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☐ **Telephone**	☒ **Email**	☐ **Meeting Location:** N/A	
NAME(s):	Wenjun Qian, Air Resources Engineer	**DATE:** 09/30/2020	**TIME:**
WITH:	Xuna Cai, Senior Air Quality Engineer, Bay Area Air Quality Management District		
SUBJECT:	Engineering Evaluation and Health Risk Assessment result memorandum for BAAQMD Application 29830 (China Mobile Data Center)		

COMMENTS:

This report of conversation documents an e-mail exchange between Xuna Cai, Senior Air Quality Engineer at Bay Area Air Quality Management District (BAAQMD), and Wenjun Qian (CEC staff) regarding China Mobile International's "US1 Data Center" project, located at 6320 San Ignacio Ave. San Jose, CA. Two documents are included:

1. BAAQMD's Engineering Evaluation, and
2. BAAQMD's Health Risk Assessment (HRA) result interoffice memorandum dated December 3, 2019.

The e-mail exchange is attached, followed by the Engineering Evaluation (pages 1 to 12) and the HRA result memorandum (page 13 and beyond).

cc:	**Signed:** _____|s|_____ **Name**: Wenjun Qian, Air Resources Engineer

Qian, Wenjun@Energy

From: Xuna Cai <xcai@baaqmd.gov>
Sent: Wednesday, September 30, 2020 1:39 PM
To: Qian, Wenjun@Energy
Cc: Daphne Chong; Dennis Jang; Bemis, Gerry@Energy; Hughes, Joseph@Energy
Subject: Engineering evaluation and HRA result memo for Application 29830 (China Mobile Data Center)
Attachments: 29830-HRA Report Memo.pdf; 29830-Eval - Final.pdf

Hi Wenjun,

Per your request, the engineer evaluation and HRA result memo for Application 29830 are attached to this email. They are the approved version we used as a basis to issue the Authorities to Construct for 15 standby generators in Application 29830.

Please let me know if you have any questions or need additional info.

Thanks,

Xuna Cai
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ENGINEERING EVALUATION
CHINA MOBILE INERNATIONAL
PLANT 24374
APPLICATION 29830

1. BACKGROUND

China Mobile International is applying for Authorities to Construct and Permits to Operate 15 new emergency standby generators at a new data center, located at 6320 San Ignacio Ave. San Jose, CA. The applicant also named it "US1 Data Center" in the application package. The sources covered by this application for an authority to construct/permit to operate are identified as follows:

Fifteen Emergency Backup Power Generators:
S-1 through S-15: Standby Diesel Generators, 2019 Kohler Engine, Model KD83V16, 4331 BHP.

After reviewing the Initial Study for this proposed data center, the CEQA lead agency, City of San Jose, prepared an Addendum to the Edenvale Redevelopment Project Final Environmental Impact Report (EIR) (SCH # 1996052098) and Envision San Jose 2040 General Plan Final Environmental Impact Report" (SCH # 2009072096) in 2019, certifying that the environmental impacts of this project were addressed by these two Final EIRs.

2. CRITERIA POLLUTANT EMISSIONS

Criteria pollutant emissions from the diesel engines that are the subject of this application are outlined below. POC, NOx, CO, PM_{10}, and $PM_{2.5}$ emissions were calculated using manufacturer data obtained using ISO8178-D2 cycle method for EPA Engine Family: KLHAL103.ESP. SO_2 emissions were calculated using factors specified in AP-42 Chapter 3, Table 3.4-1. Emission factors for the engines are summarized below:

Table 1: Emission Factors

Pollutant	Emission Factor
	g/hp-hr
PM_{10}	0.08
$PM_{2.5}$	0.08
POC	0.43
NOx	3.89
SO_2[1]	0.0055
CO	0.77

[1]Derived from Table 3.4-1 of AP-42 SO2 factor of (8.09E-3S) lb/hp-hr, assuming S=0.0015 wt% in California ULSD.

The emissions calculations shown here are based on 29 hours per year that each engine can be operated for maintenance and reliability-testing purposes. This limit is less than the maximum 50 hours per year per engine allowed by other regulatory requirements because the facility has agreed to this limit in order to comply with the health risk requirements in the District's Regulation 2, Rule 5. Detailed discussion is provided in Section 4.

Emission calculations are based on the engine specifications and operation schedule shown in Table 1 below (per engine).

Table 2: Emergency Backup Power Generator Operation and Specification Information

Emission Calculation Basis	per engine
Horsepower	4331
Annual Hours of Operation	29
Daily Hours of Operation (hr)	24
Fuel Consumption Rate (gal/hr)	200.5

Annual Emissions / Engine:

NOx	=	(	3.89	g/hp-hr)	(	4331	hp)	(	29	hr/yr)	(lb/454g)	=	1076.89	lb/yr	=	0.538	TPY
CO	=	(	0.77	g/hp-hr)	(	4331	hp)	(	29	hr/yr)	(lb/454g)	=	212.49	lb/yr	=	0.106	TPY
POC	=	(	0.43	g/hp-hr)	(	4331	hp)	(	29	hr/yr)	(lb/454g)	=	119.65	lb/yr	=	0.060	TPY
$PM_{10}/PM_{2.5}$	=	(	0.08	g/hp-hr)	(	4331	hp)	(	29	hr/yr)	(lb/454g)	=	22.69	lb/yr	=	0.011	TPY
SO_2	=	(	0.0055	g/hp-hr)	(	4331	hp)	(	29	hr/yr)	(lb/454g)	=	1.52	lb/yr	=	0.001	TPY

Daily Emissions / Engine:

NOx	=	(	3.89	g/hp-hr)	(	4331	hp)	(	24	hr/day)	(lb/454g)	=	891.22	lb/day
CO	=	(	0.77	g/hp-hr)	(	4331	hp)	(	24	hr/day)	(lb/454g)	=	175.85	lb/day
POC	=	(	0.43	g/hp-hr)	(	4331	hp)	(	24	hr/day)	(lb/454g)	=	99.02	lb/day
$PM_{10}/PM_{2.5}$	=	(	0.08	g/hp-hr)	(	4331	hp)	(	24	hr/day)	(lb/454g)	=	18.78	lb/day
SO_2	=	(	0.0055	g/hp-hr)	(	4331	hp)	(	24	hr/day)	(lb/454g)	=	1.26	lb/day

Criteria Pollutant Cumulative Increase

Permit applicants must provide emission offsets for the facility's cumulative increase if the facility's potential to emit exceeds certain thresholds. Cumulative Increase is defined as the sum of all emissions increases authorized by authorities to construct and permits to operate issued to a facility since the applicable cumulative increase baseline date, which is April 5, 1991 for POC, NOx, $S0_2$, PM_{10}, and CO, and August 31, 2016 for $PM_{2.5}$. This is a new facility, so its cumulative increase will simply be the emissions

from the equipment being permitted under the current application. The cumulative increase for the facility is summarized in Table 3 below. The requirement to provide offsets for the facility's cumulative increase is addressed below in Section 4.

Table 3: Cumulative Emissions Increase

Pollutant	Existing (TPY)	Project Increase (TPY)	Facility Cumulative Increase (TPY)
NOx	0.000	8.077	8.077
CO	0.000	1.594	1.594
POC	0.000	0.897	0.897
$PM_{10}/PM_{2.5}$	0.000	0.170	0.170
SO_2	0.000	0.011	0.011

3. STATEMENT OF COMPLIANCE

Regulation 2 - Permits, Rule 1 – General Requirements

Public Notice, Schools (Section 2-1-412)

A new or modified source located within 1,000 feet of the outer boundary of a K-12 school site which results in the increase in emissions of any substance into the ambient air, which has been identified by the California Air Resources Board or the Air Pollution Control Officer as a toxic air contaminant or a hazardous air contaminant or which is on the list required to be prepared pursuant to subdivision (a) of Section 25532 or Section 44321 subsections (a) to (f) inclusive of the Health and Safety Code, shall prepare and distribute a public notice in accordance with subsections 412.1 and 412.2 of *Regulation 2, Rule 1 General Requirements*. The sources in this application are not within 1,000 feet of a K-12 school, therefore, a public notice is not required.

Regulation 2 - Permits, Rule 2 – New Source Review

Best Available Control Technology Requirement (Section 2-2-301)

An authority to construct and/or a permit to operate for a new or modified source must require the applicant to use the Best Available Control Technology (BACT) to control emissions if the source will have the potential to emit a District BACT pollutant in an amount of 10 or more pounds per day. The emergency backup power generators (sources S-1 through S-15) will exceed this limit for POC, NOx, CO, and PM10/PM2.5, so they must apply BACT for these pollutants.

BACT is defined as the most stringent emissions limitation, control device, or control technique that (i) has been achieved in practice at other similar sources and/or (ii) is technologically feasible and cost-effective. *See* Reg. 2-2-202. To determine what level of control constitutes BACT for the emergency backup diesel engines, the District reviewed available control technologies that can be effective at controlling POC, NOx, CO, and PM10/PM2.5from these sources.

Control Technology Review

Several control technologies can reduce NOx, CO, POC, and PM emissions from emergency backup diesel engines. These technologies have been divided into three categories: Clean Fuels, Combustion Technologies, and Post-Combustion Technologies.

Clean Fuel Technology

The use of diesel fuel with a low nitrogen content reduces the amount of NOx formed during combustion. The less nitrogen available in the fuel, the less that can be converted to NOx upon combustion. Diesel fuel producers are not required to remove nitrogen from the fuel specifically for NOx reduction purposes. But they are required to remove sulfur in order to comply with regulatory mandates, and the hydro-treating technique they use to remove the sulfur also removes more than 50% of the nitrogen. As a result, using ultra-low-sulfur diesel fuel will provide benefits in reducing NOx emissions as well as reducing sulfur dioxide emissions. Ultra-low sulfur diesel is required to be used by the California Air Resources Board (CARB) and is therefore achieved in practice for these engines.

Combustion Technologies

NOx, CO, POC, and PM10/PM2.5 emissions can be minimized by optimizing the engines' combustion process using techniques such as injection timing retard, preignition chamber combustion, air-to-fuel ratio adjustments, and derating. These combustion characteristics are determined by the design of the engine, which is dictated by the manufacturer and cannot be controlled by the end user. The end user can reduce emissions by using the cleanest engines available, however. Engines are certified to meet progressively more stringent emissions performance standards using EPA's "Tier" system, with higher-tier engines representing more stringent levels of emissions control. For the size of engines that will be used for this project, the most stringent level of emissions control that can be achieved using combustion controls is Tier 2.[1] The use of Tier 2 engines is achieved in practice.

Post-Combustion Technologies

Currently, the most effective and prevalent post combustion technologies used to abate POC, CO, and NOx rely on the use of catalysts. For NOx reduction, catalytic technology can come in the form of a selective catalytic reduction unit, lean-NOx catalyst, or NOx adsorber. For POC and CO, reduction is typically achieved through an oxidation catalyst. For each of these technologies, the catalyst is used to lower the heat of reaction

[1] EPA's diesel emission tiers range from Tier 0 through Tier 4. The Tier 4 standards require catalytic control devices, which are addressed below. For diesel engines over 750 horsepower, there are no Tier 3 standards. The next most stringent set of standards for this size category after Tier 2 is Tier 4, which requires catalytic control devices. *See* California Air Resources Board, Non-Road Diesel Engine Certification Tier Chart, available at: https://ww2.arb.ca.gov/resources/documents/non-road-diesel-engine-certification-tier-chart-pdf. The most stringent tier that can be achieved with combustion controls is therefore Tier 2 for this size category.

that is required for the breakdown and/or conversion of the target pollutants. The catalyst needs to be at a relatively high temperature in order to activate and become effective, however.[2] With emergency standby generators, the catalyst would not reach its effective temperature during short-duration operations associated with periodic testing and maintenance, which is primarily how these engines will be operated. As a result, add-on catalytic control devices are not normally required for emergency standby generators, and they are therefore not "achieved in practice" for purposes of the BACT requirement for this type of source.

Catalytic control devices would become effective if and when the engines are operated for longer periods in the case of a power outage. Emergency operation will be infrequent, however, and it is not expected to last for a significant amount of time when it does occur. As a result, the emission reduction benefit from having a catalytic control device would be minimal and would not be justified under the District's BACT regulations given the costs involved. Studies that have evaluated the additional costs and emission reduction benefits that would be involved in implementing catalytic control technologies on emergency backup engines have shown that the cost would be in the range of $66,000 to $682,000 per ton of emission reduction benefit.[2] This cost per ton greatly exceeds the District's BACT cost-effectiveness threshold of $17,500 per ton.[3] Catalytic control devices are therefore not required as BACT for this project.

