APPENDIX K

APPENDIX K

AIR QUALITY AND PUBLIC HEALTH SUPPORT DOCUMENTATION

K-1: Modeling Protocol
K-2: Meteorological Data - Windroses
K-3: Construction Emissions Calculations
K-4: Turbine, Duct Burner, Diesel Generator, and Cooling Tower Emissions Calculations
K-5: AQMD Permit Application Forms
K-6: Input and Output Files for the BPIP Analysis
K-7: Construction Impacts Modeling Files
K-8: Project Operation Modeling Input Files
K-9: Visibility Calculations – VISCREEN Analysis
K-10: Modeling Files – Commissioning
K-11: Cumulative Impact Analysis Modeling Files
K-12: Project HAPs Emissions
K-13: Health Risk Assessment Modeling Files
K-14: Offsite Consequence Analysis

K-1: Modeling Protocol

MODELING PROTOCOL FOR THE TESLA POWER PLANT PROJECT

ALAMEDA COUNTY, CALIFORNIA

Prepared for
Midway Power, LLC

July 6, 2001

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500 12th Street, Suite 200
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51-00167033.00

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TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1-1
1.1	Background	1-1
1.2	Purpose	1-2
2.0	PROJECT DESCRIPTION	2-1
2.1	Project Location	2-1
2.2	Description of the Proposed Source	2-1
3.0	REGULATORY SETTING	3-1
3.1	California Energy Commission Requirements	3-1
3.2	Bay Area Air Quality Management District Requirements	3-2
3.3	U.S. Environmental Protection Agency Requirements	3-2
4.0	MODELS PROPOSED AND MODELING TECHNIQUES	4-1
4.1	Screening Modeling	4-1
4.2	Refined Modeling	4-1
4.2.1	Area of Impact Analysis	4-2
4.2.2	PSD Increment Analysis	4-2
4.2.3	Ambient Air Quality Standard Analysis	4-4
4.2.4	Health Risk Assessment Analysis	4-4
4.2.5	Air Quality Related Values and Visibility Analysis	4-5
4.3	Modeling Emissions Inventory	4-5
4.3.1	Project Sources	4-5
4.3.2	Contemporaneous Sources	4-6
4.3.3	Off-Property Sources	4-6
4.4	Building Wake Effects	4-6
4.5	Receptor Grid	4-7
4.5.1	AOI Analysis	4-7
4.5.2	PSD Increment Analysis	4-7
4.6	Meteorological and Air Quality Data	4-8
5.0	MODELING RESULTS	5-1
5.1	Area of Impact	5-1
5.2	PSD Increments	5-1
5.3	NAAQS and CAAQS Analysis	5-1
5.4	Health Risk Assessment Analysis	5-1

TABLE OF CONTENTS (Continued)

		Page
6.0	REFERENCES	6-1

LIST OF TABLES

		Page
4-1	Relevant Ambient Air Quality Standards and Significance Levels	4-3
4-2	Preliminary Estimated Emissions for the Tesla Power Plant Combustion Turbine-Generators and Heat Recovery Steam Generators (tons per year)	4-5

LIST OF FIGURES

		Page
1	Location of the Tesla Power Project	1-3
2	Location of Meteorological Monitoring Stations	4-10

ACRONYMS

$\mu g/m^3$	micrograms per cubic meter
μm	Micrometers
AB	Assembly Bill
AFC	Application for Certification
AOI	area of impact
AQRV	Air Quality Related Values
ARB	California Air Resources Board
ARM	ambient ratio method
BACM	best achievable control measures
BACT	Best Available Control Technology
BAAQMD	Bay Area Air Quality Management District
CEC	California Energy Commission
CO	carbon monoxide
CTG	combustion turbine generator
FDM	Fugitive Dust Model
g/s	gram per second
H1H	high first high
H2H	high second high
H6H	highest sixth high
HRA	health risk assessment
HRSG	heat recovery steam generator
ISC	Industrial Source Complex
km	Kilometers
LORS	laws, ordinances, regulations, and standards
MEI	Maximally Exposed Individual
MW	monitoring well
MPRM	Meteorological Processor for Regulatory Models
NAAQS	National Ambient Air Quality Standards
NAAQS/CAAQS	National Ambient Air Quality Standards/California Ambient Air Quality Standard
NO_x	nitrogen oxides
NSR	New Source Review

ACRONYMS (Continued)

OLM	ozone limiting method
PAH	polycyclic aromatic hydrocarbons
PM_{10}	particulate matter less than 10 μm in diameter
PSD	Prevention of Significant Deterioration
SCR	selective catalytic reduction
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
TACs	toxic air contaminants
T-BACT	best available control technology for toxics
TPY	tons per year
U.S. EPA	U. S. Environmental Protection Agency
VOC	volatile organic compounds
ZOI	Zone of Impact

1.0 INTRODUCTION

1.1 Background

Midway Power, LLC is proposing to build and operate an additional approximately 1,120 megawatt (MW) natural gas-fired combined cycle plant in Alameda County, California (Figure 1). The project is subject to the site licensing requirements of the California Energy Commission (CEC). The CEC will coordinate its independent air quality evaluations with the Bay Area Air Quality Management District (BAAQMD) through the Determination of Compliance (DOC) process and with the United States Environmental Protection Agency's (U.S. EPA) Prevention of Significant Deterioration (PSD) review.

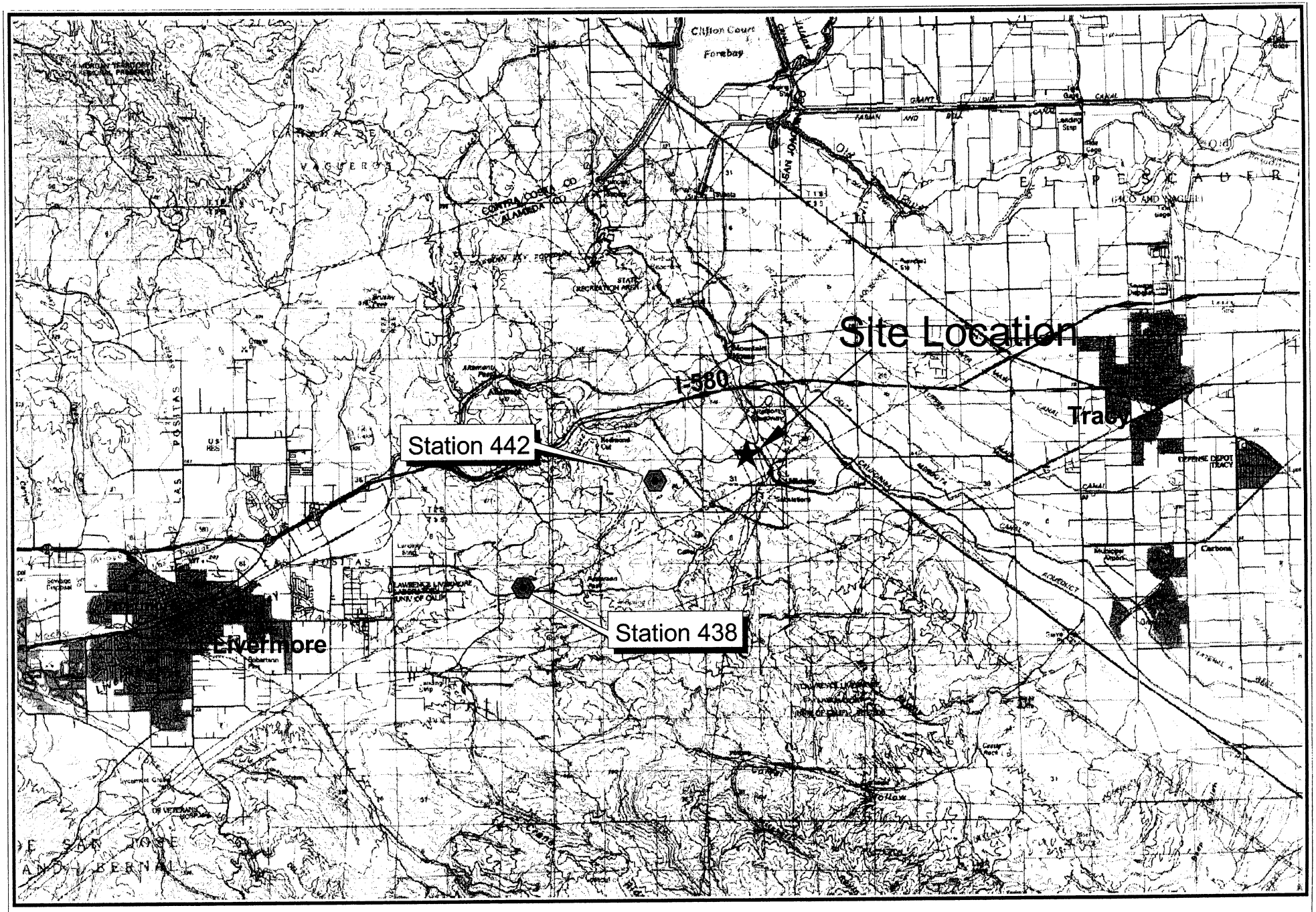
Federal PSD regulations apply only to those pollutants that are in attainment of the National Ambient Air Quality Standards (NAAQS). State and local non-attainment new source review (NSR) regulations potentially apply to all criteria pollutants, depending on the quantity of pollutants emitted. The area around the Tesla Power Project (TPP) is attainment for nitrogen oxides (NO_x), carbon monoxide (CO), and sulfur dioxide (SO_2), and non-attainment for the California Ambient Air Quality Standards (CAAQS) for particulate matter less than 10 micrometers (μm) in diameter (PM_{10}) and ozone. NO_x and SO_2 are regulated as PM_{10} precursors, and NO_x and volatile organic compounds (VOCs) as ozone precursors. Thus, although NO_x emissions would be offset to satisfy state and local non-attainment NSR regulations, federal PSD regulations continue to apply to NO_x. Federal PSD applicability is further determined by whether or not the net emissions increases are deemed to be significant.

Preliminary estimates for the TPP indicate that annual emissions will exceed the PSD significance thresholds for NO_x, CO, and PM_{10}. Emissions of lead and SO_2 will be below the PSD significance thresholds. Thus, the TPP will require PSD review for NO_x, CO and PM_{10} under jurisdiction of the U.S. EPA Region IX.

1.2 Purpose

Each of the above agencies (CEC, U.S. EPA Region IX, and BAAQMD) require the use of dispersion modeling to demonstrate compliance with applicable air quality standards, PSD increments and impacts on visibility in nearby (within 100 kilometers [km]) federal Class I wilderness areas. Modeling will also be required to determine the potential impacts on human health from toxic air contaminants. Finally, CEC siting regulations also require that the cumulative impacts of the proposed project and reasonably foreseeable projects within 10 km of the project site be assessed via modeling.

This document summarizes the procedures to be used for the air dispersion modeling for project certification and permitting. Modeling of both operation and construction emissions will be performed in accordance with CEC guidance (CEC, 1997). This protocol is being submitted to the CEC, U.S. EPA Region IX, and BAAQMD for their review and comment prior to completion of the applicable permit applications. The proposed model selection and modeling approach is based on review of applicable regulations and agency guidance documents, and discussions with agency staff.



1 0 1 2 Miles

N

Figure 1. Location of the Tesla Power Project

July 2001

2.0 PROJECT DESCRIPTION

2.1 Project Location

The TPP will be located on a 60-acre portion of Section 30, Township 2S, Range 4E, Alameda County, approximately 0.5 miles north of the PG&E Tesla substation (see Figure 1). The project site, controlled under a purchase and sale agreement, is bordered by an abandoned railroad right-of-way to the north and Midway Road to the east. The site is located in hilly, rural terrain, within 1 kilometer of complex terrain.

2.2 Description Of The Proposed Source

The TPP will include four trains, transformers, control and administrative buildings, ammonia storage tank, and other ancillary facilities. Each train will consist of a natural gas-fired combustion turbine – generator (CTG) set and a supplementary fired heat recovery steam generator (HRSG) equipped with selective catalytic reduction (SCR) for the control of nitrogen oxides (NO_x) and an oxidation catalyst for control of carbon monoxide (CO) emissions. A cooling tower and two steam turbines will also be included along with other ancillary components typical of a combined cycle power plant. The project will be fueled with natural gas supplied by PG&E. Natural gas will be conveyed to the power plant site via a new 20-inch 2.8-mile pipeline.

3.0 REGULATORY SETTING

3.1 California Energy Commission Requirements

For projects with electrical power generation capacity of greater than 50 MW, CEC requires that applicants prepare a comprehensive Application for Certification (AFC) document addressing the project's environmental and engineering features. An AFC must include the following air quality information (CEC, 1997):

- A description of the project, including project emissions, fuel type(s), control technologies and stack characteristics;
- The basis for all emission estimates and/or calculations;
- An analysis of Best Available Control Technology (BACT) according to BAAQMD Rules;
- Existing baseline air quality data for all regulated pollutants;
- Existing meteorological data, including temperature, wind speed and direction and mixing height;
- A listing of applicable laws, ordinances, regulations and standards (LORS) and a determination of compliance with all applicable LORS;
- An emissions offsets strategy;
- An air quality impact assessment (i.e., federal and state ambient air quality standards and PSD review) and protocol for the assessment of cumulative impacts of the proposed project along with permitted and under construction projects within a 10 km radius; and
- An analysis of human exposure to air toxics (i.e., health risk assessment [HRA]).

For the TPP, the air quality impact assessment, the cumulative impacts assessment, and the HRA will be performed using dispersion models.

3.2 Bay Area Air Quality Management District Requirements

The BAAQMD has promulgated NSR requirements under Regulation 2, Rule 2. In general, all equipment with the potential to emit air pollutants is subject to NSR requirements. NSR has four major requirements that potentially apply to new sources:

- Installation of BACT;
- Ambient air quality impact modeling to demonstrate compliance with National and California Ambient Air Quality Standards;
- Emission offsets; and
- Certification of statewide compliance with air quality requirements.

Assembly Bill (AB) 2588 California Air Toxics Hot Spots Program allows a predicted incremental cancer risk from toxic air contaminants (TACs) at any receptor of greater than one in one million if best available control technology for toxics (T-BACT) is implemented. A TAC analysis should include TAC emission estimates and a modeling analysis to identify the Zone of Impact (ZOI) and the Maximally Exposed Individual (MEI). The ZOI encompasses the area where the incremental carcinogenic risk (due to the inhalation pathway only) equals or exceeds one in one million.

3.3 U.S. Environmental Protection Agency Requirements

United States EPA has promulgated PSD regulations applicable in Alameda County. Many of the PSD requirements are the same as the AFC and NSR requirements described above (e.g., project description, BACT, ambient air quality standards analysis); however, PSD requires the following additional analyses:

- A PSD increment (consumption) analysis;
- An analysis of Air Quality Related Values (AQRV) to ensure the protection of visibility of federal Class I wilderness areas within 100 km of the proposed project;

- An evaluation of potential impacts on soils and vegetation of commercial and recreational value; and
- An evaluation of potential growth-inducing impacts.

For the TPP, there are no Class I areas within 100 km of the project site.

4.0 MODELS PROPOSED AND MODELING TECHNIQUES

This section describes the dispersion models and modeling techniques to be used in performing the air quality analysis for the TPP. The objectives of the modeling are to demonstrate that air emissions from the TPP will not cause or contribute to a PSD increment exceedance or an ambient air quality standard violation, will not cause a significant health risk, and will not negatively impact visibility in a Class I area.

4.1 Screening Modeling

An initial screening analysis will be conducted to identify which turbine operating mode results in worst-case ambient air impacts. The most recent version of U.S. EPA's Industrial Source Complex (ISC) model (Version 00101) will be used to model worst-case conditions for each operating mode (100%, 75%, or 50%). A unit emission rate of 1.0 gram per second (g/s) will be modeled for both flat and elevated terrain while considering potential building downwash. Concentrations for each pollutant, expressed in terms of micrograms per cubic meter ($\mu g/m^3$), will be obtained by multiplying the unit emission rate from the ISCST3 model results (expressed in terms of $\mu g/m^3$ per g/s) by the emission rate calculated for each pollutant (expressed in terms of g/s) for each operating mode. The operating mode that yields the highest concentrations will be considered the worst-case operating mode. The operating mode that yields the highest ISCST3 results (expressed in terms of $\mu g/m^3$ per g/s) will be used to simulate start-up stack conditions. The worst-case operating modes described above will be used in all modeling analyses. The screening modeling will consider fumigation using the U.S. EPA SCREEN3 model.

Screening modeling will not be used to eliminate pollutants from refined modeling analysis.

4.2 Refined Modeling

The purpose of the refined modeling analysis is to demonstrate that air emissions from the TPP will not cause or contribute to a PSD increment exceedance or a NAAQS/CAAQS

violation; will not cause a significant health risk impact; and will not negatively impact visibility in a Class I area under worst-case conditions. ISCST3 will be used for the refined modeling. Gradual plume rise, along with the regulatory default options, will be selected and the model will be run in the rural mode. Rural mode will be used because the majority (>50%) of the area within 3 km of the proposed site is undeveloped or farmland. Specific modeling techniques for PSD, NAAQS/CAAQS, HRA, and AQRV/visibility analyses are discussed below.

4.2.1 Area of Impact Analysis

Ground level concentrations caused by the project will be compared to ambient air quality impact significance levels defined by U.S. EPA (Table 4-1). If maximum off-property pollutant concentrations for each pollutant are below these levels, then the project will not cause significant air quality impacts, and no further modeling will be performed.

If the predicted ambient concentrations for the project are above ambient air quality impact significance levels, an area of significant impact will defined for each pollutant and averaging period for which significance levels are exceeded. The receptor locations and time periods where the project has a significant impact constitute *significant events.* The AOI is the area having a radius equal to the distance to the significant event located farthest from the project. The largest radius for each pollutant, regardless of averaging period, will be used to define the AOI for the remainder of the analysis. For example, CO has both 1-hour and 8-hour averaging periods; therefore, the short-term AOI would be defined as the area having a radius equal to the distance from the project to either the 1-hour or 8-hour significant event, whichever is longer.

4.2.2 PSD Increment Analysis

The purpose of the PSD increment analysis is to determine whether the TPP will cause or contribute to a predicted PSD increment exceedance. The PSD increments are shown in Table 4-1. A PSD increment analysis protocol will be provided if there are any pollutants with impacts greater than their respective significant impact levels.

