.00     1403.45145  (15021108)
        712059.10   4135181.00     4948.56200  (13011909)                712142.50
4135304.00     4352.95338  (15121208)
        712165.10   4135293.00     4751.61217  (17013108)                712187.80
4135283.00     5214.77907  (16020908)
        712210.40   4135272.00     6312.37161  (13013117)                712233.10
4135262.00     5101.08005  (13013117)
        712255.70   4135251.00     3770.98037  (13022008)                712278.30
4135240.00     2972.91438  (15111908)
        712284.10   4135238.00     2853.35121  (15111908)                712273.80
4135215.00     3145.71897  (17122917)
        712263.40   4135192.00     3378.81227  (17122917)                712253.00
4135169.00     3723.39155  (14022308)
        712242.70   4135147.00     4064.29814  (14022308)                712232.30
4135124.00     3876.47697  (14022308)
        712221.90   4135101.00     3485.71382  (17111208)                712211.60
4135078.00     3498.09169  (17111208)
        712201.30   4135056.00     3153.94145  (17111208)                712190.90
4135033.00     3078.66242  (17062206)
        712180.50   4135010.00     3098.24840  (15051606)                712170.10
4134987.00     3068.69803  (15051606)
        712169.50   4134986.00     3062.24057  (15051606)                712151.50
4135003.00     3488.73198  (15051606)
        712133.50   4135021.00     4144.76049  (13011408)                712115.50
4135038.00     5614.65936  (14020408)
        712097.40   4135055.00     8206.53302  (16012706)                712079.40
4135073.00    16181.99406  (13032507)
        712061.40   4135090.00     7829.60516  (13013108)                712049.30
4135102.00     5510.81621  (13032506)
        712059.80   4135124.00     5410.66950  (16100907)                712070.20
4135147.00     5634.88318  (13011909)
        712080.70   4135170.00     5670.03431  (13011909)                712091.10
4135192.00     6077.14269  (16122908)
        712101.60   4135215.00     6290.56931  (16122908)                712112.10
4135238.00     6245.59454  (13022206)
        712122.50   4135261.00     6037.52765  (15011308)                712132.90
4135283.00     4925.37803  (17121806)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*
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*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE11 ***
INCLUDING SOURCE(S): LINE11 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	2536.22051	(16120317)	712278.80	4135105.00	3130.71257	(17122917)
712204.20	4135002.00	8897.36728	(17111208)	712074.80	4134973.00	5089.72638	(13032507)
712269.60	4135272.00	2188.46460	(13013117)	711861.50	4135295.00	1745.71465	(13011909)
712059.10	4135181.00	4335.34451	(17022406)	712142.50	4135304.00	2062.94176	(17121308)
712165.10	4135293.00	2139.99424	(13021307)	712187.80	4135283.00	2074.31266	(17013108)
712210.40	4135272.00	2363.79628	(16020908)	712233.10	4135262.00	2354.70668	(16020908)
712255.70	4135251.00	2457.74054	(13013117)	712278.30	4135240.00	2931.62018	(13013117)
712284.10	4135238.00	2953.06280	(13013117)	712273.80	4135215.00	3229.07922	(13013117)
712263.40	4135192.00	3474.54031	(13013117)	712253.00	4135169.00	3669.08022	(13013117)
712242.70	4135147.00	3807.41061	(13013117)	712232.30	4135124.00	3944.96868	(13022008)
712221.90	4135101.00	4091.11955	(15021206)	712211.60	4135078.00	4882.88265	(17122917)
712201.30	4135056.00	6042.25018	(14022308)	712190.90	4135033.00	9307.25559	(14022308)
712180.50	4135010.00	12627.61747	(17111208)	712170.10	4134987.00	12587.51146	(17062206)
712169.50	4134986.00	12417.40465	(17062206)	712151.50	4135003.00	17632.87930	(16111006)
712133.50	4135021.00	17833.19302	(16111006)	712115.50	4135038.00	16730.86462	(16111006)
712097.40	4135055.00	19379.92615	(15021108)	712079.40	4135073.00	24888.68180	(15021108)
712061.40	4135090.00	14460.24767	(13011909)	712049.30	4135102.00	10999.70148	(13011909)
712059.80	4135124.00	6865.88290	(13010807)	712070.20	4135147.00	5973.63151	(16122908)

*** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE12   ***
INCLUDING SOURCE(S):   LINE12   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	6092.22469	(13011909)	712278.80	4135105.00	5956.79117	(14060906)
712204.20	4135002.00	3377.50634	(14020408)	712074.80	4134973.00	2313.48652	(17121707)
712269.60	4135272.00	8106.06073	(13013117)	711861.50	4135295.00	1332.12681	(14011008)
712059.10	4135181.00	4696.22362	(13021306)	712142.50	4135304.00	5126.35951	(17121507)
712165.10	4135293.00	6086.18886	(14120508)	712187.80	4135283.00	7080.42951	(15011308)
712210.40	4135272.00	7462.06611	(13021307)	712233.10	4135262.00	8549.07184	(16020908)
712255.70	4135251.00	10125.91853	(13013117)	712278.30	4135240.00	7612.23616	(13022008)
712284.10	4135238.00	6753.61650	(14120617)	712273.80	4135215.00	8013.19136	(15111908)
712263.40	4135192.00	10648.60506	(17122917)	712253.00	4135169.00	15273.73154	(14022308)
712242.70	4135147.00	15612.97002	(17111208)	712232.30	4135124.00	11817.23711	(17062206)
712221.90	4135101.00	9226.22482	(15051606)	712211.60	4135078.00	6815.82327	(14020408)

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        712201.30   4135056.00     5442.76323  (14020408)                712190.90
4135033.00     4658.76629  (16012706)
        712180.50   4135010.00     3850.40288  (16012706)                712170.10
4134987.00     3306.04970  (14021508)
        712169.50   4134986.00     3299.18398  (14021508)                712151.50
4135003.00     3651.62154  (14021508)
        712133.50   4135021.00     4133.92418  (13032507)                712115.50
4135038.00     3929.69769  (17121707)
        712097.40   4135055.00     3449.34905  (14122217)                712079.40
4135073.00     3510.54105  (13013108)
        712061.40   4135090.00     3398.72159  (15122008)                712049.30
4135102.00     2938.92774  (13010806)
        712059.80   4135124.00     3509.52023  (13011908)                712070.20
4135147.00     4179.81419  (17022506)
        712080.70   4135170.00     5773.30847  (13021306)                712091.10
4135192.00     6539.91401  (13012607)
        712101.60   4135215.00     7791.96593  (14022108)                712112.10
4135238.00     8437.72440  (13011909)
        712122.50   4135261.00     6659.98229  (13011909)                712132.90
4135283.00     5849.95914  (14121406)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                       ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE13   ***
                                  INCLUDING SOURCE(S):     LINE13      ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        712100.80   4135272.00     3430.90358  (16122908)                712278.80
4135105.00     3601.72364  (14022308)
        712204.20   4135002.00     3372.54753  (15051606)                712074.80
4134973.00     4593.09847  (13032507)
        712269.60   4135272.00     4942.31492  (13013117)                711861.50
4135295.00     1229.64479  (15021108)
        712059.10   4135181.00     3864.77769  (13011909)                712142.50
4135304.00     3537.02164  (15011308)
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        712165.10   4135293.00     3879.39486  (17121308)                712187.80
4135283.00     4204.13220  (13021307)
        712210.40   4135272.00     4996.33982  (16020908)                712233.10
4135262.00     4635.42679  (13013117)
        712255.70   4135251.00     5704.81050  (13013117)                712278.30
4135240.00     4347.01292  (13022008)
        712284.10   4135238.00     4090.60821  (13022008)                712273.80
4135215.00     3905.08219  (13022008)
        712263.40   4135192.00     3734.81228  (15111908)                712253.00
4135169.00     4186.69149  (17122917)
        712242.70   4135147.00     4484.76585  (14022308)                712232.30
4135124.00     4688.93472  (14022308)
        712221.90   4135101.00     4626.37107  (14022308)                712211.60
4135078.00     4179.12929  (14022308)
        712201.30   4135056.00     4063.57883  (17111208)                712190.90
4135033.00     4016.96716  (15051606)
        712180.50   4135010.00     4242.16577  (15051606)                712170.10
4134987.00     3857.59728  (13011408)
        712169.50   4134986.00     3845.23466  (13011408)                712151.50
4135003.00     5113.23971  (14020408)
        712133.50   4135021.00     7264.76760  (16012706)                712115.50
4135038.00    13698.40864  (13032507)
        712097.40   4135055.00     8935.20033  (13011807)                712079.40
4135073.00     5224.88913  (15122008)
        712061.40   4135090.00     3932.88437  (16100907)                712049.30
4135102.00     3425.85690  (13021707)
        712059.80   4135124.00     3706.29502  (13010708)                712070.20
4135147.00     4208.33983  (13011909)
        712080.70   4135170.00     4461.43799  (13011909)                712091.10
4135192.00     4492.05052  (13011909)
        712101.60   4135215.00     4145.76424  (16122908)                712112.10
4135238.00     4340.50588  (16122908)
        712122.50   4135261.00     3899.05144  (16120317)                712132.90
4135283.00     3865.51042  (16120317)
 *** AERMOD - VERSION  18081 ***   ***  BEI
                          ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                         ***        16:45:09

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  LINE14   ***
                                    INCLUDING SOURCE(S):     LINE14      ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	2587.78232	(16120317)	712278.80	4135105.00	4185.92592	(15111908)
712204.20	4135002.00	12329.74959	(17111208)	712074.80	4134973.00	6515.93618	(17121908)
712269.60	4135272.00	2298.58194	(16020908)	711861.50	4135295.00	1631.47441	(13011909)
712059.10	4135181.00	4060.41571	(14121406)	712142.50	4135304.00	2291.17393	(15011308)
712165.10	4135293.00	2317.49192	(17121308)	712187.80	4135283.00	2436.51615	(13021307)
712210.40	4135272.00	2474.83118	(17013108)	712233.10	4135262.00	2709.36352	(16020908)
712255.70	4135251.00	2634.45285	(16020908)	712278.30	4135240.00	2870.13596	(13013117)
712284.10	4135238.00	3111.67179	(13013117)	712273.80	4135215.00	3755.35014	(13013117)
712263.40	4135192.00	4495.96665	(13013117)	712253.00	4135169.00	5301.42322	(13013117)
712242.70	4135147.00	6067.55414	(13013117)	712232.30	4135124.00	6642.35007	(13013117)
712221.90	4135101.00	7319.33495	(13022008)	712211.60	4135078.00	7774.61082	(15021206)
712201.30	4135056.00	10411.16618	(17122917)	712190.90	4135033.00	16335.10657	(14022308)
712180.50	4135010.00	19815.47040	(17111208)	712170.10	4134987.00	13458.70678	(17062206)
712169.50	4134986.00	12979.30865	(17062206)	712151.50	4135003.00	20215.99744	(16111006)
712133.50	4135021.00	18931.99240	(17102406)	712115.50	4135038.00	29000.43371	(16100907)
712097.40	4135055.00	18969.08292	(14022108)	712079.40	4135073.00	12250.33870	(13011909)
712061.40	4135090.00	9004.27585	(13011909)	712049.30	4135102.00	7546.15261	(13011909)
712059.80	4135124.00	6349.81711	(13011909)	712070.20	4135147.00	5055.89461	(14121406)
712080.70	4135170.00	4649.89919	(17022406)	712091.10	4135192.00	4021.71147	(17121507)
712101.60	4135215.00	3593.09282	(14120508)	712112.10	4135238.00	3218.31421	(16120317)
712122.50	4135261.00	2767.58003	(16120317)	712132.90	4135283.00	2547.71561	(15011308)

*** AERMET - VERSION 18081 *** *** V3
*** 16:45:09

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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: LINE15 ***
INCLUDING SOURCE(S): LINE15 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

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

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-COORD (M)
Y-COORD (M) CONC (YYMMDDHH)
- -
- -
712100.80 4135272.00 2327.00400 (13011606) 712278.80
4135105.00 6232.08878 (13022008)
712204.20 4135002.00 22711.54316 (17111208) 712074.80
4134973.00 4936.19233 (13010806)
712269.60 4135272.00 2428.93858 (16020908) 711861.50
4135295.00 1435.80724 (13011909)
712059.10 4135181.00 2768.53933 (13010807) 712142.50
4135304.00 2200.96549 (16120317)
712165.10 4135293.00 2323.24334 (15011308) 712187.80
4135283.00 2452.71301 (17121308)
712210.40 4135272.00 2493.90506 (15121208) 712233.10
4135262.00 2497.64649 (17013108)
712255.70 4135251.00 2638.47672 (16020908) 712278.30
4135240.00 2894.58558 (16020908)
712284.10 4135238.00 2818.38401 (16020908) 712273.80
4135215.00 3208.02321 (16020908)
712263.40 4135192.00 3704.36790 (16020908) 712253.00
4135169.00 4334.48113 (16020908)
712242.70 4135147.00 5150.76560 (16020908) 712232.30
4135124.00 6385.39430 (17013107)
712221.90 4135101.00 8811.85486 (13013117) 712211.60
4135078.00 13310.47163 (13013117)
712201.30 4135056.00 19518.81085 (13013117) 712190.90
4135033.00 28392.79608 (16090606)
712180.50 4135010.00 44498.06928 (16111006) 712170.10
4134987.00 19455.24549 (17092906)
712169.50 4134986.00 19010.12607 (17092906) 712151.50
4135003.00 24909.63539 (13011807)
712133.50 4135021.00 19821.94260 (13021306) 712115.50
4135038.00 13110.08950 (13010708)

712097.40 4135055.00 9736.77680 (14022108) 712079.40
4135073.00 6963.83332 (14022108)
712061.40 4135090.00 5176.84823 (15021108) 712049.30
4135102.00 4541.53896 (15021108)
712059.80 4135124.00 5361.04590 (13011909) 712070.20
4135147.00 3976.78857 (13011909)
712080.70 4135170.00 3442.70108 (15123008) 712091.10
4135192.00 3619.08344 (14121406)
712101.60 4135215.00 3179.33052 (17121507) 712112.10
4135238.00 2793.17209 (14120508)
712122.50 4135261.00 2644.91725 (14120508) 712132.90
4135283.00 2355.79335 (16120317)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: LINE16 ***
INCLUDING SOURCE(S): LINE16 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
712100.80	4135272.00	4711.59652	(13011909)	712278.80	4135105.00	9634.76218	(14060906)
712204.20	4135002.00	4009.12470	(14021508)	712074.80	4134973.00	1829.57578	(14122217)
712269.60	4135272.00	6377.31214	(16020908)	711861.50	4135295.00	1147.45911	(14011008)
712059.10	4135181.00	3409.10066	(13012607)	712142.50	4135304.00	3845.45961	(14121406)
712165.10	4135293.00	4842.12083	(14121406)	712187.80	4135283.00	5451.74363	(17121507)
712210.40	4135272.00	6460.93484	(16120317)	712233.10	4135262.00	6749.22614	(15011308)
712255.70	4135251.00	7680.69927	(16020908)	712278.30	4135240.00	8663.54297	(13013117)
712284.10	4135238.00	9398.34639	(13013117)	712273.80	4135215.00	12062.66533	(13013117)

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

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

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
POINT1	1ST HIGHEST VALUE IS	0.00018 AT (712221.90, 4135101.00, 44.20, 44.20, 0.00)	DC	

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          2ND HIGHEST VALUE IS       0.00017 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00014 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00013 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00013 AT (  712080.70,  4135170.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00011 AT (  712091.10,  4135192.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00010 AT (  712059.10,  4135181.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00009 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS       0.00009 AT (  712242.70,  4135147.00,    44.39,
   44.39,    0.00)  DC
         10TH HIGHEST VALUE IS       0.00009 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC

AREA1     1ST HIGHEST VALUE IS       5.24028 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          2ND HIGHEST VALUE IS       4.01387 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          3RD HIGHEST VALUE IS       3.54149 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          4TH HIGHEST VALUE IS       2.31038 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC
          5TH HIGHEST VALUE IS       1.83935 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          6TH HIGHEST VALUE IS       1.48432 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       1.47945 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       1.42447 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS       1.09221 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS       0.92709 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC

AREA2     1ST HIGHEST VALUE IS      11.55367 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          2ND HIGHEST VALUE IS      10.35952 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          3RD HIGHEST VALUE IS       6.52123 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          4TH HIGHEST VALUE IS       5.34997 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          5TH HIGHEST VALUE IS       4.44774 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC
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          6TH HIGHEST VALUE IS       2.87700 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       2.83771 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       2.57659 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS       2.47270 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS       2.32818 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC

AREA3     1ST HIGHEST VALUE IS      62.34109 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          2ND HIGHEST VALUE IS      54.27083 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          3RD HIGHEST VALUE IS      36.44636 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          4TH HIGHEST VALUE IS      29.82238 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC
          5TH HIGHEST VALUE IS      23.72236 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS      23.61818 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS      22.67397 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS      15.93359 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          9TH HIGHEST VALUE IS      14.46854 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS      13.58935 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
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                                      *** THE SUMMARY OF MAXIMUM PERIOD ( 43824
HRS) RESULTS ***


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


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

AREA4     1ST HIGHEST VALUE IS      74.55067 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          2ND HIGHEST VALUE IS      67.05004 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          3RD HIGHEST VALUE IS      62.63070 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          4TH HIGHEST VALUE IS      47.20151 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          5TH HIGHEST VALUE IS      40.75209 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          6TH HIGHEST VALUE IS      34.56467 AT (  712080.70,  4135170.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS      32.79066 AT (  712091.10,  4135192.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS      30.30863 AT (  712242.70,  4135147.00,    44.39,
   44.39,    0.00)  DC
          9TH HIGHEST VALUE IS      27.00422 AT (  712070.20,  4135147.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS      24.21523 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC

VOLUME1   1ST HIGHEST VALUE IS       0.67089 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          2ND HIGHEST VALUE IS       0.66477 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          3RD HIGHEST VALUE IS       0.50347 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          4TH HIGHEST VALUE IS       0.50146 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          5TH HIGHEST VALUE IS       0.47741 AT (  712080.70,  4135170.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS       0.44258 AT (  712070.20,  4135147.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       0.36553 AT (  712091.10,  4135192.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       0.35371 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          9TH HIGHEST VALUE IS       0.32045 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
         10TH HIGHEST VALUE IS       0.30026 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC

VOLUME2   1ST HIGHEST VALUE IS       0.12861 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          2ND HIGHEST VALUE IS       0.12262 AT (  712242.70,  4135147.00,    44.39,
   44.39,    0.00)  DC
          3RD HIGHEST VALUE IS       0.11161 AT (  712221.90,  4135101.00,    44.20,
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   44.20,    0.00)  DC
          4TH HIGHEST VALUE IS       0.10459 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
          5TH HIGHEST VALUE IS       0.09896 AT (  712253.00,  4135169.00,    44.49,
   44.49,    0.00)  DC
          6TH HIGHEST VALUE IS       0.08498 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          7TH HIGHEST VALUE IS       0.07393 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC
          8TH HIGHEST VALUE IS       0.06144 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          9TH HIGHEST VALUE IS       0.05815 AT (  712273.80,  4135215.00,    44.50,
   44.50,    0.00)  DC
         10TH HIGHEST VALUE IS       0.04931 AT (  712278.30,  4135240.00,    44.50,
   44.50,    0.00)  DC

VOLUME3   1ST HIGHEST VALUE IS      18.59958 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
          2ND HIGHEST VALUE IS       8.85511 AT (  712112.10,  4135238.00,    43.89,
   43.89,    0.00)  DC
          3RD HIGHEST VALUE IS       8.17281 AT (  712091.10,  4135192.00,    43.89,
   43.89,    0.00)  DC
          4TH HIGHEST VALUE IS       3.77561 AT (  712122.50,  4135261.00,    43.89,
   43.89,    0.00)  DC
          5TH HIGHEST VALUE IS       3.53892 AT (  712080.70,  4135170.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS       3.14759 AT (  712100.80,  4135272.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       2.54948 AT (  712059.10,  4135181.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       2.40251 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          9TH HIGHEST VALUE IS       2.31255 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
         10TH HIGHEST VALUE IS       2.18096 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
↟ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***       03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                      ***       16:45:09

                                  PAGE  93
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                       *** THE SUMMARY OF MAXIMUM PERIOD ( 43824
HRS) RESULTS ***


                                    ** CONC OF OTHER    IN MICROGRAMS/M**3
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                         NETWORK
GROUP ID                        AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -

VOLUME4   1ST HIGHEST VALUE IS       0.06735 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          2ND HIGHEST VALUE IS       0.05033 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          3RD HIGHEST VALUE IS       0.03816 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          4TH HIGHEST VALUE IS       0.02926 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC
          5TH HIGHEST VALUE IS       0.02683 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          6TH HIGHEST VALUE IS       0.01709 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       0.01696 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       0.01650 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS       0.01590 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS       0.01462 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC

VOLUME5   1ST HIGHEST VALUE IS       0.00764 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00501 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00434 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00428 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00399 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00385 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00343 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00231 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS       0.00203 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
         10TH HIGHEST VALUE IS       0.00153 AT (  712079.40,  4135073.00,    43.89,
   43.89,    0.00)  DC
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LINE1     1ST HIGHEST VALUE IS    1829.45085 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          2ND HIGHEST VALUE IS     652.82767 AT (  712204.20,  4135002.00,    44.00,
   44.00,    0.00)  DC
          3RD HIGHEST VALUE IS     610.40182 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          4TH HIGHEST VALUE IS     240.10155 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          5TH HIGHEST VALUE IS     222.96152 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS     143.73386 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS     143.50149 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          8TH HIGHEST VALUE IS     142.63116 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS     127.80100 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS      84.01695 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC

LINE2     1ST HIGHEST VALUE IS    2434.19845 AT (  712242.70,  4135147.00,    44.39,
   44.39,    0.00)  DC
          2ND HIGHEST VALUE IS     488.26427 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          3RD HIGHEST VALUE IS     311.61072 AT (  712253.00,  4135169.00,    44.49,
   44.49,    0.00)  DC
          4TH HIGHEST VALUE IS     220.51922 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
          5TH HIGHEST VALUE IS     126.40095 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          6TH HIGHEST VALUE IS     104.48317 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC
          7TH HIGHEST VALUE IS      52.18834 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          8TH HIGHEST VALUE IS      49.79428 AT (  712273.80,  4135215.00,    44.50,
   44.50,    0.00)  DC
          9TH HIGHEST VALUE IS      35.06945 AT (  712112.10,  4135238.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS      34.96839 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
*** AERMOD - VERSION  18081 ***   ***  BEI
                        ***       03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09

                                  PAGE  94
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                       *** THE SUMMARY OF MAXIMUM PERIOD ( 43824
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HRS) RESULTS ***

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

GROUP ID	NETWORK	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
LINE3	1ST HIGHEST VALUE IS	678.04415 AT (712133.50, 4135021.00, 43.89, 43.89, 0.00)	DC		
	2ND HIGHEST VALUE IS	571.85204 AT (712151.50, 4135003.00, 43.89, 43.89, 0.00)	DC		
	3RD HIGHEST VALUE IS	476.94934 AT (712180.50, 4135010.00, 43.92, 43.92, 0.00)	DC		
	4TH HIGHEST VALUE IS	449.40113 AT (712115.50, 4135038.00, 43.89, 43.89, 0.00)	DC		
	5TH HIGHEST VALUE IS	374.25577 AT (712170.10, 4134987.00, 43.89, 43.89, 0.00)	DC		
	6TH HIGHEST VALUE IS	360.48863 AT (712169.50, 4134986.00, 43.89, 43.89, 0.00)	DC		
	7TH HIGHEST VALUE IS	273.26239 AT (712097.40, 4135055.00, 43.89, 43.89, 0.00)	DC		
	8TH HIGHEST VALUE IS	200.98751 AT (712190.90, 4135033.00, 44.15, 44.15, 0.00)	DC		
	9TH HIGHEST VALUE IS	181.36843 AT (712204.20, 4135002.00, 44.00, 44.00, 0.00)	DC		
	10TH HIGHEST VALUE IS	125.28467 AT (712079.40, 4135073.00, 43.89, 43.89, 0.00)	DC		
LINE4	1ST HIGHEST VALUE IS	132.99320 AT (712201.30, 4135056.00, 44.20, 44.20, 0.00)	DC		
	2ND HIGHEST VALUE IS	129.93870 AT (712211.60, 4135078.00, 44.20, 44.20, 0.00)	DC		
	3RD HIGHEST VALUE IS	129.10292 AT (712133.50, 4135021.00, 43.89, 43.89, 0.00)	DC		
	4TH HIGHEST VALUE IS	124.26647 AT (712190.90, 4135033.00, 44.15, 44.15, 0.00)	DC		
	5TH HIGHEST VALUE IS	113.19512 AT (712221.90, 4135101.00, 44.20, 44.20, 0.00)	DC		
	6TH HIGHEST VALUE IS	101.88731 AT (712180.50, 4135010.00, 43.92, 43.92, 0.00)	DC		
	7TH HIGHEST VALUE IS	92.75816 AT (712115.50, 4135038.00, 43.89, 43.89, 0.00)	DC		
	8TH HIGHEST VALUE IS	89.46321 AT (712151.50, 4135003.00, 43.89, 43.89, 0.00)	DC		

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          9TH HIGHEST VALUE IS      83.28175 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
         10TH HIGHEST VALUE IS      78.61588 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC

LINE5     1ST HIGHEST VALUE IS     310.20195 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          2ND HIGHEST VALUE IS     266.56300 AT (  712242.70,  4135147.00,    44.39,
   44.39,    0.00)  DC
          3RD HIGHEST VALUE IS     172.45534 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          4TH HIGHEST VALUE IS     139.98777 AT (  712253.00,  4135169.00,    44.49,
   44.49,    0.00)  DC
          5TH HIGHEST VALUE IS      95.73902 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
          6TH HIGHEST VALUE IS      82.68320 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC
          7TH HIGHEST VALUE IS      76.09585 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          8TH HIGHEST VALUE IS      62.97538 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS      59.66160 AT (  712112.10,  4135238.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS      46.84821 AT (  712273.80,  4135215.00,    44.50,
   44.50,    0.00)  DC

LINE6     1ST HIGHEST VALUE IS     825.07457 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
          2ND HIGHEST VALUE IS     764.77567 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
          3RD HIGHEST VALUE IS     731.11446 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC
          4TH HIGHEST VALUE IS     573.22688 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          5TH HIGHEST VALUE IS     378.43670 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS     378.37036 AT (  712079.40,  4135073.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS     364.17734 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS     312.85324 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          9TH HIGHEST VALUE IS     142.74739 AT (  712061.40,  4135090.00,    43.87,
   43.87,    0.00)  DC
         10TH HIGHEST VALUE IS     133.25096 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
 *** AERMOD - VERSION  18081 ***   ***  BEI
                        ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

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

GROUP ID	NETWORK	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
LINE7	1ST HIGHEST VALUE IS	158.75659	AT (712097.40, 4135055.00, 43.89, 43.89, 0.00)	DC	
	2ND HIGHEST VALUE IS	120.85229	AT (712080.70, 4135170.00, 43.89, 43.89, 0.00)	DC	
	3RD HIGHEST VALUE IS	118.59096	AT (712070.20, 4135147.00, 43.89, 43.89, 0.00)	DC	
	4TH HIGHEST VALUE IS	115.38654	AT (712091.10, 4135192.00, 43.89, 43.89, 0.00)	DC	
	5TH HIGHEST VALUE IS	108.59864	AT (712115.50, 4135038.00, 43.89, 43.89, 0.00)	DC	
	6TH HIGHEST VALUE IS	104.61658	AT (712059.80, 4135124.00, 43.89, 43.89, 0.00)	DC	
	7TH HIGHEST VALUE IS	97.22598	AT (712079.40, 4135073.00, 43.89, 43.89, 0.00)	DC	
	8TH HIGHEST VALUE IS	90.09737	AT (712061.40, 4135090.00, 43.87, 43.87, 0.00)	DC	
	9TH HIGHEST VALUE IS	88.61028	AT (712101.60, 4135215.00, 43.89, 43.89, 0.00)	DC	
	10TH HIGHEST VALUE IS	76.46636	AT (712133.50, 4135021.00, 43.89, 43.89, 0.00)	DC	
LINE8	1ST HIGHEST VALUE IS	183.17487	AT (712232.30, 4135124.00, 44.28, 44.28, 0.00)	DC	
	2ND HIGHEST VALUE IS	172.96228	AT (712242.70, 4135147.00, 44.39, 44.39, 0.00)	DC	
	3RD HIGHEST VALUE IS	119.93618	AT (712221.90, 4135101.00, 44.20, 44.20, 0.00)	DC	
	4TH HIGHEST VALUE IS	116.92225	AT (712101.60, 4135215.00, 43.89, 43.89, 0.00)	DC	
	5TH HIGHEST VALUE IS	115.65238	AT (712112.10, 4135238.00, 43.89, 43.89, 0.00)	DC	
	6TH HIGHEST VALUE IS	100.91791	AT (712253.00, 4135169.00, 44.49,		

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   44.49,    0.00)  DC
          7TH HIGHEST VALUE IS      68.92261 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
          8TH HIGHEST VALUE IS      66.80923 AT (  712122.50,  4135261.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS      66.70392 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
         10TH HIGHEST VALUE IS      66.61738 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC

LINE9     1ST HIGHEST VALUE IS     169.03285 AT (  712242.70,  4135147.00,    44.39,
   44.39,    0.00)  DC
          2ND HIGHEST VALUE IS     153.76247 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
          3RD HIGHEST VALUE IS     113.12374 AT (  712253.00,  4135169.00,    44.49,
   44.49,    0.00)  DC
          4TH HIGHEST VALUE IS     102.93785 AT (  712112.10,  4135238.00,    43.89,
   43.89,    0.00)  DC
          5TH HIGHEST VALUE IS     100.13771 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          6TH HIGHEST VALUE IS      91.26220 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS      69.20474 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC
          8TH HIGHEST VALUE IS      66.69212 AT (  712122.50,  4135261.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS      65.27224 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
         10TH HIGHEST VALUE IS      59.51249 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC

LINE10    1ST HIGHEST VALUE IS     127.90528 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC
          2ND HIGHEST VALUE IS     113.73750 AT (  712080.70,  4135170.00,    43.89,
   43.89,    0.00)  DC
          3RD HIGHEST VALUE IS     110.62775 AT (  712070.20,  4135147.00,    43.89,
   43.89,    0.00)  DC
          4TH HIGHEST VALUE IS     109.64124 AT (  712091.10,  4135192.00,    43.89,
   43.89,    0.00)  DC
          5TH HIGHEST VALUE IS      96.40660 AT (  712059.80,  4135124.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS      93.81879 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS      87.74566 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
          8TH HIGHEST VALUE IS      82.15346 AT (  712079.40,  4135073.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS      74.78163 AT (  712061.40,  4135090.00,    43.87,
   43.87,    0.00)  DC
         10TH HIGHEST VALUE IS      71.27196 AT (  712059.10,  4135181.00,    43.89,
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*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

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

GROUP ID	NETWORK	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
LINE11	1ST HIGHEST VALUE IS	871.42013	AT (712115.50, 4135038.00, 43.89, 43.89, 0.00)	DC	
	2ND HIGHEST VALUE IS	834.85601	AT (712097.40, 4135055.00, 43.89, 43.89, 0.00)	DC	
	3RD HIGHEST VALUE IS	802.51155	AT (712133.50, 4135021.00, 43.89, 43.89, 0.00)	DC	
	4TH HIGHEST VALUE IS	583.53297	AT (712151.50, 4135003.00, 43.89, 43.89, 0.00)	DC	
	5TH HIGHEST VALUE IS	422.47153	AT (712079.40, 4135073.00, 43.89, 43.89, 0.00)	DC	
	6TH HIGHEST VALUE IS	309.68677	AT (712170.10, 4134987.00, 43.89, 43.89, 0.00)	DC	
	7TH HIGHEST VALUE IS	304.46039	AT (712169.50, 4134986.00, 43.89, 43.89, 0.00)	DC	
	8TH HIGHEST VALUE IS	217.41512	AT (712180.50, 4135010.00, 43.92, 43.92, 0.00)	DC	
	9TH HIGHEST VALUE IS	128.02392	AT (712061.40, 4135090.00, 43.87, 43.87, 0.00)	DC	
	10TH HIGHEST VALUE IS	109.02702	AT (712204.20, 4135002.00, 44.00, 44.00, 0.00)	DC	
LINE12	1ST HIGHEST VALUE IS	257.84371	AT (712232.30, 4135124.00, 44.28, 44.28, 0.00)	DC	
	2ND HIGHEST VALUE IS	252.88463	AT (712242.70, 4135147.00, 44.39, 44.39, 0.00)	DC	
	3RD HIGHEST VALUE IS	148.61722	AT (712221.90, 4135101.00, 44.20, 44.20, 0.00)	DC	

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          4TH HIGHEST VALUE IS     140.53836 AT (  712253.00,  4135169.00,    44.49,
   44.49,    0.00)  DC
          5TH HIGHEST VALUE IS      89.56441 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
          6TH HIGHEST VALUE IS      80.14342 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC
          7TH HIGHEST VALUE IS      73.76498 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          8TH HIGHEST VALUE IS      56.62951 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS      53.98477 AT (  712112.10,  4135238.00,    43.89,
   43.89,    0.00)  DC
         10TH HIGHEST VALUE IS      46.79874 AT (  712273.80,  4135215.00,    44.50,
   44.50,    0.00)  DC

LINE13    1ST HIGHEST VALUE IS     114.12316 AT (  712201.30,  4135056.00,    44.20,
   44.20,    0.00)  DC
          2ND HIGHEST VALUE IS     112.30740 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
          3RD HIGHEST VALUE IS     110.81494 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
          4TH HIGHEST VALUE IS     106.90121 AT (  712190.90,  4135033.00,    44.15,
   44.15,    0.00)  DC
          5TH HIGHEST VALUE IS      97.39870 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
          6TH HIGHEST VALUE IS      96.00596 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS      87.89765 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          8TH HIGHEST VALUE IS      80.01131 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          9TH HIGHEST VALUE IS      74.51024 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
         10TH HIGHEST VALUE IS      67.97188 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC

LINE14    1ST HIGHEST VALUE IS     703.01398 AT (  712133.50,  4135021.00,    43.89,
   43.89,    0.00)  DC
          2ND HIGHEST VALUE IS     576.43161 AT (  712151.50,  4135003.00,    43.89,
   43.89,    0.00)  DC
          3RD HIGHEST VALUE IS     457.68130 AT (  712115.50,  4135038.00,    43.89,
   43.89,    0.00)  DC
          4TH HIGHEST VALUE IS     366.72009 AT (  712180.50,  4135010.00,    43.92,
   43.92,    0.00)  DC
          5TH HIGHEST VALUE IS     348.17747 AT (  712170.10,  4134987.00,    43.89,
   43.89,    0.00)  DC
          6TH HIGHEST VALUE IS     338.81233 AT (  712169.50,  4134986.00,    43.89,
   43.89,    0.00)  DC
          7TH HIGHEST VALUE IS     231.72260 AT (  712097.40,  4135055.00,    43.89,
   43.89,    0.00)  DC
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*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

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

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
LINE15	1ST HIGHEST VALUE IS	1787.29712 AT (712180.50, 4135010.00, 43.92, 43.92, 0.00)	DC	
	2ND HIGHEST VALUE IS	502.07702 AT (712204.20, 4135002.00, 44.00, 44.00, 0.00)	DC	
	3RD HIGHEST VALUE IS	330.59518 AT (712190.90, 4135033.00, 44.15, 44.15, 0.00)	DC	
	4TH HIGHEST VALUE IS	285.44378 AT (712170.10, 4134987.00, 43.89, 43.89, 0.00)	DC	
	5TH HIGHEST VALUE IS	264.85038 AT (712169.50, 4134986.00, 43.89, 43.89, 0.00)	DC	
	6TH HIGHEST VALUE IS	162.85115 AT (712133.50, 4135021.00, 43.89, 43.89, 0.00)	DC	
	7TH HIGHEST VALUE IS	148.39056 AT (712151.50, 4135003.00, 43.89, 43.89, 0.00)	DC	
	8TH HIGHEST VALUE IS	124.22155 AT (712115.50, 4135038.00, 43.89, 43.89, 0.00)	DC	
	9TH HIGHEST VALUE IS	104.51931 AT (712201.30, 4135056.00, 44.20, 44.20, 0.00)	DC	
	10TH HIGHEST VALUE IS	77.99583 AT (712097.40, 4135055.00, 43.89, 43.89, 0.00)	DC	
LINE16	1ST HIGHEST VALUE IS	1444.30201 AT (712242.70, 4135147.00, 44.39,		

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   44.39,    0.00)  DC
         2ND HIGHEST VALUE IS     346.53402 AT (  712232.30,  4135124.00,    44.28,
   44.28,    0.00)  DC
         3RD HIGHEST VALUE IS     291.71861 AT (  712253.00,  4135169.00,    44.49,
   44.49,    0.00)  DC
         4TH HIGHEST VALUE IS     189.76607 AT (  712278.80,  4135105.00,    44.50,
   44.50,    0.00)  DC
         5TH HIGHEST VALUE IS     108.48121 AT (  712221.90,  4135101.00,    44.20,
   44.20,    0.00)  DC
         6TH HIGHEST VALUE IS     103.36812 AT (  712263.40,  4135192.00,    44.50,
   44.50,    0.00)  DC
         7TH HIGHEST VALUE IS      50.11942 AT (  712273.80,  4135215.00,    44.50,
   44.50,    0.00)  DC
         8TH HIGHEST VALUE IS      48.26872 AT (  712211.60,  4135078.00,    44.20,
   44.20,    0.00)  DC
         9TH HIGHEST VALUE IS      32.29223 AT (  712101.60,  4135215.00,    43.89,
   43.89,    0.00)  DC
        10TH HIGHEST VALUE IS      32.13303 AT (  712112.10,  4135238.00,    43.89,
   43.89,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***        03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***        16:45:09

                                  PAGE  98
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                                ***  THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


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

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

POINT1   HIGH   1ST HIGH VALUE IS       0.00882  ON 14100307: AT (  712080.70,
4135170.00,    43.89,    43.89,    0.00)  DC
```

AREA1 HIGH 1ST HIGH VALUE IS 163.13915 ON 13032507: AT (712133.50,
4135021.00, 43.89, 43.89, 0.00) DC

AREA2 HIGH 1ST HIGH VALUE IS 489.00464 ON 14022308: AT (712211.60,
4135078.00, 44.20, 44.20, 0.00) DC

AREA3 HIGH 1ST HIGH VALUE IS 2372.01771 ON 13011807: AT (712133.50,
4135021.00, 43.89, 43.89, 0.00) DC

AREA4 HIGH 1ST HIGH VALUE IS 4214.92023 ON 14022308: AT (712232.30,
4135124.00, 44.28, 44.28, 0.00) DC

VOLUME1 HIGH 1ST HIGH VALUE IS 32.60310 ON 17121907: AT (712070.20,
4135147.00, 43.89, 43.89, 0.00) DC

VOLUME2 HIGH 1ST HIGH VALUE IS 5.63839 ON 16102308: AT (712165.10,
4135293.00, 44.20, 44.20, 0.00) DC

VOLUME3 HIGH 1ST HIGH VALUE IS 611.72831 ON 15021209: AT (712101.60,
4135215.00, 43.89, 43.89, 0.00) DC

VOLUME4 HIGH 1ST HIGH VALUE IS 1.72356 ON 15030308: AT (712201.30,
4135056.00, 44.20, 44.20, 0.00) DC

VOLUME5 HIGH 1ST HIGH VALUE IS 0.13105 ON 16010807: AT (712151.50,
4135003.00, 43.89, 43.89, 0.00) DC

LINE1 HIGH 1ST HIGH VALUE IS 69966.40354 ON 16111006: AT (712180.50,
4135010.00, 43.92, 43.92, 0.00) DC

LINE2 HIGH 1ST HIGH VALUE IS 100236.73032 ON 17111208: AT (712242.70,
4135147.00, 44.39, 44.39, 0.00) DC

LINE3 HIGH 1ST HIGH VALUE IS 40082.18460 ON 14022108: AT (712097.40,
4135055.00, 43.89, 43.89, 0.00) DC

LINE4 HIGH 1ST HIGH VALUE IS 32674.84893 ON 13032507: AT (712115.50,
4135038.00, 43.89, 43.89, 0.00) DC

LINE5 HIGH 1ST HIGH VALUE IS 33431.32621 ON 17111208: AT (712242.70,
4135147.00, 44.39, 44.39, 0.00) DC

LINE6 HIGH 1ST HIGH VALUE IS 32008.90727 ON 13012108: AT (712079.40,
4135073.00, 43.89, 43.89, 0.00) DC

LINE7 HIGH 1ST HIGH VALUE IS 28309.67066 ON 14022307: AT (712079.40,
4135073.00, 43.89, 43.89, 0.00) DC

LINE8 HIGH 1ST HIGH VALUE IS 23791.16764 ON 13011909: AT (712112.10,
4135238.00, 43.89, 43.89, 0.00) DC

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LINE9    HIGH   1ST HIGH VALUE IS   12219.89564  ON 13011909: AT (  712112.10,
4135238.00,    43.89,    43.89,    0.00)  DC

LINE10   HIGH   1ST HIGH VALUE IS   16181.99406  ON 13032507: AT (  712079.40,
4135073.00,    43.89,    43.89,    0.00)  DC

LINE11   HIGH   1ST HIGH VALUE IS   24888.68180  ON 15021108: AT (  712079.40,
4135073.00,    43.89,    43.89,    0.00)  DC

LINE12   HIGH   1ST HIGH VALUE IS   15612.97002  ON 17111208: AT (  712242.70,
4135147.00,    44.39,    44.39,    0.00)  DC

LINE13   HIGH   1ST HIGH VALUE IS   13698.40864  ON 13032507: AT (  712115.50,
4135038.00,    43.89,    43.89,    0.00)  DC

LINE14   HIGH   1ST HIGH VALUE IS   29000.43371  ON 16100907: AT (  712115.50,
4135038.00,    43.89,    43.89,    0.00)  DC

LINE15   HIGH   1ST HIGH VALUE IS   44498.06928  ON 16111006: AT (  712180.50,
4135010.00,    43.92,    43.92,    0.00)  DC
↑ *** AERMOD - VERSION  18081 ***   ***  BEI
                         ***       03/07/20
 *** AERMET - VERSION  18081 ***   ***  V3
                       ***       16:45:09

                                 PAGE  99
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                               *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


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

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

LINE16   HIGH   1ST HIGH VALUE IS   36054.83579  ON 14060906: AT (  712242.70,
4135147.00,    44.39,    44.39,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
```