For PM10/PM2.5, diesel particulate filter is typically used as an effective post-combustion technology. Retrofitting a Tier 2 engine with a filter would cost about $100,000 for engines rated more than 2000 horsepower according to a California Air Resources Board's staff report[3]. Assuming an 85% reduction efficiency, a diesel particulate filter will reduce up to 0.01 tons of PM per year per engine from reliability-testing operation. The cost per ton of PM reduction would be much more than a million dollar which far exceeds the current District's BACT cost-effectiveness threshold for PM10, $5,300 per ton.

BACT Determination

From the analysis of the various technologies that could be implemented to reduce CO, POC, NOx and/or PM10/PM2.5 for each engine type, the District has concluded

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[2] *See* Sacramento Metropolitan Air Quality Management District BACT Determination No. 172 (April 10, 2018), available at: www.airquality.org/StationarySources/Documents/IC%20Engine%20Compression%20Standby%20Diesel%20Fired%20BACT%20172.pdf; California Air Resources Board, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Airborne Toxic control Measure for Stationary Compression Ignition Engines (Sept. 2010), available at www.arb.ca.gov/regact/2010/atcm2010/atcmisor.pdf.

[3] See BAAQMD BACT/TBACT Workbook, Policy Implementation and Procedure (2002), available at: www.baaqmd.gov/-/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policyand-implementation-procedure.pdf?la=en. Note that the emergency backup power generators will be equipped with diesel particulate filters in order to limit their emissions of particulate matter. The applicant will be installing these filters in part to reduce particulate emissions to a level where they are not subject to the BACT requirement for particulate matter. These particulate filters come with an oxidation catalyst as standard equipment, and so they will have a catalyst that will be functional during emergency operations. There is no additional cost associated with these catalysts, however, as they are included with the diesel particulate filters that are being installed anyway for other reasons.

that the use of ultra-low sulfur diesel fuel and EPA Tier 2 certified engines are achieved-in-practice control technologies and are technologically feasible and cost-effective. These control technologies are therefore required as BACT. The engine type that will be used for this project is certified to meet the EPA Tier 2 emission standard, and the facility will be required by CARB regulations to use ultra-low-sulfur diesel fuel. Therefore, the project complies with the BACT requirements under Regulation 2-2-301 for all applicable pollutants.

Offset Requirements, POC and NO_x (Section 2-2-302)

In accordance with Regulation 2-2-302, POC and NO_x offsets are required if a facility's potential to emit more than 10 tons per year (tpy), respectively. The facility-wide NOx and POC emissions are less than 10 tpy for each pollutant, so it is not subject to offsets for NOx or POC.

Offset Requirement, $PM_{2.5}$, PM_{10} and Sulfur Dioxide (Section 2-2-303)

In accordance with Regulation 2-2-303, PM_{10}, $PM_{2.5}$, and SO_2 offsets are required only if a facility's potential to emit those pollutants exceeds 100 tons per year, respectively. No offsets are required for these pollutants because the facility's potential to emit is below 1 tpy for all of them.

Prevention of Significant Deterioration (Section 2-2-304 through 307)

Per Regulation 2-2-224, this facility will not emit 100 tons or more per year of any PSD pollutant and, therefore, is not a major PSD facility and is not subject to any of the PSD requirements in Regulations 2-2-304 through 2-2-307.

NAAQS Protection Requirement (Section 2-2-308)

Per Regulation 2-2-308, if a project will result in a significant net increase in emissions of CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, or lead, the applicant must demonstrate that the emissions will not cause or contribute to any exceedance of the National Ambient Air Quality Standards for these pollutants. This project will not involve any significant net emissions increases, as defined in Regulation 2-2-227.2.

Publication of Notice and Opportunity for Public Comment (Section 2-2-404)

If an application involves a major facility, a PSD project, or an increase in CO, NO_x, SO_2, PM_{10}, $PM_{2.5}$, VOC, or lead in an amount that is significant as defined in Regulation 2-2-227.2, the District must prepare and distribute a public notice and provide an opportunity for public comment in accordance with Regulation 2-2-404 (Publication of Notice and Opportunity for Public Comment). This application does not involve a major facility or PSD project, and it will not increase emissions above any of the significance levels defined in Regulation 2-2-227.2.

Regulation 2- Permits, Rule 5 New Source Review of Toxic Air Contaminants

Regulation 2-5-301 requires new or modified sources of Toxic Air Contaminants (TACs) to apply Best Available Control Technology for Toxics (TBACT) if the associated cancer risk is greater than one in one million or the chronic hazard index is greater than 0.2. Regulations 2-5-301 and 2-5-302 require the APCO to deny an authority to construct and

permit to operate for a project if the project risk or project net risk at any receptor exceeds a cancer risk of ten in one million, or an acute or chronic hazard index of one.

Regulation 2-5-402 requires a Health Risk Assessment if TAC emissions exceed the screening thresholds set forth in Table 2-5-1 in Regulation 2, Rule 5. For this project, emissions of diesel particulate matter exceed the Table 2-5-1 screening threshold for chronic risk. (Per Regulation 2-5, diesel particulate matter is used as a surrogate for evaluating the health risks for all TACs in the engine exhaust.) The chronic risk screening threshold is 0.26 lb/yr, and the maximum diesel particulate emissions will be 22.69 lb/yr for each of the emergency backup power generators (S-1 through S-15).

The Air District therefore undertook a Health Risk Assessment to evaluate the potential chronic carcinogenic and non-carcinogenic health risks from diesel PM emissions from this project. The Health Risk Assessment evaluated risks to workers and to residents in the vicinity of the project.

The Health Risk Assessment evaluated chronic health risks both from the individual diesel engines and from the project as a whole (i.e., from all 15 emergency backup power generators together). The evaluation assumed that each engine would operate up to the maximum 50 hours per year allowed for testing and maintenance purposes. Emissions from emergency operations were not included because they are exempt from Regulation 2, Rule 5 under Section 2-5-111.

The results of the Health Risk Assessment show that the total project risk would be below the limits of 10 in a million for carcinogenic risk and a hazard index of one for non-carcinogenic risk set forth in Regulations 2-5-302 and 2-5-303 if the annual reliability-testing operation is limited no more than 29 hours per year per engine. The applicant has accepted this limit as a permit condition.

Each source also complies with the current TBACT requirement, which requires PM emission from a standby diesel engine to be no greater than 0.15 g/hp-hr. Therefore, these sources comply with the TBCT requirement in Regulation 2-5-301.

Regulation 2- Permits, Rule 6 Major Facility Review

The facility is not subject to Title V permitting requirements because the facility potential to emit does not exceed any of the major source thresholds for criteria pollutants or hazardous air pollutants.

Regulation 6 - Particulate Matter, Rule 1 - General Requirements

Ringelmann No. 1 Limitation, Opacity Limitation, and Visible Particles (Section 6-1-301, 302, and 305)

Section 301 and 302 prohibits a source from emitting visible emissions as dark or darker than No. 1 on the Ringelmann Chart or with an opacity of 20% or more for more than three minutes in any hour. Section 305 prohibits a source from emitting particles in

sufficient number to cause annoyance to any other person where the particles are large enough to be visible as individual particles at the emission point or of such size and nature as to be visible individually as incandescent particles. These engines are all EPA certified Tier 2 engines, so they should emit low amount of PM and are expected to comply with these requirements.

Total Suspended Particulate (TSP) Concentration Limits (Section 6-1-310.1 and 6-1-310.2)

Section 310.1 prohibits any person from emitting from any source particulate matter in excess of 0.15 grains/dscf of exhaust gas volume. The emission rate from S-1 through S-15 each is 0.08 grams/hp-hr and the exhaust flowrate of each source during normal operation is 22,837 cubic feet per minute, which results in an outlet grain loading of about 0.004 grains/cf. This estimated emission rate is much less than the limit 0.15 grains/dscf and is in compliance with Regulation 6-1-310.1. Regulation 6-1-310.2 does not apply because the potential to emit TSP for each engine does not exceed 1000 kg per year.

Regulation 9 – Inorganic Gaseous Pollutants, Rule 1 Sulfur Dioxide

S-1 through S-15 are subject to Regulation 9, Rule 1, Section 301, 302, and 304. Section 301 requires that sulfur dioxide emissions shall not result in ground level concentrations in excess of 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes or 0.05 ppm averaged over 24 hours. Section 302 requires that a gas stream containing sulfur dioxide shall not contain sulfur dioxide in excess of 300 ppm (dry). Section 304 specifies that the sulfur content of liquid fuel burned shall not exceed 0.5% by weight. These sources will comply with all of the above sections by burning Ultra Low Sulfur Diesel with a sulfur content of 15 ppm, which is expected to result in less than 1 ppmv of SO_2 in the exhaust gas.

Regulation 9 – Inorganic Gaseous Pollutants, Rule 8 NOx and CO from Stationary Internal Combustion Engines

Exemptions (Section 9-8-110)

Section 110.5 exempts emergency standby engines from the requirements of Sections 9-8-301 through 305, 501 and 503.

Emergency Standby Engines, Hours of Operation (Section 9-8-330)

S-1 through S-15 are subject to the requirements of Section 330 which limits reliability related operation of the engines to 50 hours per year per engine. Permit conditions for these sources will include operating limits that meet this standard.

Monitoring and Records (Section 9-8-500)

S-1 through S-15 are subject to the reporting requirements of Sections 502 and 530. Permit conditions for these sources will include reporting requirements that meet this standard.

Regulation 10 – Standards of Performance for New Stationary Sources

New Source Performance Standards (NSPS)

Any new or modified source is required to comply with Regulation 10, Standard of Performance for New Stationary Sources – which is Title 40, Part 60 of the Code of Federal Regulation incorporated by reference. According to 40 CFR Section 60.4200(a)(1)(i) engines are subject to 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines if they have a displacement of less than 30 liters per cylinder where the model year is 2007 or later, for engines that are not fire pump engines. S-1 through S-15 each has a 16-cylinder engine with a total displacement of 83 liters, so each cylinder has a volume less than 30 liters. Therefore, these engines are subject to NSPS

Section 60.4205(b) requires that owners and operators of these engines comply with the emission standards in Section 60.4202, which refers to 40CFR89.112 and 40CFR89.113 for all pollutants. S-1 through S-15 meet the applicable standards as shown in the table below:

Table 4: Applicable NSPS Standards

Pollutant	**Manufacturer's Performance Data (g/hp-hr)**	**40CFR89.112 Emission Limits (g/bhp-hr)**
PM	0.08	0.15
NMHC + NO_x	4.33	4.8
CO	0.77	2.6

Regulation 11 – National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAP)

S-1 through S-11 are subject to 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE). Per 40 CFR 63.6590(c)(1), a new or reconstructed stationary RICE located at an area source must meet the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines. The engines are in compliance with the requirements of 40 CFR part 60 subpart IIII, as discussed above.

California Air Resource Board - Airborne Toxic Control Measure (ATCM) for Emergency Standby Diesel-Fueled CI Engines

The District is charged with enforcing the requirements of California's Air Toxic Control Measure for Stationary Compression Ignition Engines Title 17, California Code of Regulations, Section 93115 for the purpose of reducing diesel particulate matter (PM) and criteria pollutant emissions from stationary diesel-fueled compression ignition (CI) engines. Subsection 93115.6(a)(3)(A)(1)(a) sets forth Emission Standards for new

stationary emergency standby diesel fueled compression ignition engines with maximum engine power greater than 750 HP. S-1 through S-15 are subject to and meet the requirements of this section of the ATCM as shown in the table below:

Table 5: Applicable ATCM Standards

Pollutant	**Manufacturer's Performance Data (g/hp-hr)**	**ATCM Emission Standards (g/bhp-hr)**
PM	0.08	0.15
NMHC + NO_x	4.33	4.8
CO	0.77	2.6

California Environmental Act (CEQA)

The City of San Jose (City) is the CEQA lead agency for the China Mobile Data Center project. The City prepared a CEQA Initial Study and adopted an Addendum to the Edenvale Redevelopment Project Final Environmental Impact Report (EIR) (SCH # 1996052098) and Envision San Jose 2040 General Plan Final Environmental Impact Report" (SCH # 2009072096) in March 2019. The City also determined that this addendum will not be circulated for public review but will be attached to the EIRs, pursuant to CEQA Guidelines §15164(c). In the Initial Study/Addendum, the City found that the environmental impacts of this project were addressed by these two Final EIRs. In addition, the City stated that, if the proposed project is permitted by BAAQMD to operate the engines for reliability-testing more than 27 hours per year per engine on average, the applicant shall submit a request to the City and provide documents to demonstrate that the total emissions from engine maintenance and testing would not exceed 54 pounds of NOx per day on average and 10 tons of NOx per year. According to the emission estimates in Section 2, the permitted annual NOx emissions for this project are 8.1 tons based on an annual limit of 29-hour reliability-testing operation per engine, and the daily average NOx emissions for this project are 44.3 pounds when averaging the permitted annual NOx emissions over 365 days per year.