Table 4-1 Relevant Ambient Air Quality Standards and Significance Levels

Pollutant	Averaging Time	CAAQS(a,c)	NAAQS(b,c)	Ambient Impact Significance Levels (μg/m3)	PSD Significant Emission Rates (TPY)	PSD Increments (μg/m3) Class I	PSD Increments (μg/m3) Class II
Carbon Monoxide	8-hour	9.0 ppm (10,000 μg/m^3)	9.0 ppm (10,000 μg/m^3)	500	100		
	1-hour	20 ppm (23,000 μg/m^3)	35 ppm (40,000 μg/m^3)	2,000			
Nitrogen Dioxide[d]	Annual		0.053 ppm (100 μg/m^3)	1	40	2.5	25
	1-hour	0.25 ppm (470 μg/m^3)		19[e]			
Sulfur Dioxide	Annual		0.03 ppm (80 μg/m^3)	1	40	2	20
	24-hour	0.04 ppm[f] (105 μg/m^3)	0.14 ppm (365 μg/m^3)	5		5	91
	3-hour			25		25	512
	1-hour	0.25 ppm (655 μg/m^3)					
PM_{10}	Annual	30 μg/m^3	50 μg/m^3	1	15	4	17
	24-hour	50 μg/m^3	150 μg/m^3	5		8	30
Ozone	1-hour	0.09 ppm (180 μg/m^3)	0.12 ppm (235 μg/m^3)	See footnote[g]	40 (of VOCs)		
Visibility Reducing Particles	1 observation	See footnote[h]					

a California standards for ozone (as volatile organic compounds, carbon monoxide, sulfur dioxide (1-hour), nitrogen dioxide, and PM_{10}, are values that are not to be exceeded. The visibility standard is not to be equaled or exceeded.

b National standards, other than those for ozone and based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

c Concentrations are expressed first in units in which they were promulgated. Equivalent units are given in parentheses and based on a reference temperature of 25° C and a reference pressure of 760 mm of mercury. All measurements of air quality area to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar).

d Nitrogen dioxide (NO_2) is the compound regulated as a criteria pollutant; however, emissions are usually based on the sum of all oxides of nitrogen (NO_x).

e The ambient impact significance level for 1-hour average NO_2 is a BAAQMD level only.

f At locations where the state standards for ozone and/or PM_{10} are violated. National standards apply elsewhere.

g Modeling is required for any net increase of 100 tons per year or more of VOCs subject to PSD.

h In sufficient amount to reduce the prevailing visibility to less than 10 miles when the relative humidity is less that 70%. "Prevailing visibility" is defined as the greatest visibility, which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Blanks = Not applicable
CAAQS = California Ambient Air Quality Standard
mm = millimeters
NAAQS = National Ambient Air Quality Standard
ppm = parts per million by volume, or micromoles of pollutant per mole of gas
PM_{10} = particulate mater less than 10 micrometers in diameter
TPY = ton per year
μg/m^3 = micrograms per cubic meter

4.2.3 Ambient Air Quality Standard Analysis

The purpose of the ambient air quality standard analysis is to determine whether the TPP will cause or contribute to a NAAQS/CAAQS violation. The project will not be considered to cause or contribute to a NAAQS/CAAQS violation unless impacts from the project itself combined with the background concentration exceed the NAAQS/CAAQS, or the project has a significant impact at the same location and time as a predicted NAAQS/CAAQS violation.

Should it be required, NO_2 estimates will be reduced using either U.S. EPA's ambient ratio method (ARM) (for annual impacts only) or ozone limiting method (OLM) (for hourly impacts only). Initial refined modeling will use U.S. EPA's 0.75 default ambient ratio for annual impacts. If the 0.75 default ambient ratio yields a concentration that still exceeds the standard, an alternative ratio will be developed based on historic ambient NO_2/NO_x concentrations for the local area.

4.2.4 Health Risk Assessment Analysis

The CEC and BAAQMD require a HRA of air toxic emissions from operation of the project. The HRA approach will be consistent with the methods outlined in the *Air Toxics Hot Spots Program, Revised 1992 Risk Assessment Guidelines* (CAPCOA, 1993). Contaminants with potential carcinogenic, chronic and acute effects will be considered.

First ground level impacts from the TPP will be estimated using the ISCST3 atmospheric dispersion modeling. The ISCST3 modeling analysis will be consistent with the modeling approach discussed above for the NAAQS/CAAQS analyses. Based on impacts modeled using ISCST3, the ACE2588 model will be used to estimate health risk. The HRA will be include all applicable uptake pathways including inhalation, dermal, soil ingestion and mother's milk.

4.2.5 Air Quality Related Values and Visibility Analysis

There are no Class I areas within 100 km of the TPP site. Therefore, no AQRV or visibility analysis is required.

4.3 Modeling Emissions Inventory

4.3.1 Project Sources

Operational emissions from the project will be dominated by the four combustion turbine-generators and four heat recovery steam generators. Table 4-2 summarizes preliminary annual (combined) emission estimates for the TPP. Conceptual plant design includes SCR for NO_x and oxidation catalysts for CO that will match recent BACT determinations for similar projects. Emissions of SO_2 and PM_{10} will be low due to the use of interstate pipeline natural gas as fuel.

Table 4-2. Preliminary Estimated Emissions for the Tesla Power Project Combustion Turbine-Generators and Heat Recovery Steam Generators (tons per year)

NO_x	CO	SO_2	VOC	PM_{10}	Pb
>40	>100	<40	>40	>15	<0.6

Combustion turbine generator/HRSG emissions will vary with ambient temperature and turbine load. Modeling will be conducted for a range of ambient temperatures and loads. All combinations will be modeled to identify worst-case operating scenarios for each averaging period (i.e., 1-hour, 3-hour, 8-hour, 24-hour, and annual). PM_{10} emissions from the cooling tower will be included. Startup and shutdown scenarios will be addressed. Refined emission estimates will be made after the plant design has been completed. The modeling analyses conducted for the AFC, ATC/DOC, and PSD permit application will be based on the refined emissions estimates. Where applicable, emissions estimates will be provided in both ppm and pounds per hour values.

Temporary construction emissions will result from heavy equipment exhaust (i.e., NO_x emissions) and fugitive dust (i.e., PM_{10}) from earthmoving activities and vehicle traffic. However, construction emission impacts are expected to be small relative to the CTG/HRSG emissions. Impacts will be estimated using ISCST3.

Air toxics, or TAC, also will be emitted from the TPP due to combustion of natural gas. Emissions estimates for TAC will be based on emission factors available from the California Air Resources Board (ARB) and/or vendor data, if available.

4.3.2 Contemporaneous Sources

The contemporaneous period includes the period beginning five years prior to the proposed start of construction for the TPP and ending when the project commences operation. The estimated start date of construction for the TPP is March 2002, with a planned start date of operation of April 2004. Therefore, the contemporaneous period is March 1997 through April 2004.

4.3.3 Off-Property Sources

If project impacts are significant, applicable modeling data (e.g., source location and emissions) for determining PSD increment and NAAQS impacts from all sources within a radius of the AOI plus 50 km (according to U.S. EPA, 1990a) as required will be requested from the BAAQMD and the SJVAPCD. Some of these sources, as mentioned above, may be contemporaneous sources (i.e., scheduled to begin construction and/or operation during the same time frame as the TPP).

4.4 Building Wake Effects

The effect of building wakes (i.e., downwash) upon the stack plumes will be evaluated in accordance with U.S. EPA guidance (U.S. EPA, 1985). Direction-specific building

data will be generated for stacks below GEP stack height using U.S. EPA's Building Parameter Input Program (BPIP Version 95086). Appropriate information will be provided in the AFC and other permit applications that describes the input assumptions and output results from the BPIP model. The ISCST3 model considers direction-specific downwash using both the Huber Snyder and Schulman-Scire algorithms as evaluated in the BPIP program.

4.5 Receptor Grid

This section presents the receptor grids that will be used in the PSD, NAAQS/CAAQS, and HRA modeling analyses.

4.5.1 AOI, NAAQS/CAAQS and HRA Analyses

The receptor grid to be used for determining the AOI, NAAQS/CAAQS compliance and in the HRA, is as follows:

- 25-meter spacing along the property line and extending from the property line out to 100 meters for any project sources within 500 meters of the property line;
- 100-meter spacing within 1 km of project sources for any locations not covered by the 25-meter grid;
- 500-meter spacing within 1 to 5 km of project sources;
- 1,000-meter spacing within 5 to 10 km of project sources; and
- 25-meter grids on any hills where maximum impacts are shown to occur.

4.5.2 PSD Increment Analysis

A PSD increment receptor grid will be developed for each meteorological year and for each averaging period by analyzing the maximum concentration at each receptor from the AOI analysis. Only those receptors from the AOI analysis that had at least one predicted significant event would be included in the PSD increment analysis.

4.6 Meteorological and Air Quality Data

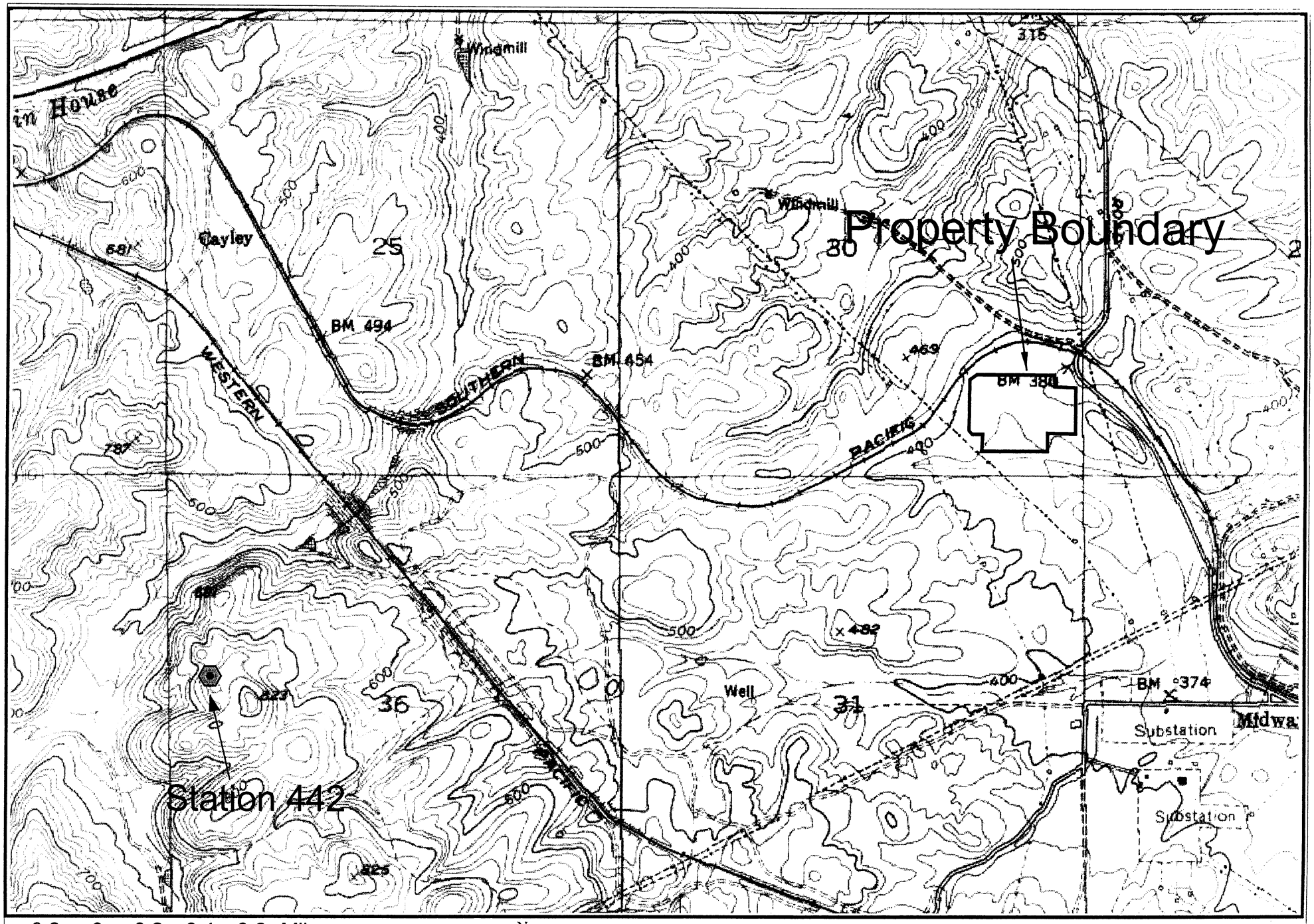
Meteorological data to be used in the modeling analysis include data from 1998-2000. Data were gathered from two meteorological stations owned by wind turbine operators in the area. The locations of the two stations, 442 and 438, are shown in Figure 1. Data for wind speed, wind direction and sigma theta were gathered from Station 442. Temperature data was taken from Station 438. Data capture is greater than 90% from each station for the three years used in the analysis. In accordance with BAAQMD guidelines, the mixing height has been uniformly set to 600 meters. The U.S. EPA Meteorological Processor for Regulatory Models (MPRM) will be used to process the data.

Figure 2 shows the location of Station 442 and the project site and the elevation of the surrounding terrain. Station 442 is a 100-foot tower located at an elevation of approximately 760 feet. The tower is located at the edge of a flat area on the top of a hill. The TPP site is located on a plateau in the hills at an elevation of approximately 400 feet. Neither area is surrounded by any nearby terrain that is at an elevation much greater than the elevation of the met station or site. Station 442 is located in an area and at a height which shows little influence from minor local terrain disturbances of regional wind flow patterns. The TPP site location and stack heights (preliminarily set at 150 feet) will also be situated such that local terrain will not effect the wind flow patterns. The regional wind patterns collected by Station 442 will be representative of the patterns present at the TPP site.

The wind and stability roses for Station 442, located in the Appendix of this document, indicate a consistent high-speed wind pattern (average wind speed greater than 7 m/s) with winds predominately from the south-southwest and southwest. This pattern is typical of winds in the Patterson and Altamont Pass areas with the winds influenced by the orientation of the terrain with the wind direction towards flat terrain.

Available BAAQMD/SJVAPCD/ARB air quality data through 2000 will be used to determine baseline air pollutant concentrations. Data from both Livermore and Tracy

monitoring stations will be used. When appropriate data is unavailable from these stations, the closest monitoring stations that provide the appropriate data will be used in the analysis.



0.2 0 0.2 0.4 0.6 Miles

0.5 0 0.5 1 1.5 Kilometers

N

Figure 2. Location of Meteorological Monitoring Stations

July 2001

5.0 MODELING RESULTS

5.1 Area Of Impact

Results of the AOI analysis will be presented in a summary table. The H1H concentration will be reported for all averaging periods for all years modeled. For years that exceed *de minimis* concentrations, a figure depicting the AOI will be generated. This figure will show the locations of all receptors that exceeded the *de minimis* concentration. The location and value of the maximum-modeled concentration will also be presented.

5.2 PSD Increments

Results of the PSD increment analyses will be presented in a summary table. The highest annual NO_2 concentration will be reported and compared to the PSD Class II Increment (i.e., 25 $\mu g/m^3$).

5.3 NAAQS and CAAQS Analysis

National Ambient Air Quality Standards/CAAQS analyses will be presented in a summary table and as isopleths. For CO, NO_x, and SO_2, the H2H short-term and highest annual concentrations will be reported. For PM_{10}, the H6H 24-hour concentration the highest (five-year average) concentration over the five years modeled will be presented. Background concentrations will be added to yield the total concentration, which will be compared to the NAAQS and CAAQS.

5.4 Health Risk Assessment Analysis

Maps at a scale of 1:24,000 will depict the following data:

- Elevated terrain within a 10-mile radius of the project;

- Distribution of population and sensitive receptors , including schools, pre-schools, etc., within a 10-mile radius of the project;
- Current and future residential land uses;
- Location of proposed new or modified transmission lines; and
- Isopleths of any areas where exposures to air toxics lead to an estimated carcinogenic risk equal to or exceeding one in one million.

Health risk assessment modeling results will be summarized to include maximum annual and maximum-hourly concentrations from toxic air contaminant emissions that may cause chronic adverse health effects (both carcinogenic and non-carcinogenic) and acute adverse health effects, respectively. Health effects will be calculated for the locations of maximum impact and presented in the summary table.

6.0 REFERENCES

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U.S. EPA, 1992 — *Workbook for Plume Visual Impact Screening and Analysis (Revised),* EPA-454/R-92-023, Office of Air and Radiation, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. October.

U.S. Forest Service, 1992 — *Guidelines for Evaluating Air Pollution Impacts on Class I Wilderness Areas in California*, General Technical Report PSW-GTR-136, U.S. Department of Agriculture, Forest Service. November.

September 7, 2001

Mr. Dick Wocasek
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Re: Modeling Protocol for the Tesla Power Project

Dear Mr. Wocasek:

We have received the comments from Glen Long on the *Modeling Protocol for the Tesla Power Project* sent to URS by e-mail on July 24, 2001. Responses to your comments are attached. For convenience, BAAQMD comments are shown in italics.

If you have any questions, please feel free to call me at (510) 874-3156.

Sincerely,

URS CORPORATION

Brent P. Eastep
Air Quality Engineer

Enclosure

(1) Both the source characteristics and the physical characteristics of the facility have not been provided: stack height, containment buildings, source characteristics and pollution abatement devices are all unknown. These characteristics are needed in order to thoroughly review the potential impact from a facility.

Response: The application will contain all of the requested information.

(2) Under existing guidance, the air quality models proposed are acceptable. A determination of acceptable models, though, is not made until a permit application is actually filed. The most current version of the models, at the time of the permit application, would be required. EPA is also expected to make changes to the Guideline on Air Quality Models in the near future. Depending on the release of this Guidance and the submittal of the permit application, different or additional models may be required.

Response: Comment noted. Any revised guidance from the EPA will be incorporated into the application.

(3) Please include a table detailing emissions calculated and modeled for each source and each scenario: commissioning, start-up, 1-hour, 3-hour, 8-hour, 24-hour, and annual average. The assumptions used in calculating the emission rates used in the modeling should be clearly identified (load level, ambient temperature, power augmentation, exhaust temperature, and exit velocity).