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

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

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

 A Total of   0 Fatal Error Message(s)
 A Total of   10 Warning Message(s)
 A Total of   2578 Informational Message(s)

 A Total of   43824 Hours Were Processed

 A Total of   1693 Calm Hours Identified

 A Total of   885 Missing Hours Identified (2.02 Percent)

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

    ********   WARNING MESSAGES   ********
 ME W186   1051   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
 ME W187   1051   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 OU W565   1127   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1128   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1129   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1130   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1131   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1132   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1133   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE
 OU W565   1134   OUPOST: Possible Conflict With Dynamically Allocated FUNIT
 POSTFILE

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

HARP2 - HRACalc (dated 19044) 3/9/2020 11:47:27 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 40

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 40

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\hra\BEI4CanChrAcuCancerRisk.csv
Cancer risk total by receptor saved to:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\hra\BEI4CanChrAcuCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\hra\BEI4CanChrAcuNCChronicRisk.csv
Chronic risk total by receptor saved to:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\hra\BEI4CanChrAcuNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\hra\BEI4CanChrAcuNCAcuteRisk.csv
Acute risk total by receptor saved to:
C:\Users\jellard\Desktop\BEIBATCH\BEIBATCH\hra\BEI4CanChrAcuNCAcuteRiskSumByRec.csv
HRA ran successfully

**HARP - Air Dispersion Modeling and Risk Tool v19121
**3/10/2020
**Exported Risk Results

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INHAL_RISK	SOIL_RISK	DERMAL_RISK
1	SENSITIV	W1	712100.8	4135272	6.95E-07	40YrCancerDerived	3.34E-07	2.61E-07	9.98E-08
2	SENSITIV	W2	712278.8	4135105	1.40E-06	40YrCancerDerived	6.49E-07	5.40E-07	2.07E-07
3	SENSITIV	W3	712204.2	4135002	2.56E-06	40YrCancerDerived	1.39E-06	8.49E-07	3.26E-07
4	SENSITIV	W4	712074.8	4134973	3.25E-07	40YrCancerDerived	1.69E-07	1.13E-07	4.33E-08
5	SENSITIV	W5	712269.6	4135272	3.65E-07	40YrCancerDerived	1.71E-07	1.40E-07	5.36E-08
6	SENSITIV	W6	711861.5	4135295	2.24E-07	40YrCancerDerived	1.06E-07	8.56E-08	3.28E-08
7	SENSITIV	W7	712059.1	4135181	1.56E-06	40YrCancerDerived	7.09E-07	6.14E-07	2.36E-07
8	PROPERTY		712142.5	4135304	3.98E-07	40YrCancerDerived	1.90E-07	1.50E-07	5.76E-08
9	PROPERTY		712165.1	4135293	4.09E-07	40YrCancerDerived	1.96E-07	1.54E-07	5.90E-08
10	PROPERTY		712187.8	4135283	4.23E-07	40YrCancerDerived	2.03E-07	1.60E-07	6.11E-08
11	PROPERTY		712210.4	4135272	4.45E-07	40YrCancerDerived	2.13E-07	1.68E-07	6.44E-08
12	PROPERTY		712233.1	4135262	4.67E-07	40YrCancerDerived	2.21E-07	1.78E-07	6.80E-08
13	PROPERTY		712255.7	4135251	4.86E-07	40YrCancerDerived	2.29E-07	1.86E-07	7.14E-08
14	PROPERTY		712278.3	4135240	4.85E-07	40YrCancerDerived	2.27E-07	1.87E-07	7.16E-08
15	PROPERTY		712284.1	4135238	4.78E-07	40YrCancerDerived	2.23E-07	1.84E-07	7.06E-08
16	PROPERTY		712273.8	4135215	6.55E-07	40YrCancerDerived	3.05E-07	2.52E-07	9.69E-08
17	PROPERTY		712263.4	4135192	9.41E-07	40YrCancerDerived	4.38E-07	3.64E-07	1.40E-07
18	PROPERTY		712253	4135169	1.42E-06	40YrCancerDerived	6.61E-07	5.45E-07	2.09E-07
19	PROPERTY		712242.7	4135147	2.20E-06	40YrCancerDerived	1.07E-06	8.17E-07	3.14E-07
20	PROPERTY		712232.3	4135124	3.19E-06	40YrCancerDerived	1.43E-06	1.27E-06	4.89E-07
21	PROPERTY		712221.9	4135101	4.47E-06	40YrCancerDerived	1.95E-06	1.82E-06	6.98E-07
22	PROPERTY		712211.6	4135078	5.20E-06	40YrCancerDerived	2.33E-06	2.07E-06	7.96E-07
23	PROPERTY		712201.3	4135056	5.20E-06	40YrCancerDerived	2.56E-06	1.91E-06	7.32E-07
24	PROPERTY		712190.9	4135033	4.58E-06	40YrCancerDerived	2.48E-06	1.52E-06	5.83E-07
25	PROPERTY		712180.5	4135010	3.47E-06	40YrCancerDerived	2.07E-06	1.01E-06	3.88E-07
26	PROPERTY		712170.1	4134987	1.79E-06	40YrCancerDerived	1.04E-06	5.38E-07	2.06E-07
27	PROPERTY		712169.5	4134986	1.73E-06	40YrCancerDerived	1.01E-06	5.22E-07	2.00E-07
28	PROPERTY		712151.5	4135003	1.93E-06	40YrCancerDerived	1.19E-06	5.37E-07	2.06E-07
29	PROPERTY		712133.5	4135021	1.85E-06	40YrCancerDerived	1.21E-06	4.61E-07	1.77E-07
30	PROPERTY		712115.5	4135038	1.72E-06	40YrCancerDerived	1.13E-06	4.25E-07	1.63E-07
31	PROPERTY		712097.4	4135055	1.49E-06	40YrCancerDerived	1.00E-06	3.55E-07	1.36E-07
32	PROPERTY		712079.4	4135073	1.17E-06	40YrCancerDerived	7.19E-07	3.26E-07	1.25E-07
33	PROPERTY		712061.4	4135090	9.46E-07	40YrCancerDerived	5.26E-07	3.03E-07	1.16E-07
34	PROPERTY		712049.3	4135102	8.68E-07	40YrCancerDerived	4.64E-07	2.92E-07	1.12E-07
35	PROPERTY		712059.8	4135124	1.29E-06	40YrCancerDerived	6.44E-07	4.66E-07	1.79E-07
36	PROPERTY		712070.2	4135147	1.91E-06	40YrCancerDerived	8.87E-07	7.41E-07	2.84E-07
37	PROPERTY		712080.7	4135170	2.35E-06	40YrCancerDerived	1.06E-06	9.34E-07	3.58E-07
38	PROPERTY		712091.1	4135192	2.27E-06	40YrCancerDerived	1.04E-06	8.86E-07	3.39E-07
39	PROPERTY		712101.6	4135215	1.85E-06	40YrCancerDerived	9.27E-07	6.66E-07	2.53E-07
40	PROPERTY		712112.1	4135238	1.23E-06	40YrCancerDerived	6.10E-07	4.47E-07	1.71E-07
41	PROPERTY		712122.5	4135261	8.00E-07	40YrCancerDerived	3.87E-07	2.99E-07	1.14E-07

**HARP - Air Dispersion Modeling and Risk Tool v19121
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REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVE	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
1	SENSITIV	W1	712100.8	4135272	NonCancerCh	0.15607	0.16589	0.00026761	0.00013735	3.80E-05	0.15609	0.1592	0.15605	0	0	0	0.0026188	0	0	0.16589
2	SENSITIV	W2	712278.8	4135105	NonCancerCh	0.32427	0.34392	0.00051254	0.00026806	7.62E-05	0.32431	0.33038	0.32422	0	0	0	0.0050913	0	0	0.34392
3	SENSITIV	W3	712204.2	4135002	NonCancerCh	0.51051	0.54133	0.00079843	0.00041855	0.00011951	0.51057	0.52081	0.51043	0	0	0	0.0079526	0	0	0.54133
4	SENSITIV	W4	712074.8	4134973	NonCancerCh	0.067702	0.07182	0.00010781	5.63E-05	1.60E-05	0.06771	0.06905	0.067692	0	0	0	0.0010697	0	0	0.07182
5	SENSITIV	W5	712269.6	4135272	NonCancerCh	0.083871	0.089024	0.00013664	7.10E-05	2.00E-05	0.083881	0.085486	0.083858	0	0	0	0.0013496	0	0	0.089024
6	SENSITIV	W6	711861.5	4135295	NonCancerCh	0.051346	0.054483	8.26E-05	4.30E-05	1.22E-05	0.051352	0.052329	0.051337	0	0	0	0.00081809	0	0	0.054483
7	SENSITIV	W7	712059.1	4135181	NonCancerCh	0.36849	0.39099	0.00059197	0.00030841	8.72E-05	0.36853	0.37544	0.36843	0	0	0	0.0058621	0	0	0.39099
8	PROPERTY		712142.5	4135304	NonCancerCh	0.090052	0.095649	0.00015037	7.76E-05	2.17E-05	0.090064	0.091825	0.090038	0	0	0	0.0014786	0	0	0.095649
9	PROPERTY		712165.1	4135293	NonCancerCh	0.092198	0.097934	0.00015436	7.97E-05	2.22E-05	0.092209	0.094018	0.092183	0	0	0	0.001517	0	0	0.097934
10	PROPERTY		712187.8	4135283	NonCancerCh	0.09551	0.10145	0.00015963	8.24E-05	2.30E-05	0.095523	0.097394	0.095495	0	0	0	0.0015693	0	0	0.10145
11	PROPERTY		712210.4	4135272	NonCancerCh	0.10074	0.10699	0.00016742	8.65E-05	2.42E-05	0.10076	0.10272	0.10073	0	0	0	0.0016476	0	0	0.10699
12	PROPERTY		712233.1	4135262	NonCancerCh	0.10638	0.11294	0.00017506	9.07E-05	2.54E-05	0.10639	0.10845	0.10636	0	0	0	0.0017259	0	0	0.11294
13	PROPERTY		712255.7	4135251	NonCancerCh	0.11173	0.1186	0.00018212	9.46E-05	2.66E-05	0.11175	0.11389	0.11172	0	0	0	0.0017986	0	0	0.1186
14	PROPERTY		712278.3	4135240	NonCancerCh	0.112	0.11886	0.00018121	9.43E-05	2.66E-05	0.11201	0.11415	0.11198	0	0	0	0.0017921	0	0	0.11886
15	PROPERTY		712284.1	4135238	NonCancerCh	0.11036	0.11711	0.0001783	9.28E-05	2.62E-05	0.11037	0.11247	0.11034	0	0	0	0.0017638	0	0	0.11711
16	PROPERTY		712273.8	4135215	NonCancerCh	0.15152	0.16077	0.00024364	0.00012691	3.59E-05	0.15154	0.15441	0.1515	0	0	0	0.0024123	0	0	0.16077
17	PROPERTY		712263.4	4135192	NonCancerCh	0.21854	0.23185	0.00034919	0.00018216	5.16E-05	0.21857	0.22269	0.21851	0	0	0	0.0034614	0	0	0.23185
18	PROPERTY		712253	4135169	NonCancerCh	0.32735	0.34724	0.00052028	0.00027175	7.71E-05	0.32739	0.33355	0.3273	0	0	0	0.0051625	0	0	0.34724
19	PROPERTY		712242.7	4135147	NonCancerCh	0.49102	0.5208	0.0007772	0.00040635	0.00011547	0.49108	0.50045	0.49095	0	0	0	0.0077177	0	0	0.5208
20	PROPERTY		712232.3	4135124	NonCancerCh	0.76454	0.81079	0.0012038	0.00063016	0.00017941	0.76462	0.77869	0.76442	0	0	0	0.011966	0	0	0.81079
21	PROPERTY		712221.9	4135101	NonCancerCh	1.0923	1.1582	0.0017123	0.00089731	0.00025585	1.0924	1.1123	1.0921	0	0	0	0.017035	0	0	1.1582
22	PROPERTY		712211.6	4135078	NonCancerCh	1.2456	1.3207	0.0019479	0.0010213	0.00029148	1.2457	1.2686	1.2454	0	0	0	0.01939	0	0	1.3207
23	PROPERTY		712201.3	4135056	NonCancerCh	1.1456	1.2147	0.0017892	0.00093835	0.00026798	1.1457	1.1676	1.1454	0	0	0	0.017819	0	0	1.2147
24	PROPERTY		712190.9	4135033	NonCancerCh	0.91162	0.9666	0.0014222	0.00074593	0.00021321	0.91172	0.92998	0.91148	0	0	0	0.014174	0	0	0.9666
25	PROPERTY		712180.5	4135010	NonCancerCh	0.60779	0.64446	0.00094845	0.00049739	0.00014219	0.60786	0.62088	0.60769	0	0	0	0.0094552	0	0	0.64446
26	PROPERTY		712170.1	4134987	NonCancerCh	0.32308	0.3426	0.0005059	0.0002651	7.57E-05	0.32312	0.32994	0.32303	0	0	0	0.0050389	0	0	0.3426
27	PROPERTY		712169.5	4134986	NonCancerCh	0.3135	0.33244	0.00049099	0.00025728	7.34E-05	0.31353	0.32014	0.31345	0	0	0	0.0048901	0	0	0.33244
28	PROPERTY		712151.5	4135003	NonCancerCh	0.32295	0.34246	0.00050594	0.00026509	7.57E-05	0.32298	0.3301	0.3229	0	0	0	0.0050388	0	0	0.34246
29	PROPERTY		712133.5	4135021	NonCancerCh	0.27712	0.29388	0.00043557	0.00022807	6.50E-05	0.27715	0.28364	0.27707	0	0	0	0.0043337	0	0	0.29388
30	PROPERTY		712115.5	4135038	NonCancerCh	0.25536	0.27082	0.00040211	0.00021045	5.99E-05	0.25539	0.26141	0.25532	0	0	0	0.0039999	0	0	0.27082
31	PROPERTY		712097.4	4135055	NonCancerCh	0.2131	0.22603	0.00033693	0.00017617	5.01E-05	0.21313	0.21828	0.21307	0	0	0	0.0033489	0	0	0.22603
32	PROPERTY		712079.4	4135073	NonCancerCh	0.19605	0.20795	0.00031066	0.00016235	4.61E-05	0.19607	0.20041	0.19602	0	0	0	0.003086	0	0	0.20795
33	PROPERTY		712061.4	4135090	NonCancerCh	0.18208	0.19313	0.00028866	0.00015084	4.29E-05	0.1821	0.18584	0.18205	0	0	0	0.0028668	0	0	0.19313
34	PROPERTY		712049.3	4135102	NonCancerCh	0.1755	0.18616	0.00027826	0.00014541	4.13E-05	0.17552	0.17904	0.17547	0	0	0	0.0027632	0	0	0.18616
35	PROPERTY		712059.8	4135124	NonCancerCh	0.28005	0.29704	0.0004433	0.00023176	6.59E-05	0.28009	0.2855	0.28001	0	0	0	0.0044028	0	0	0.29704
36	PROPERTY		712070.2	4135147	NonCancerCh	0.44512	0.47213	0.00070512	0.00036858	0.00010472	0.44518	0.45351	0.44505	0	0	0	0.0070012	0	0	0.47213
37	PROPERTY		712080.7	4135170	NonCancerCh	0.56062	0.5948	0.00089788	0.00046813	0.00013249	0.56069	0.57113	0.56053	0	0	0	0.0088964	0	0	0.5948
38	PROPERTY		712091.1	4135192	NonCancerCh	0.53045	0.56346	0.00088885	0.00045859	0.00012779	0.53051	0.54076	0.53036	0	0	0	0.0087338	0	0	0.56346
39	PROPERTY		712101.6	4135215	NonCancerCh	0.3947	0.42104	0.0007635	0.00038193	0.00010139	0.39476	0.40341	0.39464	0	0	0	0.0073212	0	0	0.42104
40	PROPERTY		712112.1	4135238	NonCancerCh	0.26641	0.28366	0.00048514	0.00024576	6.66E-05	0.26644	0.27203	0.26636	0	0	0	0.0046984	0	0	0.28366
41	PROPERTY		712122.5	4135261	NonCancerCh	0.17847	0.18973	0.00030742	0.00015763	4.35E-05	0.17849	0.18207	0.17844	0	0	0	0.003006	0	0	0.18973

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1	SENSITIV	W1	712100.8	4135272	NonCancerAc	0.10103	0.10081	0.10466	0	0	0.10081	0.0010169	0	0	0	0	0	0	0	0.10466
2	SENSITIV	W2	712278.8	4135105	NonCancerAc	0.11193	0.11168	0.11284	0	0	0.11168	0.0011195	0	0	0	0	0	0	0	0.11284
3	SENSITIV	W3	712204.2	4135002	NonCancerAc	0.11129	0.11093	0.11186	0	0	0.11093	0.0011114	0	0	0	0	0	0	0	0.11186
4	SENSITIV	W4	712074.8	4134973	NonCancerAc	0.083895	0.083655	0.084674	0	0	0.083655	0.00083888	0	0	0	0	0	0	0	0.084674
5	SENSITIV	W5	712269.6	4135272	NonCancerAc	0.12869	0.12847	0.13016	0	0	0.12847	0.0012886	0	0	0	0	0	0	0	0.13016
6	SENSITIV	W6	711861.5	4135295	NonCancerAc	0.034732	0.034652	0.035325	0	0	0.034652	0.00034805	0	0	0	0	0	0	0	0.035325
7	SENSITIV	W7	712059.1	4135181	NonCancerAc	0.13289	0.13264	0.13561	0	0	0.13264	0.0013332	0	0	0	0	0	0	0	0.13561
8	PROPERTY		712142.5	4135304	NonCancerAc	0.092619	0.092427	0.095261	0	0	0.092427	0.00093073	0	0	0	0	0	0	0	0.095261
9	PROPERTY		712165.1	4135293	NonCancerAc	0.10218	0.10197	0.10491	0	0	0.10197	0.0010264	0	0	0	0	0	0	0	0.10491
10	PROPERTY		712187.8	4135283	NonCancerAc	0.10681	0.10659	0.10953	0	0	0.10659	0.0010726	0	0	0	0	0	0	0	0.10953
11	PROPERTY		712210.4	4135272	NonCancerAc	0.12143	0.12118	0.12386	0	0	0.12118	0.0012179	0	0	0	0	0	0	0	0.12386
12	PROPERTY		712233.1	4135262	NonCancerAc	0.11989	0.11964	0.12195	0	0	0.11964	0.0012017	0	0	0	0	0	0	0	0.12195
13	PROPERTY		712255.7	4135251	NonCancerAc	0.15177	0.15153	0.15352	0	0	0.15153	0.0015199	0	0	0	0	0	0	0	0.15352
14	PROPERTY		712278.3	4135240	NonCancerAc	0.12134	0.12112	0.12274	0	0	0.12112	0.0012149	0	0	0	0	0	0	0	0.12274
15	PROPERTY		712284.1	4135238	NonCancerAc	0.11379	0.11357	0.11508	0	0	0.11357	0.0011392	0	0	0	0	0	0	0	0.11508
16	PROPERTY		712273.8	4135215	NonCancerAc	0.11655	0.1163	0.11811	0	0	0.1163	0.0011671	0	0	0	0	0	0	0	0.11811
17	PROPERTY		712263.4	4135192	NonCancerAc	0.12957	0.12927	0.13104	0	0	0.12927	0.0012967	0	0	0	0	0	0	0	0.13104
18	PROPERTY		712253	4135169	NonCancerAc	0.16122	0.16087	0.16269	0	0	0.16087	0.0016129	0	0	0	0	0	0	0	0.16269
19	PROPERTY		712242.7	4135147	NonCancerAc	0.1952	0.19481	0.19667	0	0	0.19481	0.0019523	0	0	0	0	0	0	0	0.19667
20	PROPERTY		712232.3	4135124	NonCancerAc	0.20921	0.20884	0.2104	0	0	0.20884	0.002092	0	0	0	0	0	0	0	0.2104
21	PROPERTY		712221.9	4135101	NonCancerAc	0.20729	0.20693	0.20833	0	0	0.20693	0.0020725	0	0	0	0	0	0	0	0.20833
22	PROPERTY		712211.6	4135078	NonCancerAc	0.18301	0.18262	0.18394	0	0	0.18262	0.0018292	0	0	0	0	0	0	0	0.18394
23	PROPERTY		712201.3	4135056	NonCancerAc	0.16614	0.1657	0.16703	0	0	0.1657	0.0016601	0	0	0	0	0	0	0	0.16703
24	PROPERTY		712190.9	4135033	NonCancerAc	0.15328	0.15281	0.15398	0	0	0.15281	0.0015308	0	0	0	0	0	0	0	0.15398
25	PROPERTY		712180.5	4135010	NonCancerAc	0.12582	0.12529	0.12634	0	0	0.12529	0.0012553	0	0	0	0	0	0	0	0.12634
26	PROPERTY		712170.1	4134987	NonCancerAc	0.10914	0.10874	0.10965	0	0	0.10874	0.0010895	0	0	0	0	0	0	0	0.10965
27	PROPERTY		712169.5	4134986	NonCancerAc	0.10825	0.10786	0.10876	0	0	0.10786	0.0010807	0	0	0	0	0	0	0	0.10876
28	PROPERTY		712151.5	4135003	NonCancerAc	0.13612	0.13561	0.13663	0	0	0.13561	0.0013584	0	0	0	0	0	0	0	0.13663
29	PROPERTY		712133.5	4135021	NonCancerAc	0.16841	0.16785	0.1691	0	0	0.16785	0.0016813	0	0	0	0	0	0	0	0.1691
30	PROPERTY		712115.5	4135038	NonCancerAc	0.1851	0.18448	0.18605	0	0	0.18448	0.0018483	0	0	0	0	0	0	0	0.18605
31	PROPERTY		712097.4	4135055	NonCancerAc	0.15433	0.15379	0.15559	0	0	0.15379	0.001542	0	0	0	0	0	0	0	0.15559
32	PROPERTY		712079.4	4135073	NonCancerAc	0.15171	0.15115	0.15311	0	0	0.15115	0.0015159	0	0	0	0	0	0	0	0.15311
33	PROPERTY		712061.4	4135090	NonCancerAc	0.11937	0.119	0.12102	0	0	0.119	0.0011946	0	0	0	0	0	0	0	0.12102
34	PROPERTY		712049.3	4135102	NonCancerAc	0.10602	0.10572	0.10733	0	0	0.10572	0.0010609	0	0	0	0	0	0	0	0.10733
35	PROPERTY		712059.8	4135124	NonCancerAc	0.1363	0.13602	0.13814	0	0	0.13602	0.001365	0	0	0	0	0	0	0	0.13814
36	PROPERTY		712070.2	4135147	NonCancerAc	0.15615	0.15586	0.15878	0	0	0.15586	0.0015652	0	0	0	0	0	0	0	0.15878
37	PROPERTY		712080.7	4135170	NonCancerAc	0.16396	0.16369	0.16804	0	0	0.16369	0.0016468	0	0	0	0	0	0	0	0.16804
38	PROPERTY		712091.1	4135192	NonCancerAc	0.19594	0.19565	0.20169	0	0	0.19565	0.0019703	0	0	0	0	0	0	0	0.20169
39	PROPERTY		712101.6	4135215	NonCancerAc	0.14237	0.14207	0.14965	0	0	0.14207	0.001438	0	0	0	0	0	0	0	0.14965
40	PROPERTY		712112.1	4135238	NonCancerAc	0.13774	0.13745	0.14319	0	0	0.13745	0.0013876	0	0	0	0	0	0	0	0.14319
41	PROPERTY		712122.5	4135261	NonCancerAc	0.11893	0.11868	0.12318	0	0	0.11868	0.0011971	0	0	0	0	0	0	0	0.12318