The Air District is a CEQA responsible agency for the China Mobile Data Center project. The Air District has reviewed and considered the project's environmental impacts as discussed in the City's Addendum to the Final EIRs and Initial Study in connection with its decision to issue the Authority to Construct. As the project will not be expected to have any significant impacts, there is no need to consider alternatives or mitigation measures (beyond what the District is already imposing under its regulations as outlined above) to avoid or minimize any such impacts.

4. PERMIT CONDITIONS

S-1 thru S-15 will be subject to Permit Condition Numbers 22829 as shown below.

Permit Condition Number 22829

1. The owner/operator shall not exceed 29 hours per year per engine for reliability-related testing.
   [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.6 (b)(3)(A)(1)(a)]
2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited.
   [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.6 (b)(3)(A)(1)(a)]
3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained.
   [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.10 (e)(1)]
4. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
   a. Hours of operation for reliability-related activities (maintenance and testing).
   b. Hours of operation for emission testing to show compliance with emission limits.
   c. Hours of operation (emergency).
   d. For each emergency, the nature of the emergency condition.
   e. Fuel usage for each engine(s).

   [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.10 (g) (or, Regulation 2-6-501)]
5. At School and Near-School Operation:
   If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:

The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session.

"School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.6 (b)(2)]

5. RECOMMENDATION

Issue the Authorities to Construct for the following sources:

S-1 through S-15: Standby Diesel Generators, 2019 Kohler Engine, Model KD83V16, 4331 BHP.

By:_____ Date:_____

Xuna Cai
Senior Air Quality Engineer

INTEROFFICE MEMORANDUM
DECCEMBER 3, 2019

TO: **Xuna Cai**

FROM: **Daphne Y. Chong**

SUBJECT: **Revised Results of Health Risk Assessment (HRA) for China Mobile International (San Jose, CA), Fifteen Standby Generator Diesel Engines (S-1 thru S-15), Plant #24374, Application #29830**

SUMMARY: Per your request, a revised health risk assessment (HRA) was completed for the above referenced permit application based on different set of engines (Kohler). This analysis estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from non-emergency operation of 15 standby generator diesel engines (S-1 thru S-15) at this facility. As stated in your HRA request memo, the applicant is considering a different engine models (Kohler) for this revised project. Project health risk estimates for this set of Kohler engines are as follows:

- 15 Kohlers: project cancer risk is estimated at 17 in a million; project chronic hazard index is estimated at 0.013.

In accordance with the District's Regulation 2, Rule 5, these sources do not comply with the project risk requirements. The applicant should consider limiting non-emergency operation of each engine to no more than 29 hours per year, or install an abatement device on each engine in order to reduce the project cancer risk to no more than 10 in a million.

EMISSIONS: Diesel particulate matter (PM) was used as a surrogate for all emitted TACs. The particulate emission rates were calculated based on the following:

Source	PM Emission Factor (g/bhp-hr)	Horsepower	Annual Usage (hours/year)	Diesel PM Emissions (lb/year)
15 Kohler	0.08	4,331	50	587

MODELING: The AERMOD air dispersion computer model (version 18081) was used to estimate annual average ambient air concentrations from the modeled sources. Model runs were made with 5 consecutive years of San Jose International Airport (KSJC) AERMOD ready meteorological data sets (2013-2017). These recently processed AERMET sets were prepared by BAAQMD meteorology staff and include an adjustment for surface friction (u*) that improves model performance at low wind speeds. Upper air data coincident with the local met data was taken from the Oakland International Airport station. The model was referenced in NAD 83 UTM coordinates and used 10-meter NED terrain data files for Santa Clara County. A flagpole height of 1.5 meters was used at each receptor to represent the human breathing zone. Each model run includes fifteen vertical exhaust stack outlets (point sources). Model runs were made with rural dispersion coefficients based on the typing scheme proposed by Auer, which best represents land use around this facility (79% rural). Stack and building parameters for the analysis were based on information provided by the applicant.

HEALTH RISK: Health risk estimates were calculated in accordance with the BAAQMD's Air Toxics NSR Program HRA Guidelines, dated December 2016. Estimates of residential risk assume potential exposure to annual average TAC concentrations occur 350 days per year, for 30 years. In addition, residential risk estimates assume a 95th percentile breathing rate for age groups younger than two years old, and 80th percentile breathing rate for age groups that are older than or equal to two years of age. Risk estimates for offsite workers assume potential exposure occurs 8

hours per day, 250 days per year, for 25 years. For offsite workers, the 95th percentile 8-hour breathing rate based on moderate activity was assumed. Residential cancer risk estimates include age sensitivity factors (ASFs) and fraction of time at home (FAH) adjustments. The ASFs are age-specific weighting factors used in calculating cancer risks from exposures of infants, children and adolescents, to reflect their anticipated special sensitivity to carcinogens. The maximum estimated health risks for this permit application are presented in the table below.

Kohlers Operating 50 hours per year per engine:

Receptor	Cancer Risk	Chronic Non-cancer Hazard Index
Resident	8.5 chances in a million	0.0023
Worker	17 chances in a million	0.013

Revised Health Risk Assessment Summary for Fifteen Standby Generator Diesel Engines - Kohler (S-1 thru S-15)
Facility = China Mobile International (San Jose, CA)

- **Plant #24374, Application #29830**
- **AERMOD Air Dispersion Model Used**
- **San Jose International Airport (2013-2017) Meteorological AERMET Data Used**
- **Santa Clara County 10m NED Terrain Data Used**
- **AER Default Settings**

School located in 10^{-6} isopleth? yes

Health Risk Estimates:

Receptor	Max. Annual Emission Rate		Max. Annual Avg. Chi/Q	Annual Average Exposure Concentration[1]	Diesel PM: Inhalation Dose[2]	Diesel PM: Inhalation Cancer Potency Factor (CPF)	Diesel PM: Inhalation Reference Exposure Level (REL)	***Max. Cancer Risk*** [3]	***Max. Non-cancer Hazard Quotient*** [4]
	(lb/yr)	(g/sec)	($\mu g/m^3$ per g/sec)	($\mu g/m^3$)	(mg/kg-day)	$(mg/kg\text{-}day)^{-1}$	($\mu g/m^3$)		
Resident	587	8.4E-03	1.4	0.011	see RICT	1.1E+00	5.0E+00	***8.5E-06***	***0.0023***
Worker	587	8.4E-03	7.6	0.064	1.0E-05	1.1E+00	5.0E+00	***1.7E-05***	***0.013***

1. Annual Average Exposure Concentration ($\mu g/m^3$) = Max. Annual Emission Rate (g/sec) * Max. Annual Avg. Chi/Q ($\mu g/m^3$ per g/sec)
2. Inhalation Dose (mg/kg-day) = Ann. Avg. Exp. Conc. ($\mu g/m^3$) * BR (L/kg-day) * UCF $(mg\text{-}m^3)/(\mu g/L)$ * EF; For Resident, see Residential Inhalation Cancer Table (RICT) for calculation procedure
3. Max. Cancer Risk = Inhalation Dose (mg/kg-day) * CPF $(mg/kg\text{-}day)^{-1}$ * ASF*(ED/AT); For Resident, see Residential Inhalation Cancer Table (RICT) for calculation procedure
4. Max. Non-cancer Hazard Quotient = Ann. Avg. Exp. Conc. ($\mu g/m^3$) / REL ($\mu g/m^3$)

Source(s) Operating Time:

	Daily (hours/day)	Weekly (days/week)	Annually (weeks/year)	Lifetime (years per 70-yr lifetime)	**Use Discount Factor (DF) showing actual coincident hours for worker/student**
Resident is Present While Source is Operating	24	7	50	30	
Worker is Present While Source is Operating	8	5	50	25	
Student is Present While Source is Operating	10	5	36	9	
Source is Operating	1	1	50	70	
Coincident Time **Worker** is Present While the Source is Operating	1.00	1.00			**0.025**
Coincident Time **Student** is Present While the Source is Operating	1.00	1.00			**0.020**

Thus, if a receptor is present 10 hours/day, but the source operates only 1 hours/day, the maximum that the receptor can be present while the source is operating is the number of hours the source is operating (e.g., 1 hours).

Discount factor = $(H_{coindent}/H_{worker})X(D_{coincident}/D_{worker})$

Exposure Parameters:

Receptor	Breathing Rate (BR)[5] (L/kg-day)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) days	Exposure Duration (ED) (years)	Units Conversion Factor (UCF) $(mg\text{-}m^3)/(\mu g\text{-}L)$	WAF[6] (Worker Adjustment Factor)
Resident	see RICT	24	350	30	1.0E-06	
Worker	230	8	250	25	1.0E-06	4.2
Student	520	10	180	9	1.0E-06	3.4

5. Based on a 8-hour day. Worker breathing rate is 230 L/kg-8-hour (for moderate intensity activities for age bins 16>70) and 240 L/kg-8-hour (for moderate intensity activities for age bins 16>30)
   Student breathing rate is 520 L/kg-8-hours (for moderate intensity activities for age bins 2<16) and 640 L/kg-8-hours (for moderate intensity activities for age bins 2<9)
6. WAF=(H_{res}/H_{source}) X (D_{res}/D_{source}) X DF (where H= hours and D= days); Discount Factor (DF) is only used when the offsite worker's schedule partially overlaps the source's emission schedule

Age Sensitivity Factors (ASFs):

Receptor	ASFs
Resident	See Exposure Parameters: Resident Only
Worker	1
Student	3

Exposure Parameters: Resident Only

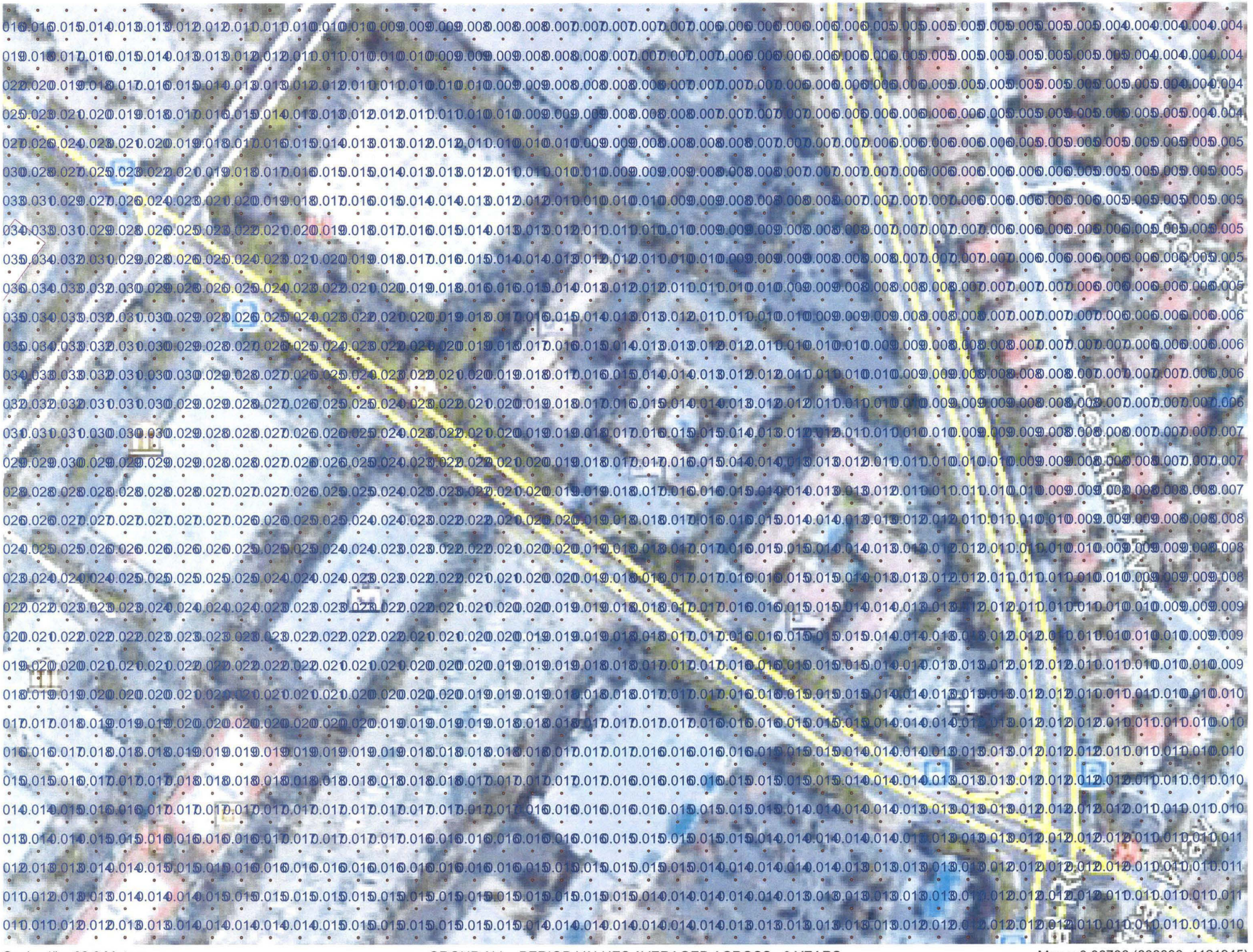
Age Bins	Age Bin Duration	Project Exposure Duration	BR/BW[7]	ASF	ED/AT	FAH School/No School	Residential Exposure Factor
3rd Trimester	0.25	0.25	361	10	0.0036	1	1.2E-05
0<2	2	2	1090	10	0.029	1	3.0E-04
2<9[8]	7	0	861	3	0.000	1	0.0E+00
2<16	14	14	572	3	0.20	1	3.3E-04
16<30	14	14	261	1	0.20	0.73	3.7E-05
16 to 70	54	0	233	1	0.000	0.73	0.0E+00
							6.8E-04