Response: All requested emission, exhaust parameter and assumption information will be provided in the application.

(4) In accordance with District Regulation 2-2-111, the applicant must provide at least one year of continuous ambient air quality monitoring data before submittal of the permit application, unless the air quality impacts of the proposed new source or existing air pollutant levels are less than the PSD monitoring exemption levels: These levels are given in District Regulation 2-2-111. The applicant has proposed to use the air monitoring data from monitoring stations in Livermore and Tracy. Because the Livermore monitoring station is located to the west of

the Altamont Pass in the Livermore Valley, while the proposed project is located in the western portion of the San Joaquin Valley, the Livermore monitoring data would not be acceptable as representative of the air quality in the impact area from this proposed facility. Section 2.4 of Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD) (EPA-450/4-87-007) states that if existing monitoring data is to be used, it must be representative of the proposed facility impact area (see section 2.4.1). The applicant therefore must show that the monitoring data is representative of the following three areas: (1) the location of maximum concentration increase from the proposed source, (2) the location of the maximum air pollutant concentration from existing sources, and (3) the location of the maximum impact area, i.e. where the maximum pollutant concentration would hypothetically occur based on the combined effect of existing sources and the proposed new source. If the applicant can show that any existing monitoring meets these criteria, then Section 2.4.3 states that the latest 3 years of monitoring data may be used. Otherwise, the applicant may need to model other sources to add to the monitoring data. A monitoring protocol should be submitted to the District if the applicant chooses to perform on-site monitoring.

Response: The air quality impacts of the proposed project will be below the PSD monitoring exemption levels. Air monitoring data from Livermore will not be used. The application will contain an analysis showing that the air monitoring data used meets the EPA criteria outlined in the comment above.

(5) *In performing the modeling analysis and in presenting the modeling results, please use actual, not relative, NAD27 UTM coordinates for all sources and receptors. NAD27 Digital Elevation Data (DEM) is available free from the United States Geological Service (USGS) at http://bard.wr.usgs.gov/htmldir/dem_html/index.html. The 10 meter resolution data, when available, should be used when determining receptor elevations.*

Response: Actual, not relative, UTM coordinates for all sources and receptors will be used in the modeling analysis. Ten-meter resolution data will be used, where available.

(6) The default ambient historic ambient NO_2/NOx ratio of 0.75 may be used to convert annual average NOx concentrations to annual average NO_2 concentrations (as part of the EPA tiered level approach). The applicant should get preapproval from the District if actual monitoring data is to be used to determined the "local area" ambient NO_2/NOx ratio. The Ozone limiting method (OLM) may be used to determine one-hour average NO_2 concentrations from one-hour NOx concentrations. Again, the applicant should get preapproval from the District on the use of background ozone monitoring data.

Response: The default ambient NO_2/NOx ratio of 0.75 will be used in the analysis of annual NO_2 impacts. For one-hour NO_2 impacts, the OLM model will be used along with ozone data from the Tracy monitoring station.

(7) Regardless of whether an impact is less than the significance level listed in Reg. 2-2-233, Regulation 2-2-417, Visibility, Soils, and Vegetation Analysis, requires the applicant to submit a visibility, soils, and vegetation impacts analysis for all pollutants emitted above the PSD applicability threshold (Reg. 2-2-304). Therefore a visibility, soils and vegetation analysis must be submitted for all pollutants which trigger PSD review.

Response: A visibility, soils and vegetation impacts analysis will be included in the application.

(8) Please include all input/output files on diskettes or CDROMS: these files should include any and all input data used in the modeling analysis: all meteorological data, emission characteristics spreadsheets, model input files, model output files, and all input output files used in other computer programs (such as all of the building height and width information used in the building downwash program BPIP). Please include an index file describing the nature of each of the files on the diskettes/CDROM.

Response: The requested information will be provided in CDROM format.

(9) *So as to keep the permit engineer informed, please address all correspondence to the Tesla Power Plant Project Permit Engineer, Dick Wocasek (dwocasek@baaqmd.gov). He can then pass the information on to me if it requires my input.*

Response: All future correspondence for this project will be addressed to the Permit Engineer, Dick Wocasek.

(10) *The modeling protocol did not address the details of a Prevention of Significant Deterioration (PSD) increment consumption analysis. An increment consumption analysis must be performed for each pollutant with established increments (PM_{10}, NO_2, and SO_2) for which the air quality impact is greater than the PSD significance level (District Regulation 2-2-233). In a PSD increment analysis, the applicant must consider all major sources within 50 km of the pollutant specific impact area. The applicant must consider all minor sources within 20 km of the pollutant specific impact area. The increments analysis must be performed in accordance with the EPA document New Source Review workshop Manual, Prevention of Significant Deterioration and nonattainment Area Permitting, October 1990. A revised protocol addressing increment consumption should be submitted for review if the air quality impacts are greater than the established PSD significance levels.*

Response: If a PSD increment analysis is required, a revised protocol will be submitted to the District prior to the increment consumption analysis.

(11) *The PM_{10} minor source baseline date has not been set for Alameda County. The District currently has an application from another project in Alameda County that, once it is deemed complete, could establish the PM_{10} minor source baseline date.*

Response: The information is noted.

(12) Data quality and completeness: The quality of the met data gathered from stations 442 and 438 should be demonstrated by calibration sheets, audit reports, and/or by any other written documentation. Please provide copies of the records for the period proposed for modeling.

Response: Copies of audit report data sheets recorded by the owner/operator of Station 442 are attached to this document. Data for 1999 and 2000 only were available. Station 438 temperature data will not be used in the analysis as described in the response to Comment # 13.

(13) The 90 percent data completeness requirement applies on a quarterly basis (please see Appendix W to Part 51 - Guideline On Air Quality Models; Section 5.3.2 for complete details). Exact completeness statistics by parameter (for each quarter) should be submitted as proof of satisfaction of the data recovery requirement.

Response: Rolling quarterly data completeness information for the data gathered from Station 442 (wind speed, wind direction and sigma theta) is shown in the table below for the years of 1996 – 2000. After a thorough review of the data by rolling quarters, only two years of data, 1997 and 1999, had all quarters with greater than 90% data completeness. These are the two years that will be used in the modeling.

Quarterly Data Completeness (%)

Year	Jan-Mar	Feb-Apr	Mar-May	Apr-Jun	May-Jul	Jun-Aug	Jul-Sep	Aug-Oct	Sep-Nov	Oct-Dec
1996	99.82	99.91	99.77	**81.09**	**47.69**	**14.13**	**28.62**	**62.27**	95.83	98.69
1997	97.08	99.44	99.28	99.54	99.73	100	99.82	98.91	98.26	97.60
1998	97.64	98.13	98.19	98.72	97.92	98.05	98.46	99.37	**89.97**	**88.68**
1999	92.64	94.43	99.28	99.36	99.23	99.41	96.88	92.16	91.58	93.70
2000	99.68	92.64	90.63	**89.42**	95.65	97.74	98.82	99.91	99.91	99.77

Temperature data from the Tracy meteorological data set was used instead of the Station 438 temperature data, as reported in the protocol. A comparison of Station 438 and Tracy temperature data, as shown in the attachment, indicates that they are very similar. It is reasonable to assume that temperatures at Tracy would be indicative of temperatures at the project site.

(14) The applicant infers that Station 442 winds are representative of regional wind patterns without providing a supportive analysis. Comparisons to nearby downwind and upwind meteorological sites should be provided. For example, the SJV Air District site in Tracy would be one downwind site to use for a comparison study.

Response: Wind patterns in the region surrounding the proposed site are shown using windroses from a number of meteorological stations near the project area. Windroses for the following meteorological stations are attached to this document:

- Tracy (SJV site)
- Station 442
- Martin-1 (obtained from the East Altamont AFC)

Figure 1 shows the locations of the meteorological and project sites. It should be noted that the Martin-1 site is located just to the north of the project site boundary at an elevation of approximately 500 feet. The Martin-1 site is a 12-m tower that was operated several years ago, but is no longer active. Attempts to obtain the data were unsuccessful.

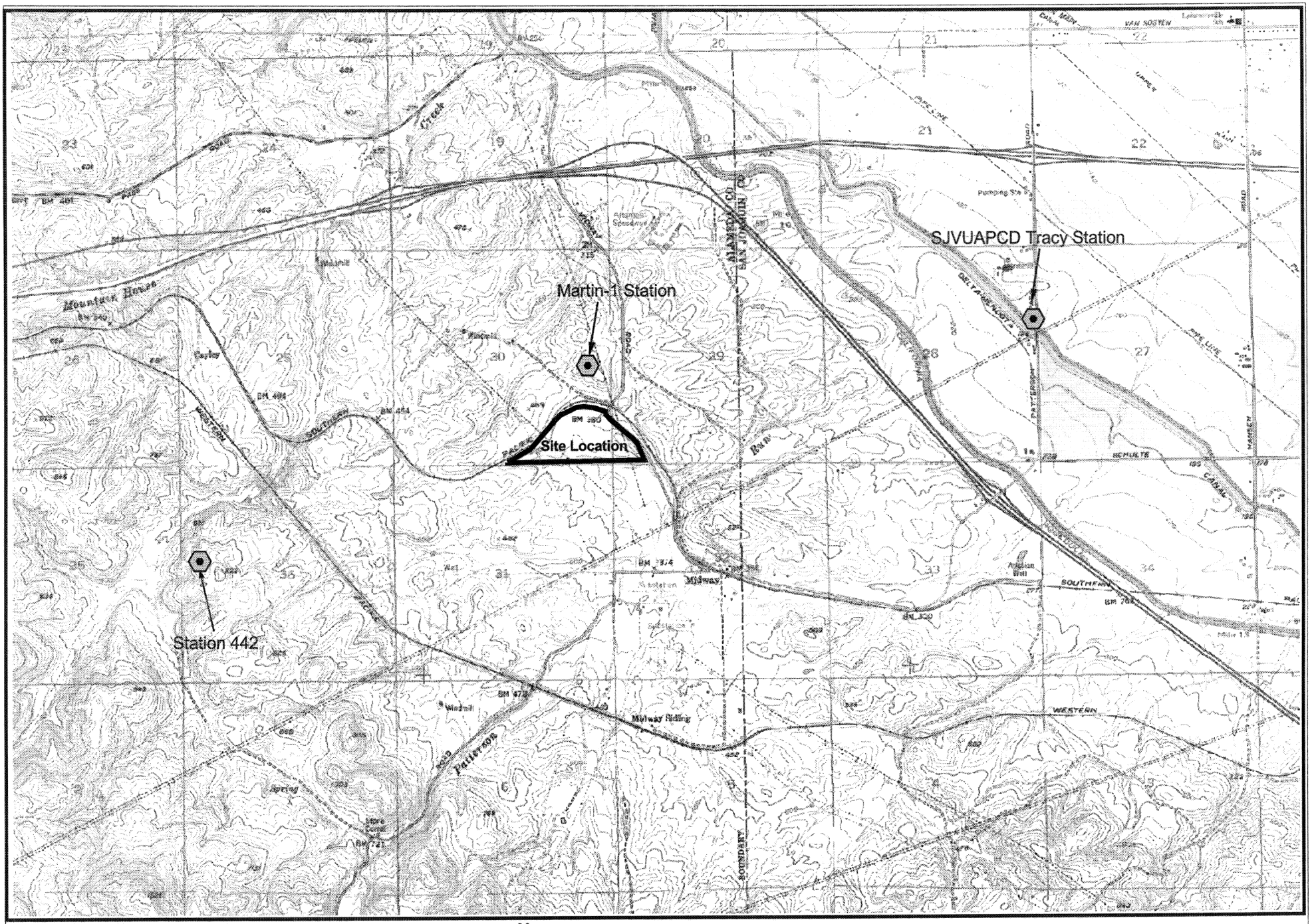
The attached windroses all indicate a consistent high wind speed pattern with wind directions predominately towards flat terrain, from the west and west-southwest sectors. Analysis of a stability rose indicates that D stability occurs a majority of the time at each site. This stability class is expected due to the high wind speeds in the area. The wind patterns shown in the windroses are indicative of the influence of the nearby Altamont pass terrain.

The similarity of the three stations' wind patterns, especially between Station 442 and Martin-1, indicates that the Station 442 wind speed and direction data are representative of the conditions at the project site and in the surrounding area.

(15) The applicant states that Station 442 wind patterns will be representative of the patterns at the TTP site. How will the elevation difference from Station 442 and the TTP site be addressed? Has an analysis of likely hours of drainage and katabatic flows been conducted? How will these two flows be addressed in the modeling?

Response: As discussed in the response to comment #14, the wind patterns for Station 442 are similar to the patterns of other meteorological stations in the area and are considered representative of the project site and surrounding areas. Station 442 and the emission source stack heights are high enough not to be influenced by local, minor terrain-induced surface winds. They are both influenced by the larger scale predominant wind patterns that are present in the area, as shown in the attached wind roses.

An analysis of the data for each of the stations shows that likely hours of drainage and upslope flows are captured in the meteorological data from Station 442. Data from Station 442 shows that easterly winds occur less than 10% of the year and with lower wind speeds than average for this area. The ISCST3 model will process the drainage and upslope flow conditions along with all of the other hours in the meteorological data sets.



0.2 0 0.2 0.4 0.6 Miles

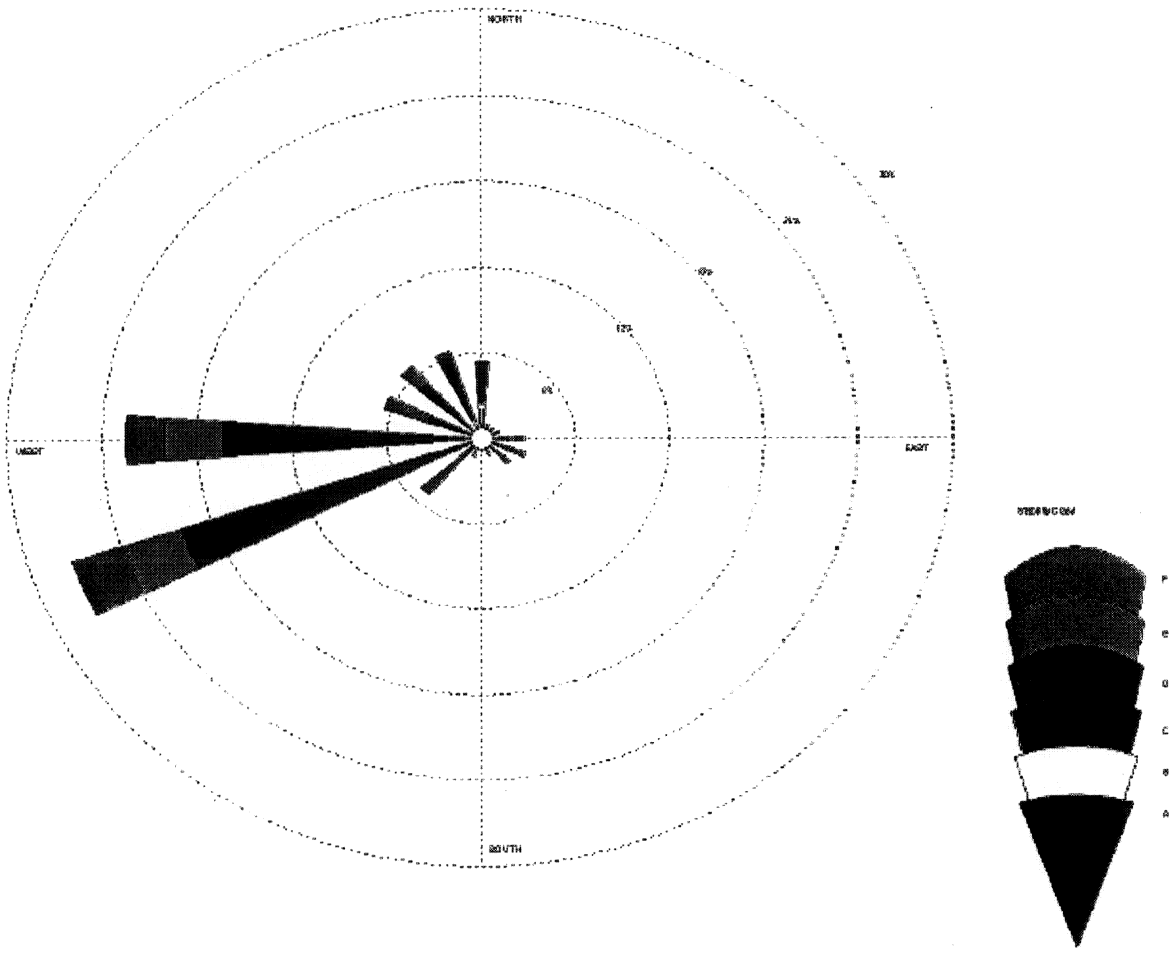
0.5 0 0.5 1 1.5 Kilometers

N

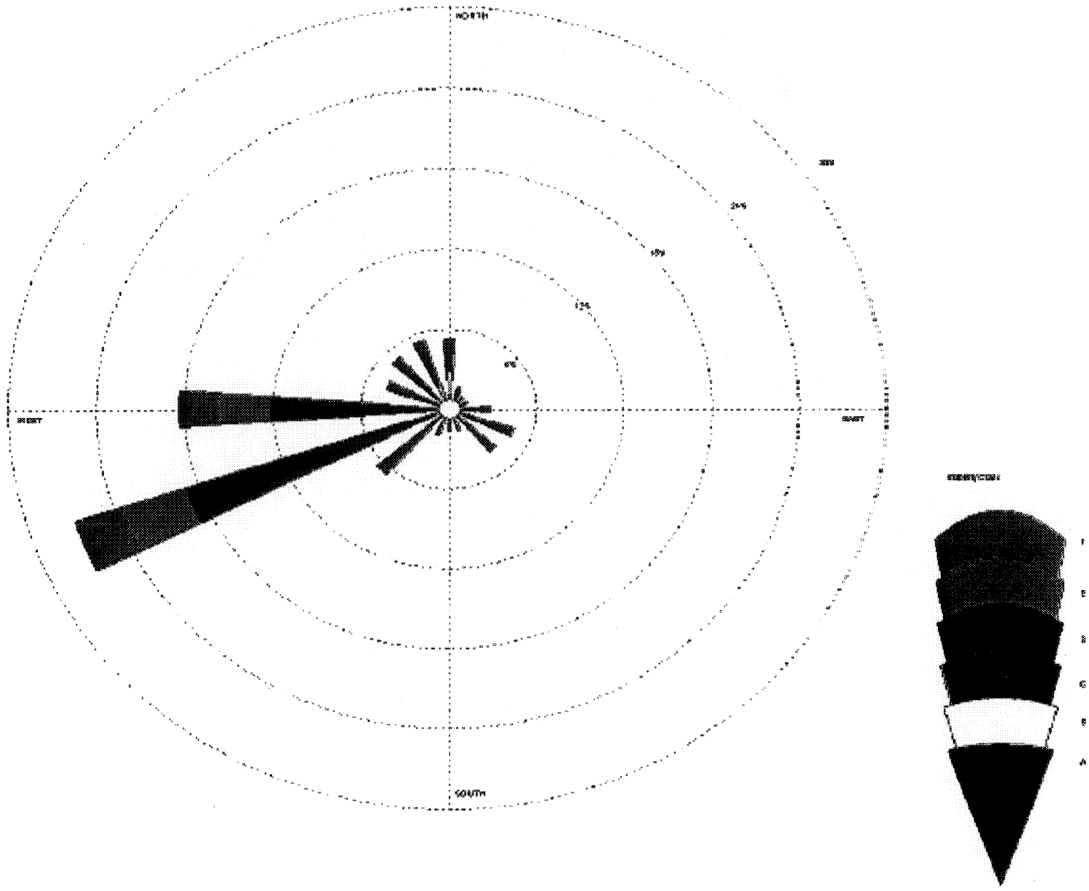
Figure 1. Location of Meteorological Monitoring Stations