*HARP - HRACalc v19044 3/10/2020 4:33:39 PM - Chronic Risk - Input File: C:\Users\jella_000\Desktop\BEIBATCH\BEIBATCH\hra\RES

REC	GRP	NETID	X	Y	SCENARIO	CV
1	SENSITIV	Residenc	712867.1	4134993	NonCancerChronicDerived_InhSoilDermMMilk	1.65E-02

IDENCE2HRAInput.hra

CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEl	RESP	SKIN	EYE	BONE/TEETH	ENDO
1.71E-02	1.68E-05	1.11E-05	4.15E-06	1.65E-02	1.67E-02	1.65E-02	0.00E+00	0.00E+00	0.00E+00

BLOOD	ODOR	GENERAL	MAXHI
1.67E-04	0.00E+00	0.00E+00	1.71E-02

*HARP - HRACalc v19044 3/10/2020 4:33:39 PM - Cancer Risk - Input File: C:\Use

REC	GRP	NETID	X	Y	RISK_SUM
1	SENSITIV	Residenc	712867.1	4134993	5.24E-07

ers\jella_000\Desktop\BEIBATCH\BEIBATCH\hra\RESIDENCE2HRAInput.hra

SCENARIO	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK
70YrCancerDerived_InhSoilDermMMilk_FAH16to70	2.28E-07	2.84E-07	1.17E-08	4.10E-11	0.00E+00

FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 3/10/2020 4:33:39 PM - Acute Risk - Input File: C:\Users\jella_000\Desktop\BEIBATCH\BEIBATCH\hra\RE

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN
1	SENSITIV	Residenc	712867.1	4134993	NonCancerAcute	1.17E-02	1.17E-02	1.19E-02

:SIDENCE2HRAInput.hra

KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD
0.00E+00	0.00E+00	1.17E-02	1.18E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ODOR	GENERAL	MAXHI
0.00E+00	0.00E+00	1.19E-02

APPENDIX B

EPA AP-42 Guidance Documents for Emission Factors

11.12 Concrete Batching

11.12.1 Process Description [1-5]

Concrete is composed essentially of water, cement, sand (fine aggregate) and coarse aggregate. Coarse aggregate may consist of gravel, crushed stone or iron blast furnace slag. Some specialty aggregate products could be either heavyweight aggregate (of barite, magnetite, limonite, ilmenite, iron or steel) or lightweight aggregate (with sintered clay, shale, slate, diatomaceous shale, perlite, vermiculite, slag pumice, cinders, or sintered fly ash). Supplementary cementitious materials, also called mineral admixtures or pozzolan minerals may be added to make the concrete mixtures more economical, reduce permeability, increase strength, or influence other concrete properties. Typical examples are natural pozzolans, fly ash, ground granulated blast-furnace slag, and silica fume, which can be used individually with portland or blended cement or in different combinations. Chemical admixtures are usually liquid ingredients that are added to concrete to entrain air, reduce the water required to reach a required slump, retard or accelerate the setting rate, to make the concrete more flowable or other more specialized functions.

Approximately 75 percent of the U.S. concrete manufactured is produced at plants that store, convey, measure and discharge these constituents into trucks for transport to a job site. At most of these plants, sand, aggregate, cement and water are all gravity fed from the weight hopper into the mixer trucks. The concrete is mixed on the way to the site where the concrete is to be poured. At some of these plants, the concrete may also be manufactured in a central mix drum and transferred to a transport truck. Most of the remaining concrete manufactured are products cast in a factory setting. Precast products range from concrete bricks and paving stones to bridge girders, structural components, and panels for cladding. Concrete masonry, another type of manufactured concrete, may be best known for its conventional 8 x 8 x 16-inch block. In a few cases concrete is dry batched or prepared at a building construction site. Figure 11.12-1 is a generalized process diagram for concrete batching.

The raw materials can be delivered to a plant by rail, truck or barge. The cement is transferred to elevated storage silos pneumatically or by bucket elevator. The sand and coarse aggregate are transferred to elevated bins by front end loader, clam shell crane, belt conveyor, or bucket elevator. From these elevated bins, the constituents are fed by gravity or screw conveyor to weigh hoppers, which combine the proper amounts of each material.

11.12.2 Emissions and Controls [6-8]

Particulate matter, consisting primarily of cement and pozzolan dust but including some aggregate and sand dust emissions, is the primary pollutant of concern. In addition, there are emissions of metals that are associated with this particulate matter. All but one of the emission points are fugitive in nature. The only point sources are the transfer of cement and pozzolan material to silos, and these are usually vented to a fabric filter or "sock". Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer of sand and aggregate depends primarily on the surface moisture content of these materials. The extent of fugitive emission control varies widely from plant to plant. Particulate emission factors for concrete batching are give in Tables 11.12-1 and 11.12-2.

Types of controls used may include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central duct collection systems, and the like. A major source of potential emissions, the movement of heavy trucks over unpaved or dusty surfaces in and around the plant, can be controlled by good maintenance and wetting of the road surface.

Predictive equations that allow for emission factor adjustment based on plant specific conditions are given in the Background Document for Chapter 11.12 and Chapter 13. Whenever plant specific data are available, they should be used with these predictive equations (e.g. Equations 11.12-1 through 11.12-3) in lieu of the general fugitive emission factors presented in Table 11.12-1, 11.12-2, and 11.12-5 through11.12-8 in order to adjust to site specific conditions, such as moisture levels and localized wind speeds.

11.12.3 Updates since the 5th Edition.

October 2001

– This major revision of the section replaced emissions factors based upon engineering judgment and poorly documented and performed source test reports with emissions tests conducted at modern operating truck mix and central mix facilities. Emissions factors for both total PM and total PM_{10} were developed from this test data.

June 2006

– This revision of the section supplemented the two source tests with several additional source tests of central mix and truck mix facilities. The measurement of the capture efficiency, local wind speed and fines material moisture level was improved over the previous two source tests. In addition to quantifying total PM and PM_{10}, $PM_{2.5}$ emissions were quantified at all of the facilities. Single value emissions factors for truck mix and central mix operations were revised using all of the data. Additionally, parameterized emissions factor equations using local wind speed and fines material moisture content were developed from the newer data.

February 2011

– This is an editorial revision of the section. Emissions factors in Tables 11.12-1, 11.12-2, 11.12-7 and 11.12-8 were corrected to agree with the emissions factors presented in the background report.

August 2011

- Equation 11.12-2 was corrected. An explanation was added under the equation.

January 2012

- This is an editorial revision of the section. Emissions factors for Uncontrolled factors in Table 11.12-3 for Total PM, PM_{10} and $PM_{10-2.5}$ were corrected to agree with the emissions factors presented in Table 11.12-2 and the emissions factors presented in the background report.

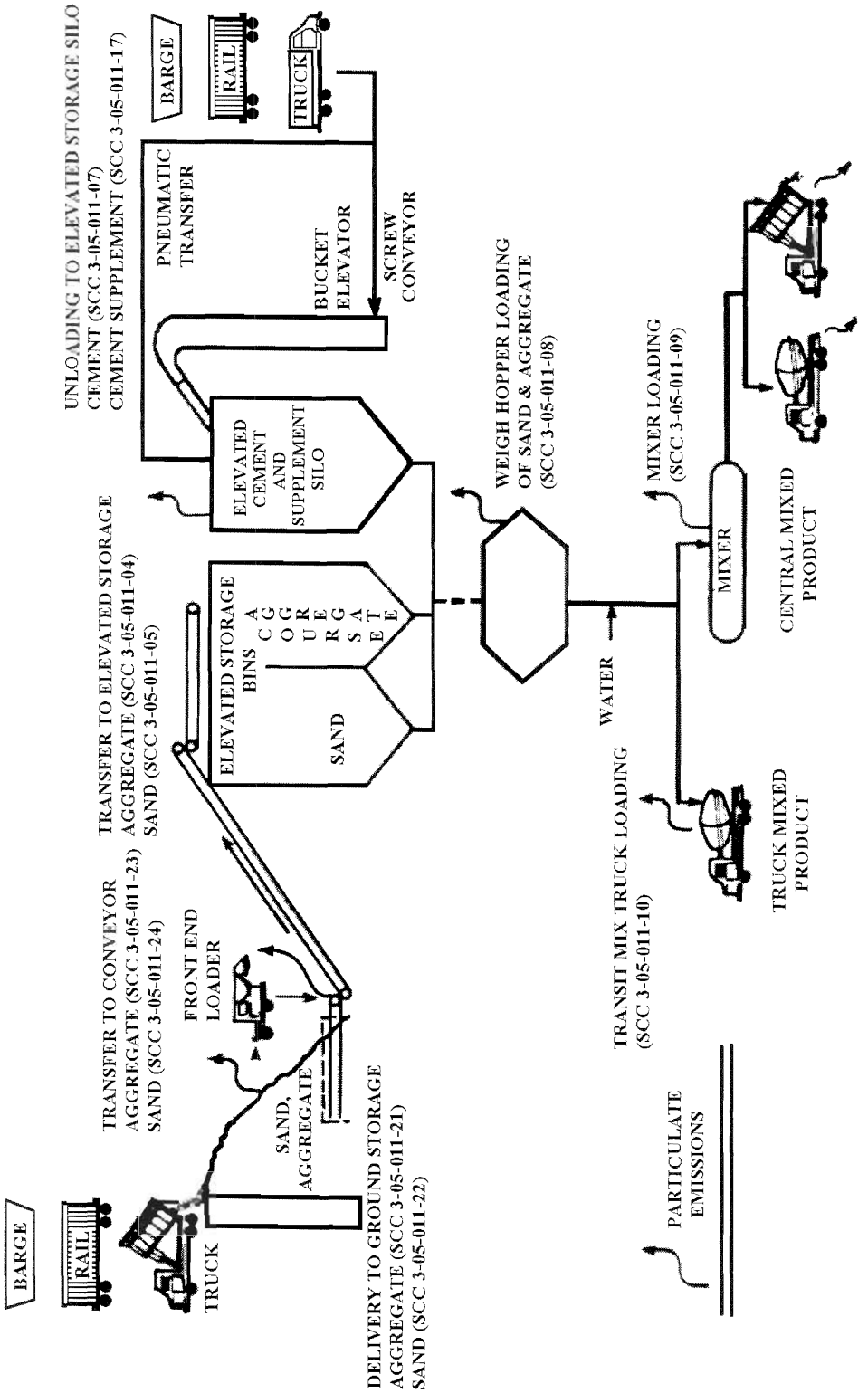

Figure 11.12-1. Typical Concrete Batching Process.

TABLE 11.12-1 (METRIC UNITS)
EMISSION FACTORS FOR CONCRETE BATCHING [a]

Source (SCC)	Uncontrolled				Controlled			
	Total PM	Emission Factor Rating	Total PM_{10}	Emission Factor Rating	Total PM	Emission Factor Rating	Total PM_{10}	Emission Factor Rating
Aggregate transfer [b] (3-05-011-04,-21,23)	0.0035	D	0.0017	D	ND		ND	
Sand transfer [b] (3-05-011-05,22,24)	0.0011	D	0.00051	D	ND		ND	
Cement unloading to elevated storage silo (pneumatic)[c] (3-05-011-07)	0.36	E	0.24	E	0.00050	D	0.00017	D
Cement supplement unloading to elevated storage silo (pneumatic)[d] (3-05-011-17)	1.57	E	0.65	E	0.0045	D	0.0024	E
Weigh hopper loading [e] (3-05-011-08)	0.0026	D	0.0013	D	ND		ND	
Mixer loading (central mix)[f] (3-05-011-09)	0.286 or Eqn. 11.12-1	B	0.078 or Eqn. 11.12-1	B	0.0092 or Eqn. 11.12-1	B	0.0028 or Eqn. 11.12-1	B
Truck loading (truck mix)[g] (3-05-011-10)	0.559	B	0.155	B	0.049 or Eqn. 11.12-1	B	0.0131 or Eqn. 11.12-1	B
Vehicle traffic (paved roads)	See AP-42 Section 13.2.1, Paved Roads							
Vehicle traffic (unpaved roads)	See AP-42 Section 13.2.2, Unpaved Roads							
Wind erosion from aggregate and sand storage piles	See AP-42 Section 13.2.5, Industrial Wind Erosion							

ND = No data

[a] All emission factors are in kg of pollutant per Mg of material loaded unless noted otherwise. Loaded material includes course aggregate, sand, cement, cement supplement and the surface moisture associated with these materials. The average material composition of concrete batches presented in references 9 and 10 was 846 kg course aggregate, 648 kg sand, 223 kg cement and 33kg cement supplement. Approximately 75 liters of water was added to this solid material to produce 1826 kg of concrete.

[b] Reference 9 and 10. Emission factors are based upon an equation from AP-42, section 13.2.4 Aggregate Handling And Storage Piles, equation 1 with k_{PM-10} =.35, k_{PM} = .74, U = 10mph, $M_{aggregate}$ =1.77%, and M_{sand} = 4.17%. These moisture contents of the materials ($M_{aggregate}$ and M_{sand}) are the averages of the values obtained from Reference 9 and Reference 10.

[c] The uncontrolled PM & PM-10 emission factors were developed from Reference 9. The controlled emission factor for PM was developed from References 9, 10, 11, and 12. The controlled emission factor for PM-10 was developed from References 9 and 10.

[d] The controlled PM emission factor was developed from Reference 10 and Reference 12, whereas the controlled PM-10 emission factor was developed from only Reference 10.

[e] Emission factors were developed by using the AP-42 Section 13.2.4, Aggregate and Sand Transfer Emission Factors in conjunction with the ratio of aggregate and sand used in an average $yard^3$ of concrete. The unit for these emission factors is kg of pollutant per Mg of aggregate and sand.

[f] References 9, 10, and 14. The emission factor units are kg of pollutant per Mg of cement and cement supplement. The general factor is the arithmetic mean of all test data.

[g] Reference 9, 10, and 14. The emission factor units are kg of pollutant per Mg of cement and cement supplement. The general factor is the arithmetic mean of all test data.

TABLE 11.12-2 (ENGLISH UNITS)
EMISSION FACTORS FOR CONCRETE BATCHING [a]

Source (SCC)	Uncontrolled				Controlled			
	Total PM	Emission Factor Rating	Total PM_{10}	Emission Factor Rating	Total PM	Emission Factor Rating	Total PM_{10}	Emission Factor Rating
Aggregate transfer [b] (3-05-011-04,-21,23)	0.0069	D	0.0033	D	ND		ND	
Sand transfer [b] (3-05-011-05,22,24)	0.0021	D	0.00099	D	ND		ND	
Cement unloading to elevated storage silo (pneumatic)[c] (3-05-011-07)	0.73	E	0.47	E	0.00099	D	0.00034	D
Cement supplement unloading to elevated storage silo (pneumatic)[d] (3-05-011-17)	3.14	E	1.10	E	0.0089	D	0.0049	E
Weigh hopper loading [e] (3-05-011-08)	0.0048	D	0.0028	D	ND		ND	
Mixer loading (central mix)[f] (3-05-011-09)	0.572 or Eqn. 11.12-1	B	0.156 or Eqn. 11.12-1	B	0.0184 or Eqn. 11.12-1	B	0.0055 or Eqn. 11.12-1	B
Truck loading (truck mix)[g] (3-05-011-10)	1.118	B	0.310	B	0.098 or Eqn. 11.12-1	B	0.0263 or Eqn. 11.12-1	B
Vehicle traffic (paved roads)	See AP-42 Section 13.2.1, Paved Roads							
Vehicle traffic (unpaved roads)	See AP-42 Section 13.2.2, Unpaved Roads							
Wind erosion from aggregate and sand storage piles	See AP-42 Section 13.2.5, Industrial Wind Erosion							

ND = No data

[a] All emission factors are in lb of pollutant per ton of material loaded unless noted otherwise. Loaded material includes course aggregate, sand, cement, cement supplement and the surface moisture associated with these materials. The average material composition of concrete batches presented in references 9 and 10 was 1865 lbs course aggregate, 1428 lbs sand, 491 lbs cement and 73 lbs cement supplement. Approximately 20 gallons of water was added to this solid material to produce 4024 lbs (one cubic yard) of concrete.

[b] Reference 9 and 10. Emission factors are based upon an equation from AP-42, section 13.2.4 Aggregate Handling And Storage Piles, equation 1 with k_{PM-10} =.35, k_{PM} = .74, U = 10mph, $M_{aggregate}$ =1.77%, and M_{sand} = 4.17%. These moisture contents of the materials ($M_{aggregate}$ and M_{sand}) are the averages of the values obtained from Reference 9 and Reference 10.

[c] The uncontrolled PM & PM-10 emission factors were developed from Reference 9. The controlled emission factor for PM was developed from References 9, 10, 11, and 12. The controlled emission factor for PM-10 was developed from References 9 and 10.

[d] The controlled PM emission factor was developed from Reference 10 and Reference 12, whereas the controlled PM-10 emission factor was developed from only Reference 10.

[e] Emission factors were developed by using the Aggregate and Sand Transfer Emission Factors in conjunction with the ratio of aggregate and sand used in an average yard^3 of concrete. The unit for these emission factors is lb of pollutant per ton of aggregate and sand.

[f] References 9, 10, and 14. The emission factor units are lb of pollutant per ton of cement and cement supplement. The general factor is the arithmetic mean of all test data.

[g] Reference 9, 10, and 14. The emission factor units are lb of pollutant per ton of cement and cement supplement. The general factor is the arithmetic mean of all test data.

The particulate matter emissions from truck mix and central mix loading operations are calculated in accordance with the values in Tables 11.12-1 or 11.12-2 or by Equation 11.12-1[14] when site specific data are available.

$$E = k\,(0.0032)\left[\frac{U^a}{M^b}\right] + c \qquad \text{Equation 11.12-1}$$

E = Emission factor in lbs./ton of cement and cement supplement
k = Particle size multiplier (dimensionless)
U = Wind speed at the material drop point, miles per hour (mph)
M = Minimum moisture (% by weight) of cement and cement supplement
a, b = Exponents
c = Constant

The parameters for Equation 11.12-1 are summarized in Tables 11.12-3 and 11.12-4.