7. RMP BR/BW at 95th/80th percentile values; if Project Term is short term use 95th percentile breating rate value

8. Duration of short term project to be determined

China Mobile International (San Jose); P#24374; A#29830 C:\Risk Screens\Plant #24374 China Mobile International\Revision December 2019\PN24374 R1 Kohler_5yrs_OTHER.G

Scale: 1" = 41.7 Meters GROUP ALL - PERIOD VALUES AVERAGED ACROSS 0 YEARS Max = 0.06706 (608000, 4121945)



```
**BEE-Line Software:  (Version 11.13) data input file
**  Model: AERMOD.EXE     Input File Creation Date: 10/28/2019  Time: 11:54:26 AM
NO ECHO



  Input File - C:\Risk Screens\Plant #24374 China Mobile International\Revision October 2019\PN24374 R1 Kohler_5yrs_OTHE
               R.DTA
 Output File - C:\Risk Screens\Plant #24374 China Mobile International\Revision October 2019\PN24374 R1 Kohler_5yrs_OTHE
               R.LST
    Met File - C:\Risk Screens\Plant #24374 China Mobile International\KSJC_2013_2017.SFC


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

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

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


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


    ********   WARNING MESSAGES   ********
ME W186   11324       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
ME W187   11324       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT 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 Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes: 15 Source(s); 16 Source Group(s); and 10783 Receptor(s)

with: 15 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 0 AREA type source(s)
and: 0 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 External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

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

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 15.50 ; 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 = 9.5 MB of RAM.

**Input Runstream File: PN24374 R1 Kohler_5yrs_OTHER.DTA
**Output Print File: PN24374 R1 Kohler_5yrs_OTHER.LST

**File for Summary of Results: C:\Risk Screens\Plant #24374 China Mobile International\Revision October 2019\PN24374 R1 Kohler_

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT 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	EMIS RATE SCALAR VARY BY
S1	0	0.56300E-03	608006.4	4121814.8	63.3	8.53	750.93	46.03	0.56	YES	NO	NO	
S2	0	0.56300E-03	608010.1	4121819.7	63.3	8.53	750.93	46.03	0.56	YES	NO	NO	
S3	0	0.56300E-03	608016.8	4121808.0	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S4	0	0.56300E-03	608019.6	4121812.5	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S5	0	0.56300E-03	608026.2	4121802.0	63.8	8.53	750.93	46.03	0.56	YES	NO	NO	
S6	0	0.56300E-03	608029.4	4121806.5	63.8	8.53	750.93	46.03	0.56	YES	NO	NO	
S7	0	0.56300E-03	608127.5	4121779.3	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S8	0	0.56300E-03	608142.1	4121798.2	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S10	0	0.56300E-03	608152.1	4121811.8	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S12	0	0.56300E-03	608167.5	4121832.3	62.9	8.53	750.93	46.03	0.56	YES	NO	NO	
S14	0	0.56300E-03	608178.1	4121846.6	63.0	8.53	750.93	46.03	0.56	YES	NO	NO	
S9	0	0.56300E-03	608147.0	4121794.8	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S11	0	0.56300E-03	608156.8	4121808.4	63.7	8.53	750.93	46.03	0.56	YES	NO	NO	
S13	0	0.56300E-03	608172.4	4121829.1	63.0	8.53	750.93	46.03	0.56	YES	NO	NO	
S15	0	0.56300E-03	608183.2	4121843.2	63.1	8.53	750.93	46.03	0.56	YES	NO	NO	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	S1 , S2 , S3 , S4 , S5 , S6 , S7 , S8 ,
	S10 , S12 , S14 , S9 , S11 , S13 , S15 ,
S1	S1 ,
S2	S2 ,
S3	S3 ,
S4	S4 ,
S5	S5 ,
S6	S6 ,
S7	S7 ,
S8	S8 ,
S10	S10 ,
S12	S12 ,
S14	S14 ,
S9	S9 ,
S11	S11 ,
S13	S13 ,
S15	S15 ,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: S1

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-42.1,	-72.8,	2	19.8,	185.9,	149.4,	-26.5,	-62.1,
3	19.8,	166.8,	154.7,	-13.4,	-49.6,	4	19.8,	150.5,	160.6,	-1.0,	-39.4,
5	19.8,	151.2,	173.8,	1.9,	-34.3,	6	19.8,	150.0,	191.0,	-4.5,	-26.7,
7	19.8,	144.2,	202.4,	-10.8,	-18.4,	8	19.8,	134.1,	207.7,	-16.7,	-9.5,
9	19.8,	136.0,	206.6,	-22.1,	7.8,	10	19.8,	143.0,	199.3,	-26.9,	29.4,
11	19.8,	149.4,	185.9,	-30.8,	48.2,	12	19.8,	154.7,	166.8,	-33.8,	63.9,
13	19.8,	160.6,	150.5,	-35.8,	79.3,	14	19.8,	173.8,	151.2,	-41.3,	88.8,
15	19.8,	191.0,	150.0,	-48.3,	91.0,	16	19.8,	202.4,	144.2,	-53.7,	90.4,
17	19.8,	207.7,	134.1,	-57.6,	87.1,	18	19.8,	206.6,	136.0,	-75.8,	81.2,
19	19.8,	199.3,	143.0,	-100.9,	72.8,	20	19.8,	185.9,	149.4,	-123.0,	62.1,
21	19.8,	166.8,	154.7,	-141.3,	49.6,	22	24.3,	60.3,	70.0,	-123.7,	39.4,
23	24.3,	52.2,	79.1,	-133.7,	24.2,	24	24.3,	43.6,	85.9,	-139.5,	7.7,
25	24.3,	34.3,	90.0,	-141.2,	-9.3,	26	19.8,	134.1,	207.7,	-191.0,	9.5,
27	19.8,	136.0,	206.6,	-184.5,	-7.8,	28	19.8,	143.0,	199.3,	-172.4,	-29.4,
29	19.8,	149.4,	185.9,	-155.1,	-48.2,	30	19.8,	154.7,	166.8,	-133.0,	-63.9,
31	19.8,	160.6,	150.5,	-114.7,	-79.3,	32	19.8,	173.8,	151.2,	-109.9,	-88.8,
33	19.8,	191.0,	150.0,	-101.7,	-91.0,	34	19.8,	202.4,	144.2,	-90.5,	-90.4,
35	19.8,	207.7,	134.1,	-76.5,	-87.1,	36	19.8,	206.6,	136.0,	-60.2,	-81.2,

SOURCE ID: S2

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-47.6,	-70.0,	2	19.8,	185.9,	149.4,	-32.4,	-60.3,
3	19.8,	166.8,	154.7,	-19.5,	-48.8,	4	24.3,	60.3,	70.0,	47.6,	-39.7,
5	24.3,	52.2,	79.1,	48.5,	-25.6,	6	24.3,	43.6,	85.9,	48.0,	-10.1,
7	24.3,	34.3,	90.0,	46.0,	6.0,	8	24.3,	28.8,	91.4,	42.6,	23.2,
9	19.8,	136.0,	206.6,	-25.8,	2.9,	10	19.8,	143.0,	199.3,	-29.7,	23.9,
11	19.8,	149.4,	185.9,	-32.6,	42.3,	12	19.8,	154.7,	166.8,	-34.6,	57.8,
13	19.8,	160.6,	150.5,	-35.5,	73.1,	14	19.8,	173.8,	151.2,	-40.0,	82.8,
15	19.8,	191.0,	150.0,	-45.9,	85.3,	16	19.8,	202.4,	144.2,	-50.4,	85.3,
17	19.8,	207.7,	134.1,	-53.4,	82.6,	18	19.8,	206.6,	136.0,	-70.9,	77.5,
19	19.8,	199.3,	143.0,	-95.4,	70.0,	20	19.8,	185.9,	149.4,	-117.1,	60.3,
21	19.8,	166.8,	154.7,	-135.2,	48.8,	22	24.3,	60.3,	70.0,	-117.6,	39.7,
23	24.3,	52.2,	79.1,	-127.7,	25.6,	24	24.3,	43.6,	85.9,	-133.9,	10.1,
25	24.3,	34.3,	90.0,	-136.0,	-6.0,	26	24.3,	28.8,	91.4,	-134.0,	-23.2,
27	19.8,	136.0,	206.6,	-180.8,	-2.9,	28	19.8,	143.0,	199.3,	-169.6,	-23.9,
29	19.8,	149.4,	185.9,	-153.2,	-42.3,	30	19.8,	154.7,	166.8,	-132.3,	-57.8,
31	19.8,	160.6,	150.5,	-115.0,	-73.1,	32	19.8,	173.8,	151.2,	-111.3,	-82.8,
33	19.8,	191.0,	150.0,	-104.1,	-85.3,	34	19.8,	202.4,	144.2,	-93.9,	-85.3,
35	19.8,	207.7,	134.1,	-80.7,	-82.6,	36	19.8,	206.6,	136.0,	-65.1,	-77.5,

SOURCE ID: S3

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-37.2,	-61.4,	2	19.8,	185.9,	149.4,	-23.7,	-50.1,
3	19.8,	166.8,	154.7,	-12.7,	-37.2,	4	19.8,	150.5,	160.6,	-2.5,	-27.2,
5	19.8,	151.2,	173.8,	-1.7,	-22.4,	6	24.3,	43.6,	85.9,	48.1,	3.4,
7	24.3,	34.3,	90.0,	43.8,	19.2,	8	19.8,	134.1,	207.7,	-25.7,	-1.0,
9	19.8,	136.0,	206.6,	-32.5,	14.6,	10	19.8,	143.0,	199.3,	-38.2,	34.3,
11	19.8,	149.4,	185.9,	-42.8,	51.1,	12	19.8,	154.7,	166.8,	-46.2,	64.6,
13	19.8,	160.6,	150.5,	-48.1,	77.8,	14	19.8,	173.8,	151.2,	-53.2,	85.2,
15	19.8,	191.0,	150.0,	-59.3,	85.5,	16	19.8,	202.4,	144.2,	-63.6,	83.0,
17	19.8,	207.7,	134.1,	-66.0,	78.1,	18	19.8,	206.6,	136.0,	-82.5,	70.8,
19	19.8,	199.3,	143.0,	-105.8,	61.4,	20	19.8,	185.9,	149.4,	-125.8,	50.1,
21	24.3,	70.1,	61.3,	-110.7,	41.1,	22	24.3,	60.3,	70.0,	-122.3,	27.1,
23	24.3,	52.2,	79.1,	-130.1,	12.3,	24	24.3,	43.6,	85.9,	-134.0,	-3.4,
25	24.3,	34.3,	90.0,	-133.8,	-19.2,	26	19.8,	134.1,	207.7,	-182.0,	1.0,
27	19.8,	136.0,	206.6,	-174.1,	-14.6,	28	19.8,	143.0,	199.3,	-161.0,	-34.3,

29	19.8,	149.4,	185.9,	-143.0,	-51.1,	30	19.8,	154.7,	166.8,	-120.7,	-64.6,
31	19.8,	160.6,	150.5,	-102.4,	-77.8,	32	19.8,	173.8,	151.2,	-98.0,	-85.2,
33	19.8,	191.0,	150.0,	-90.7,	-85.5,	34	19.8,	202.4,	144.2,	-80.6,	-83.0,
35	19.8,	207.7,	134.1,	-68.1,	-78.1,	36	19.8,	206.6,	136.0,	-53.4,	-70.8,

SOURCE ID: S4

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-42.0,	-59.4,	2	19.8,	185.9,	149.4,	-28.8,	-48.9,
3	24.3,	70.1,	61.3,	44.1,	-40.8,	4	24.3,	60.3,	70.0,	47.1,	-27.8,
5	24.3,	52.2,	79.1,	46.0,	-13.9,	6	24.3,	43.6,	85.9,	43.4,	1.0,
7	24.3,	34.3,	90.0,	39.6,	16.1,	8	19.8,	134.1,	207.7,	-29.3,	-4.9,
9	19.8,	136.0,	206.6,	-35.3,	10.1,	10	19.8,	143.0,	199.3,	-40.3,	29.4,
11	19.8,	149.4,	185.9,	-44.0,	45.9,	12	19.8,	154.7,	166.8,	-46.4,	59.4,
13	19.8,	160.6,	150.5,	-47.4,	72.6,	14	19.8,	173.8,	151.2,	-51.6,	80.2,
15	19.8,	191.0,	150.0,	-56.9,	80.8,	16	19.8,	202.4,	144.2,	-60.5,	78.9,
17	19.8,	207.7,	134.1,	-62.2,	74.6,	18	19.8,	206.6,	136.0,	-78.1,	68.0,
19	19.8,	199.3,	143.0,	-100.9,	59.4,	20	19.8,	185.9,	149.4,	-120.7,	48.9,
21	24.3,	70.1,	61.3,	-105.5,	40.8,	22	24.3,	60.3,	70.0,	-117.1,	27.8,
23	24.3,	52.2,	79.1,	-125.1,	13.9,	24	24.3,	43.6,	85.9,	-129.3,	-1.0,