September 2001

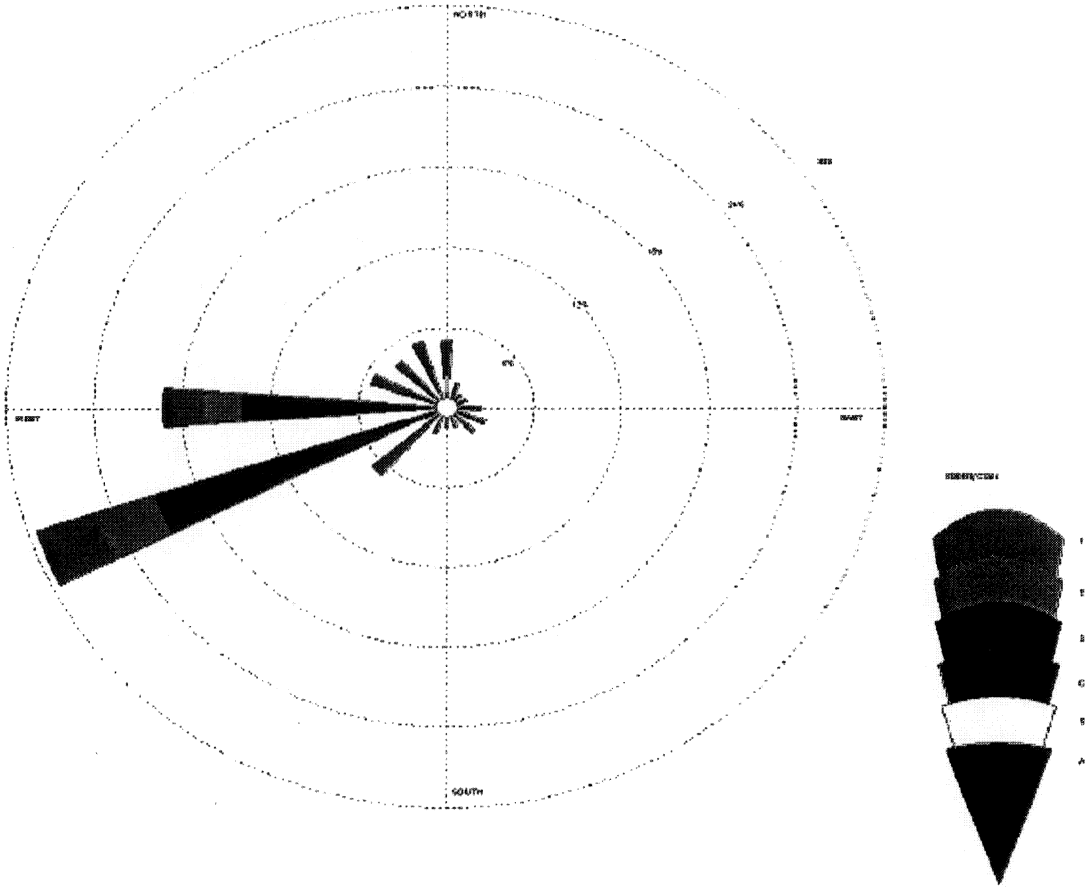
Tracy 1997



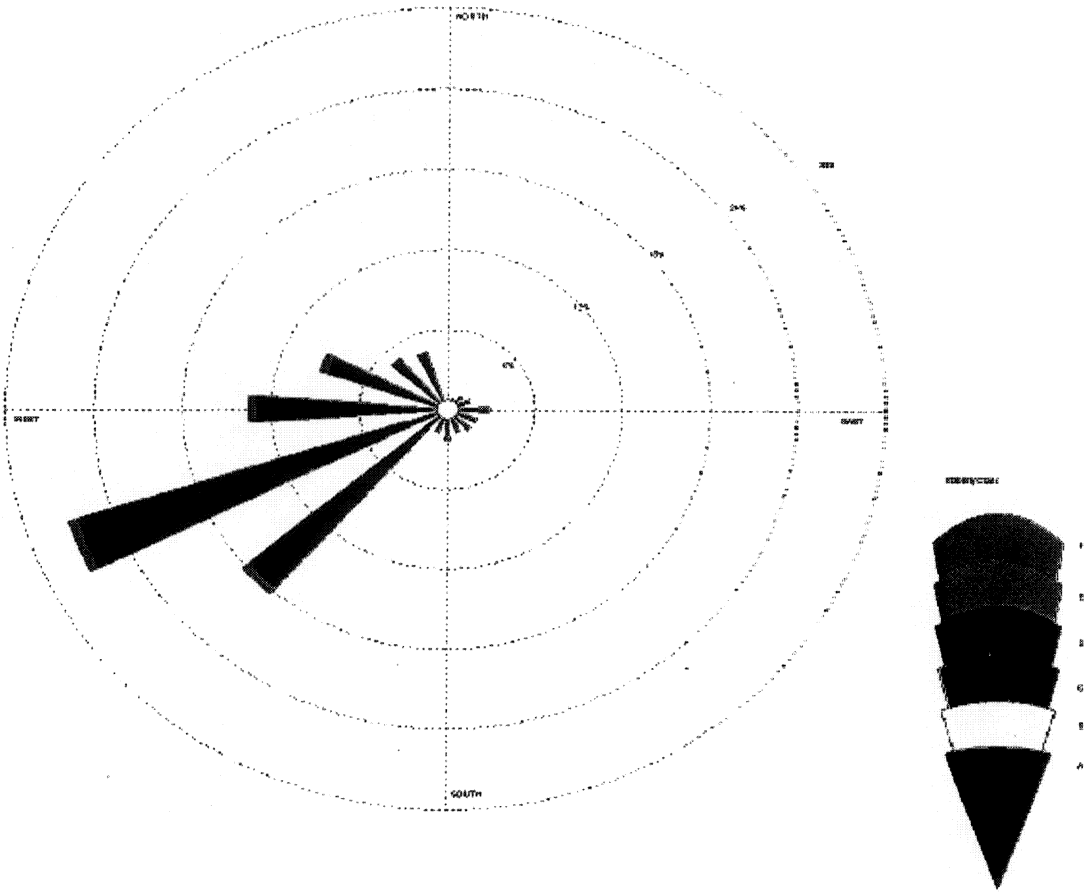
Tracy 1998



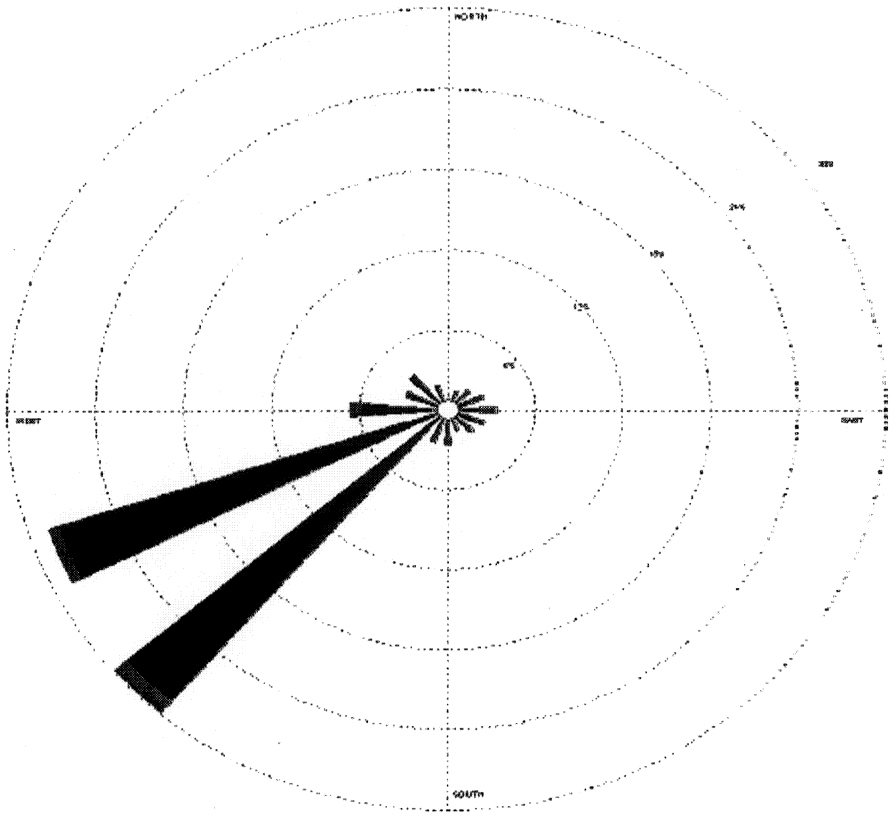
Tracy 1999



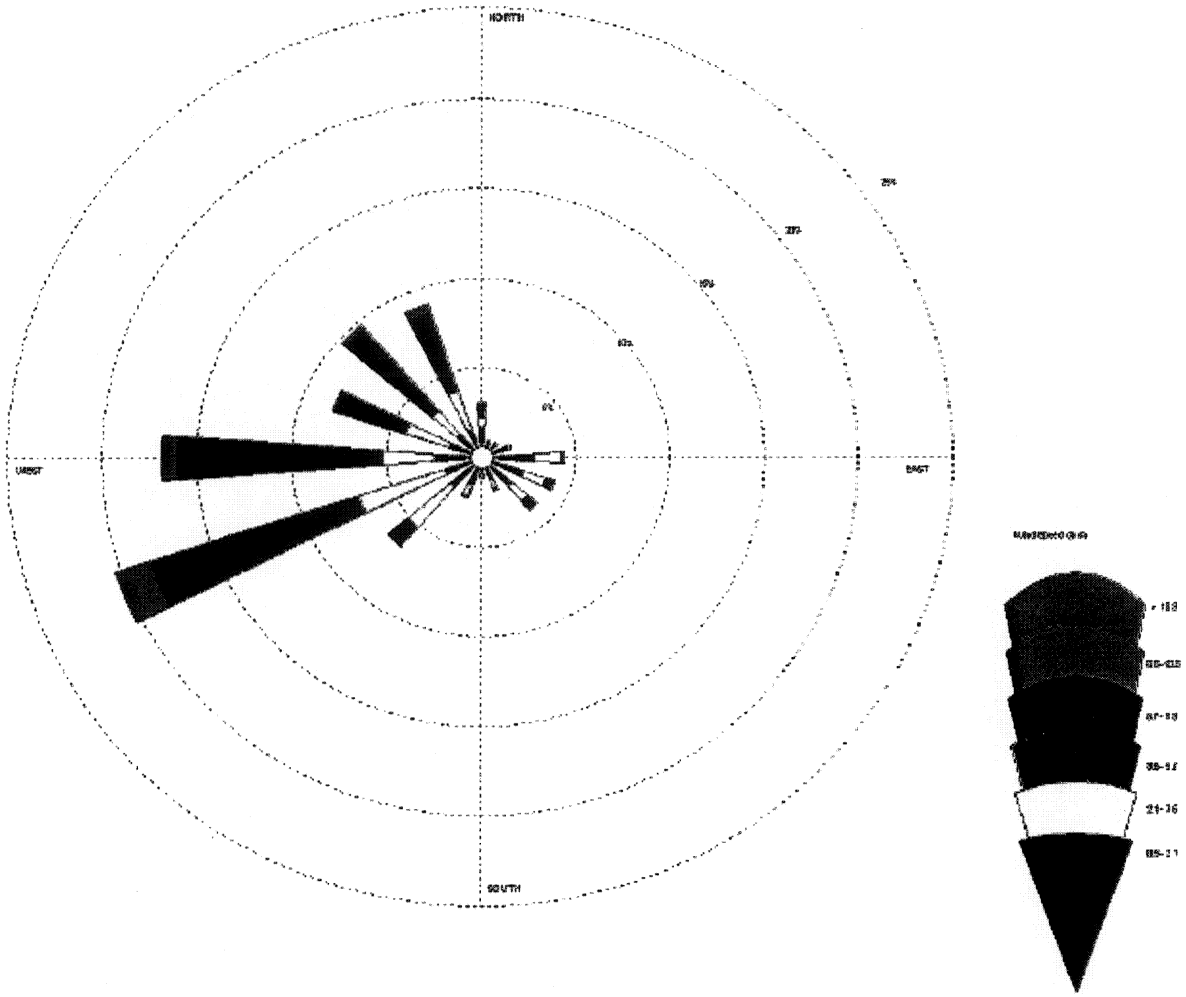
Station 442 1997



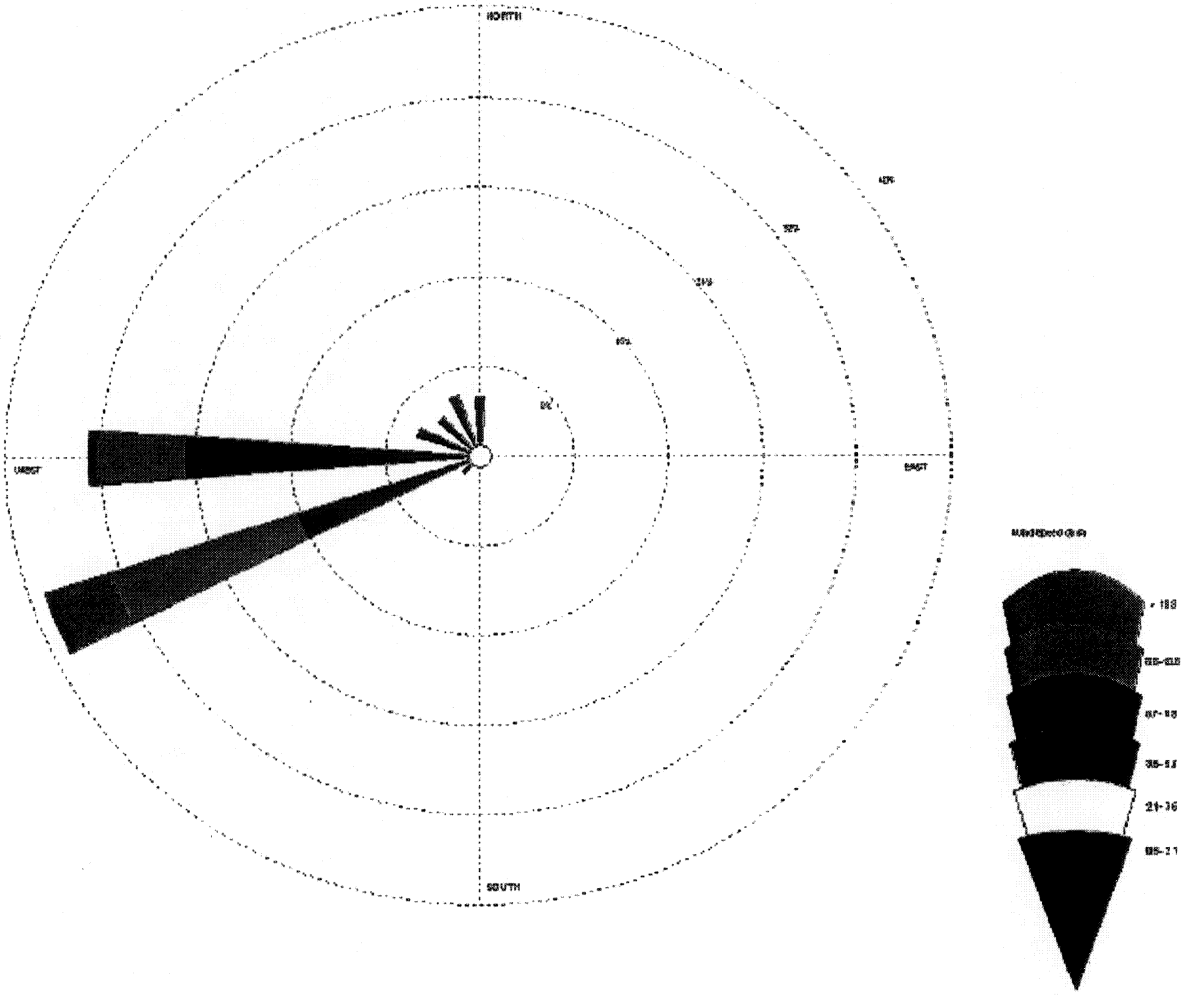
Station 442 1999



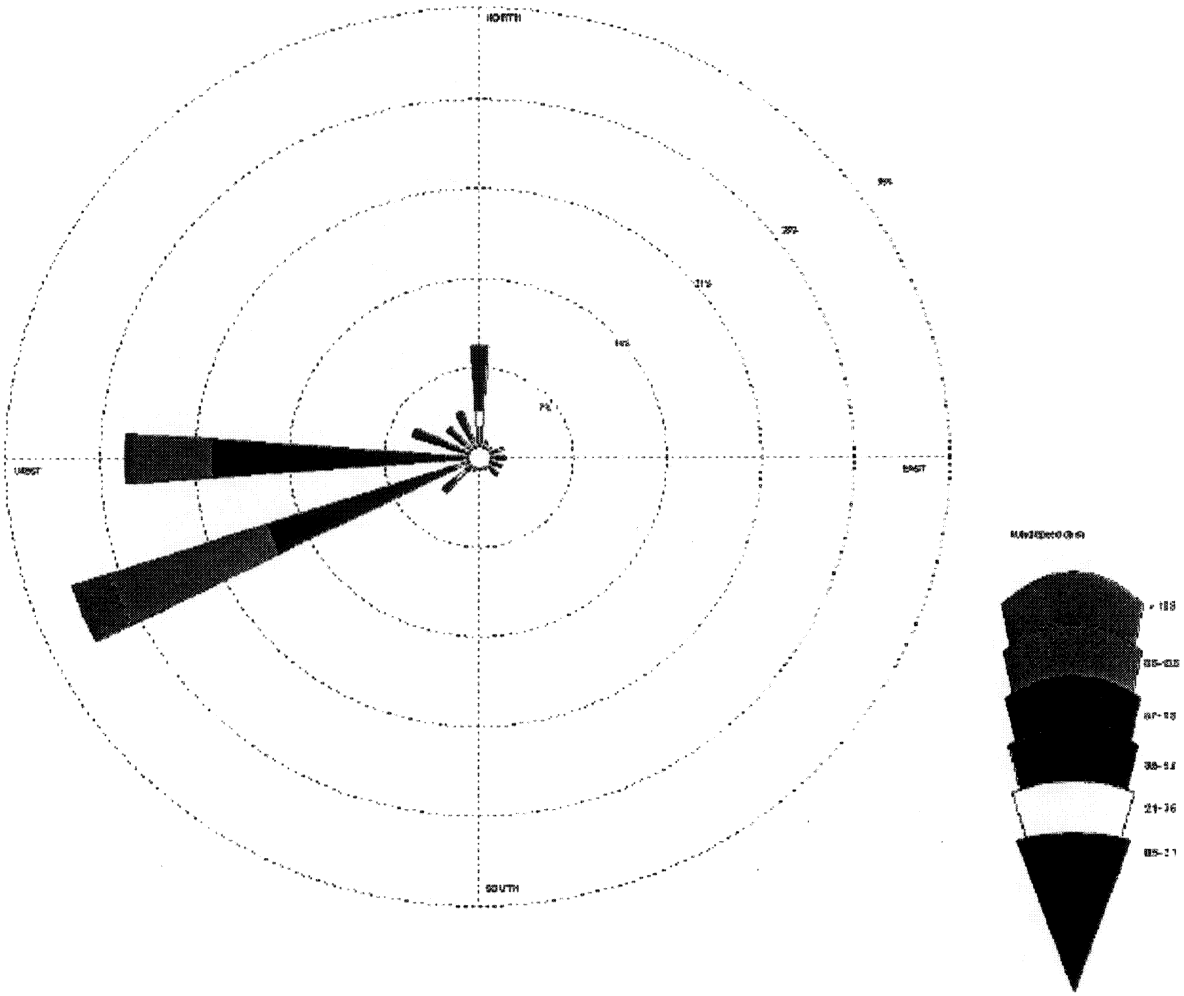
Tracy 97 q1