Table 11.12-3. Equation Parameters for Truck Mix Operations

Condition	Parameter Category	k	a	b	c
Controlled[1]	Total PM	0.8	1.75	0.3	0.013
	PM_{10}	0.32	1.75	0.3	0.0052
	$PM_{10-2.5}$	0.288	1.75	0.3	0.00468
	$PM_{2.5}$	0.048	1.75	0.3	0.00078
Uncontrolled[1]	Total PM	1.118			
	PM_{10}	0.310			
	$PM_{10-2.5}$	0.260			
	$PM_{2.5}$	0.050			

Table 11.12-4. Equation Parameters for Central Mix Operations

Condition	Parameter Category	k	a	b	c
Controlled[1]	Total PM	0.19	0.95	0.9	0.0010
	PM_{10}	0.13	0.45	0.9	0.0010
	$PM_{10-2.5}$	0.12	0.45	0.9	0.0009
	$PM_{2.5}$	0.03	0.45	0.9	0.0002
Uncontrolled[1]	Total PM	5.90	0.6	1.3	0.120
	PM_{10}	1.92	0.4	1.3	0.040
	$PM_{10-2.5}$	1.71	0.4	1.3	0.036
	$PM_{2.5}$	0.38	0.4	1.3	0

1. Emission factors expressed in lbs/tons of cement and cement supplement

To convert from units of lbs/ton to units of kilograms per mega gram, the emissions calculated by Equation 11.12-1 should be divided by 2.0.

Particulate emission factors per yard of concrete for an average batch formulation at a typical facility are given in Tables 11.12-5 and 11.12-6. For truck mix loading and central mix loading, the

emissions of PM, PM-10, PM-10-2.5, and PM-2.5 are calculated by multiplying the emission factor calculated using Equation 11.12-2 by a factor of 0.140 to convert from emissions per ton of cement and cement supplement to emissions per yard of concrete. This equation is based on a typical concrete formulation of 564 pounds of cement and cement supplement in a total of 4,024 pounds of material (including aggregate, sand, and water). This calculation is summarized in Equation 11.12-2.

$$\text{PM, PM10, PM10 - 2.5, PM2.5 emissions}\left(\frac{\text{pounds}}{\text{yd}^3 \text{ of concrete}}\right) = 0.282 * \quad \text{(Equation 11.12 – 1 factor or Table 11.12 - 2 Factor)}$$

Equation 11.12-2

*NOTE: August 8, 2011. The equation was corrected.
The basis of this conversion constant is:

EF (pounds / ton *cem*) * (ton *cem* / 2,000 pounds *cem*) * (564 pounds *cem* / yd^3 concrete) = EF (pounds / yd^3 concrete)

Where:

cem is the sum of cement (491 pounds) and cement supplement (73 pounds).

Metals emission factors for concrete batching are given in Tables 11.12-7 and 11.12-8. Alternatively, the metals emissions from ready mix plants can be calculated based on (1) the weighted average concentration of the metal in the cement and the cement supplement (i.e. flyash) and (2) on the total particulate matter emission factors calculated in accordance with Equation 11.12-3. Emission factors calculated using Equation 11.12-3 are rated D.

$$\text{Metal}_{EF} = \text{PM}_{EF}\left(\frac{aC + bS}{C + S}\right)$$

Equation 11.12-3

Where:

Metal_{EF}	=	Metal Emissions, Lbs. As per Ton of Cement and Cement Supplement
PM_{EF}	=	Controlled Particulate Matter Emission Factor (PM, PM10, or PM2.5) Lbs. per Ton of Cement and Cement Supplement
a	=	ppm of Metal in Cement
C	=	Quantity of Cement Used, Lbs. per hour
b	=	ppm of Metal in Cement Supplement
S	=	Quantity of Cement Supplement Used, Lbs. per hour

This equation is based on the assumption that 100% of the particulate matter emissions are material entrained from the cement and cement supplement streams. Equation 11.12-3 over-estimates total metal emissions to the extent that sand and fines from aggregate contribute to the total particulate matter emissions.

TABLE 11.12-5 (ENGLISH UNITS)
PLANT WIDE EMISSION FACTORS PER YARD OF TRUCK MIX CONCRETE [a]

	Uncontrolled		Controlled	
	PM (lb/yd^3)	PM-10 (lb/yd^3)	PM (lb/yd^3)	PM-10 (lb/yd^3)
Aggregate delivery to ground storage (3-05-011-21)	0.0064	0.0031	0.0064	0.0031
Sand delivery to ground storage (3-05-011-22)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to conveyor (3-05-011-23)	0.0064	0.0031	0.0064	0.0031
Sand transfer to conveyor (3-05-011-24)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to elevated storage (3-05-011-04)	0.0064	0.0031	0.0064	0.0031
Sand transfer to elevated storage (3-05-011-05)	0.0015	0.0007	0.0015	0.0007
Cement delivery to Silo (3-05-011-07 controlled)	0.0002	0.0001	0.0002	0.0001
Cement supplement delivery to Silo (3-05-011-17 controlled)	0.0003	0.0002	0.0003	0.0002
Weigh hopper loading (3-05-011-08)	0.0079	0.0038	0.0079	0.0038
Truck mix loading (3-05-011-10)	See Equation 11.12-2			

TABLE 11.12-6 (ENGLISH UNITS)
PLANT WIDE EMISSION FACTORS PER YARD OF CENTRAL MIX CONCRETE [a]

	Uncontrolled		Controlled	
	PM (lb/yd^3)	PM-10 (lb/yd^3)	PM (lb/yd^3)	PM-10 (lb/yd^3)
Aggregate delivery to ground storage (3-05-011-21)	0.0064	0.0031	0.0064	0.0031
Sand delivery to ground storage (3-05-011-22)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to conveyor (3-05-011-23)	0.0064	0.0031	0.0064	0.0031
Sand transfer to conveyor (3-05-011-24)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to elevated storage (3-05-011-04)	0.0064	0.0031	0.0064	0.0031
Sand transfer to elevated storage (3-05-011-05)	0.0015	0.0007	0.0015	0.0007
Cement delivery to Silo (3-05-011-07 controlled)	0.0002	0.0001	0.0002	0.0001
Cement supplement delivery to Silo (3-05-011-17 controlled)	0.0003	0.0002	0.0003	0.0002
Weigh hopper loading (3-05-011-08)	0.0079	0.0038	0.0079	0.0038
Central mix loading (3-05-011-09)	See Equation 11.12-2			

[a] Total facility emissions are the sum of the emissions calculated in Tables 11.12-4 or 11.12-5. Total facility emissions do not include road dust and wind blown dust. The emission factors in Tables 11.12-5 and 11.12-6 are based upon the following composition of one yard of concrete.

Coarse Aggregate	1865. pounds
Sand	1428. pounds
Cement	491. pounds
Cement Supplement	73. pounds
Water	20. gallons (167 pounds)

TABLE 11.12-7 (METRIC UNITS)
CONCRETE BATCH PLANT METAL EMISSION FACTORS [a]

	Arsenic	Beryllium	Cadmium	Total Chromium	Lead	Manganese	Nickel	Total Phosphorus	Selenium	Emission Factor Rating
Cement Silo Filling [b] (SCC 3-05-011-07)	8.38e-07	8.97e-09	1.17e-07	1.26e-07	3.68e-07	1.01e-04	8.83e-06	5.88e-05	ND	E
w/ Fabric Filter	2.12e-09	2.43e-10	ND	1.45e-08	5.46e-09	5.87e-08	2.09e-08	ND	ND	E
Cement Supplement Silo Filling [c] (SCC 3-05-011-17)	ND	ND	ND	ND	ND	ND	ND	ND	ND	E
w/ Fabric Filter	5.02e-07	4.52e-08	9.92e-09	6.10e-07	2.60e-07	1.28e-07	1.14e-06	1.77e-06	3.62e-08	E
Central Mix Batching [d] (SCC 3-05-011-09)	4.19e-06	ND	5.92e-09	7.11e-07	1.91e-07	3.06e-05	1.64e-06	1.01e-05	ND	E
w/ Fabric Filter	1.48e-07	ND	3.55e-10	6.34e-08	1.83e-08	1.89e-06	1.24e-07	6.04e-07	ND	E
Truck Loading [e] (SCC 3-05-011-10)	6.09e-06	1.22e-07	1.71e-08	5.71e-06	1.81e-06	3.06e-05	5.99e-06	1.92e-05	1.31e-06	E
w/ Fabric Filter	3.01e-07	5.18e-08	4.53e-09	2.05e-06	7.67e-07	1.04e-05	2.39e-06	6.16e-06	5.64e-08	E

ND=No data

[a] All emission factors are in kg of pollutant per Mg of material loaded unless noted otherwise. Loaded material includes course aggregate, sand, cement, cement supplement and the surface moisture associated with these materials. The average material composition of concrete batches presented in references 9 and 10 was 846 Kg course aggregate, 648 kg sand, 223 kg cement and 33kg cement supplement. Approximately 75 liters of water was added to this solid material to produce 1826 kg of concrete.

[b] The uncontrolled emission factors were developed from Reference 9. The controlled emission factors were developed form Reference 9 and 10. Although controlled emissions of phosphorous compounds were below detection, it is reasonable to assume that the effectiveness is comparable to the average effectiveness (98%) for the other metals.

[c] Reference 10.

[d] Reference 9. The emission factor units are kg of pollutant per Mg of cement and cement supplement. Emission factors were developed from a typical central mix operation. The average estimate of the percent of emissions captured during each run is 94%.

[e] Reference 9 and 10. The emission factor units are kg of pollutant per Mg of cement and cement supplement. Emission factors were developed from two typical truck mix loading operations. Based upon visual observations of every loading operation during the two test programs, the average capture efficiency during the testing was 71%.

TABLE 11.12-8 (ENGLISH UNITS)
CONCRETE BATCH PLANT METAL EMISSION FACTORS [a]

	Arsenic	Beryllium	Cadmium	Total Chromium	Lead	Manganese	Nickel	Total Phosphorus	Selenium	Emission Factor Rating
Cement Silo Filling [b] (SCC 3-05-011-07)	1.68e-06	1.79e-08	2.34e-07	2.52e-07	7.36e-07	2.02e-04	1.76e-05	1.18e-05	ND	E
w/ Fabric Filter	4.24e-09	4.86e-10	ND	2.90e-08	1.09e-08	1.17e-07	4.18e-08	ND	ND	E
Cement Supplement Silo Filling [c] (SCC 3-05-011-17)	ND	ND	ND	ND	ND	ND	ND	ND	ND	E
w/ Fabric Filter	1.00e-06	9.04e-08	1.98e-10	1.22e-06	5.20e-07	2.56e-07	2.28e-06	3.54e-06	7.24e-08	E
Central Mix Batching [d] (SCC 3-05-011-09)	8.38e-06	ND	1.18e-08	1.42e-06	3.82e-07	6.12e-05	3.28e-06	2.02e-05	ND	E
w/ Fabric Filter	2.96e-07	ND	7.10e-10	1.27e-07	3.66e-08	3.78e-06	2.48e-07	1.20e-06	ND	E
Truck Loading [e] (SCC 3-05-011-10)	1.22e-05	2.44e-07	3.42e-08	1.14e-05	3.62e-06	6.12e-05	1.19e-05	3.84e-05	2.62e-06	E
w/ Fabric Filter	6.02e-07	1.04e-07	9.06e-09	4.10e-06	1.53e-06	2.08e-05	4.78e-06	1.23e-05	1.13e-07	E

ND=No data

[a] All emission factors are in lb of pollutant per ton of material loaded unless noted otherwise. Loaded material includes course aggregate, sand, cement, cement supplement and the surface moisture associated with these materials. The average material composition of concrete batches presented in references 9 and 10 was 1865 lbs course aggregate, 1428 lbs sand, 491 lbs cement and 73 lbs cement supplement. Approximately 20 gallons of water was added to this solid material to produce 4024 lbs (one cubic yard) of concrete.

[b] The uncontrolled emission factors were developed from Reference 9. The controlled emission factors were developed form Reference 9 and 10. Although controlled emissions of phosphorous compounds were below detection, it is reasonable to assume that the effectiveness is comparable to the average effectiveness (98%) for the other metals.

[c] Reference 10.

[d] Reference 9. The emission factor units are lb of pollutant per ton of cement and cement supplement. Emission factors were developed from a typical central mix operation. The average estimate of the percent of emissions captured during each test run is 94%.

[e] Reference 9 and 10. The emission factor units are lb of pollutant per ton of cement and cement supplement. Emission factors were developed from two typical truck mix loading operations. Based upon visual observations of every loading operation during the two test programs, the average capture efficiency during the testing was 71%.

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11.19.2 Crushed Stone Processing and Pulverized Mineral Processing

11.19.2.1 Process Description [24, 25]

Crushed Stone Processing

Major rock types processed by the crushed stone industry include limestone, granite, dolomite, traprock, sandstone, quartz, and quartzite. Minor types include calcareous marl, marble, shell, and slate. Major mineral types processed by the pulverized minerals industry, a subset of the crushed stone processing industry, include calcium carbonate, talc, and barite. Industry classifications vary considerably and, in many cases, do not reflect actual geological definitions.

Rock and crushed stone products generally are loosened by drilling and blasting and then are loaded by power shovel or front-end loader into large haul trucks that transport the material to the processing operations. Techniques used for extraction vary with the nature and location of the deposit. Processing operations may include crushing, screening, size classification, material handling and storage operations. All of these processes can be significant sources of PM and PM-10 emissions if uncontrolled.

Quarried stone normally is delivered to the processing plant by truck and is dumped into a bin. A feeder is used as illustrated in Figure 11.19.2-1. The feeder or screens separate large boulders from finer rocks that do not require primary crushing, thus reducing the load to the primary crusher. Jaw, impactor, or gyratory crushers are usually used for initial reduction. The crusher product, normally 7.5 to 30 centimeters (3 to 12 inches) in diameter, and the grizzly throughs (undersize material) are discharged onto a belt conveyor and usually are conveyed to a surge pile for temporary storage or are sold as coarse aggregates.

The stone from the surge pile is conveyed to a vibrating inclined screen called the scalping screen. This unit separates oversized rock from the smaller stone. The undersized material from the scalping screen is considered to be a product stream and is transported to a storage pile and sold as base material. The stone that is too large to pass through the top deck of the scalping screen is processed in the secondary crusher. Cone crushers are commonly used for secondary crushing (although impact crushers are sometimes used), which typically reduces material to about 2.5 to 10 centimeters (1 to 4 inches). The material (throughs) from the second level of the screen bypasses the secondary crusher because it is sufficiently small for the last crushing step. The output from the secondary crusher and the throughs from the secondary screen are transported by conveyor to the tertiary circuit, which includes a sizing screen and a tertiary crusher.

Tertiary crushing is usually performed using cone crushers or other types of impactor crushers. Oversize material from the top deck of the sizing screen is fed to the tertiary crusher. The tertiary crusher output, which is typically about 0.50 to 2.5 centimeters (3/16th to 1 inch), is returned to the sizing screen. Various product streams with different size gradations are separated in the screening operation. The products are conveyed or trucked directly to finished product bins, to open area stock piles, or to other processing systems such as washing, air separators, and screens and classifiers (for the production of manufactured sand).

Some stone crushing plants produce manufactured sand. This is a small-sized rock product with a maximum size of 0.50 centimeters (3/16 th inch). Crushed stone from the tertiary sizing screen is sized in a vibrating inclined screen (fines screen) with relatively small mesh sizes.

Oversized material is processed in a cone crusher or a hammermill (fines crusher) adjusted to produce small diameter material. The output is returned to the fines screen for resizing.

In certain cases, stone washing is required to meet particulate end product specifications or demands.

Pulverized Mineral Processing

Pulverized minerals are produced at specialized processing plants. These plants supply mineral products ranging from sizes of approximately 1 micrometer to more than 75 micrometers aerodynamic diameter. Pharmaceutical, paint, plastics, pigment, rubber, and chemical industries use these products. Due to the specialized characteristics of the mineral products and the markets for these products, pulverized mineral processing plants have production rates that are less than 5% of the production capacities of conventional crushed stone plants. Two alternative processing systems for pulverized minerals are summarized in Figure 11-19.2-2.

In dry processing systems, the mineral aggregate material from conventional crushing and screening operations is subject to coarse and fine grinding primarily in roller mills and/or ball mills to reduce the material to the necessary product size range. A classifier is used to size the ground material and return oversized material that can be pulverized using either wet or dry processes. The classifier can either be associated with the grinding operation, or it can be a stand-alone process unit. Fabric filters control particulate matter emissions from the grinding operation and the classifier. The products are stored in silos and are shipped by truck or in bags.

In wet processing systems, the mineral aggregate material is processed in wet mode coarse and fine grinding operations. Beneficiation processes use flotation to separate mineral impurities. Finely ground material is concentrated and flash dried. Fabric filters are used to control particulate matter emissions from the flash dryer. The product is then stored in silos, bagged, and shipped.