25	24.3,	34.3,	90.0,	-129.6,	-16.1,	26	19.8,	134.1,	207.7,	-178.4,	4.9,
27	19.8,	136.0,	206.6,	-171.3,	-10.1,	28	19.8,	143.0,	199.3,	-159.0,	-29.4,
29	19.8,	149.4,	185.9,	-141.9,	-45.9,	30	19.8,	154.7,	166.8,	-120.4,	-59.4,
31	19.8,	160.6,	150.5,	-103.1,	-72.6,	32	19.8,	173.8,	151.2,	-99.6,	-80.2,
33	19.8,	191.0,	150.0,	-93.1,	-80.8,	34	19.8,	202.4,	144.2,	-83.8,	-78.9,
35	19.8,	207.7,	134.1,	-71.9,	-74.6,	36	19.8,	206.6,	136.0,	-57.9,	-68.0,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: S5

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-32.9,	-51.0,	2	24.3,	79.2,	54.4,	46.6,	-43.6,
3	19.8,	166.8,	154.7,	-12.3,	-26.0,	4	19.8,	150.5,	160.6,	-4.0,	-16.1,
5	24.3,	52.2,	79.1,	47.6,	-1.7,	6	24.3,	43.6,	85.9,	42.9,	13.3,
7	24.3,	34.3,	90.0,	36.9,	28.1,	8	19.8,	134.1,	207.7,	-34.0,	6.5,
9	19.8,	136.0,	206.6,	-41.9,	20.6,	10	19.8,	143.0,	199.3,	-48.6,	38.5,
11	19.8,	149.4,	185.9,	-53.8,	53.5,	12	19.8,	154.7,	166.8,	-57.4,	65.1,
13	19.8,	160.6,	150.5,	-59.2,	76.3,	14	19.8,	173.8,	151.2,	-63.9,	81.8,
15	19.8,	191.0,	150.0,	-69.2,	80.2,	16	19.8,	202.4,	144.2,	-72.5,	76.2,
17	19.8,	207.7,	134.1,	-73.6,	69.8,	18	19.8,	206.6,	136.0,	-88.5,	61.4,
19	19.8,	199.3,	143.0,	-110.0,	51.0,	20	24.3,	79.2,	54.4,	-101.0,	43.6,
21	24.3,	70.1,	61.3,	-111.2,	29.9,	22	24.3,	60.3,	70.0,	-120.8,	16.0,
23	24.3,	52.2,	79.1,	-126.7,	1.7,	24	24.3,	43.6,	85.9,	-128.8,	-13.3,
25	24.3,	34.3,	90.0,	-126.9,	-28.1,	26	19.8,	134.1,	207.7,	-173.7,	-6.5,
27	19.8,	136.0,	206.6,	-164.7,	-20.6,	28	19.8,	143.0,	199.3,	-150.7,	-38.5,
29	19.8,	149.4,	185.9,	-132.1,	-53.5,	30	19.8,	154.7,	166.8,	-109.5,	-65.1,
31	19.8,	160.6,	150.5,	-91.3,	-76.3,	32	19.8,	173.8,	151.2,	-87.4,	-81.8,
33	19.8,	191.0,	150.0,	-80.8,	-80.2,	34	19.8,	202.4,	144.2,	-71.7,	-76.2,
35	19.8,	207.7,	134.1,	-60.5,	-69.8,	36	19.8,	206.6,	136.0,	-47.4,	-61.4,

SOURCE ID: S6

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	24.3,	85.9,	45.9,	37.0,	-53.7,	2	24.3,	79.2,	54.4,	41.3,	-42.2,
3	24.3,	70.1,	61.3,	44.4,	-29.4,	4	24.3,	60.3,	70.0,	45.4,	-16.4,
5	24.3,	52.2,	79.1,	42.3,	-3.0,	6	24.3,	43.6,	85.9,	37.9,	11.1,
7	24.3,	34.3,	90.0,	32.4,	25.0,	8	19.8,	134.1,	207.7,	-37.9,	2.7,
9	19.8,	136.0,	206.6,	-45.1,	16.1,	10	19.8,	143.0,	199.3,	-50.9,	33.6,
11	19.8,	149.4,	185.9,	-55.3,	48.2,	12	19.8,	154.7,	166.8,	-57.9,	59.6,
13	19.8,	160.6,	150.5,	-58.8,	70.9,	14	19.8,	173.8,	151.2,	-62.5,	76.6,
15	19.8,	191.0,	150.0,	-67.0,	75.3,	16	19.8,	202.4,	144.2,	-69.4,	71.7,
17	19.8,	207.7,	134.1,	-69.8,	66.0,	18	19.8,	206.6,	136.0,	-84.1,	58.2,
19	24.3,	85.9,	45.9,	-82.9,	53.7,	20	24.3,	79.2,	54.4,	-95.7,	42.2,
21	24.3,	70.1,	61.3,	-105.8,	29.4,	22	24.3,	60.3,	70.0,	-115.3,	16.4,
23	24.3,	52.2,	79.1,	-121.4,	3.0,	24	24.3,	43.6,	85.9,	-123.8,	-11.1,
25	24.3,	34.3,	90.0,	-122.4,	-25.0,	26	19.8,	134.1,	207.7,	-169.8,	-2.7,
27	19.8,	136.0,	206.6,	-161.5,	-16.1,	28	19.8,	143.0,	199.3,	-148.3,	-33.6,
29	19.8,	149.4,	185.9,	-130.6,	-48.2,	30	19.8,	154.7,	166.8,	-108.9,	-59.6,
31	19.8,	160.6,	150.5,	-91.7,	-70.9,	32	19.8,	173.8,	151.2,	-88.7,	-76.6,
33	19.8,	191.0,	150.0,	-83.0,	-75.3,	34	19.8,	202.4,	144.2,	-74.8,	-71.7,
35	19.8,	207.7,	134.1,	-64.3,	-66.0,	36	19.8,	206.6,	136.0,	-51.9,	-58.2,

SOURCE ID: S7

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	24.3,	85.9,	45.9,	46.7,	47.6,	2	19.8,	185.9,	149.4,	-34.5,	63.8,
3	19.8,	166.8,	154.7,	-43.2,	73.0,	4	19.8,	150.5,	160.6,	-51.6,	76.1,
5	19.8,	151.2,	173.8,	-68.0,	70.7,	6	19.8,	150.0,	191.0,	-91.6,	64.5,
7	19.8,	144.2,	202.4,	-112.4,	56.4,	8	19.8,	134.1,	207.7,	-129.7,	46.5,
9	19.8,	136.0,	206.6,	-143.2,	43.3,	10	19.8,	143.0,	199.3,	-152.3,	43.3,
11	19.8,	149.4,	185.9,	-156.7,	40.2,	12	19.8,	154.7,	166.8,	-156.4,	34.1,
13	24.3,	70.0,	60.3,	-106.3,	38.1,	14	24.3,	79.1,	52.2,	-106.9,	24.2,
15	24.3,	85.9,	43.6,	-105.4,	9.5,	16	24.3,	90.0,	34.3,	-101.2,	-5.5,
17	24.3,	91.4,	28.8,	-97.8,	-20.2,	18	24.3,	90.0,	36.0,	-94.8,	-34.4,
19	24.3,	85.9,	45.9,	-92.6,	-47.6,	20	19.8,	185.9,	149.4,	-114.9,	-63.8,
21	19.8,	166.8,	154.7,	-111.5,	-73.0,	22	19.8,	150.5,	160.6,	-108.9,	-76.1,
23	19.8,	151.2,	173.8,	-105.8,	-70.7,	24	19.8,	150.0,	191.0,	-99.4,	-64.5,
25	19.8,	144.2,	202.4,	-90.0,	-56.4,	26	19.8,	134.1,	207.7,	-77.9,	-46.5,
27	19.8,	136.0,	206.6,	-63.4,	-43.3,	28	19.8,	143.0,	199.3,	-47.0,	-43.3,

29	19.8,	149.4,	185.9,	-29.2,	-40.2,	30	19.8,	154.7,	166.8,	-10.4,	-34.1,
31	24.3,	70.0,	60.3,	46.0,	-38.1,	32	19.8,	173.8,	151.2,	-4.9,	-18.9,
33	19.8,	191.0,	150.0,	-10.5,	-3.9,	34	19.8,	202.4,	144.2,	-15.8,	11.2,
35	19.8,	207.7,	134.1,	-20.6,	25.9,	36	19.8,	206.6,	136.0,	-24.7,	39.9,

SOURCE ID: S8

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-49.3,	63.8,	2	19.8,	185.9,	149.4,	-57.3,	71.1,
3	19.8,	166.8,	154.7,	-66.9,	76.2,	4	19.8,	150.5,	160.6,	-75.5,	75.2,
5	19.8,	151.2,	173.8,	-91.3,	65.7,	6	19.8,	150.0,	191.0,	-113.7,	55.5,
7	19.8,	144.2,	202.4,	-132.6,	43.6,	8	19.8,	134.1,	207.7,	-147.4,	30.5,
9	19.8,	136.0,	206.6,	-157.8,	24.4,	10	19.8,	143.0,	199.3,	-163.4,	22.2,
11	24.3,	54.4,	79.2,	-106.1,	37.8,	12	24.3,	61.3,	70.1,	-107.4,	25.9,
13	24.3,	70.0,	60.3,	-105.4,	14.3,	14	24.3,	79.1,	52.2,	-101.8,	0.9,
15	24.3,	85.9,	43.6,	-96.4,	-12.6,	16	24.3,	90.0,	34.3,	-88.5,	-25.7,
17	24.3,	91.4,	28.8,	-81.7,	-37.9,	18	24.3,	90.0,	36.0,	-75.9,	-49.0,
19	19.8,	199.3,	143.0,	-93.7,	-63.8,	20	19.8,	185.9,	149.4,	-92.2,	-71.1,
21	19.8,	166.8,	154.7,	-87.8,	-76.2,	22	19.8,	150.5,	160.6,	-85.1,	-75.2,
23	19.8,	151.2,	173.8,	-82.5,	-65.7,	24	19.8,	150.0,	191.0,	-77.3,	-55.5,
25	19.8,	144.2,	202.4,	-69.8,	-43.6,	26	19.8,	134.1,	207.7,	-60.2,	-30.5,
27	19.8,	136.0,	206.6,	-48.8,	-24.4,	28	19.8,	143.0,	199.3,	-35.9,	-22.2,
29	24.3,	54.4,	79.2,	26.9,	-37.8,	30	24.3,	61.3,	70.1,	37.3,	-25.9,
31	24.3,	70.0,	60.3,	45.1,	-14.3,	32	19.8,	173.8,	151.2,	-9.9,	4.4,
33	19.8,	191.0,	150.0,	-19.5,	18.2,	34	19.8,	202.4,	144.2,	-28.5,	31.4,
35	19.8,	207.7,	134.1,	-36.6,	43.6,	36	24.3,	90.0,	36.0,	39.9,	49.0,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: S10

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-64.4,	71.2,	2	19.8,	185.9,	149.4,	-73.5,	75.8,
3	19.8,	166.8,	154.7,	-83.7,	78.1,	4	19.8,	150.5,	160.6,	-92.4,	74.1,
5	19.8,	151.2,	173.8,	-107.8,	61.7,	6	19.8,	150.0,	191.0,	-129.2,	48.7,
7	19.8,	144.2,	202.4,	-146.6,	34.2,	8	19.8,	134.1,	207.7,	-159.7,	18.8,
9	19.8,	136.0,	206.6,	-167.8,	10.8,	10	24.3,	45.9,	85.9,	-109.1,	33.4,
11	24.3,	54.4,	79.2,	-110.9,	21.5,	12	24.3,	61.3,	70.1,	-109.3,	9.1,
13	24.3,	70.0,	60.3,	-104.3,	-2.6,	14	24.3,	79.1,	52.2,	-97.8,	-15.6,
15	24.3,	85.9,	43.6,	-89.6,	-28.1,	16	24.3,	90.0,	34.3,	-79.1,	-39.7,
17	24.3,	91.4,	28.8,	-70.0,	-50.2,	18	19.8,	206.6,	136.0,	-78.8,	-64.5,
19	19.8,	199.3,	143.0,	-78.5,	-71.2,	20	19.8,	185.9,	149.4,	-75.9,	-75.8,
21	19.8,	166.8,	154.7,	-71.0,	-78.1,	22	19.8,	150.5,	160.6,	-68.2,	-74.1,
23	19.8,	151.2,	173.8,	-66.0,	-61.7,	24	19.8,	150.0,	191.0,	-61.8,	-48.7,
25	19.8,	144.2,	202.4,	-55.8,	-34.2,	26	19.8,	134.1,	207.7,	-48.0,	-18.8,
27	19.8,	136.0,	206.6,	-38.8,	-10.8,	28	24.3,	45.9,	85.9,	23.2,	-33.4,
29	24.3,	54.4,	79.2,	31.7,	-21.5,	30	24.3,	61.3,	70.1,	39.2,	-9.1,
31	24.3,	70.0,	60.3,	44.0,	2.6,	32	24.3,	79.1,	52.2,	45.7,	15.6,
33	24.3,	85.9,	43.6,	45.9,	28.1,	34	24.3,	90.0,	34.3,	44.8,	39.7,
35	24.3,	91.4,	28.8,	41.2,	50.2,	36	19.8,	206.6,	136.0,	-57.2,	64.5,

SOURCE ID: S12

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-87.2,	82.8,	2	19.8,	185.9,	149.4,	-98.0,	83.2,
3	19.8,	166.8,	154.7,	-109.1,	81.1,	4	19.8,	150.5,	160.6,	-117.9,	72.7,
5	19.8,	151.2,	173.8,	-132.7,	55.9,	6	19.8,	150.0,	191.0,	-152.7,	38.7,
7	19.8,	144.2,	202.4,	-168.1,	20.3,	8	19.8,	134.1,	207.7,	-178.3,	1.3,
9	24.3,	36.0,	90.0,	-119.4,	23.8,	10	24.3,	45.9,	85.9,	-120.7,	10.6,
11	24.3,	54.4,	79.2,	-118.3,	-2.9,	12	24.3,	61.3,	70.1,	-112.3,	-16.3,
13	24.3,	70.0,	60.3,	-102.9,	-28.2,	14	24.3,	79.1,	52.2,	-92.0,	-40.5,
15	24.3,	85.9,	43.6,	-79.5,	-51.6,	16	19.8,	202.4,	144.2,	-92.4,	-66.9,
17	19.8,	207.7,	134.1,	-68.3,	-74.5,	18	19.8,	206.6,	136.0,	-58.3,	-79.9,
19	19.8,	199.3,	143.0,	-55.7,	-82.8,	20	19.8,	185.9,	149.4,	-51.4,	-83.2,
21	19.8,	166.8,	154.7,	-45.6,	-81.1,	22	19.8,	150.5,	160.6,	-42.7,	-72.7,
23	19.8,	151.2,	173.8,	-41.1,	-55.9,	24	19.8,	150.0,	191.0,	-38.3,	-38.7,
25	19.8,	144.2,	202.4,	-34.3,	-20.3,	26	19.8,	134.1,	207.7,	-29.3,	-1.3,
27	24.3,	36.0,	90.0,	29.4,	-23.8,	28	24.3,	45.9,	85.9,	34.8,	-10.6,
29	24.3,	54.4,	79.2,	39.1,	2.9,	30	24.3,	61.3,	70.1,	42.2,	16.3,
31	24.3,	70.0,	60.3,	42.6,	28.2,	32	24.3,	79.1,	52.2,	39.9,	40.5,
33	24.3,	85.9,	43.6,	35.9,	51.6,	34	19.8,	202.4,	144.2,	-51.8,	66.9,
35	19.8,	207.7,	134.1,	-65.8,	74.5,	36	19.8,	206.6,	136.0,	-77.7,	79.9,

SOURCE ID: S14

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-103.2,	90.8,	2	19.8,	185.9,	149.4,	-115.0,	88.4,
3	19.8,	166.8,	154.7,	-126.8,	83.2,	4	19.8,	150.5,	160.6,	-135.7,	71.7,
5	19.8,	151.2,	173.8,	-150.0,	51.8,	6	19.8,	150.0,	191.0,	-169.1,	31.6,
7	19.8,	144.2,	202.4,	-183.0,	10.5,	8	24.3,	28.8,	91.4,	-127.5,	25.9,