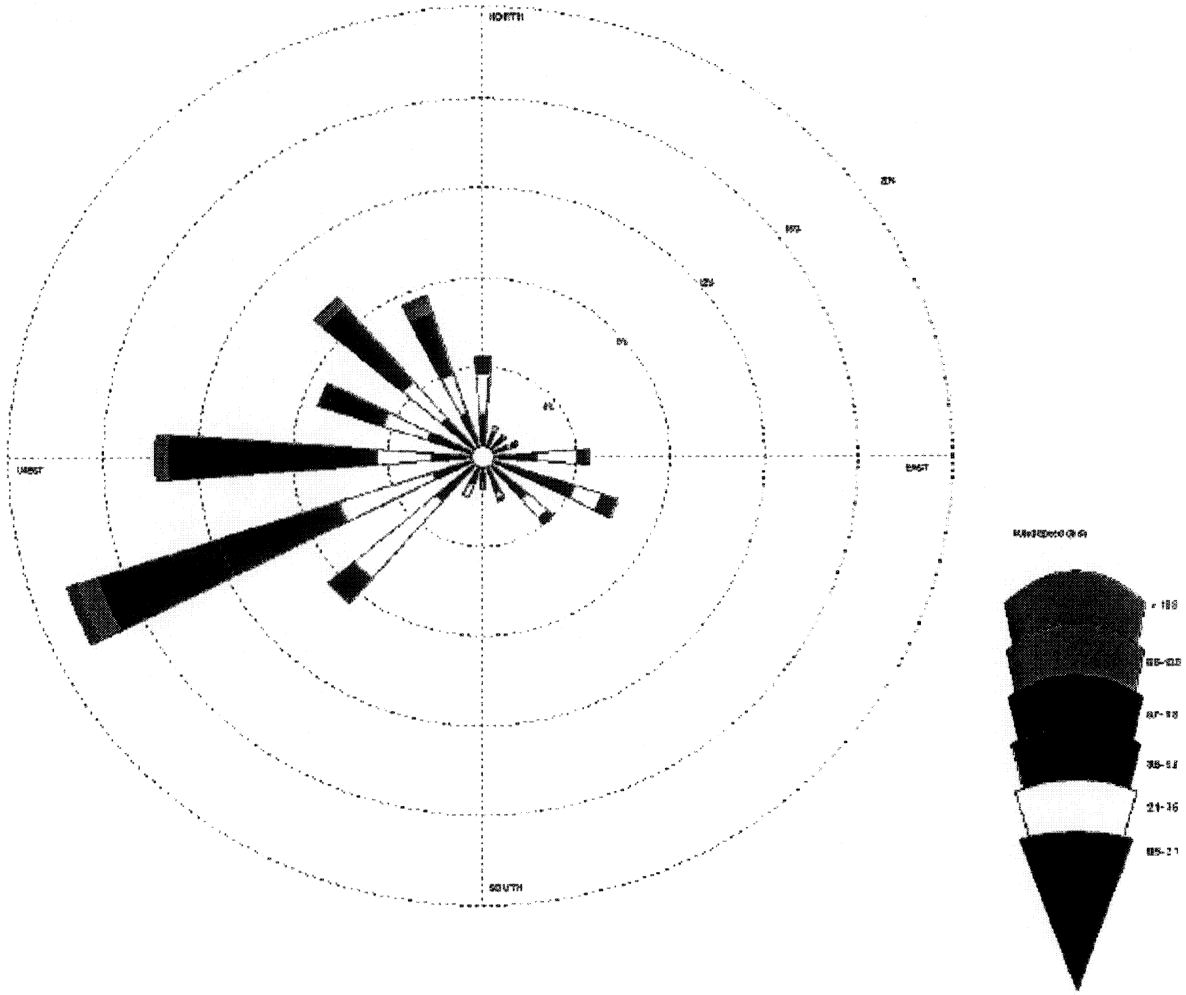
Tracy 97 q2



Tracy 97 q3



Tracy 97 q4



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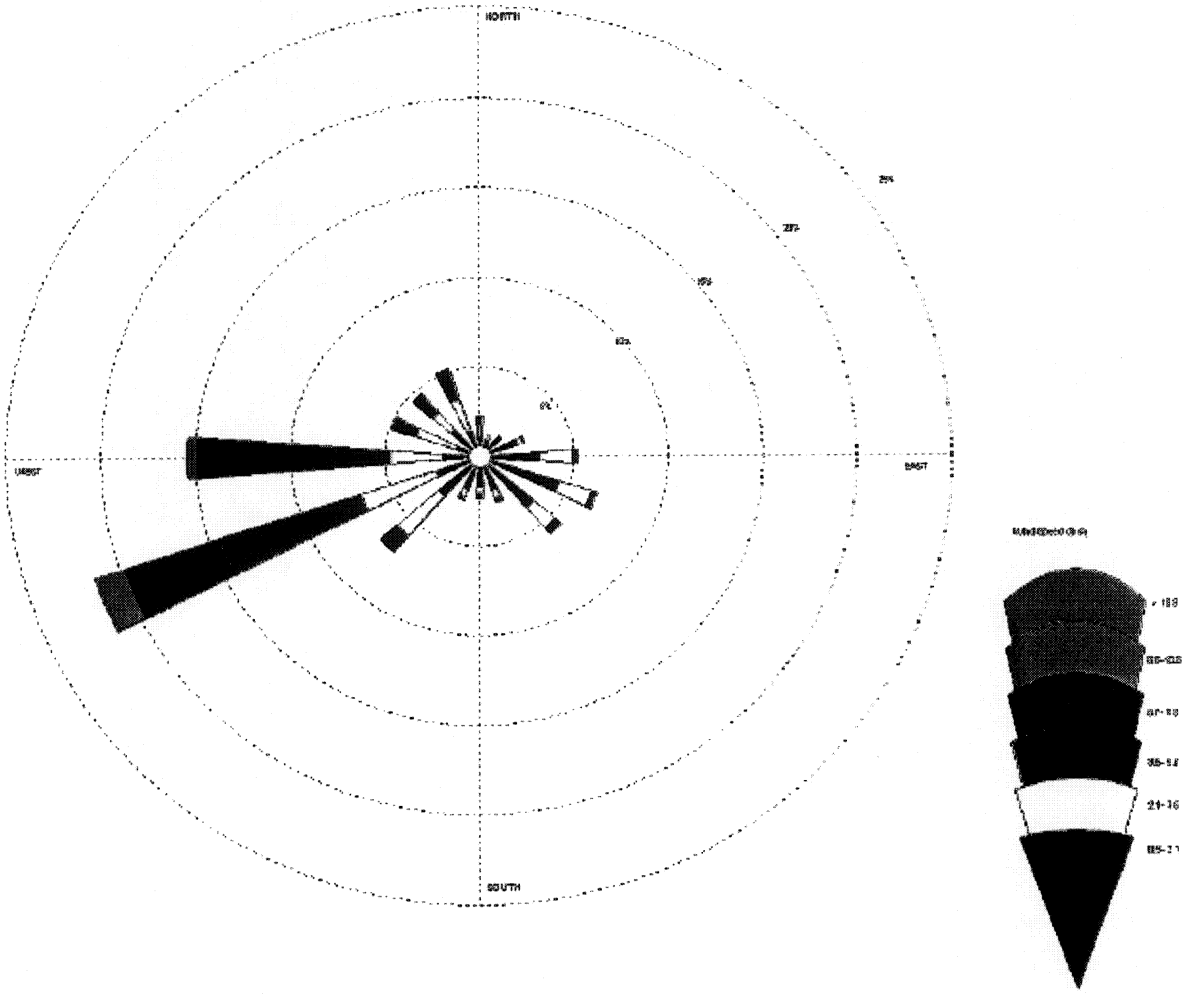
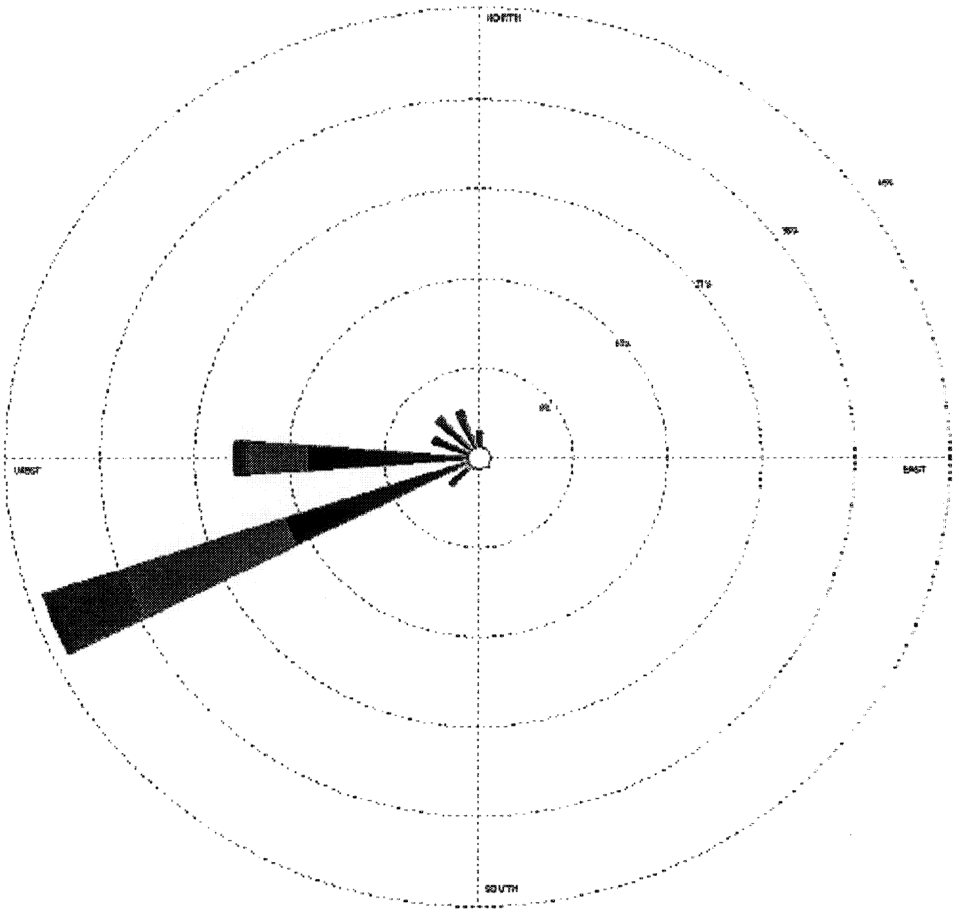
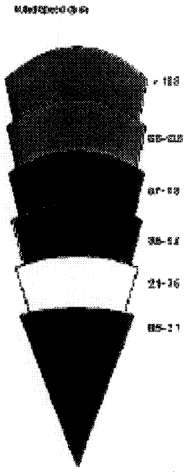


Tracy 99 q2





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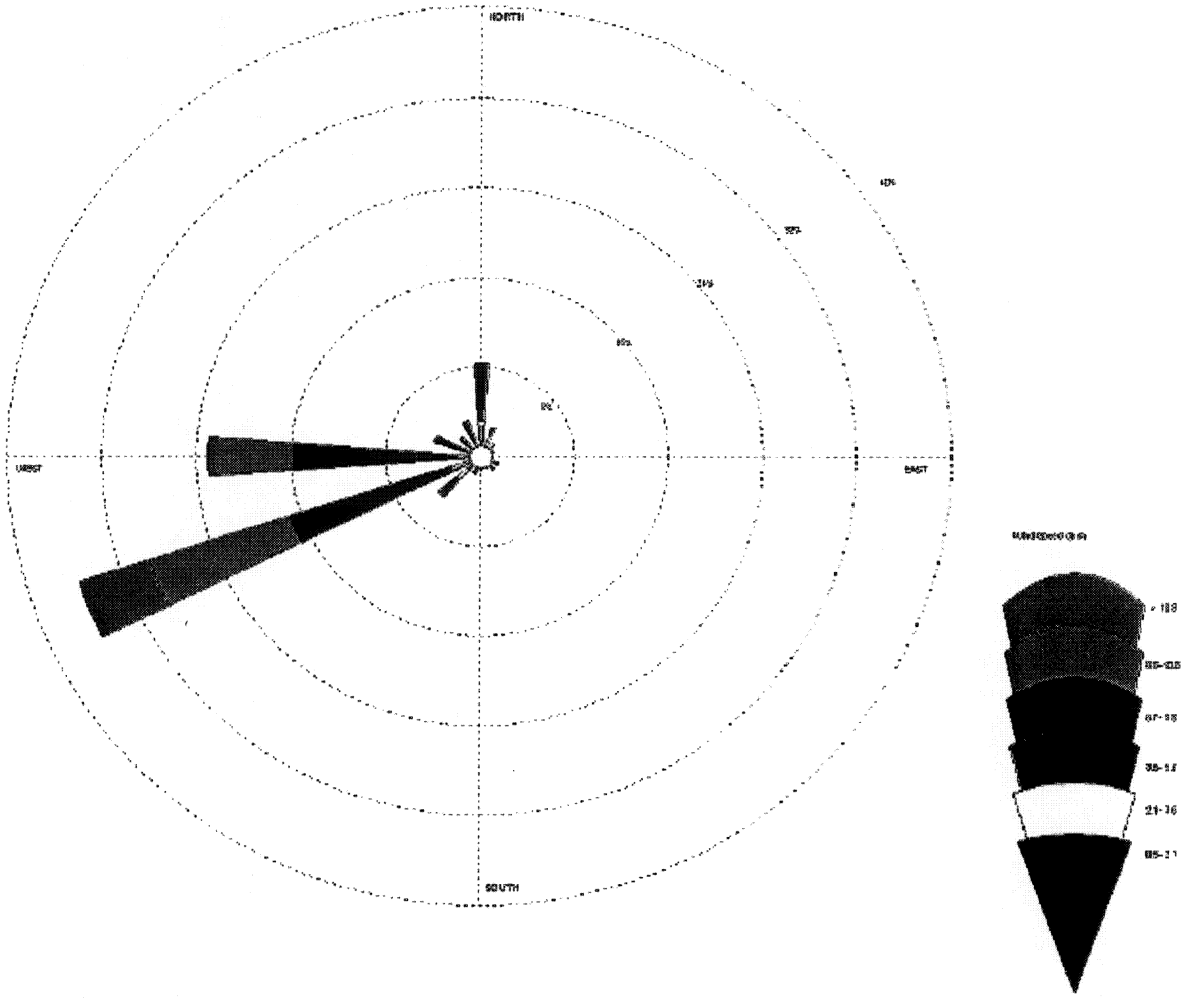