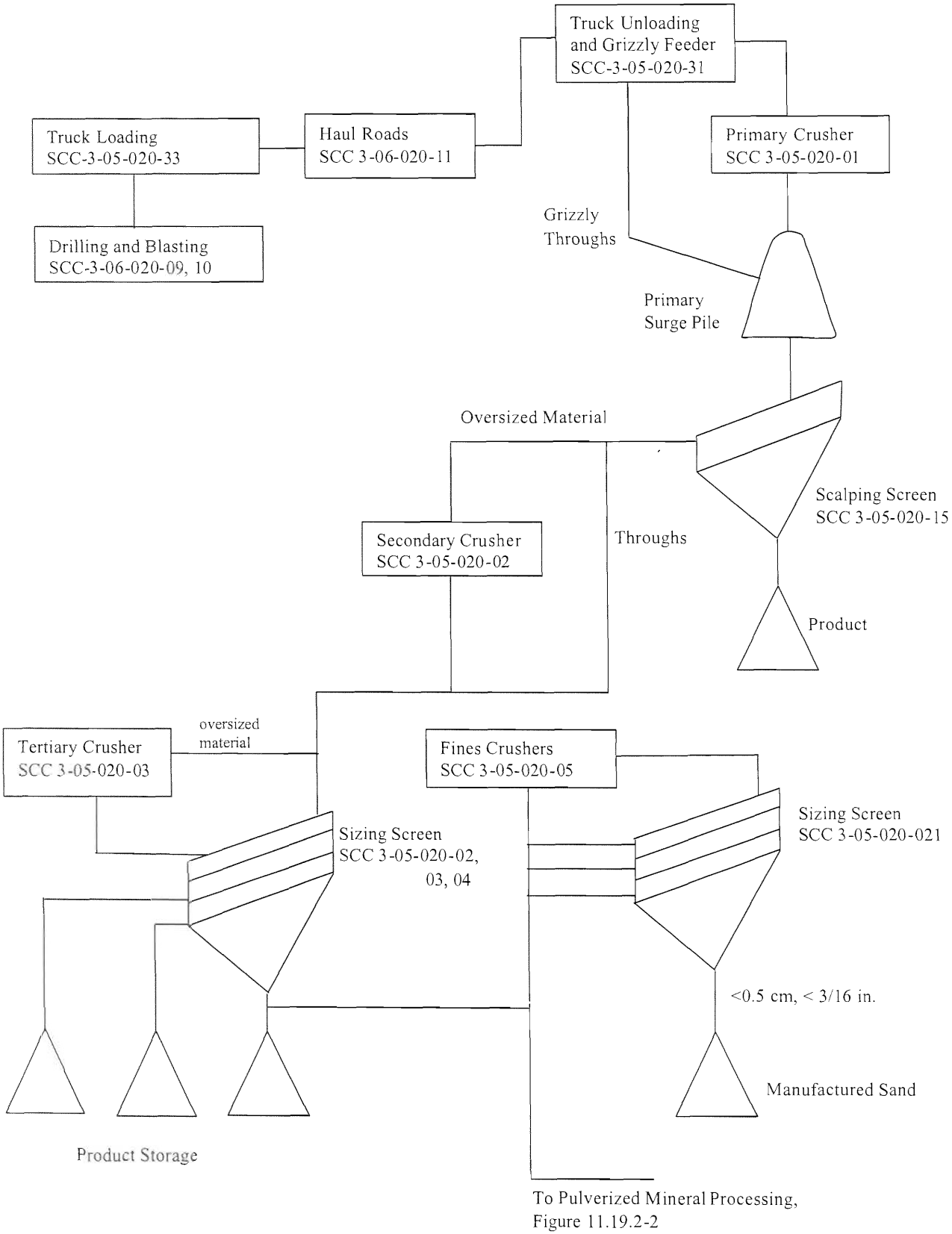

Figure 11.19.2-1. Typical stone processing plant

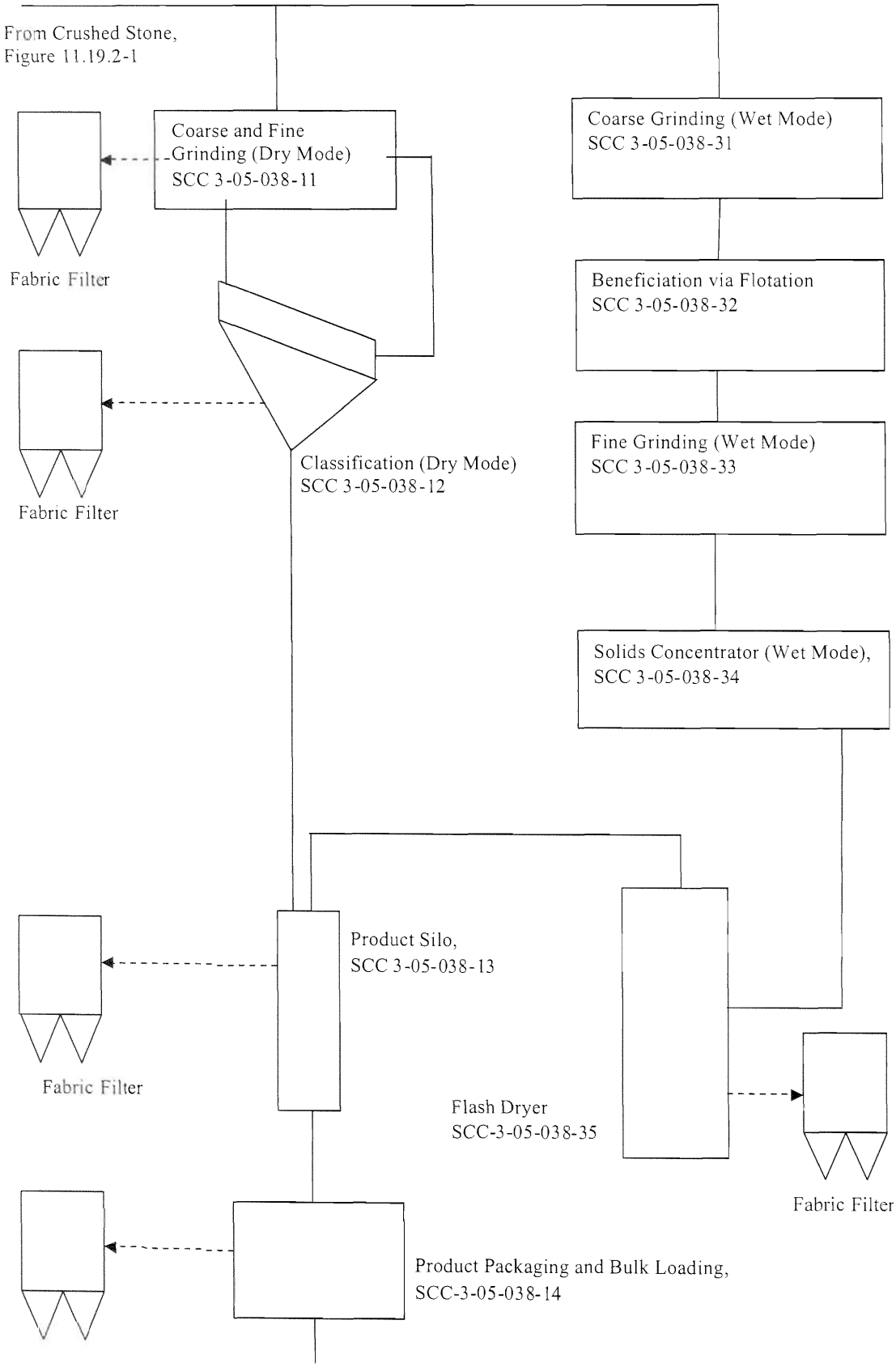

Figure 11.19.2-2 Flowchart for Pulverized Mineral Processing

11.19.2.2 Emissions and Controls [10, 11, 12, 13, 14, and 26]

Crushed Stone Processing

Emissions of PM, PM-10, and PM-2.5 occur from a number of operations in stone quarrying and processing. A substantial portion of these emissions consists of heavy particles that may settle out within the plant. As in other operations, crushed stone emission sources may be categorized as either process sources or fugitive dust sources. Process sources include those for which emissions are amenable to capture and subsequent control. Fugitive dust sources generally involve the reentrainment of settled dust by wind or machine movement. Emissions from process sources should be considered fugitive unless the sources are vented to a baghouse or are contained in an enclosure with a forced-air vent or stack. Factors affecting emissions from either source category include the stone size distribution and the surface moisture content of the stone processed, the process throughput rate, the type of equipment and operating practices used, and topographical and climatic factors.

Of graphical and seasonal factors, the primary variables affecting uncontrolled PM emissions are wind and material moisture content. Wind parameters vary with geographical location, season, and weather. It can be expected that the level of emissions from unenclosed sources (principally fugitive dust sources) will be greater during periods of high winds. The material moisture content also varies with geographical location, season, and weather. Therefore, the levels of uncontrolled emissions from both process emission sources and fugitive dust sources generally will be greater in arid regions of the country than in temperate ones and greater during the summer months because of a higher evaporation rate.

The moisture content of the material processed can have a substantial effect on emissions. This effect is evident throughout the processing operations. Surface wetness causes fine particles to agglomerate on or to adhere to the faces of larger stones, with a resulting dust suppression effect. However, as new fine particles are created by crushing and attrition and as the moisture content is reduced by evaporation, this suppressive effect diminishes and may disappear. Plants that use wet suppression systems (spray nozzles) to maintain relatively high material moisture contents can effectively control PM emissions throughout the process. Depending on the geographical and climatic conditions, the moisture content of mined rock can range from nearly zero to several percent. Because moisture content is usually expressed on a basis of overall weight percent, the actual moisture amount per unit area will vary with the size of the rock being handled. On a constant mass-fraction basis, the per-unit area moisture content varies inversely with the diameter of the rock. The suppressive effect of the moisture depends on both the absolute mass water content and the size of the rock product. Typically, wet material contains >1.5 percent water.

A variety of material, equipment, and operating factors can influence emissions from crushing. These factors include (1) stone type, (2) feed size and distribution, (3) moisture content, (4) throughput rate, (5) crusher type, (6) size reduction ratio, and (7) fines content. Insufficient data are available to present a matrix of rock crushing emission factors detailing the above classifications and variables. Available data indicate that PM-10 and PM-2.5 emissions from limestone and granite processing operations are similar. Therefore, the emission factors developed from the emissions data gathered at limestone and granite processing facilities are considered to be representative of typical crushed stone processing operations. Emission factors for filterable PM, PM-10, and PM-2.5 emissions from crushed stone processing operations are presented in Tables 11.19.2-1 (Metric units) and 11.19.2-2 (English units.)

Table 11.19.2-1 (Metric Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (kg/Mg)[a]

Source [b]	Total Particulate Matter [r,s]	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Secondary Crushing (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Tertiary Crushing (SCC 3-050030-03)	0.0027[d]	E	0.0012[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0006[d]	E	0.00027[p]	C	0.00005[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0195[e]	E	0.0075[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0015[f]	E	0.0006[f]	E	0.000035[q]	E
Screening (SCC 3-05-020-02, 03)	0.0125[c]	E	0.0043[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0011[d]	E	0.00037[m]	C	0.000025[q]	E
Fines Screening (SCC 3-05-020-21	0.15[g]	E	0.036[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0018[g]	E	0.0011[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0015[h]	E	0.00055[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00007[t]	E	2.3×10^{-5}[t]	D	6.5×10^{-6}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		4.0×10^{-5}[j]	E	ND	
Truck Unloading - Fragmented Stone (SCC 3-05-020-31)	ND		8.0×10^{-6}[j]	E	ND	
Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		5.0×10^{-5}[k]	E	ND	

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in kg/Mg of material throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

m. References 1, 3, 7, 8, and 15

n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing

o. References 2, 3, 7, 8

p. References 2, 3, 7, 8, and 15

q. Reference 15

r. PM emission factors are presented based on PM-100 data in the Background Support Document for Section 11.19.2

s. Emission factors for PM-30 and PM-50 are available in Figures 11.19.2-3 through 11.19.2-6.

Note: Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32) was corrected to Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32). October 1, 2010.

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)[a]

Source [b]	Total Particulate Matter [r,s]	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Secondary Crushing (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Tertiary Crushing (SCC 3-050030-03)	0.0054[d]	E	0.0024[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012[d]	E	0.00054[p]	C	0.00010[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0390[e]	E	0.0150[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030[f]	E	0.0012[f]	E	0.000070[q]	E
Screening (SCC 3-05-020-02, 03)	0.025[c]	E	0.0087[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022[d]	E	0.00074[m]	C	0.000050[q]	E
Fines Screening (SCC 3-05-020-21)	0.30[g]	E	0.072[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036[g]	E	0.0022[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030[h]	E	0.00110[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014[i]	E	4.6×10^{-5}[i]	D	1.3×10^{-5}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0×10^{-5}[j]	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6×10^{-5}[j]	E	ND	
Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010[k]	E	ND	

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

m. References 1, 3, 7, 8, and 15

n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing

o. References 2, 3, 7, 8

p. References 2, 3, 7, 8, and 15

q. Reference 15

r. PM emission factors are presented based on PM-100 data in the Background Support Document for Section 11.19.2

s. Emission factors for PM-30 and PM-50 are available in Figures 11.19.2-3 through 11.19.2-6.

Note: Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32) was corrected to Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32). October 1, 2010.

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Emission factor estimates for stone quarry blasting operations are not presented because of the sparsity and unreliability of available tests. While a procedure for estimating blasting emissions is presented in Section 11.9, Western Surface Coal Mining, that procedure should not be applied to stone quarries because of dissimilarities in blasting techniques, material blasted, and size of blast areas. Emission factors for fugitive dust sources, including paved and unpaved roads, materials handling and transfer, and wind erosion of storage piles, can be determined using the predictive emission factor equations presented in AP-42 Section 13.2.

The data used in the preparation of the controlled PM calculations was derived from the individual A-rated tests for PM-2.5 and PM-10 summarized in the Background Support Document. For conveyor transfer points, the controlled PM value was derived from A-rated PM-2.5, PM-10, and PM data summarized in the Background Support Document.

The extrapolation line was drawn through the PM-2.5 value and the mean of the PM-10 values. PM emission factors were calculated for PM-30, PM-50, and PM-100. Each of these particle size limits is used by one or more regulatory agencies as the definition of total particulate matter. The graphical extrapolations used in calculating the emission factors are presented in Figures 11.19.2-3, -4, -5, and -6.

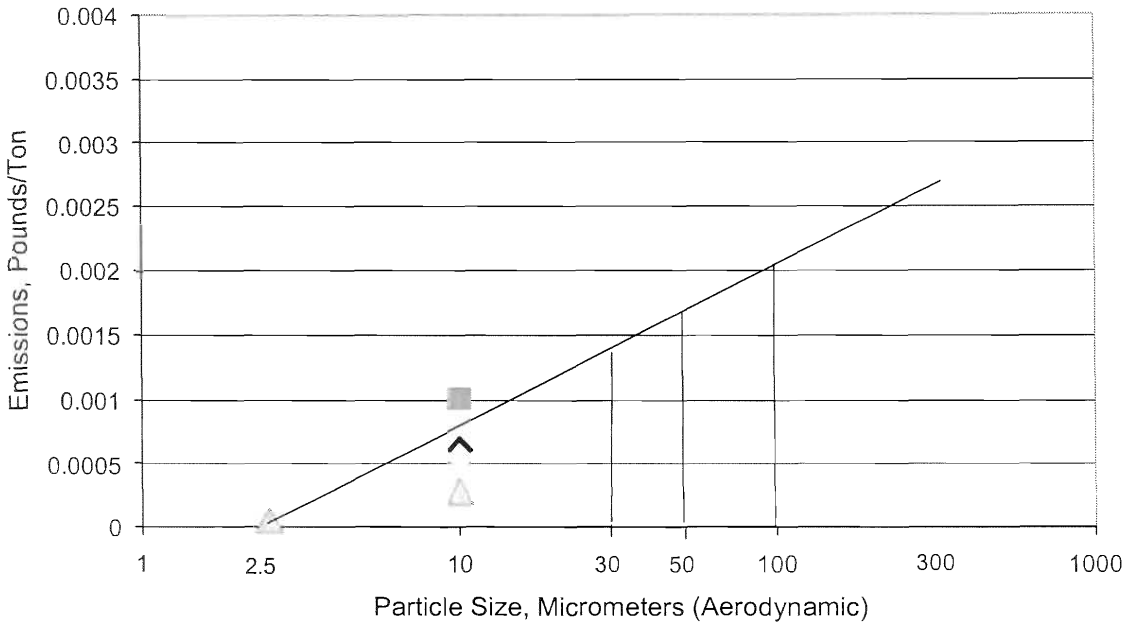

Figure 11-19-3. PM Emission Factor Calculation, Screening (Controlled)

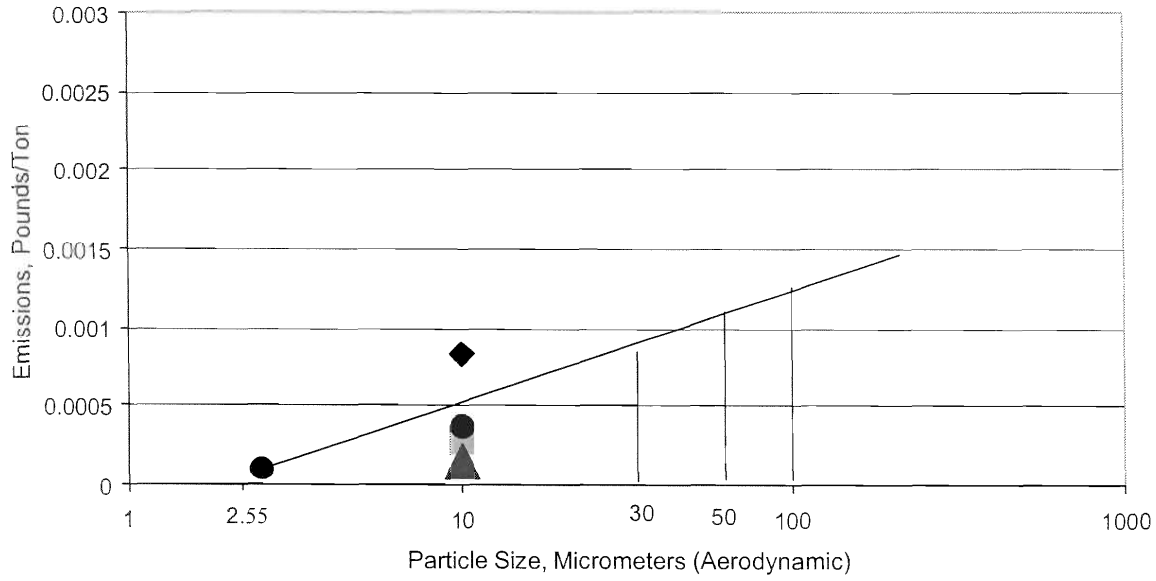

Figure 11.19-4. PM Emission Factor Calculation, Tertiary Crushing (Controlled)

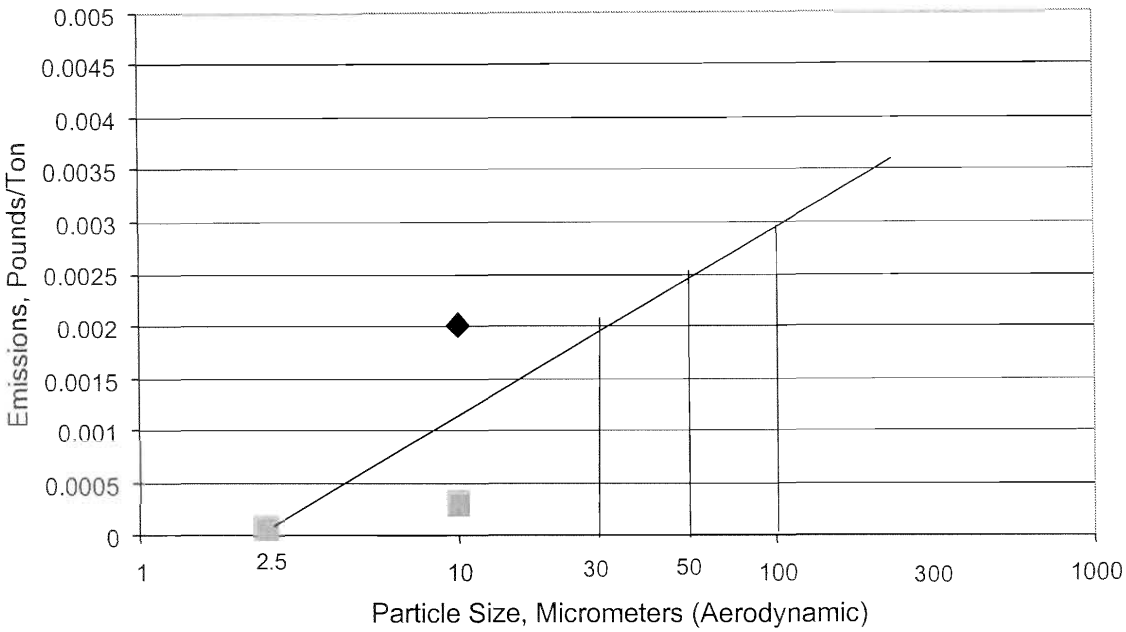

Figure 11-19.5. PM Emission Factor Calculation, Fines Crushing (Controlled)

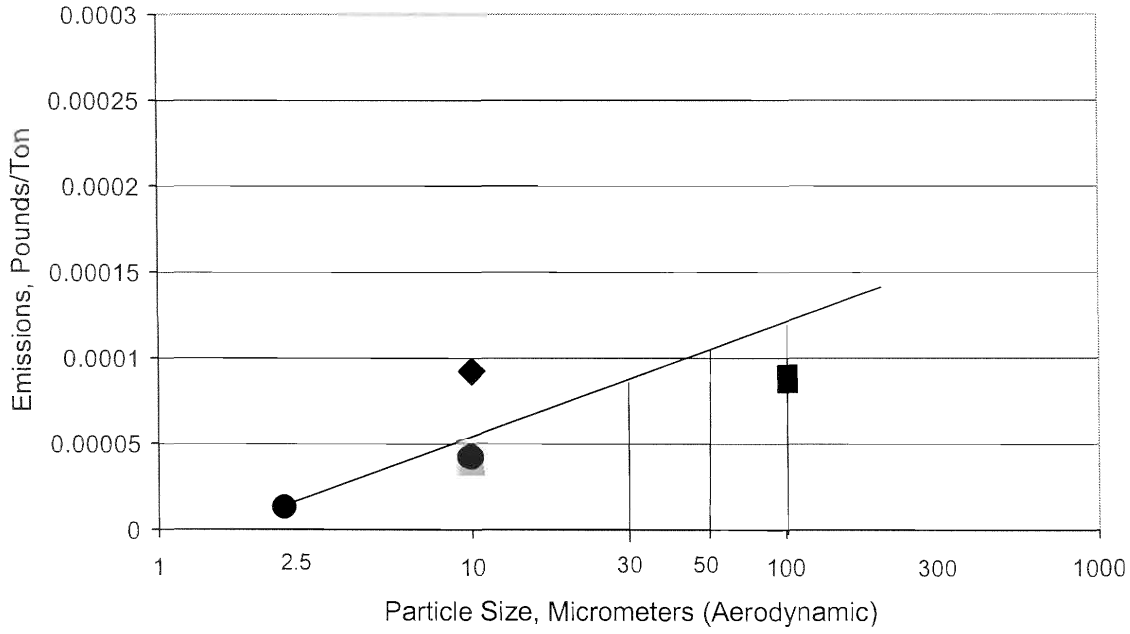

Figure 11.19-6. PM Emission Factor Calculation, Conveyor Transfer Points (Controlled)

The uncontrolled PM emission factors have been calculated from the controlled PM emission factors calculated in accordance with Figures 11.19.2-3 through 11.19.2-6. The PM-10 control efficiencies have been applied to the PM controlled emission factor data to calculate the uncontrolled PM emission rates.

Screening PM-10

Controlled = 0.00073 Lbs./Ton.

Uncontrolled = 0.00865 Lbs./Ton.

Efficiency = 91.6%

Tertiary Crushing PM-10

Controlled = 0.00054

Uncontrolled = 0.00243

Efficiency = 77.7%

Fines Crushing PM-10:

Controlled = 0.0012

Uncontrolled = 0.015

Efficiency = 92.0%

Conveyor Transfer Points PM-10

Controlled = 0.000045

Uncontrolled = 0.0011

Efficiency = 95.9%

The uncontrolled total particulate matter emission factor was calculated from the controlled total particulate matter using Equation 1:

$$\text{Uncontrolled emission factor} = \frac{\text{Controlled total particulate emission factor}}{(100\% - \text{PM-10 Efficiency }\%)/100\%}$$

Equation 1

The Total PM emission factors calculated using Figures 11.19.2-3 through 11.19.2-6 were developed because (1) there are more A-rated test data supporting the calculated values and (2) the extrapolated values provide the flexibility for agencies and source operators to select the most appropriate definition for Total PM. All of the Total PM emission factors have been rated as E due to the limited test data and the need to estimate emission factors using extrapolations of the PM-2.5 and PM-10 data.

Pulverized Mineral Processing

Emissions of particulate matter from dry mode pulverized mineral processing operations are controlled by pulse jet and envelope type fabric filter systems. Due to the low-to-moderate gas temperatures generated by the processing equipment, conventional felted filter media are used. Collection efficiencies for fabric filter-controlled dry process equipment exceed 99.5%. Emission factors for pulverized mineral processing operations are presented in Tables 11.19.2-3 and 11.19.2-4.