9	24.3,	36.0,	90.0,	-130.1,	9.5,	10	24.3,	45.9,	85.9,	-128.7,	-5.3,
11	24.3,	54.4,	79.2,	-123.5,	-20.0,	12	24.3,	61.3,	70.1,	-114.4,	-34.0,
13	24.3,	70.0,	60.3,	-101.9,	-45.9,	14	19.8,	173.8,	151.2,	-127.4,	-63.1,
15	19.8,	191.0,	150.0,	-106.6,	-73.6,	16	19.8,	202.4,	144.2,	-82.6,	-81.8,
17	19.8,	207.7,	134.1,	-56.1,	-87.5,	18	19.8,	206.6,	136.0,	-44.0,	-90.5,
19	19.8,	199.3,	143.0,	-39.8,	-90.8,	20	19.8,	185.9,	149.4,	-34.4,	-88.4,
21	19.8,	166.8,	154.7,	-27.9,	-83.2,	22	19.8,	150.5,	160.6,	-24.9,	-71.7,
23	19.8,	151.2,	173.8,	-23.8,	-51.8,	24	19.8,	150.0,	191.0,	-21.9,	-31.6,
25	19.8,	144.2,	202.4,	-19.4,	-10.5,	26	24.3,	28.8,	91.4,	36.1,	-25.9,
27	24.3,	36.0,	90.0,	40.1,	-9.5,	28	24.3,	45.9,	85.9,	42.8,	5.3,

29	24.3,	54.4,	79.2,	44.2,	20.0,	30	24.3,	61.3,	70.1,	44.3,	34.0,
31	24.3,	70.0,	60.3,	41.6,	45.9,	32	19.8,	173.8,	151.2,	-23.8,	63.1,
33	19.8,	191.0,	150.0,	-43.4,	73.6,	34	19.8,	202.4,	144.2,	-61.6,	81.8,
35	19.8,	207.7,	134.1,	-78.0,	87.5,	36	19.8,	206.6,	136.0,	-92.0,	90.5,

SOURCE ID: S9

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-46.8,	69.2,	2	19.8,	185.9,	149.4,	-55.8,	76.8,
3	19.8,	166.8,	154.7,	-66.4,	82.2,	4	19.8,	150.5,	160.6,	-76.1,	81.1,
5	19.8,	151.2,	173.8,	-92.9,	71.4,	6	19.8,	150.0,	191.0,	-116.2,	60.9,
7	19.8,	144.2,	202.4,	-136.0,	48.5,	8	19.8,	134.1,	207.7,	-151.7,	34.6,
9	19.8,	136.0,	206.6,	-162.7,	27.8,	10	19.8,	143.0,	199.3,	-168.8,	24.7,
11	24.3,	54.4,	79.2,	-111.9,	39.3,	12	24.3,	61.3,	70.1,	-113.3,	26.4,
13	24.3,	70.0,	60.3,	-111.3,	13.7,	14	24.3,	79.1,	52.2,	-107.6,	-0.7,
15	24.3,	85.9,	43.6,	-101.8,	-15.2,	16	24.3,	90.0,	34.3,	-93.4,	-29.1,
17	24.3,	91.4,	28.8,	-85.9,	-42.2,	18	24.3,	90.0,	36.0,	-79.3,	-54.0,
19	19.8,	199.3,	143.0,	-96.2,	-69.2,	20	19.8,	185.9,	149.4,	-93.7,	-76.8,
21	19.8,	166.8,	154.7,	-88.3,	-82.2,	22	19.8,	150.5,	160.6,	-84.5,	-81.1,
23	19.8,	151.2,	173.8,	-80.9,	-71.4,	24	19.8,	150.0,	191.0,	-74.8,	-60.9,
25	19.8,	144.2,	202.4,	-66.4,	-48.5,	26	19.8,	134.1,	207.7,	-56.0,	-34.6,
27	19.8,	136.0,	206.6,	-43.9,	-27.8,	28	19.8,	143.0,	199.3,	-30.5,	-24.7,
29	24.3,	54.4,	79.2,	32.7,	-39.3,	30	24.3,	61.3,	70.1,	43.3,	-26.4,
31	19.8,	160.6,	150.5,	5.9,	-4.2,	32	19.8,	173.8,	151.2,	-4.2,	6.0,
33	19.8,	191.0,	150.0,	-14.1,	20.7,	34	19.8,	202.4,	144.2,	-23.6,	34.8,
35	19.8,	207.7,	134.1,	-32.4,	47.8,	36	24.3,	90.0,	36.0,	43.3,	54.0,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: S11

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-61.9,	76.5,	2	19.8,	185.9,	149.4,	-71.9,	81.4,
3	19.8,	166.8,	154.7,	-83.1,	83.8,	4	19.8,	150.5,	160.6,	-92.8,	79.8,
5	19.8,	151.2,	173.8,	-109.2,	67.3,	6	19.8,	150.0,	191.0,	-131.5,	54.0,
7	19.8,	144.2,	202.4,	-149.9,	39.0,	8	19.8,	134.1,	207.7,	-163.7,	22.9,
9	19.8,	136.0,	206.6,	-172.5,	14.1,	10	19.8,	143.0,	199.3,	-176.1,	9.6,
11	24.3,	54.4,	79.2,	-116.5,	23.1,	12	24.3,	61.3,	70.1,	-115.0,	9.7,
13	24.3,	70.0,	60.3,	-110.1,	-3.0,	14	24.3,	79.1,	52.2,	-103.5,	-17.0,
15	24.3,	85.9,	43.6,	-94.9,	-30.5,	16	24.3,	90.0,	34.3,	-83.9,	-43.0,
17	24.3,	91.4,	28.8,	-74.2,	-54.2,	18	19.8,	206.6,	136.0,	-82.1,	-69.2,
19	19.8,	199.3,	143.0,	-81.0,	-76.5,	20	19.8,	185.9,	149.4,	-77.5,	-81.4,
21	19.8,	166.8,	154.7,	-71.6,	-83.8,	22	19.8,	150.5,	160.6,	-67.8,	-79.8,
23	19.8,	151.2,	173.8,	-64.6,	-67.3,	24	19.8,	150.0,	191.0,	-59.4,	-54.0,
25	19.8,	144.2,	202.4,	-52.5,	-39.0,	26	19.8,	134.1,	207.7,	-44.0,	-22.9,
27	19.8,	136.0,	206.6,	-34.1,	-14.1,	28	19.8,	143.0,	199.3,	-23.2,	-9.6,
29	24.3,	54.4,	79.2,	37.3,	-23.1,	30	24.3,	61.3,	70.1,	44.9,	-9.7,
31	19.8,	160.6,	150.5,	4.6,	12.5,	32	19.8,	173.8,	151.2,	-8.3,	22.3,
33	19.8,	191.0,	150.0,	-21.0,	36.0,	34	19.8,	202.4,	144.2,	-33.1,	48.7,
35	24.3,	91.4,	28.8,	45.4,	54.2,	36	19.8,	206.6,	136.0,	-53.8,	69.2,

SOURCE ID: S13

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-85.0,	88.2,	2	19.8,	185.9,	149.4,	-96.7,	88.9,
3	19.8,	166.8,	154.7,	-108.8,	87.0,	4	19.8,	150.5,	160.6,	-118.7,	78.5,
5	19.8,	151.2,	173.8,	-134.4,	61.4,	6	19.8,	150.0,	191.0,	-155.4,	43.8,
7	19.8,	144.2,	202.4,	-171.6,	24.9,	8	19.8,	134.1,	207.7,	-182.6,	5.2,
9	24.3,	36.0,	90.0,	-124.3,	26.9,	10	24.3,	45.9,	85.9,	-126.1,	12.8,
11	24.3,	54.4,	79.2,	-124.0,	-1.7,	12	24.3,	61.3,	70.1,	-118.1,	-16.0,
13	24.3,	70.0,	60.3,	-108.7,	-28.9,	14	24.3,	79.1,	52.2,	-97.6,	-42.2,
15	24.3,	85.9,	43.6,	-84.7,	-54.3,	16	19.8,	202.4,	144.2,	-97.0,	-70.4,
17	19.8,	207.7,	134.1,	-72.3,	-78.8,	18	19.8,	206.6,	136.0,	-61.5,	-84.8,
19	19.8,	199.3,	143.0,	-58.0,	-88.2,	20	19.8,	185.9,	149.4,	-52.7,	-88.9,
21	19.8,	166.8,	154.7,	-45.9,	-87.0,	22	19.8,	150.5,	160.6,	-41.9,	-78.5,
23	19.8,	151.2,	173.8,	-39.4,	-61.4,	24	19.8,	150.0,	191.0,	-35.6,	-43.8,
25	19.8,	144.2,	202.4,	-30.8,	-24.9,	26	19.8,	134.1,	207.7,	-25.1,	-5.2,
27	24.3,	36.0,	90.0,	34.3,	-26.9,	28	24.3,	45.9,	85.9,	40.2,	-12.8,
29	24.3,	54.4,	79.2,	44.8,	1.7,	30	24.3,	61.3,	70.1,	48.1,	16.0,
31	24.3,	70.0,	60.3,	48.4,	28.9,	32	24.3,	79.1,	52.2,	45.4,	42.2,
33	24.3,	85.9,	43.6,	41.1,	54.3,	34	19.8,	202.4,	144.2,	-47.2,	70.4,
35	19.8,	207.7,	134.1,	-61.8,	78.8,	36	19.8,	206.6,	136.0,	-74.5,	84.8,

SOURCE ID: S15

IFV	BH	BW	BL	XADJ	YADJ	IFV	BH	BW	BL	XADJ	YADJ
1	19.8,	199.3,	143.0,	-100.7,	96.5,	2	19.8,	185.9,	149.4,	-113.6,	94.3,
3	19.8,	166.8,	154.7,	-126.4,	89.3,	4	19.8,	150.5,	160.6,	-136.4,	77.8,
5	19.8,	151.2,	173.8,	-151.8,	57.6,	6	19.8,	150.0,	191.0,	-171.8,	37.1,
7	19.8,	144.2,	202.4,	-186.6,	15.4,	8	19.8,	134.1,	207.7,	-195.8,	-6.7,
9	24.3,	36.0,	90.0,	-135.2,	12.9,	10	24.3,	45.9,	85.9,	-134.4,	-2.9,
11	24.3,	54.4,	79.2,	-129.4,	-18.6,	12	24.3,	61.3,	70.1,	-120.5,	-33.6,
13	24.3,	70.0,	60.3,	-108.0,	-46.7,	14	19.8,	173.8,	151.2,	-133.3,	-64.9,
15	19.8,	191.0,	150.0,	-112.1,	-76.3,	16	19.8,	202.4,	144.2,	-87.5,	-85.4,
17	19.8,	207.7,	134.1,	-60.3,	-91.9,	18	19.8,	206.6,	136.0,	-47.4,	-95.6,
19	19.8,	199.3,	143.0,	-42.2,	-96.5,	20	19.8,	185.9,	149.4,	-35.8,	-94.3,
21	19.8,	166.8,	154.7,	-28.3,	-89.3,	22	19.8,	150.5,	160.6,	-24.2,	-77.8,
23	19.8,	151.2,	173.8,	-22.0,	-57.6,	24	19.8,	150.0,	191.0,	-19.2,	-37.1,
25	19.8,	144.2,	202.4,	-15.8,	-15.4,	26	19.8,	134.1,	207.7,	-11.9,	6.7,
27	24.3,	36.0,	90.0,	45.2,	-12.9,	28	24.3,	45.9,	85.9,	48.4,	2.9,

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29   19.8,  149.4,  185.9,    1.4,   38.9,     30   19.8,  154.7,  166.8,    5.9,   49.1,
31   24.3,   70.0,   60.3,   47.7,   46.7,     32   19.8,  173.8,  151.2,  -18.0,   64.9,
33   19.8,  191.0,  150.0,  -37.9,   76.3,     34   19.8,  202.4,  144.2,  -56.7,   85.4,
35   19.8,  207.7,  134.1,  -73.8,   91.9,     36   19.8,  206.6,  136.0,  -88.6,   95.6,
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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S2 , S3 , S4 , S5 ,
S6 , S7 , S8 , S10 , S12 , S14 , S9 , S11 ,
S13 , S15 ,

*** 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	
608495.00	4121435.00	0.01902	608510.00	4121435.00	0.01901	
608525.00	4121435.00	0.01888	608540.00	4121435.00	0.01878	
608555.00	4121435.00	0.01864	608570.00	4121435.00	0.01848	
608585.00	4121435.00	0.01824	608600.00	4121435.00	0.01804	
608615.00	4121435.00	0.01776	608630.00	4121435.00	0.01753	
608645.00	4121435.00	0.01730	608660.00	4121435.00	0.01699	
608675.00	4121435.00	0.01675	608690.00	4121435.00	0.01648	
608705.00	4121435.00	0.01617	608720.00	4121435.00	0.01591	
608735.00	4121435.00	0.01560	608750.00	4121435.00	0.01533	
608765.00	4121435.00	0.01501	608780.00	4121435.00	0.01474	
608795.00	4121435.00	0.01442	608810.00	4121435.00	0.01409	
608825.00	4121435.00	0.01381	608840.00	4121435.00	0.01347	
608855.00	4121435.00	0.01314	608870.00	4121435.00	0.01282	
608885.00	4121435.00	0.01248	608900.00	4121435.00	0.01213	
608915.00	4121435.00	0.01181	608930.00	4121435.00	0.01145	Resident
608945.00	4121435.00	0.01111	608960.00	4121435.00	0.01075	
608975.00	4121435.00	0.01044	608990.00	4121435.00	0.01010	
609005.00	4121435.00	0.00977	609020.00	4121435.00	0.00945	
609035.00	4121435.00	0.00914	609050.00	4121435.00	0.00884	
609065.00	4121435.00	0.00854	609080.00	4121435.00	0.00823	
609095.00	4121435.00	0.00798	609110.00	4121435.00	0.00770	
609125.00	4121435.00	0.00745	609140.00	4121435.00	0.00721	
609155.00	4121435.00	0.00695	609170.00	4121435.00	0.00673	
609185.00	4121435.00	0.00651	607235.00	4121450.00	0.00118	
607250.00	4121450.00	0.00119	607265.00	4121450.00	0.00119	
607280.00	4121450.00	0.00120	607295.00	4121450.00	0.00120	
607310.00	4121450.00	0.00122	607325.00	4121450.00	0.00123	
607340.00	4121450.00	0.00123	607355.00	4121450.00	0.00124	
607370.00	4121450.00	0.00125	607385.00	4121450.00	0.00125	
607400.00	4121450.00	0.00127	607415.00	4121450.00	0.00128	
607430.00	4121450.00	0.00128	607445.00	4121450.00	0.00129	
607460.00	4121450.00	0.00129	607475.00	4121450.00	0.00131	
607490.00	4121450.00	0.00131	607505.00	4121450.00	0.00131	
607520.00	4121450.00	0.00132	607535.00	4121450.00	0.00132	