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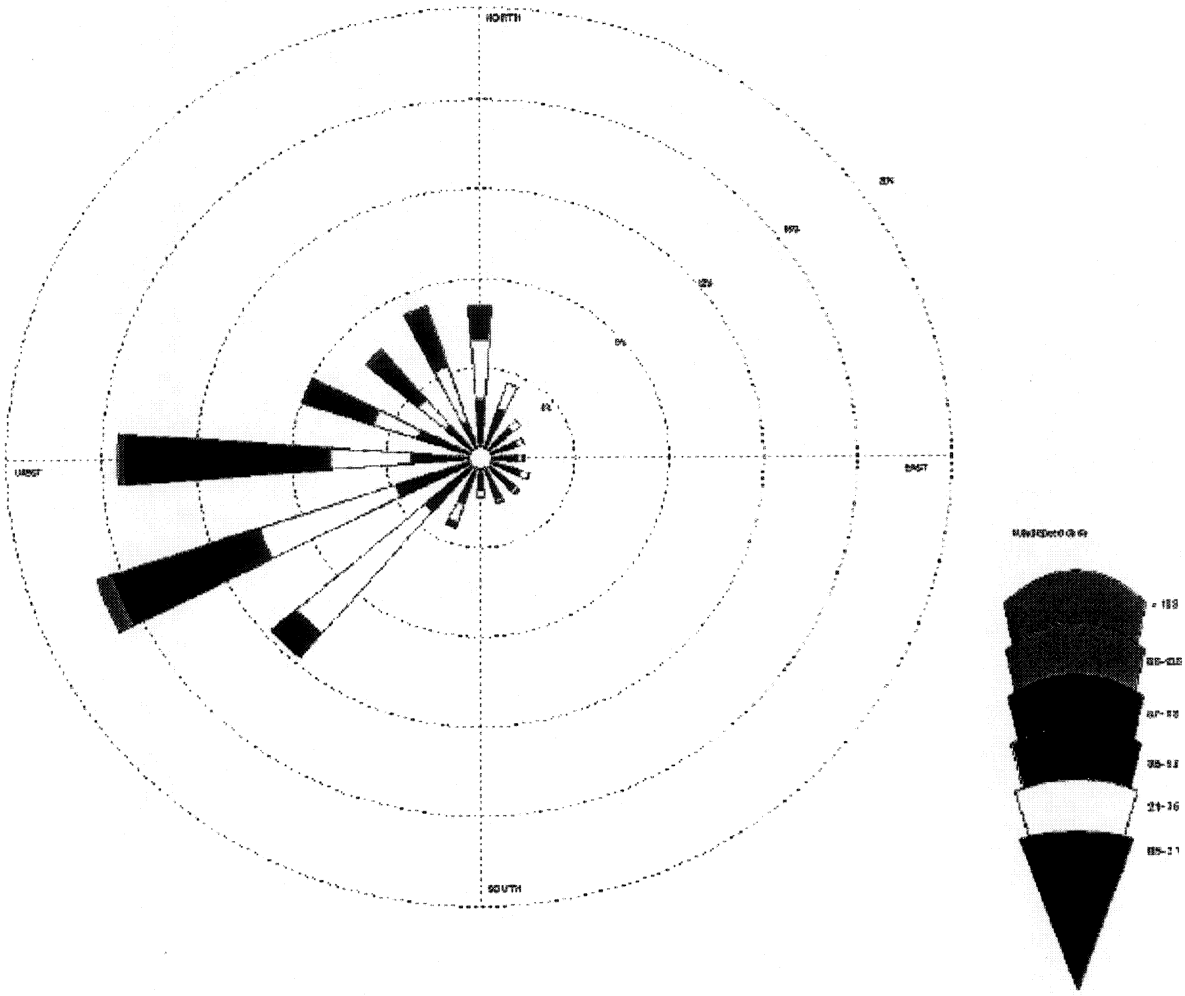
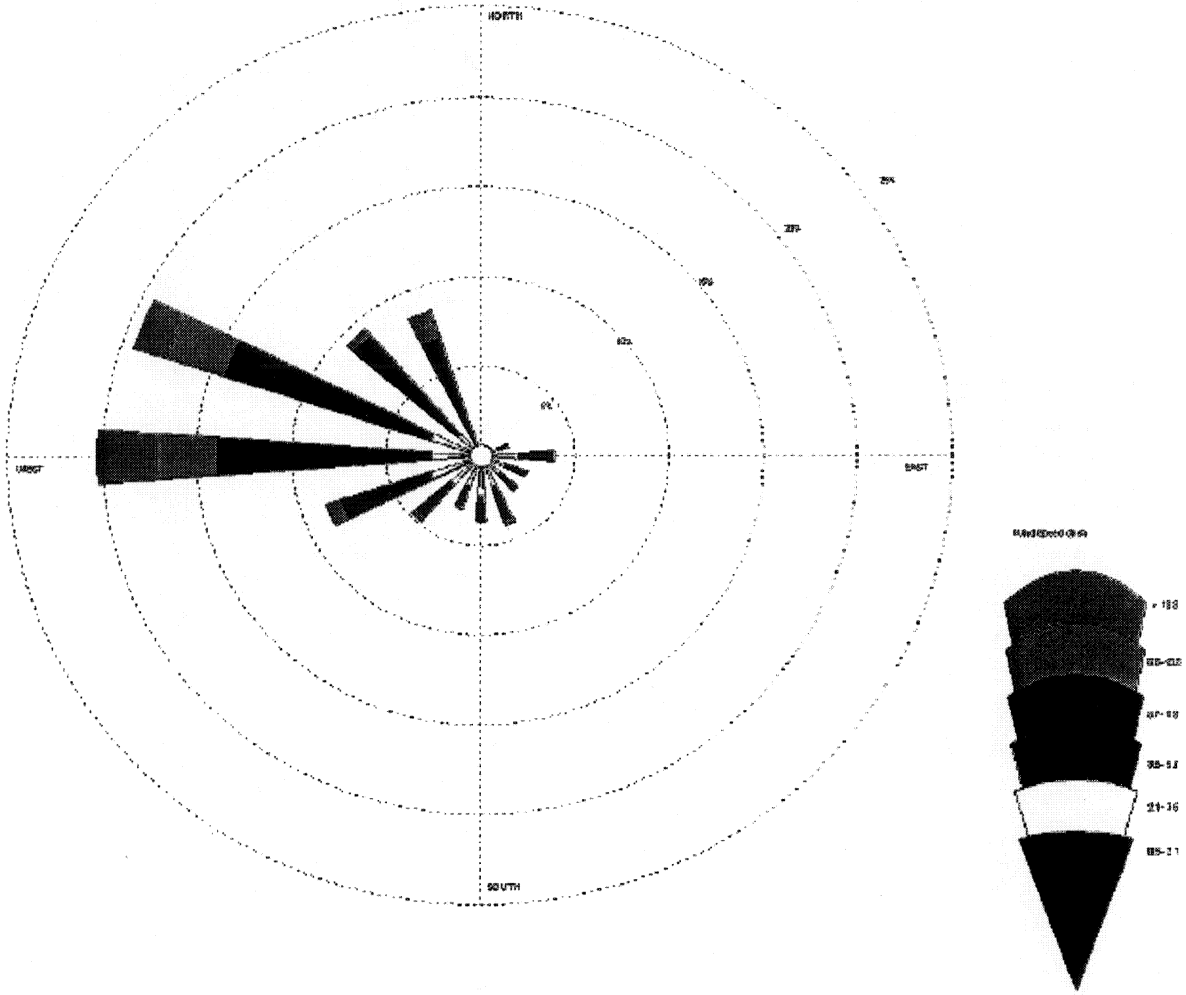


442 97 q1



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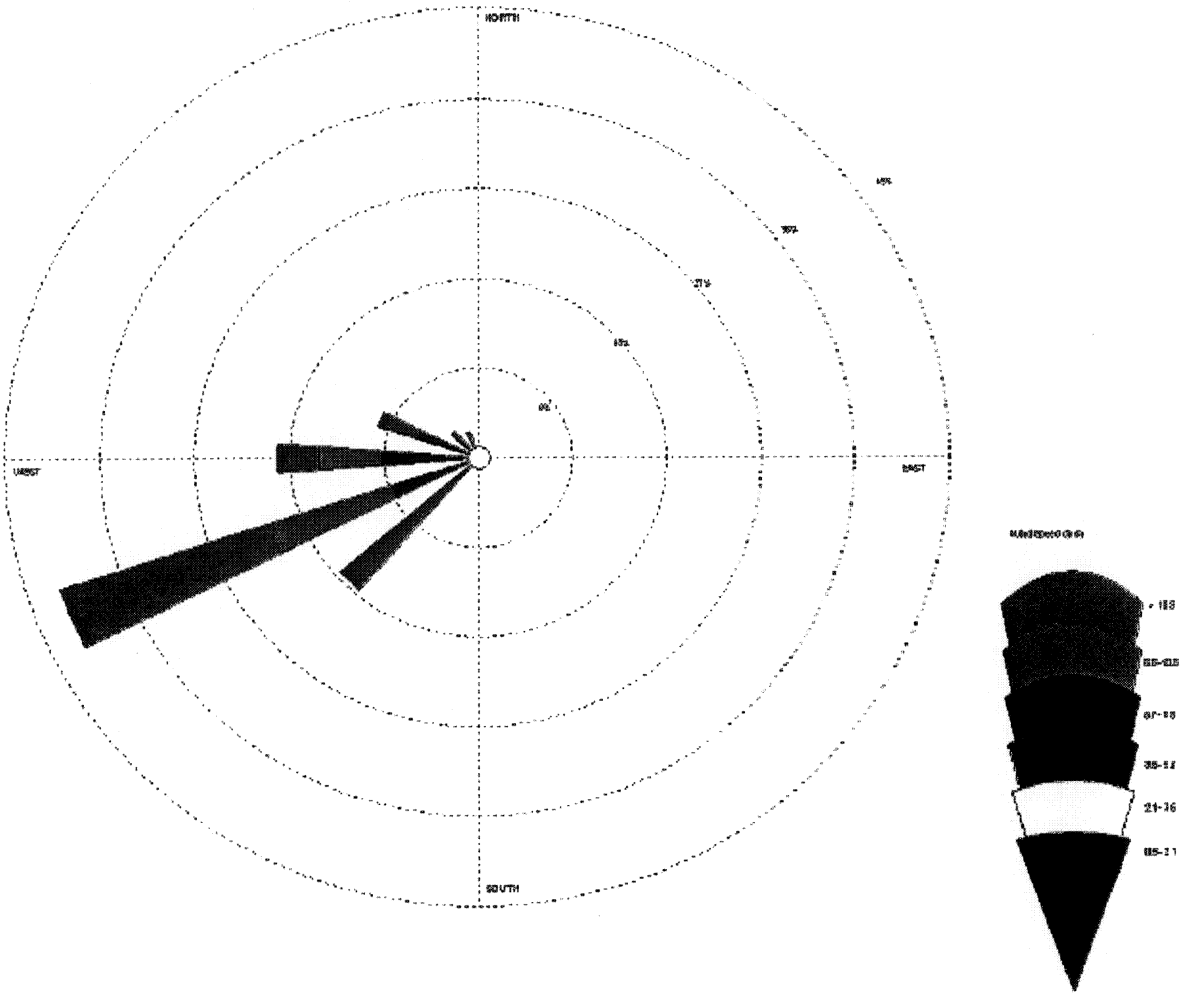

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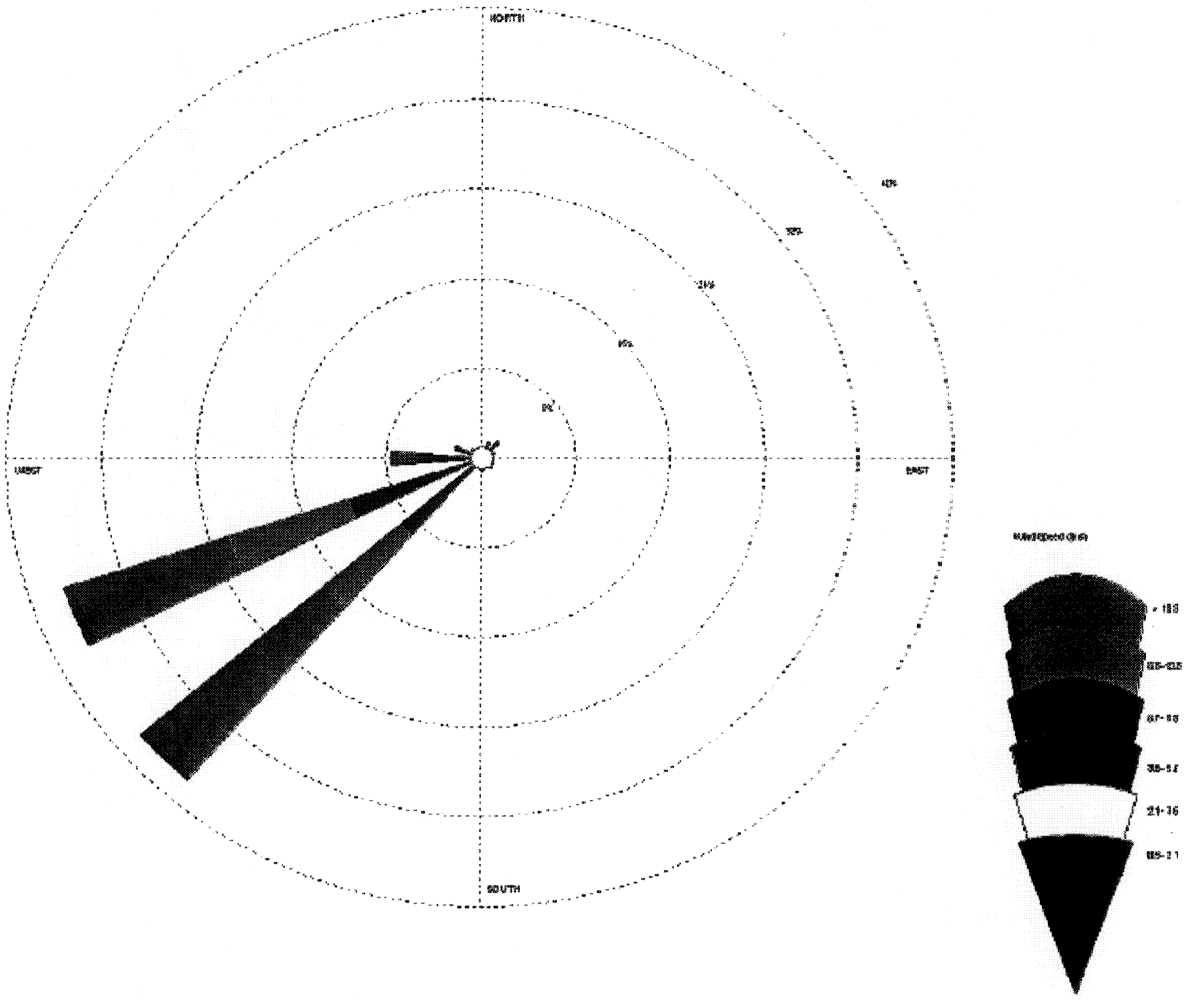

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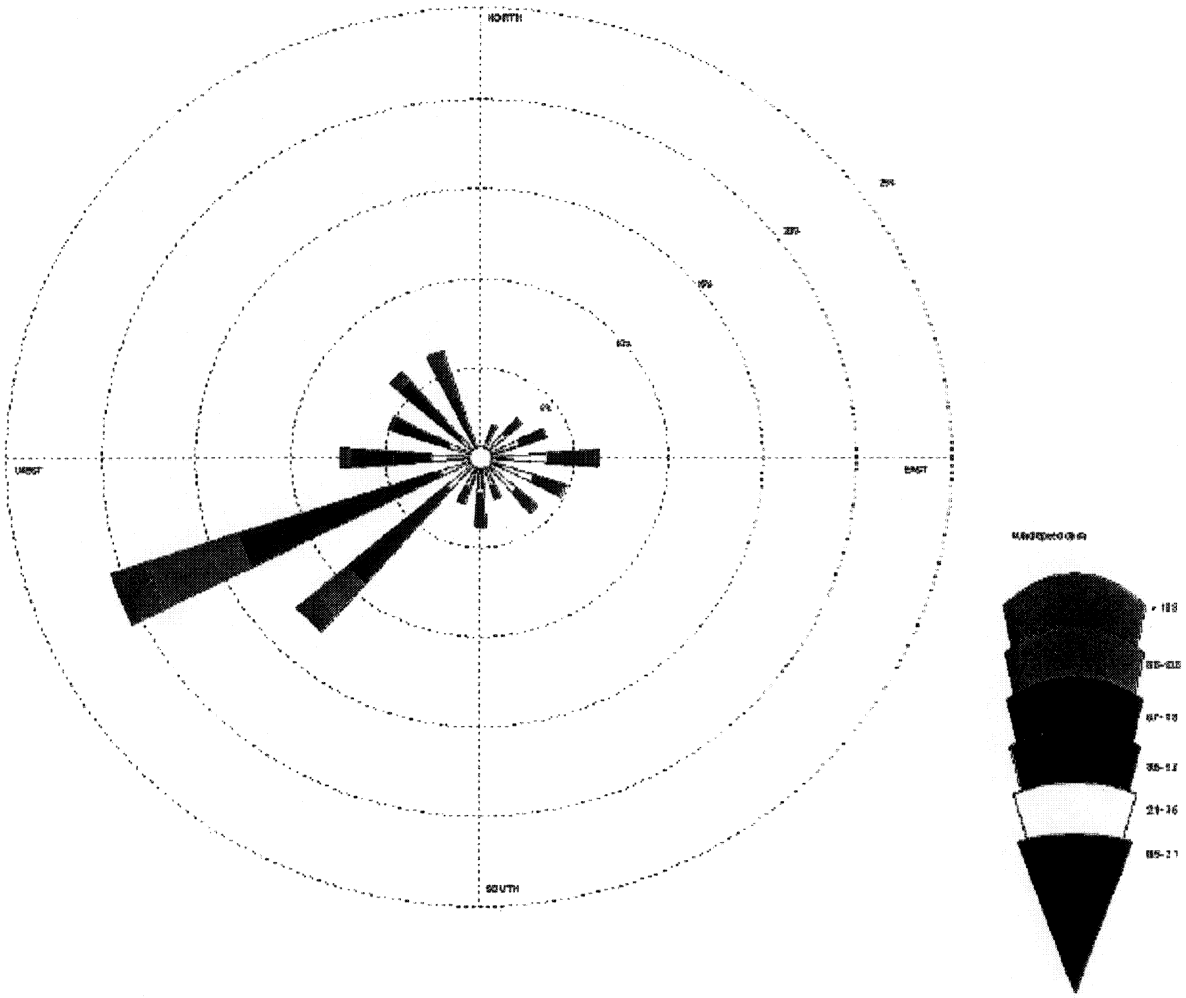