Table 11.19.2-3 (Metric Units). EMISSION FACTORS FOR PULVERIZED MINERAL PROCESSING OPERATIONS [a]

Source [b]	Total Particulate Matter	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Grinding (Dry) with Fabric Filter Control (SCC 3-05-038-11)	0.0202	D	0.0169	B	0.0060	B
Classifiers (Dry) with Fabric Filter Control (SCC 3-05-038-12)	0.0112	E	0.0052	E	0.0020	E
Flash Drying with Fabric Filter Control (SCC 3-05-038-35)	0.0134	C	0.0073	C	0.0042	C
Product Storage with Fabric Filter Control (SCC 3-05-38-13)	0.0055	E	0.0008	E	0.0003	E

a. Emission factors represent controlled emissions unless noted. Emission factors are in kg/Mg of material throughput.

b. Date from references 16 through 23

Table 11.19.2-4 (English Units). EMISSION FACTORS FOR PULVERIZED MINERAL PROCESSING OPERATIONS [a]

Source [b]	Total Particulate Matter	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Grinding (Dry) with Fabric Filter Control (SCC 3-05-038-11)	0.0404	D	0.0339	B	0.0121	B
Classifiers (Dry) with Fabric Filter Control (SCC 3-05-038-12)	0.0225	E	0.0104	E	0.0041	E
Flash Drying with Fabric Filter Control (SCC 3-05-038-35)	0.0268	C	0.0146	C	0.0083	C
Product Storage with Fabric Filter Control (SCC 3-05-038-13)	0.0099	E	0.0016	E	0.0006	E

a. Emission factors represent controlled emissions unless noted. Emission factors are in lb/Ton of material throughput.

b. Data from references 16 through 23

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13.2.2 Unpaved Roads

13.2.2.1 General

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The particulate emission factors presented in the previous draft version of this section of AP-42, dated October 2001, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material[25]. EPA included these sources in the emission factor equation for unpaved public roads (equation 1b in this section) since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the unpaved public road emission factor equation only estimates particulate emissions from resuspended road surface material [23, 26]. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOBILE6.2 [24]. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOBILE6.2 to estimate particulate emissions from vehicle traffic on unpaved public roads. It also incorporates the decrease in exhaust emissions that has occurred since the unpaved public road emission factor equation was developed. The previous version of the unpaved public road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.2.2 Emissions Calculation And Correction Parameters[1-6]

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic. Characterization of these source parameters allow for "correction" of emission estimates to specific road and traffic conditions present on public and industrial roadways.

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers [μm] in diameter) in the road surface materials.[1] The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200-mesh screen, using the ASTM-C-136 method. A summary of this method is contained in Appendix C of AP-42. Table 13.2.2-1 summarizes measured silt values for industrial unpaved roads. Table 13.2.2-2 summarizes measured silt values for public unpaved roads. It should be noted that the ranges of silt content vary over two orders of magnitude. Therefore, the use of data from this table can potentially introduce considerable error. Use of this data is strongly discouraged when it is feasible to obtain locally gathered data.

Since the silt content of a rural dirt road will vary with geographic location, it should be measured for use in projecting emissions. As a conservative approximation, the silt content of the parent soil in the area can be used. Tests, however, show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Other variables are important in addition to the silt content of the road surface material. For example, at industrial sites, where haul trucks and other heavy equipment are common, emissions are highly correlated with vehicle weight. On the other hand, there is far less variability in the weights of cars and pickup trucks that commonly travel publicly accessible unpaved roads throughout the United States. For those roads, the moisture content of the road surface material may be more dominant in determining differences in emission levels between, for example a hot, desert environment and a cool, moist location.

The PM-10 and TSP emission factors presented below are the outcomes from stepwise linear regressions of field emission test results of vehicles traveling over unpaved surfaces. Due to a limited amount of information available for PM-2.5, the expression for that particle size range has been scaled against the result for PM-10. Consequently, the quality rating for the PM-2.5 factor is lower than that for the PM-10 expression.

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS[a]

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

[a]References 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

$$E = k\ (s/12)^a (W/3)^b \qquad (1a)$$

and, for vehicles traveling on publicly accessible roads, dominated by light duty vehicles, emissions may be estimated from the following:

$$E = \frac{k\ (s/12)^a (S/30)^d}{(M/0.5)^c} - C \qquad (1b)$$

where k, a, b, c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

The source characteristics s, W and M are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

1 lb/VMT = 281.9 g/VKT

The constants for Equations 1a and 1b based on the stated aerodynamic particle sizes are shown in Tables 13.2.2-2 and 13.2.2-4. The PM-2.5 particle size multipliers (k-factors) are taken from Reference 27.

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a AND 1b

Constant	Industrial Roads (Equation 1a)			Public Roads (Equation 1b)		
	PM-2.5	PM-10	PM-30*	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9	0.18	1.8	6.0
a	0.9	0.9	0.7	1	1	1
b	0.45	0.45	0.45	-	-	-
c	-	-	-	0.2	0.2	0.3
d	-	-	-	0.5	0.5	0.3
Quality Rating	B	B	B	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)
"-" = not used in the emission factor equation

Table 13.2.2-2 also contains the quality ratings for the various size-specific versions of Equation 1a and 1b. The equation retains the assigned quality rating, if applied within the ranges of source conditions, shown in Table 13.2.2-3, that were tested in developing the equation:

Table 13.2.2-3. RANGE OF SOURCE CONDITIONS USED IN DEVELOPING EQUATION 1a AND 1b

Emission Factor	Surface Silt Content, %	Mean Vehicle Weight		Mean Vehicle Speed		Mean No. of Wheels	Surface Moisture Content, %
		Mg	ton	km/hr	mph		
Industrial Roads (Equation 1a)	1.8-25.2	1.8-260	2-290	8-69	5-43	4-17[a]	0.03-13
Public Roads (Equation 1b)	1.8-35	1.4-2.7	1.5-3	16-88	10-55	4-4.8	0.03-13

[a] See discussion in text.

As noted earlier, the models presented as Equations 1a and 1b were developed from tests of traffic on unpaved surfaces. Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall or watering, because of traffic-enhanced natural evaporation. (Factors influencing how fast a road dries are discussed in Section 13.2.2.3, below.) The quality ratings given above pertain to the mid-range of the measured source conditions for the equation. A higher mean vehicle weight and a higher than normal traffic rate may be justified when performing a worst-case analysis of emissions from unpaved roads.

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (C) was obtained from EPA's MOBILE6.2 model [23]. The emission factor also varies with aerodynamic size range

as shown in Table 13.2.2-4

Table 13.2.2-4. EMISSION FACTOR FOR 1980'S VEHICLE FLEET EXHAUST, BRAKE WEAR AND TIRE WEAR

Particle Size Range[a]	*C*, Emission Factor for Exhaust, Brake Wear and Tire Wear[b] lb/VMT
$PM_{2.5}$	0.00036
PM_{10}	0.00047
PM_{30}[c]	0.00047

[a] Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers.

[b] Units shown are pounds per vehicle mile traveled (lb/VMT).

[c] PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. For example, if 98 percent of traffic on the road are 2-ton cars and trucks while the remaining 2 percent consists of 20-ton trucks, then the mean weight is 2.4 tons. More specifically, Equations 1a and 1b are *not* intended to be used to calculate a separate emission factor for each vehicle class within a mix of traffic on a given unpaved road. That is, in the example, one should *not* determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks. Instead, only one emission factor should be calculated that represents the "fleet" average of 2.4 tons for all vehicles traveling the road.

Moreover, to retain the quality ratings when addressing a group of unpaved roads, it is necessary that reliable correction parameter values be determined for the road in question. The field and laboratory procedures for determining road surface silt and moisture contents are given in AP-42 Appendices C.1 and C.2. Vehicle-related parameters should be developed by recording visual observations of traffic. In some cases, vehicle parameters for industrial unpaved roads can be determined by reviewing maintenance records or other information sources at the facility.

In the event that site-specific values for correction parameters cannot be obtained, then default values may be used.In the absence of site-specific silt content information, an appropriate mean value from Table 13.2.2-1 may be used as a default value, but the quality rating of the equation is reduced by two letters. Because of significant differences found between different types of road surfaces and between different areas of the country, use of the default moisture content value of 0.5 percent in Equation 1b is discouraged. The quality rating should be downgraded two letters when the default moisture content value is used. (It is assumed that readers addressing industrial roads have access to the information needed to develop average vehicle information in Equation 1a for their facility.)

The effect of routine watering to control emissions from unpaved roads is discussed below in Section 13.2.2.3, "Controls". However, all roads are subject to some natural mitigation because of rainfall and other precipitation. The Equation 1a and 1b emission factors can be extrapolated to annual

average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

$$E_{ext} = E\ [(365 - P)/365] \quad (2)$$

where:

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation, lb/VMT

E = emission factor from Equation 1a or 1b

P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation (see below)

Figure 13.2.2-1 gives the geographical distribution for the mean annual number of "wet" days for the United States.

Equation 2 provides an estimate that accounts for precipitation on an annual average basis for the purpose of inventorying emissions. It should be noted that Equation 2 does not account for differences in the temporal distributions of the rain events, the quantity of rain during any event, or the potential for the rain to evaporate from the road surface. In the event that a finer temporal and spatial resolution is desired for inventories of public unpaved roads, estimates can be based on a more complex set of assumptions. These assumptions include:

1. The moisture content of the road surface material is increased in proportion to the quantity of water added;
2. The moisture content of the road surface material is reduced in proportion to the Class A pan evaporation rate;
3. The moisture content of the road surface material is reduced in proportion to the traffic volume; and
4. The moisture content of the road surface material varies between the extremes observed in the area. The CHIEF Web site (http://www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-2.html) has a file which contains a spreadsheet program for calculating emission factors which are temporally and spatially resolved. Information required for use of the spreadsheet program includes monthly Class A pan evaporation values, hourly meteorological data for precipitation, humidity and snow cover, vehicle traffic information, and road surface material information.

It is emphasized that the simple assumption underlying Equation 2 and the more complex set of assumptions underlying the use of the procedure which produces a finer temporal and spatial resolution have not been verified in any rigorous manner. For this reason, the quality ratings for either approach should be downgraded one letter from the rating that would be applied to Equation 1.

13.2.2.3 Controls[18-22]

A wide variety of options exist to control emissions from unpaved roads. Options fall into the following three groupings:

1. Vehicle restrictions that limit the speed, weight or number of vehicles on the road;

2. Surface improvement, by measures such as (a) paving or (b) adding gravel or slag to a dirt road; and

3. Surface treatment, such as watering or treatment with chemical dust suppressants.

Available control options span broad ranges in terms of cost, efficiency, and applicability. For example, traffic controls provide moderate emission reductions (often at little cost) but are difficult to enforce. Although paving is highly effective, its high initial cost is often prohibitive. Furthermore, paving is not feasible for industrial roads subject to very heavy vehicles and/or spillage of material in transport. Watering and chemical suppressants, on the other hand, are potentially applicable to most industrial roads at moderate to low costs. However, these require frequent reapplication to maintain an acceptable level of control. Chemical suppressants are generally more cost-effective than water but not in cases of temporary roads (which are common at mines, landfills, and construction sites). In summary, then, one needs to consider not only the type and volume of traffic on the road but also how long the road will be in service when developing control plans.

Vehicle restrictions. These measures seek to limit the amount and type of traffic present on the road or to lower the mean vehicle speed. For example, many industrial plants have restricted employees from driving on plant property and have instead instituted bussing programs. This eliminates emissions due to employees traveling to/from their worksites. Although the heavier average vehicle weight of the busses increases the base emission factor, the decrease in vehicle-miles-traveled results in a lower overall emission rate.

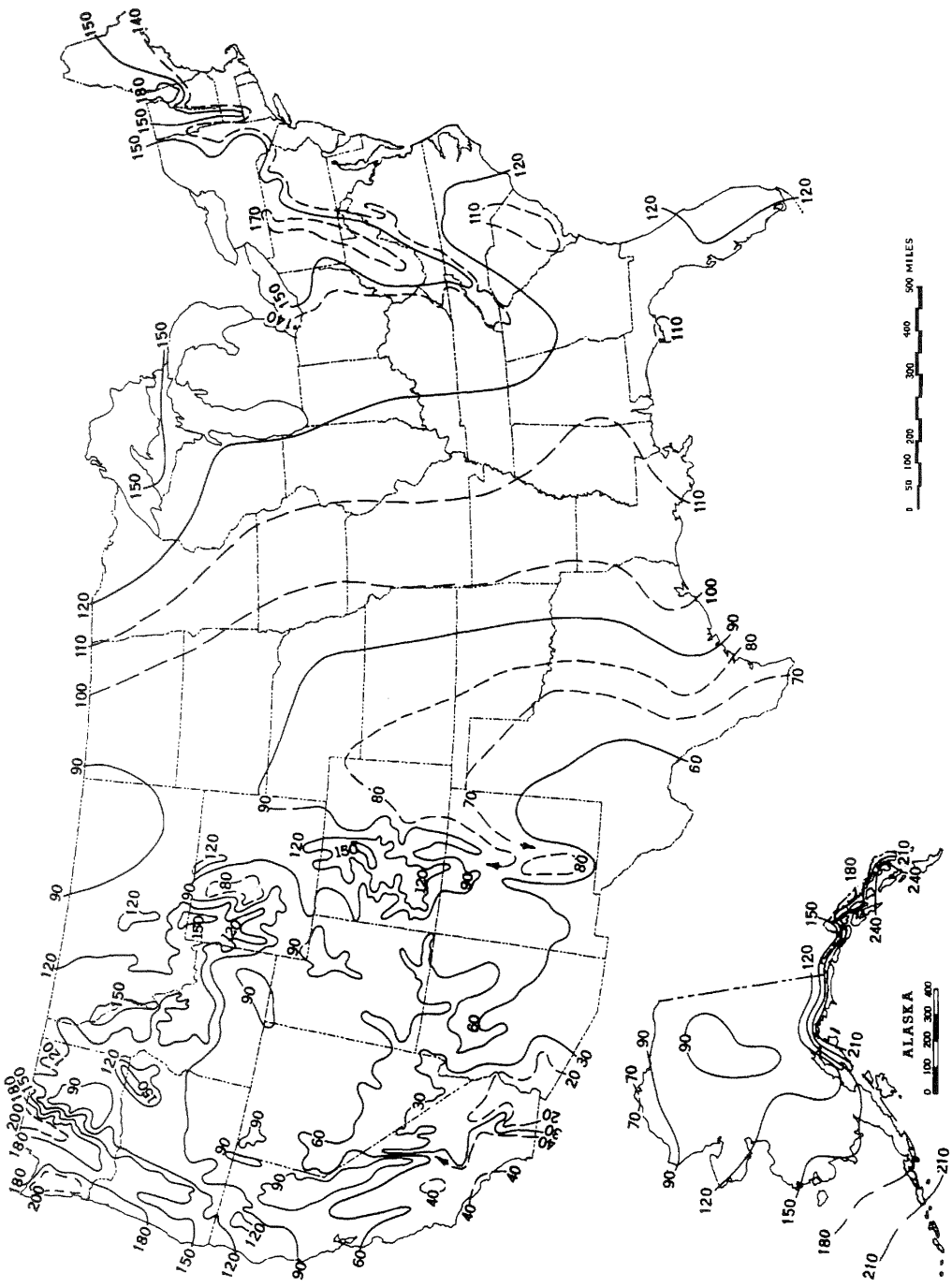

Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Surface improvements. Control options in this category alter the road surface. As opposed to the "surface treatments" discussed below, improvements are relatively "permanent" and do not require periodic retreatment.

The most obvious surface improvement is paving an unpaved road. This option is quite expensive and is probably most applicable to relatively short stretches of unpaved road with at least several hundred vehicle passes per day. Furthermore, if the newly paved road is located near unpaved areas or is used to transport material, it is essential that the control plan address routine cleaning of the newly paved road surface.

The control efficiencies achievable by paving can be estimated by comparing emission factors for unpaved and paved road conditions. The predictive emission factor equation for paved roads, given in Section 13.2.1, requires estimation of the silt loading on the traveled portion of the paved surface, which in turn depends on whether the pavement is periodically cleaned. Unless curbing is to be installed, the effects of vehicle excursion onto unpaved shoulders (berms) also must be taken into account in estimating the control efficiency of paving.

Other improvement methods cover the road surface with another material that has a lower silt content. Examples include placing gravel or slag on a dirt road. Control efficiency can be estimated by comparing the emission factors obtained using the silt contents before and after improvement. The silt content of the road surface should be determined after 3 to 6 months rather than immediately following placement. Control plans should address regular maintenance practices, such as grading, to retain larger aggregate on the traveled portion of the road.

Surface treatments refer to control options which require periodic reapplication. Treatments fall into the two main categories of (a) "wet suppression" (i. e., watering, possibly with surfactants or other additives), which keeps the road surface wet to control emissions and (b) "chemical stabilization/ treatment", which attempts to change the physical characteristics of the surface. The necessary reapplication frequency varies from several minutes for plain water under summertime conditions to several weeks or months for chemical dust suppressants.

Watering increases the moisture content, which conglomerates particles and reduces their likelihood to become suspended when vehicles pass over the surface. The control efficiency depends on how fast the road dries after water is added. This in turn depends on (a) the amount (per unit road surface area) of water added during each application; (b) the period of time between applications; (c) the weight, speed and number of vehicles traveling over the watered road during the period between applications; and (d) meteorological conditions (temperature, wind speed, cloud cover, etc.) that affect evaporation during the period.

Figure 13.2.2-2 presents a simple bilinear relationship between the instantaneous control efficiency due to watering and the resulting increase in surface moisture. The moisture ratio "M" (i.e., the x-axis in Figure 13.2.2-2) is found by dividing the surface moisture content of the watered road by the surface moisture content of the uncontrolled road. As the watered road surface dries, both the ratio M and the predicted instantaneous control efficiency (i.e., the y-axis in the figure) decrease. The figure shows that between the uncontrolled moisture content and a value twice as large, a small increase in moisture content results in a large increase in control efficiency. Beyond that, control efficiency grows slowly with increased moisture content.

Given the complicated nature of how the road dries, characterization of emissions from watered roadways is best done by collecting road surface material samples at various times between water truck passes. (Appendices C.1 and C.2 present the sampling and analysis procedures.) The moisture content measured can then be associated with a control efficiency by use of Figure 13.2.2-2. Samples that reflect average conditions during the watering cycle can take the form of either a series of samples between water applications or a single sample at the midpoint. It is essential that samples be collected during periods with active traffic on the road. Finally, because of different evaporation rates, it is recommended that samples be collected at various times during the year. If only one set of samples is to be collected, these must be collected during hot, summertime conditions.

When developing watering control plans for roads that do not yet exist, it is strongly recommended that the moisture cycle be established by sampling similar roads in the same geographic area. If the moisture cycle cannot be established by similar roads using established watering control plans, the more complex methodology used to estimate the mitigation of rainfall and other precipitation can be used to estimate the control provided by routine watering. An estimate of the maximum daytime Class A pan evaporation (based upon daily evaporation data published in the monthly Climatological Data for the state by the National Climatic Data Center) should be used to insure that adequate watering capability is available during periods of highest evaporation. The hourly precipitation values in the spreadsheet should be replaced with the equivalent inches of precipitation (where the equivalent of 1 inch of precipitation is provided by an application of 5.6 gallons of water per square yard of road). Information on the long term average annual evaporation and on the percentage that occurs between May and October was published in the Climatic Atlas (Reference 16). Figure 13.2.2-3 presents the geographical distribution for "Class A pan evaporation" throughout the United States. Figure 13.2.2-4 presents the geographical distribution of the percentage of this evaporation that occurs between May and October. The U. S. Weather Bureau Class A evaporation pan is a cylindrical metal container with a depth of 10 inches and a diameter of 48 inches. Periodic measurements are made of the changes of the water level.

The above methodology should be used only for prospective analyses and for designing watering programs for existing roadways. The quality rating of an emission factor for a watered road that is based on this methodology should be downgraded two letters. Periodic road surface samples should be collected and analyzed to verify the efficiency of the watering program.

As opposed to watering, chemical dust suppressants have much less frequent reapplication requirements. These materials suppress emissions by changing the physical characteristics of the existing road surface material. Many chemical unpaved road dust suppressants form a hardened surface that binds particles together. After several applications, a treated road often resembles a paved road except that the surface is not uniformly flat. Because the improved surface results in more grinding of small particles, the silt content of loose material on a highly controlled surface may be substantially higher than when the surface was uncontrolled. For this reason, the models presented as Equations 1a and 1b cannot be used to estimate emissions from chemically stabilized roads. Should the road be allowed to return to an

uncontrolled state with no visible signs of large-scale cementing of material, the Equation 1a and 1b emission factors could then be used to obtain conservatively high emission estimates.