607550.00	4121450.00	0.00133	607565.00	4121450.00	0.00134	
607580.00	4121450.00	0.00135	607595.00	4121450.00	0.00136	
607610.00	4121450.00	0.00137	607625.00	4121450.00	0.00138	
607640.00	4121450.00	0.00141	607655.00	4121450.00	0.00142	
607670.00	4121450.00	0.00144	607685.00	4121450.00	0.00145	
607700.00	4121450.00	0.00146	607715.00	4121450.00	0.00147	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

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

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

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.06706 AT (608000.00, 4121945.00, 62.47, 63.42, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.06581 AT (607970.00, 4121930.00, 62.37, 62.37, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.06528 AT (607985.00, 4121945.00, 61.94, 61.94, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.06425 AT (608180.00, 4121735.00, 63.71, 63.71, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.06413 AT (608165.00, 4121735.00, 63.58, 63.58, 1.50)	DC	Worker
	6TH HIGHEST VALUE IS	0.06088 AT (608000.00, 4121960.00, 62.97, 62.97, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.06060 AT (608150.00, 4121735.00, 63.25, 63.25, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.06002 AT (608015.00, 4121960.00, 63.05, 63.05, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.05993 AT (607970.00, 4121945.00, 62.17, 62.17, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.05984 AT (608195.00, 4121750.00, 63.26, 63.26, 1.50)	DC	
S1	1ST HIGHEST VALUE IS	0.00936 AT (608165.00, 4121735.00, 63.58, 63.58, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00923 AT (608180.00, 4121735.00, 63.71, 63.71, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00898 AT (608150.00, 4121735.00, 63.25, 63.25, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00870 AT (608150.00, 4121720.00, 63.42, 63.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00863 AT (608165.00, 4121720.00, 63.65, 63.65, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00839 AT (608180.00, 4121750.00, 63.55, 63.55, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00829 AT (608135.00, 4121735.00, 63.21, 63.21, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00818 AT (608165.00, 4121750.00, 63.30, 63.30, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00817 AT (608195.00, 4121750.00, 63.26, 63.26, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00814 AT (608135.00, 4121720.00, 63.11, 63.11, 1.50)	DC	
S2	1ST HIGHEST VALUE IS	0.01003 AT (608165.00, 4121735.00, 63.58, 63.58, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00997 AT (608180.00, 4121735.00, 63.71, 63.71, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00960 AT (608150.00, 4121735.00, 63.25, 63.25, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00925 AT (608150.00, 4121720.00, 63.42, 63.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00917 AT (608165.00, 4121720.00, 63.65, 63.65, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00902 AT (608180.00, 4121750.00, 63.55, 63.55, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00885 AT (608135.00, 4121735.00, 63.21, 63.21, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00882 AT (608165.00, 4121750.00, 63.30, 63.30, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00873 AT (608195.00, 4121750.00, 63.26, 63.26, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00855 AT (608165.00, 4121765.00, 63.02, 63.02, 1.50)	DC	
S3	1ST HIGHEST VALUE IS	0.00963 AT (608165.00, 4121735.00, 63.58, 63.58, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00926 AT (608180.00, 4121735.00, 63.71, 63.71, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00915 AT (608150.00, 4121735.00, 63.25, 63.25, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00876 AT (608150.00, 4121720.00, 63.42, 63.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00863 AT (608165.00, 4121720.00, 63.65, 63.65, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00832 AT (608135.00, 4121735.00, 63.21, 63.21, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00822 AT (608180.00, 4121750.00, 63.55, 63.55, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00817 AT (608135.00, 4121720.00, 63.11, 63.11, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00800 AT (608195.00, 4121750.00, 63.26, 63.26, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00784 AT (608165.00, 4121750.00, 63.30, 63.30, 1.50)	DC	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

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

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				OF TYPE	NETWORK GRID-ID
S4	1ST HIGHEST VALUE IS	0.01024 AT	608165.00,	4121735.00,	63.58,	63.58, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00983 AT	608180.00,	4121735.00,	63.71,	63.71, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00971 AT	608150.00,	4121735.00,	63.25,	63.25, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00922 AT	608150.00,	4121720.00,	63.42,	63.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00909 AT	608165.00,	4121720.00,	63.65,	63.65, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00884 AT	608180.00,	4121750.00,	63.55,	63.55, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00882 AT	608135.00,	4121735.00,	63.21,	63.21, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00856 AT	608195.00,	4121750.00,	63.26,	63.26, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00851 AT	608135.00,	4121720.00,	63.11,	63.11, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00850 AT	608165.00,	4121750.00,	63.30,	63.30, 1.50)	DC	
S5	1ST HIGHEST VALUE IS	0.00937 AT	608165.00,	4121735.00,	63.58,	63.58, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00912 AT	608150.00,	4121735.00,	63.25,	63.25, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00900 AT	608180.00,	4121735.00,	63.71,	63.71, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00861 AT	608150.00,	4121720.00,	63.42,	63.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00845 AT	608165.00,	4121720.00,	63.65,	63.65, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00828 AT	608135.00,	4121735.00,	63.21,	63.21, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00800 AT	608135.00,	4121720.00,	63.11,	63.11, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00785 AT	608180.00,	4121750.00,	63.55,	63.55, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00770 AT	608195.00,	4121750.00,	63.26,	63.26, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00759 AT	608195.00,	4121735.00,	63.67,	63.67, 1.50)	DC	
S6	1ST HIGHEST VALUE IS	0.01004 AT	608165.00,	4121735.00,	63.58,	63.58, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00973 AT	608150.00,	4121735.00,	63.25,	63.25, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00962 AT	608180.00,	4121735.00,	63.71,	63.71, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00908 AT	608150.00,	4121720.00,	63.42,	63.42, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00896 AT	608165.00,	4121720.00,	63.65,	63.65, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00882 AT	608135.00,	4121735.00,	63.21,	63.21, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00849 AT	608180.00,	4121750.00,	63.55,	63.55, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00836 AT	608135.00,	4121720.00,	63.11,	63.11, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00828 AT	608195.00,	4121750.00,	63.26,	63.26, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00821 AT	608165.00,	4121750.00,	63.30,	63.30, 1.50)	DC	
S7	1ST HIGHEST VALUE IS	0.00675 AT	607970.00,	4121930.00,	62.37,	62.37, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00630 AT	608000.00,	4121945.00,	62.47,	63.42, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00627 AT	607985.00,	4121945.00,	61.94,	61.94, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00608 AT	607955.00,	4121930.00,	62.71,	62.71, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00585 AT	607940.00,	4121915.00,	62.67,	62.67, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00560 AT	607970.00,	4121945.00,	62.17,	62.17, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00544 AT	608000.00,	4121960.00,	62.97,	62.97, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00529 AT	608030.00,	4121960.00,	63.02,	63.02, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00519 AT	607925.00,	4121855.00,	62.32,	62.32, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00514 AT	608015.00,	4121960.00,	63.05,	63.05, 1.50)	DC	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

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

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

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