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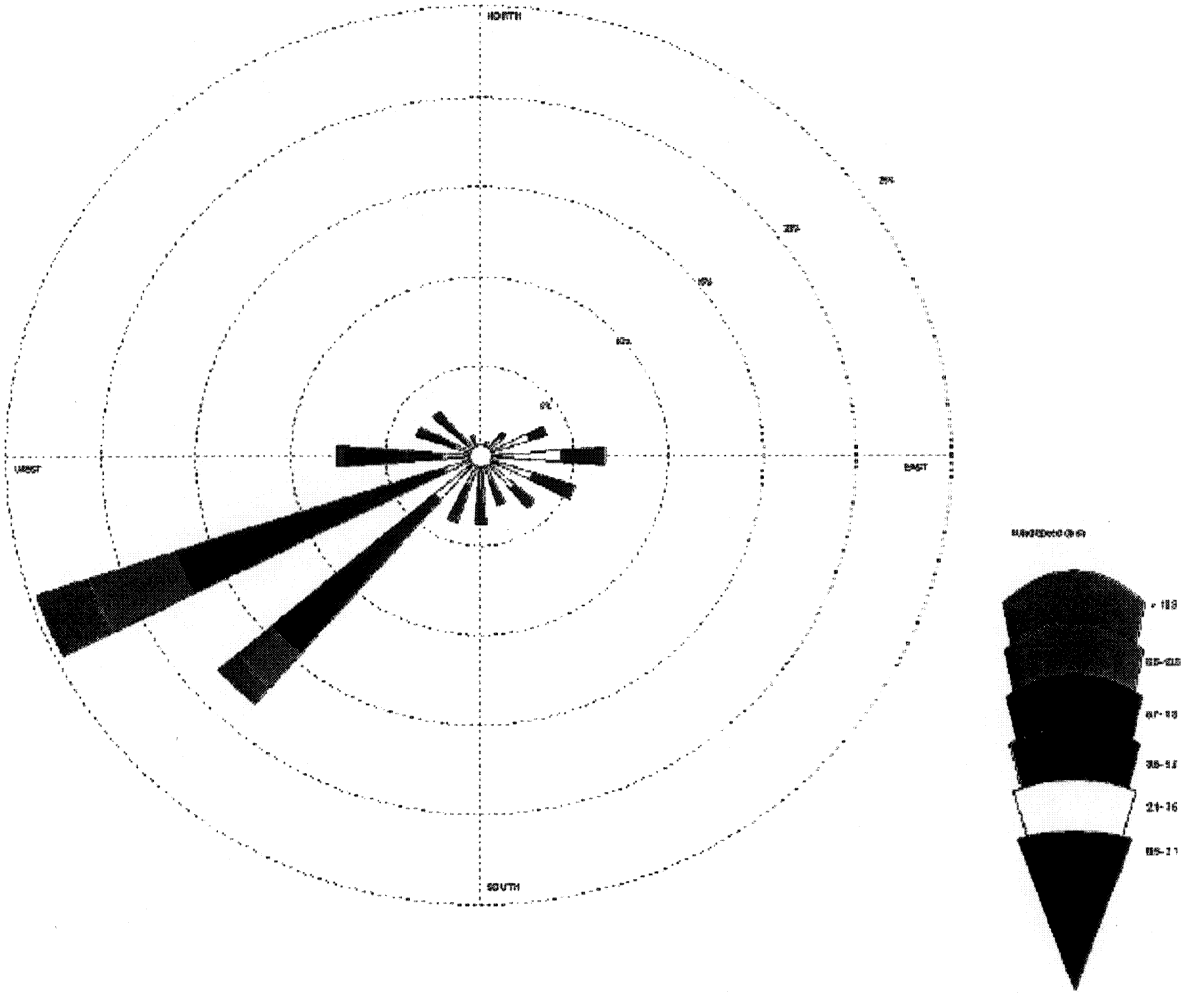

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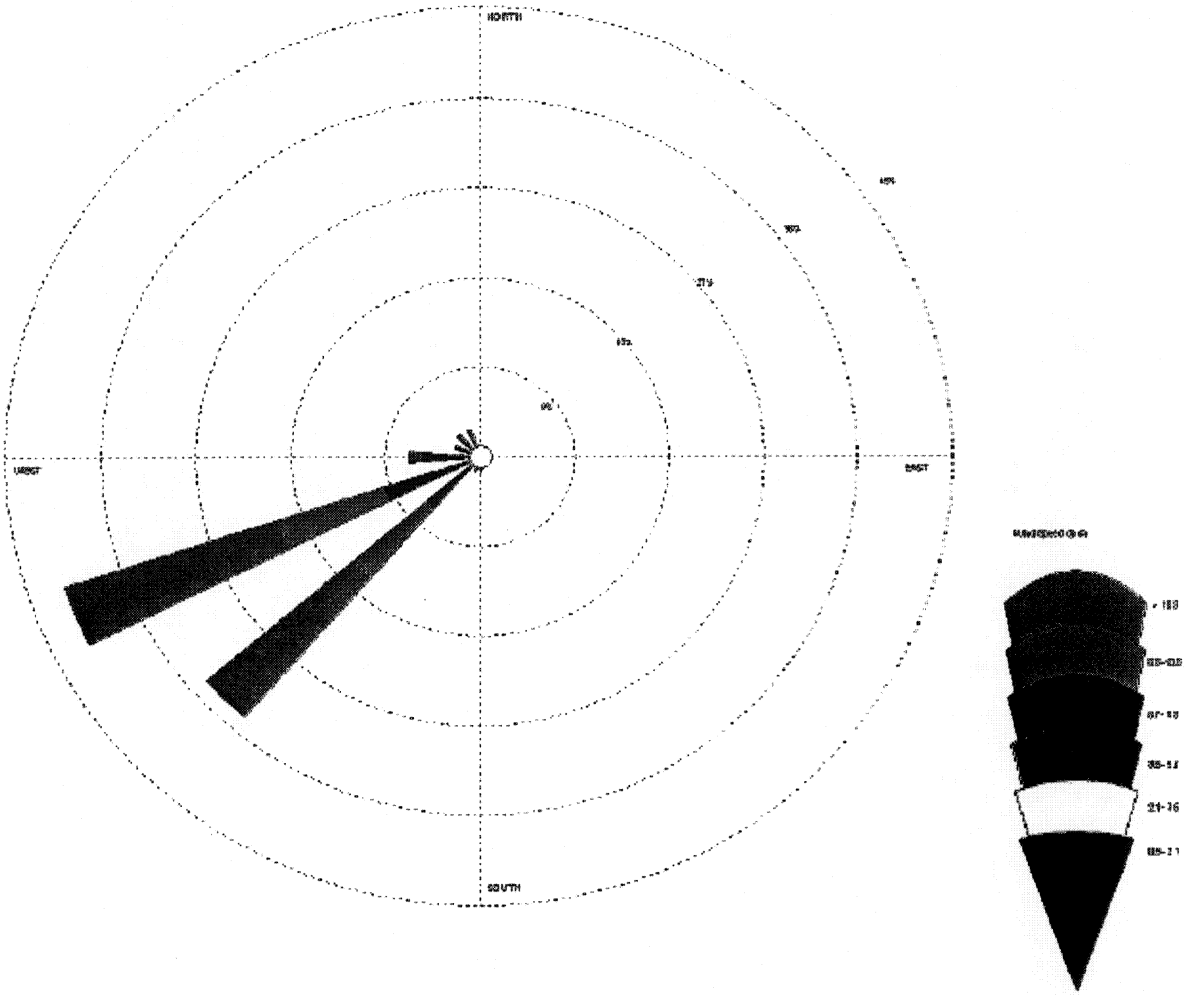

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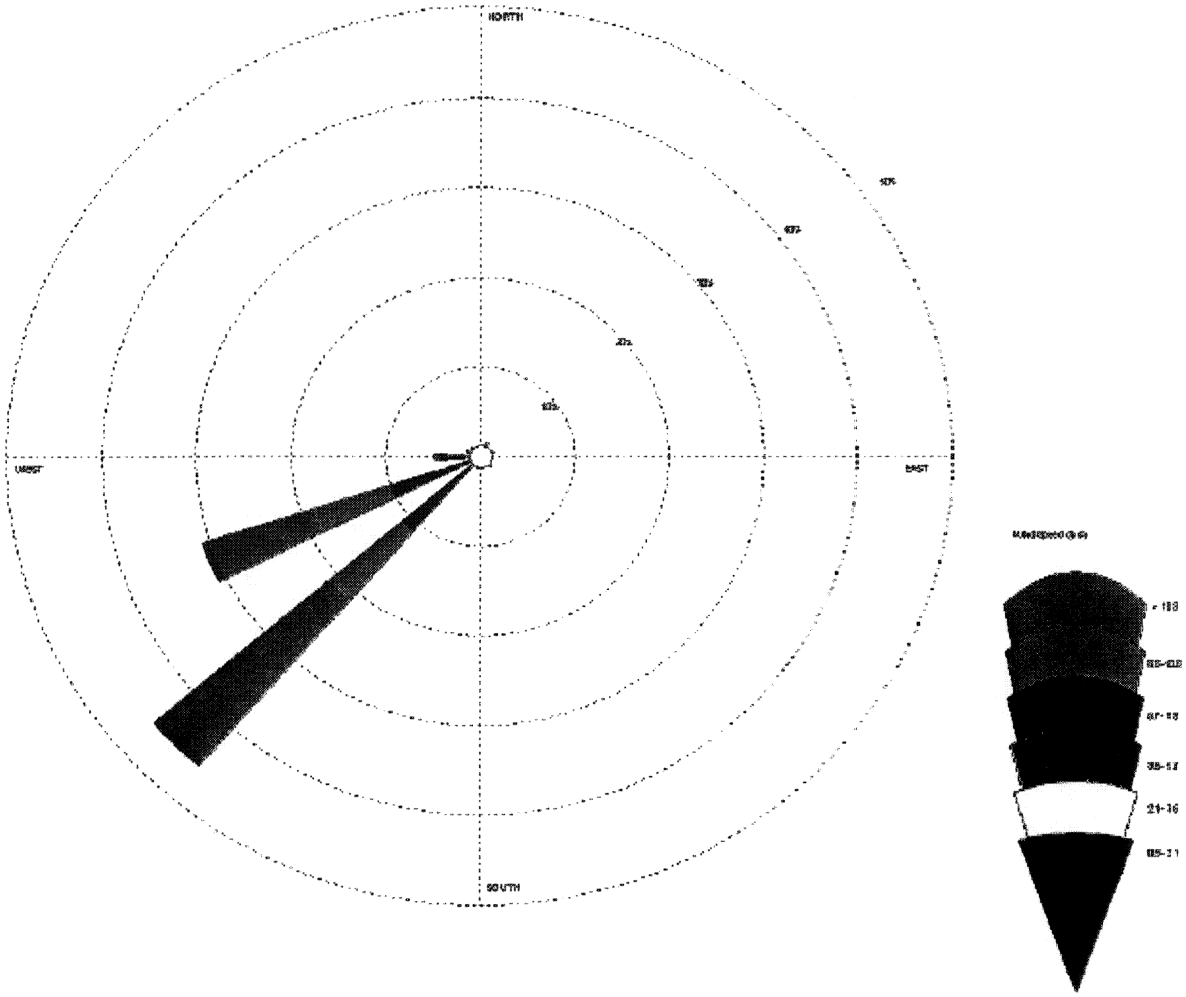

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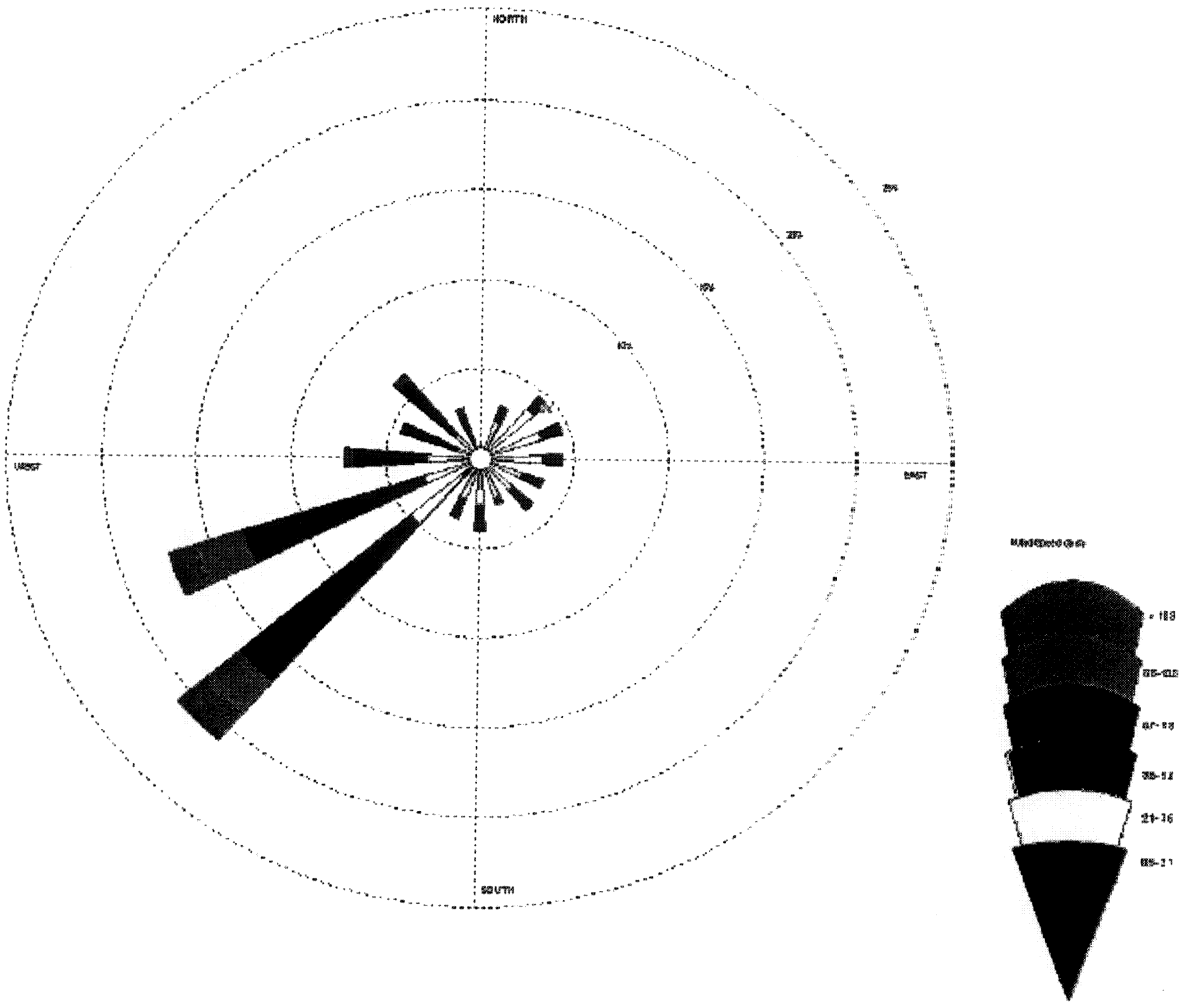
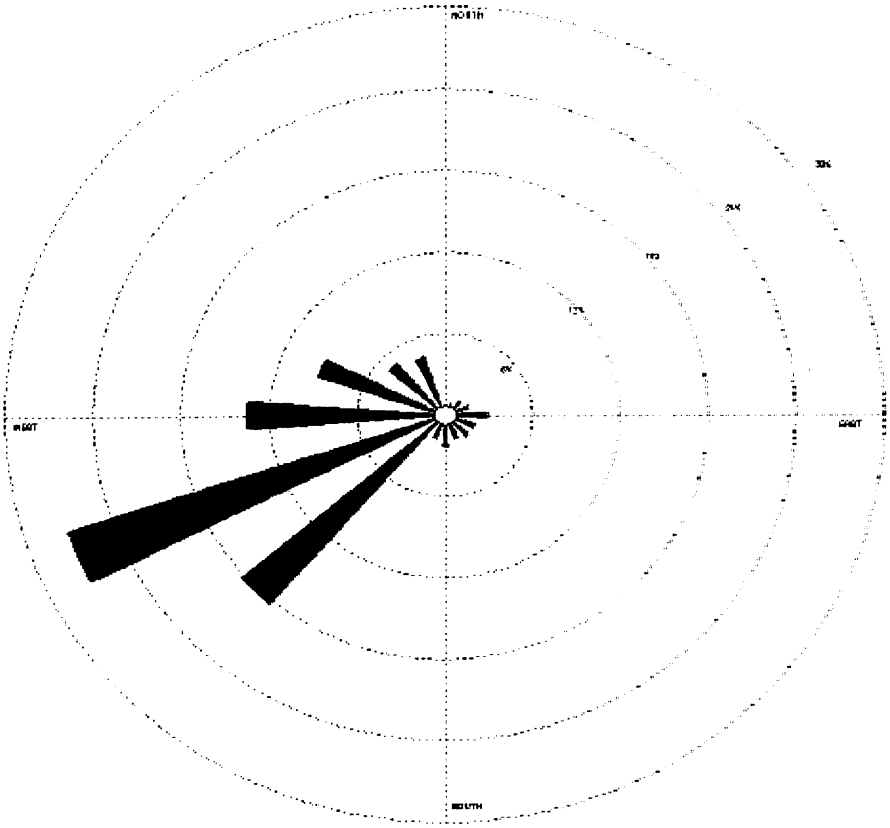
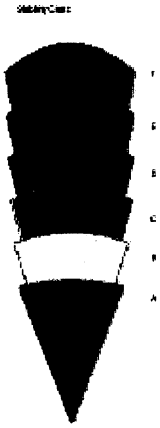