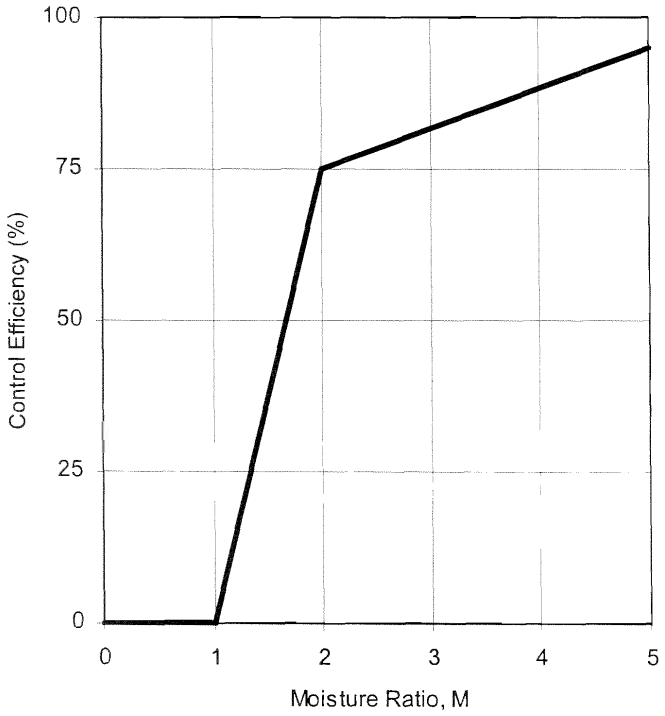

Figure 13.2.2-2. Watering control effectiveness for unpaved travel surfaces

The control effectiveness of chemical dust suppressants appears to depend on (a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period. Other factors that affect the performance of dust suppressants include other traffic characteristics (e. g., cornering, track-on from unpaved areas) and road characteristics (e. g., bearing strength, grade). The variabilities in the above factors and differences between individual dust control products make the control efficiencies of chemical dust suppressants difficult to estimate. Past field testing of emissions from controlled unpaved roads has shown that chemical dust suppressants provide a PM-10 control efficiency of about 80 percent when applied at regular intervals of 2 weeks to 1 month.

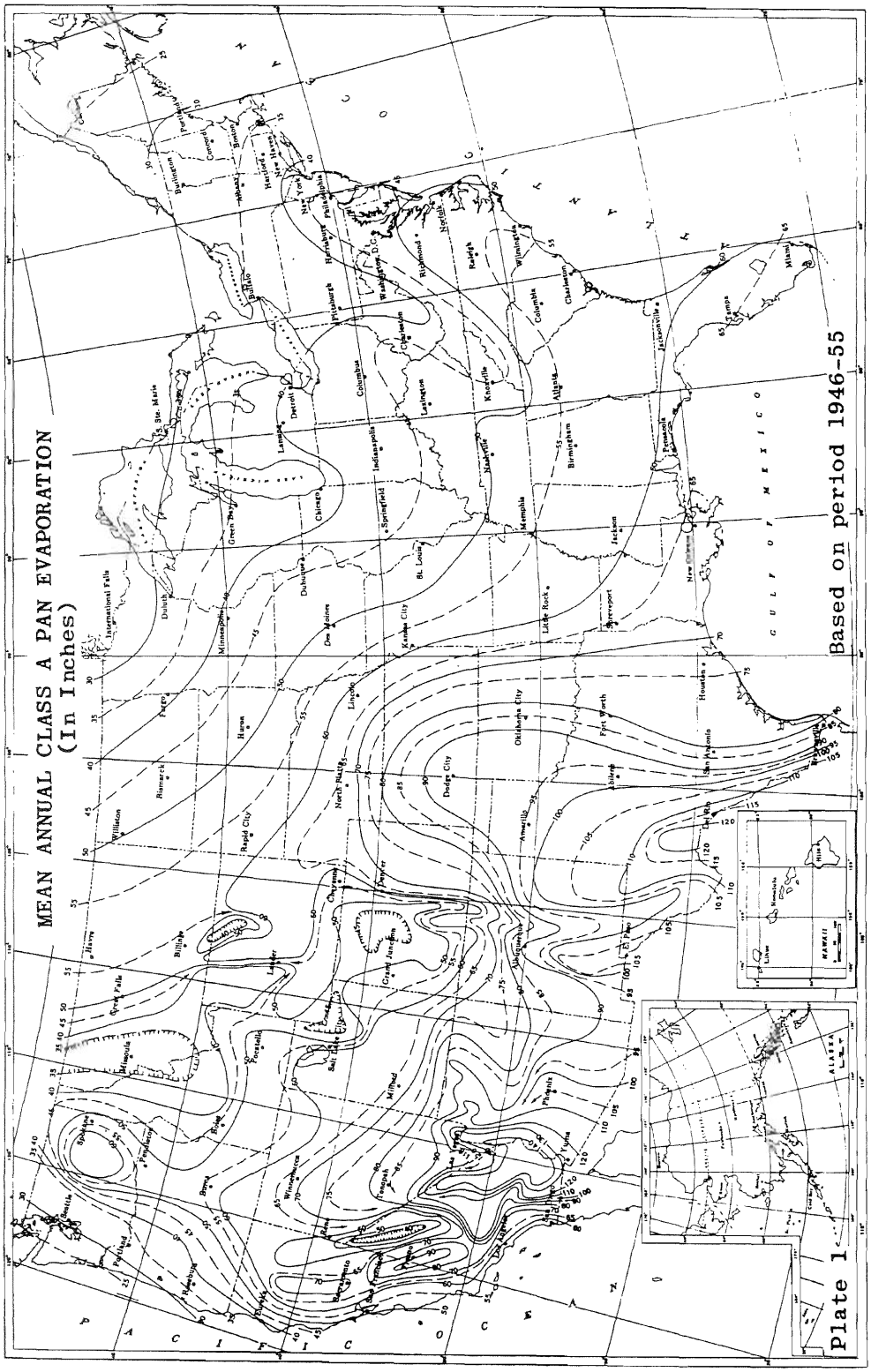

Figure 13.2.2-3. Annual evaporation data.

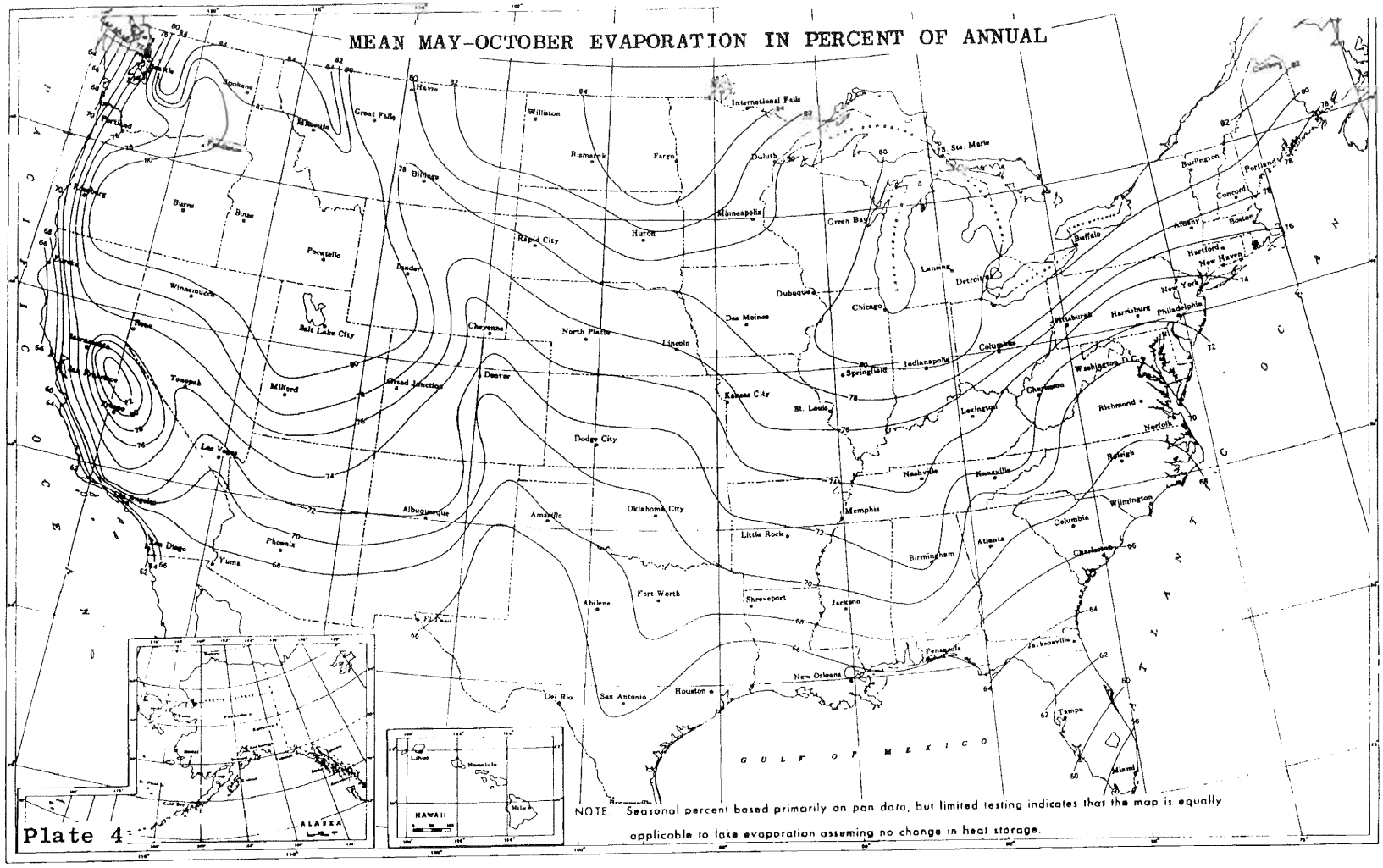

Figure 13.2.2-4. Geographical distribution of the percentage of evaporation occurring between May and October.

Petroleum resin products historically have been the dust suppressants (besides water) most widely used on industrial unpaved roads. Figure 13.2.2-5 presents a method to estimate average control efficiencies associated with petroleum resins applied to unpaved roads.[20] Several items should be noted:

1. The term "ground inventory" represents the total volume (per unit area) of petroleum resin concentrate (*not solution*) applied since the start of the dust control season.

2. Because petroleum resin products must be periodically reapplied to unpaved roads, the use of a time-averaged control efficiency value is appropriate. Figure 13.2.2-5 presents control efficiency values averaged over two common application intervals, 2 weeks and 1 month. Other application intervals will require interpolation.

3. Note that zero efficiency is assigned until the ground inventory reaches 0.05 gallon per square yard (gal/yd^2). Requiring a minimum ground inventory ensures that one must apply a reasonable amount of chemical dust suppressant to a road before claiming credit for emission control. Recall that the ground inventory refers to the amount of petroleum resin concentrate rather than the total solution.

As an example of the application of Figure 13.2.2-5, suppose that Equation 1a was used to estimate an emission factor of 7.1 lb/VMT for PM-10 from a particular road. Also, suppose that, starting on May 1, the road is treated with 0.221 gal/yd^2 of a solution (1 part petroleum resin to 5 parts water) on the first of each month through September. Then, the average controlled emission factors, shown in Table 13.2.2-5, are found.

Table 13.2-2-5. EXAMPLE OF AVERAGE CONTROLLED EMISSION FACTORS FOR SPECIFIC CONDITIONS

Period	Ground Inventory, gal/yd^2	Average Control Efficiency, %[a]	Average Controlled Emission Factor, lb/VMT
May	0.037	0	7.1
June	0.073	62	2.7
July	0.11	68	2.3
August	0.15	74	1.8
September	0.18	80	1.4

[a] From Figure 13.2.2-5, ≤10 μm. Zero efficiency assigned if ground inventory is less than 0.05 gal/yd^2. 1 lb/VMT = 281.9 g/VKT. 1 gal/yd^2 = 4.531 L/m^2.

Besides petroleum resins, other newer dust suppressants have also been successful in controlling emissions from unpaved roads. Specific test results for those chemicals, as well as for petroleum resins and watering, are provided in References 18 through 21.

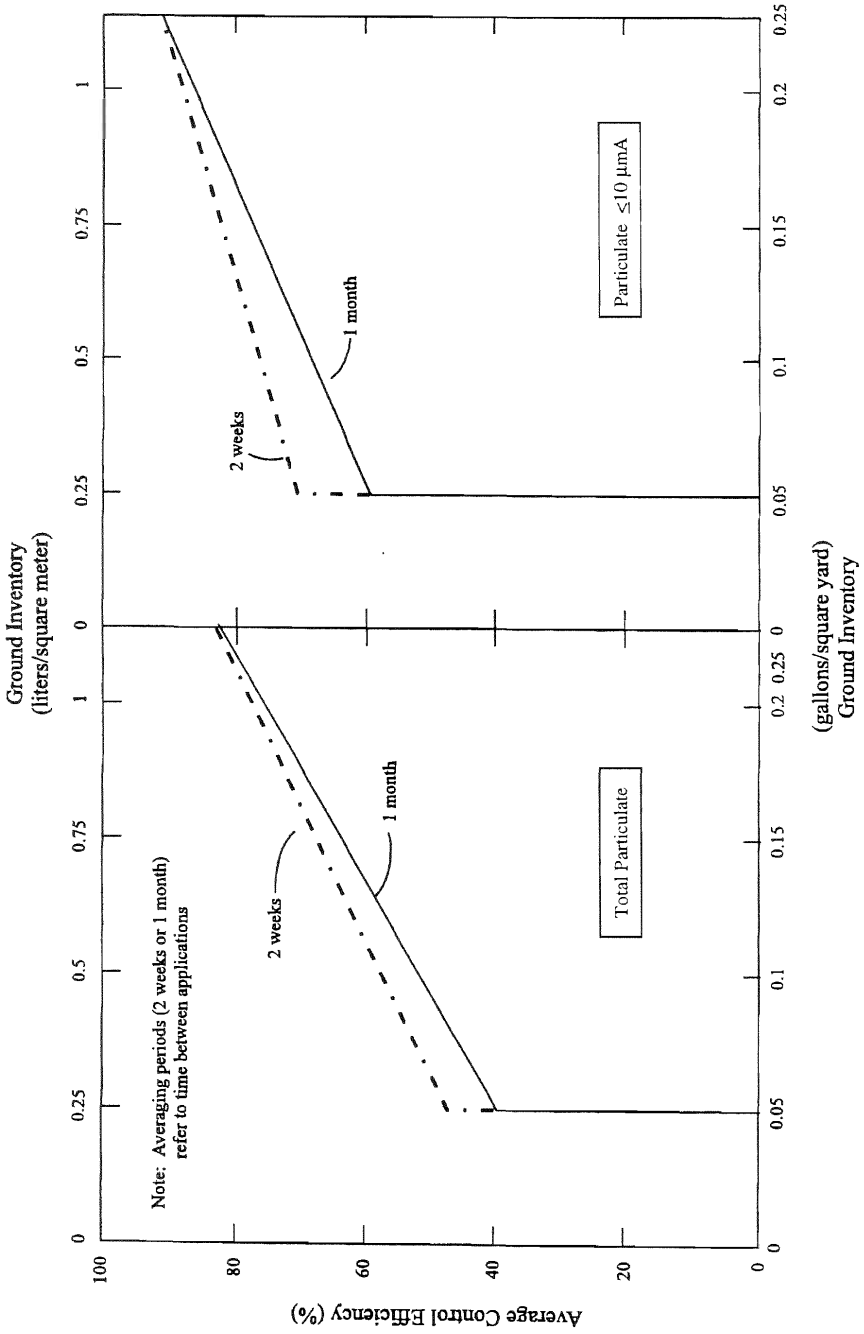

Figure 13.2.2-5. Average control efficiencies over common application intervals.

13.2.2.4 Updates Since The Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the background report for this section (Reference 6).

October 1998 (Supplement E)– This was a major revision of this section. Significant changes to the text and the emission factor equations were made.

October 2001 – Separate emission factors for unpaved surfaces at industrial sites and publicly accessible roads were introduced. Figure 13.2.2-2 was included to provide control effectiveness estimates for watered roads.

December 2003 – The public road emission factor equation (equation 1b) was adjusted to remove the component of particulate emissions from exhaust, brake wear, and tire wear. The parameter C in the new equation varies with aerodynamic size range of the particulate matter. Table 13.2.2-4 was added to present the new coefficients.

January 2006 – The PM-2.5 particle size multipliers (i.e., factors) in Table 13.2.2-2 were modified and the quality ratings were upgraded from C to B based on the wind tunnel studies of a variety of dust emitting surface materials.

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13.2.4 Aggregate Handling And Storage Piles

13.2.4.1 General

Inherent in operations that use minerals in aggregate form is the maintenance of outdoor storage piles. Storage piles are usually left uncovered, partially because of the need for frequent material transfer into or out of storage.

Dust emissions occur at several points in the storage cycle, such as material loading onto the pile, disturbances by strong wind currents, and loadout from the pile. The movement of trucks and loading equipment in the storage pile area is also a substantial source of dust.

13.2.4.2 Emissions And Correction Parameters

The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on 3 parameters of the condition of a particular storage pile: age of the pile, moisture content, and proportion of aggregate fines.

When freshly processed aggregate is loaded onto a storage pile, the potential for dust emissions is at a maximum. Fines are easily disaggregated and released to the atmosphere upon exposure to air currents, either from aggregate transfer itself or from high winds. As the aggregate pile weathers, however, potential for dust emissions is greatly reduced. Moisture causes aggregation and cementation of fines to the surfaces of larger particles. Any significant rainfall soaks the interior of the pile, and then the drying process is very slow.

Silt (particles equal to or less than 75 micrometers [μm] in diameter) content is determined by measuring the portion of dry aggregate material that passes through a 200-mesh screen, using ASTM-C-136 method.[1] Table 13.2.4-1 summarizes measured silt and moisture values for industrial aggregate materials.

Table 13.2.4-1. TYPICAL SILT AND MOISTURE CONTENTS OF MATERIALS AT VARIOUS INDUSTRIES[a]

Industry	No. Of Facilities	Material	Silt Content (%)			Moisture Content (%)		
			No. Of Samples	Range	Mean	No. Of Samples	Range	Mean
Iron and steel production	9	Pellet ore	13	1.3 - 13	4.3	11	0.64 - 4.0	2.2
		Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.0	5.4
		Coal	12	2.0 - 7.7	4.6	11	2.8 - 11	4.8
		Slag	3	3.0 - 7.3	5.3	3	0.25 - 2.0	0.92
		Flue dust	3	2.7 - 23	13	1	—	7
		Coke breeze	2	4.4 - 5.4	4.9	2	6.4 - 9.2	7.8
		Blended ore	1	—	15	1	—	6.6
		Sinter	1	—	0.7	0	—	—
		Limestone	3	0.4 - 2.3	1.0	2	ND	0.2
Stone quarrying and processing	2	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
		Various limestone products	8	0.8 - 14	3.9	8	0.46 - 5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.0	0.9
		Tailings	2	ND	11	1	—	0.4
Western surface coal mining	4	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
		Overburden	15	3.8 - 15	7.5	0	—	—
		Exposed ground	3	5.1 - 21	15	3	0.8 - 6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5
Municipal solid waste landfills	4	Sand	1	—	2.6	1	—	7.4
		Slag	2	3.0 - 4.7	3.8	2	2.3 - 4.9	3.6
		Cover	5	5.0 - 16	9.0	5	8.9 - 16	12
		Clay/dirt mix	1	—	9.2	1	—	14
		Clay	2	4.5 - 7.4	6.0	2	8.9 - 11	10
		Fly ash	4	78 - 81	80	4	26 - 29	27
		Misc. fill materials	1	—	12	1	—	11

[a] References 1-10. ND = no data.

13.2.4.3 Predictive Emission Factor Equations

Total dust emissions from aggregate storage piles result from several distinct source activities within the storage cycle:

1. Loading of aggregate onto storage piles (batch or continuous drop operations).
2. Equipment traffic in storage area.
3. Wind erosion of pile surfaces and ground areas around piles.
4. Loadout of aggregate for shipment or for return to the process stream (batch or continuous drop operations).

Either adding aggregate material to a storage pile or removing it usually involves dropping the material onto a receiving surface. Truck dumping on the pile or loading out from the pile to a truck with a front-end loader are examples of batch drop operations. Adding material to the pile by a conveyor stacker is an example of a continuous drop operation.

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:[11]

$$E = k(0.0016) \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (kg/megagram [Mg])} \quad (1)$$

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 μm	< 15 μm	< 10 μm	< 5 μm	< 2.5 μm
0.74	0.48	0.35	0.20	0.053[a]

[a] Multiplier for < 2.5 μm taken from Reference 14.

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as follows. Note that silt content is included, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the 2 was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced 1 quality rating level if the silt content used in a particular application falls outside the range given:

Ranges Of Source Conditions For Equation 1			
Silt Content (%)	Moisture Content (%)	Wind Speed	
		m/s	mph
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

To retain the quality rating of the equation when it is applied to a specific facility, reliable correction parameters must be determined for specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site-specific values for

correction parameters cannot be obtained, the appropriate mean from Table 13.2.4-1 may be used, but the quality rating of the equation is reduced by 1 letter.

For emissions from equipment traffic (trucks, front-end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 13.2.2). For vehicle travel between storage piles, the silt value(s) for the areas among the piles (which may differ from the silt values for the stored materials) should be used.

Worst-case emissions from storage pile areas occur under dry, windy conditions. Worst-case emissions from materials-handling operations may be calculated by substituting into the equation appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 hours. The treatment of dry conditions for Section 13.2.2, vehicle traffic, "Unpaved Roads", follows the methodology described in that section centering on parameter p. A separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity also may be justified for the worst-case averaging period.

13.2.4.4 Controls[12-13]

Watering and the use of chemical wetting agents are the principal means for control of aggregate storage pile emissions. Enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions. Watering is useful mainly to reduce emissions from vehicle traffic in the storage pile area. Watering of the storage piles themselves typically has only a very temporary slight effect on total emissions. A much more effective technique is to apply chemical agents (such as surfactants) that permit more extensive wetting. Continuous chemical treating of material loaded onto piles, coupled with watering or treatment of roadways, can reduce total particulate emissions from aggregate storage operations by up to 90 percent.[12]

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