S8	1ST HIGHEST VALUE IS	0.00596 AT (608000.00, 4121945.00, 62.47, 63.42, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00580 AT (607985.00, 4121945.00, 61.94, 61.94, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00559 AT (607970.00, 4121930.00, 62.37, 62.37, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00552 AT (608030.00, 4121960.00, 63.02, 63.02, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00540 AT (608000.00, 4121960.00, 62.97, 62.97, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00536 AT (608015.00, 4121960.00, 63.05, 63.05, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00501 AT (607970.00, 4121945.00, 62.17, 62.17, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00498 AT (608030.00, 4121975.00, 63.01, 63.01, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00496 AT (608045.00, 4121975.00, 63.01, 63.01, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00492 AT (607955.00, 4121930.00, 62.71, 62.71, 1.50)	DC	
S10	1ST HIGHEST VALUE IS	0.00434 AT (608000.00, 4121945.00, 62.47, 63.42, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00430 AT (607985.00, 4121945.00, 61.94, 61.94, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00426 AT (607970.00, 4121930.00, 62.37, 62.37, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00423 AT (607970.00, 4121945.00, 62.17, 62.17, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00407 AT (607985.00, 4121960.00, 61.85, 61.85, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00407 AT (607970.00, 4121960.00, 61.88, 61.88, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00403 AT (607955.00, 4121945.00, 62.55, 62.55, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00401 AT (607955.00, 4121930.00, 62.71, 62.71, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00400 AT (607955.00, 4121960.00, 62.20, 62.20, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00397 AT (608000.00, 4121960.00, 62.97, 62.97, 1.50)	DC	
S12	1ST HIGHEST VALUE IS	0.00425 AT (608000.00, 4121945.00, 62.47, 63.42, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00410 AT (607985.00, 4121945.00, 61.94, 61.94, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00406 AT (608000.00, 4121960.00, 62.97, 62.97, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00405 AT (607985.00, 4121960.00, 61.85, 61.85, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00403 AT (608015.00, 4121960.00, 63.05, 63.05, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00392 AT (607970.00, 4121960.00, 61.88, 61.88, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00390 AT (607970.00, 4121945.00, 62.17, 62.17, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00390 AT (608030.00, 4121960.00, 63.02, 63.02, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00389 AT (608000.00, 4121975.00, 63.15, 63.15, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00388 AT (607985.00, 4121975.00, 62.43, 62.43, 1.50)	DC	
S14	1ST HIGHEST VALUE IS	0.00520 AT (608045.00, 4121975.00, 63.01, 63.01, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.00515 AT (608060.00, 4121975.00, 63.24, 63.24, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.00505 AT (608030.00, 4121975.00, 63.01, 63.01, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.00497 AT (608030.00, 4121960.00, 63.02, 63.02, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.00486 AT (608060.00, 4121990.00, 62.99, 62.99, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.00478 AT (608015.00, 4121960.00, 63.05, 63.05, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.00473 AT (608075.00, 4121990.00, 62.94, 62.94, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.00472 AT (608105.00, 4121975.00, 63.13, 63.13, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.00465 AT (608015.00, 4121975.00, 63.05, 63.05, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.00463 AT (608045.00, 4121990.00, 62.99, 62.99, 1.50)	DC	

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

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

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				OF TYPE	NETWORK GRID-ID
S9	1ST HIGHEST VALUE IS	0.00665 AT	608000.00,	4121945.00,	62.47,	63.42,	1.50)	DC
	2ND HIGHEST VALUE IS	0.00627 AT	607985.00,	4121945.00,	61.94,	61.94,	1.50)	DC
	3RD HIGHEST VALUE IS	0.00626 AT	607970.00,	4121930.00,	62.37,	62.37,	1.50)	DC
	4TH HIGHEST VALUE IS	0.00610 AT	608000.00,	4121960.00,	62.97,	62.97,	1.50)	DC
	5TH HIGHEST VALUE IS	0.00583 AT	608030.00,	4121960.00,	63.02,	63.02,	1.50)	DC
	6TH HIGHEST VALUE IS	0.00583 AT	608015.00,	4121960.00,	63.05,	63.05,	1.50)	DC
	7TH HIGHEST VALUE IS	0.00552 AT	608030.00,	4121975.00,	63.01,	63.01,	1.50)	DC
	8TH HIGHEST VALUE IS	0.00550 AT	607970.00,	4121945.00,	62.17,	62.17,	1.50)	DC
	9TH HIGHEST VALUE IS	0.00538 AT	608045.00,	4121975.00,	63.01,	63.01,	1.50)	DC
	10TH HIGHEST VALUE IS	0.00525 AT	608060.00,	4121975.00,	63.24,	63.24,	1.50)	DC
S11	1ST HIGHEST VALUE IS	0.00649 AT	608000.00,	4121945.00,	62.47,	63.42,	1.50)	DC
	2ND HIGHEST VALUE IS	0.00646 AT	608000.00,	4121960.00,	62.97,	62.97,	1.50)	DC
	3RD HIGHEST VALUE IS	0.00621 AT	608030.00,	4121960.00,	63.02,	63.02,	1.50)	DC
	4TH HIGHEST VALUE IS	0.00621 AT	608045.00,	4121975.00,	63.01,	63.01,	1.50)	DC
	5TH HIGHEST VALUE IS	0.00620 AT	608030.00,	4121975.00,	63.01,	63.01,	1.50)	DC
	6TH HIGHEST VALUE IS	0.00617 AT	608015.00,	4121960.00,	63.05,	63.05,	1.50)	DC
	7TH HIGHEST VALUE IS	0.00602 AT	608015.00,	4121975.00,	63.05,	63.05,	1.50)	DC
	8TH HIGHEST VALUE IS	0.00600 AT	608060.00,	4121975.00,	63.24,	63.24,	1.50)	DC
	9TH HIGHEST VALUE IS	0.00599 AT	607985.00,	4121945.00,	61.94,	61.94,	1.50)	DC
	10TH HIGHEST VALUE IS	0.00548 AT	607970.00,	4121930.00,	62.37,	62.37,	1.50)	DC
S13	1ST HIGHEST VALUE IS	0.00424 AT	608000.00,	4121945.00,	62.47,	63.42,	1.50)	DC
	2ND HIGHEST VALUE IS	0.00409 AT	607985.00,	4121945.00,	61.94,	61.94,	1.50)	DC
	3RD HIGHEST VALUE IS	0.00404 AT	608000.00,	4121960.00,	62.97,	62.97,	1.50)	DC
	4TH HIGHEST VALUE IS	0.00403 AT	607985.00,	4121960.00,	61.85,	61.85,	1.50)	DC
	5TH HIGHEST VALUE IS	0.00402 AT	608015.00,	4121960.00,	63.05,	63.05,	1.50)	DC
	6TH HIGHEST VALUE IS	0.00391 AT	607970.00,	4121960.00,	61.88,	61.88,	1.50)	DC
	7TH HIGHEST VALUE IS	0.00390 AT	608030.00,	4121960.00,	63.02,	63.02,	1.50)	DC
	8TH HIGHEST VALUE IS	0.00390 AT	607970.00,	4121945.00,	62.17,	62.17,	1.50)	DC
	9TH HIGHEST VALUE IS	0.00386 AT	608000.00,	4121975.00,	63.15,	63.15,	1.50)	DC
	10TH HIGHEST VALUE IS	0.00386 AT	607985.00,	4121975.00,	62.43,	62.43,	1.50)	DC
S15	1ST HIGHEST VALUE IS	0.00605 AT	608030.00,	4121960.00,	63.02,	63.02,	1.50)	DC
	2ND HIGHEST VALUE IS	0.00591 AT	608015.00,	4121960.00,	63.05,	63.05,	1.50)	DC
	3RD HIGHEST VALUE IS	0.00581 AT	608000.00,	4121960.00,	62.97,	62.97,	1.50)	DC
	4TH HIGHEST VALUE IS	0.00576 AT	607985.00,	4121960.00,	61.85,	61.85,	1.50)	DC
	5TH HIGHEST VALUE IS	0.00576 AT	608030.00,	4121975.00,	63.01,	63.01,	1.50)	DC
	6TH HIGHEST VALUE IS	0.00570 AT	608045.00,	4121975.00,	63.01,	63.01,	1.50)	DC
	7TH HIGHEST VALUE IS	0.00556 AT	608015.00,	4121975.00,	63.05,	63.05,	1.50)	DC
	8TH HIGHEST VALUE IS	0.00556 AT	607985.00,	4121945.00,	61.94,	61.94,	1.50)	DC
	9TH HIGHEST VALUE IS	0.00550 AT	608000.00,	4121945.00,	62.47,	63.42,	1.50)	DC
	10TH HIGHEST VALUE IS	0.00548 AT	608060.00,	4121975.00,	63.24,	63.24,	1.50)	DC

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

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL NODRYDPLT NOWETDPLT RURAL ADJ_U*

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

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 930 Informational Message(s)

A Total of 43824 Hours Were Processed

A Total of 530 Calm Hours Identified

A Total of 400 Missing Hours Identified (0.91 Percent)

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

******** WARNING MESSAGES ********
ME W186 11324 MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
ME W187 11324 MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

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

Land Use Determination
China Mobile International, Plant #24374
Application #29830

UTM Easting (meters): 608127
UTM Northing (meters): 4121779
UTM Zone: 10
Datum: NAD83
Study Radius for surface roughness (km): 3.0

	Land Cover Counts: Surface Roughness		Urban %	
0	Missing, Out-of-Bounds, or Undefined:	0		
11	Open Water:	252		
12	Perennial Ice/Snow:	0		
21	Low Intensity Residential:	10090	50%	5045
22	High Intensity Residential:	24	100%	24
23	Commercial/Industrial/Transp:	1552	100%	1552
31	Bare Rock/Sand/Clay:	115		
32	Quarries/Strip Mines/Gravel:	1		
33	Transitional:	0		
41	Deciduous Forest:	273		
42	Evergreen Forest:	659		
43	Mixed Forest:	856		
51	Shrubland:	1739		
61	Orchards/Vineyard/Other:	84		
71	Grasslands/Herbaceous:	10154		
81	Pasture/Hay:	1754		
82	Row Crops:	2662		
83	Small Grains:	0		
84	Fallow:	0		
85	Urban/Recreational Grasses:	1193		
91	Woody Wetlands:	0		
92	Emergent Herbaceous Wetlands:	6		
	Total:	31414		6621

Urban % = 21%