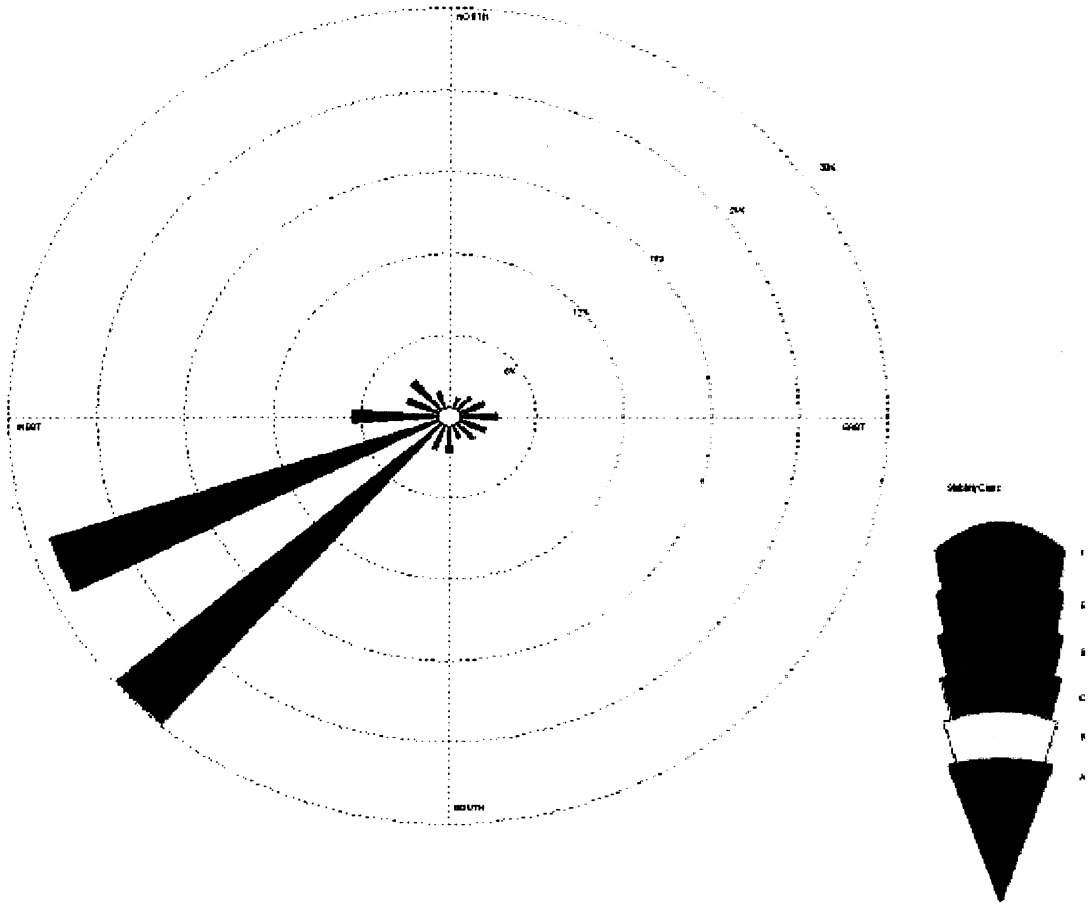
K-2: Meteorological Data - Windroses

Station 442 1997





Station 442 1999



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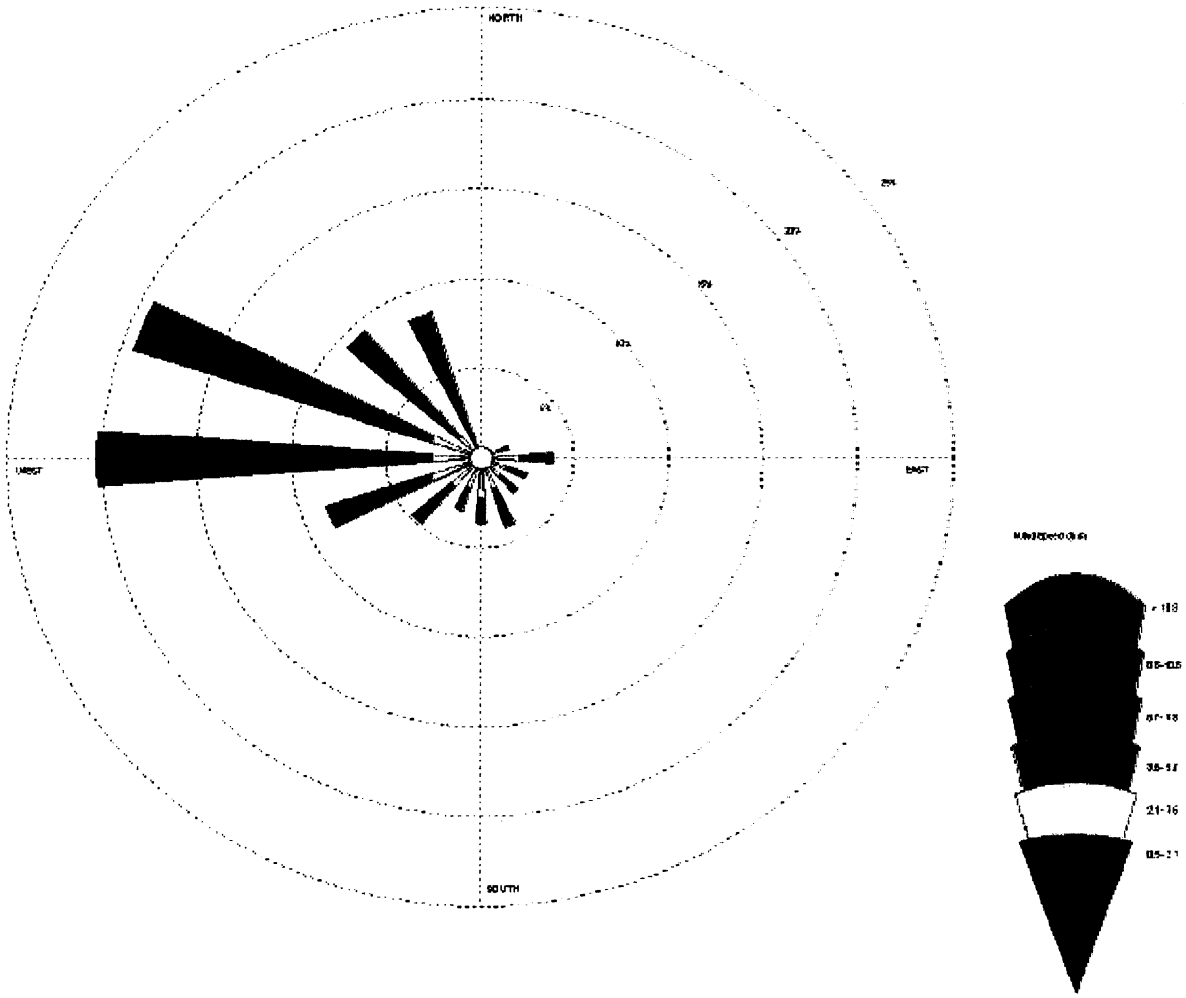
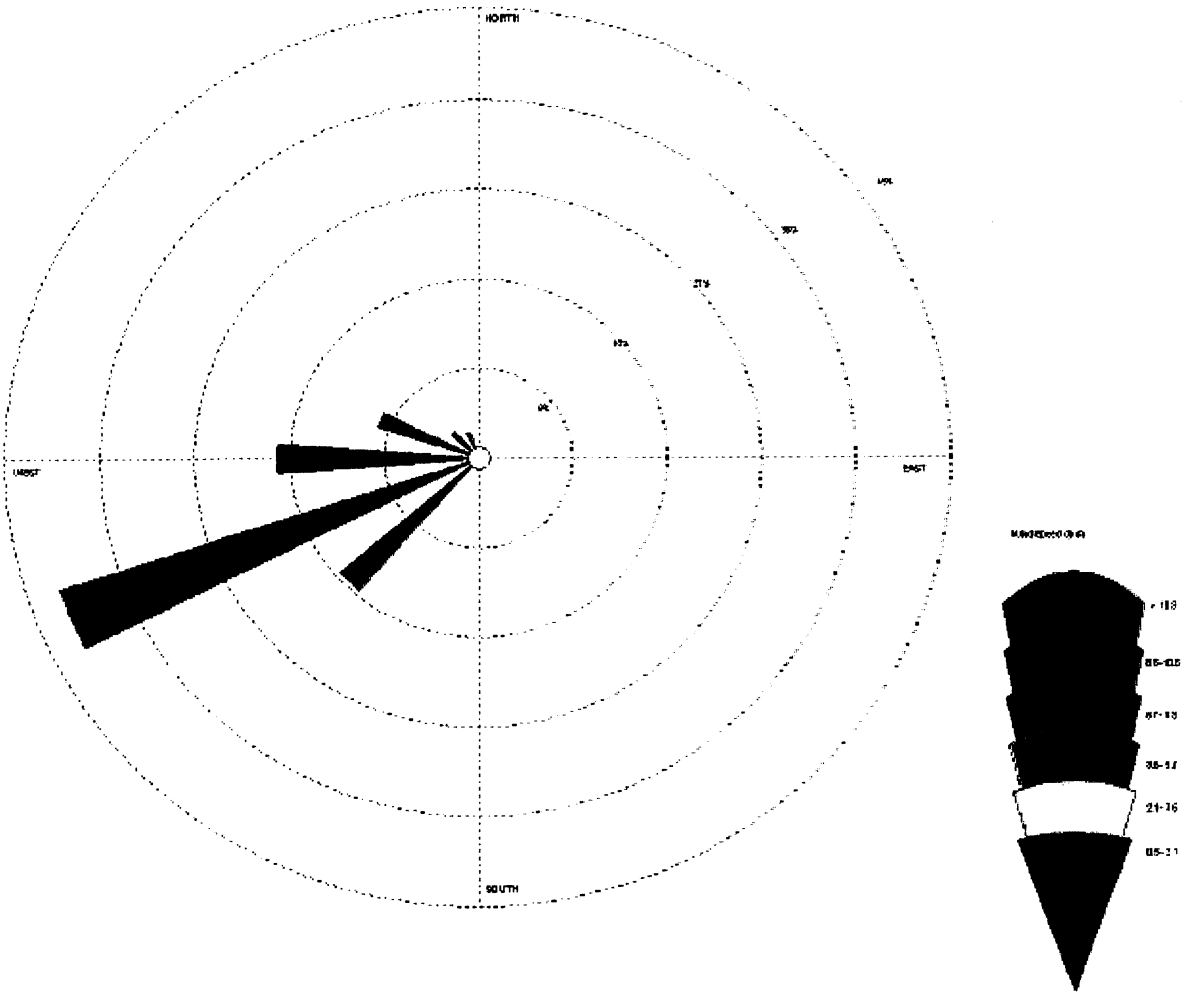
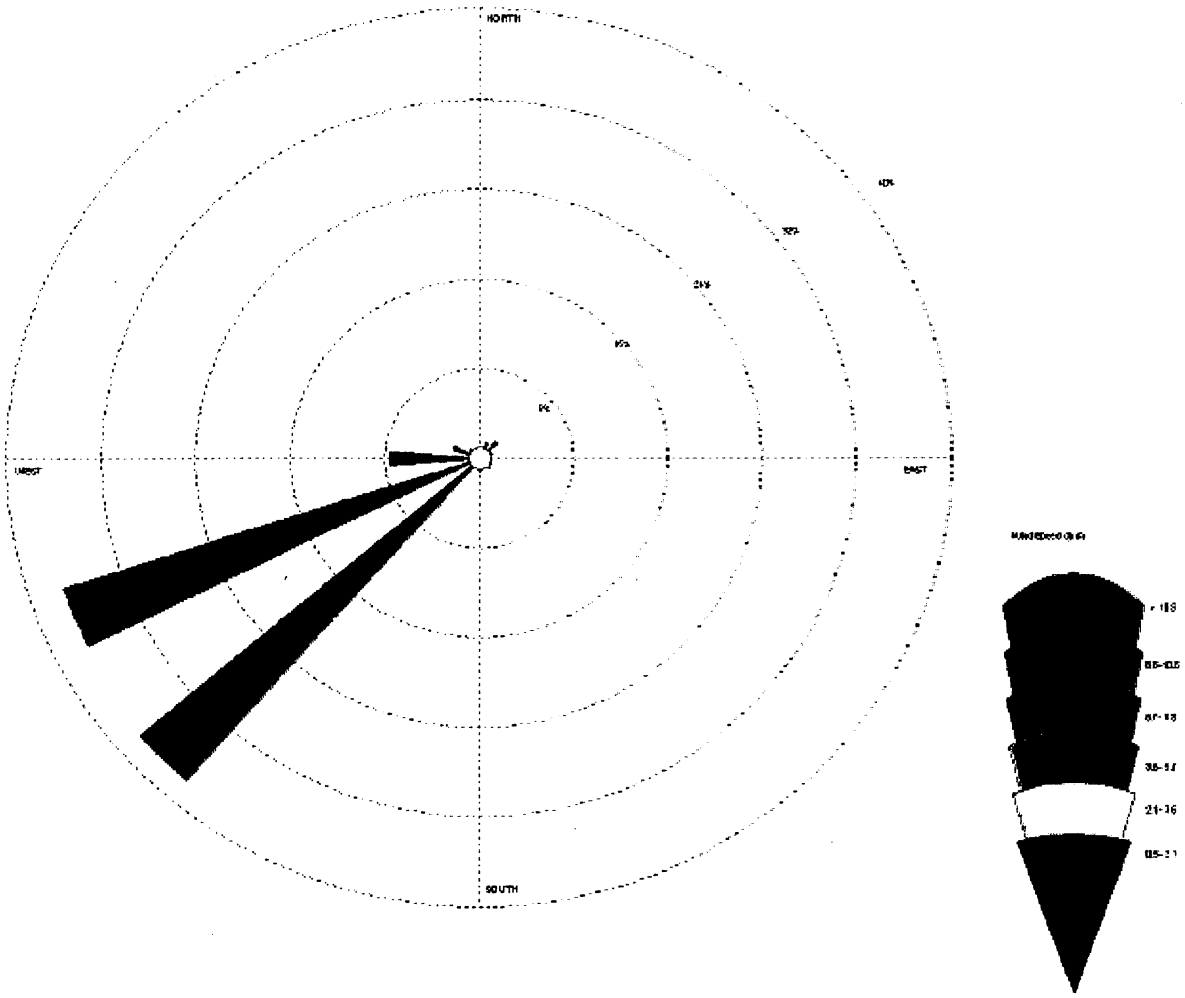


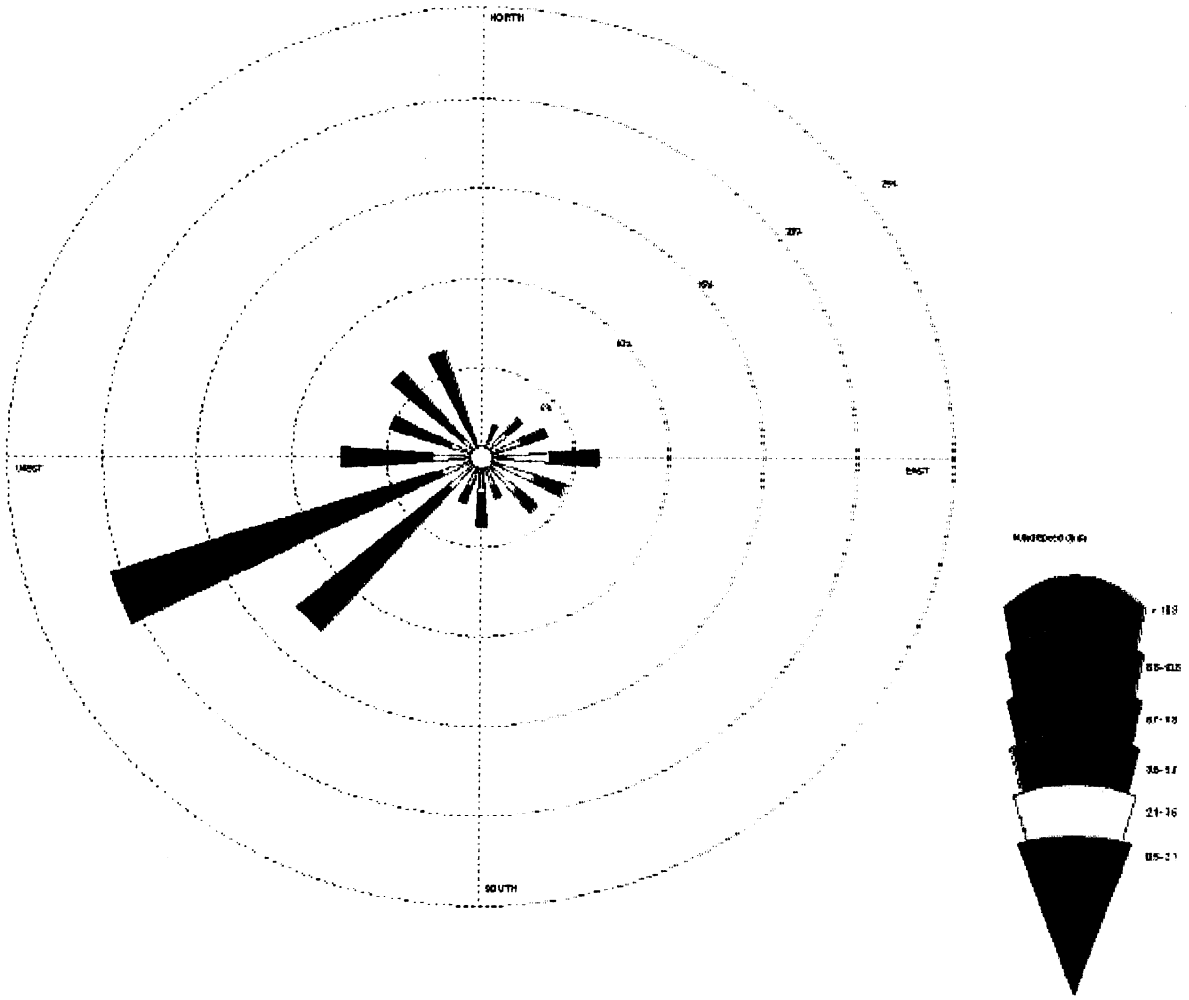
442 97 q2



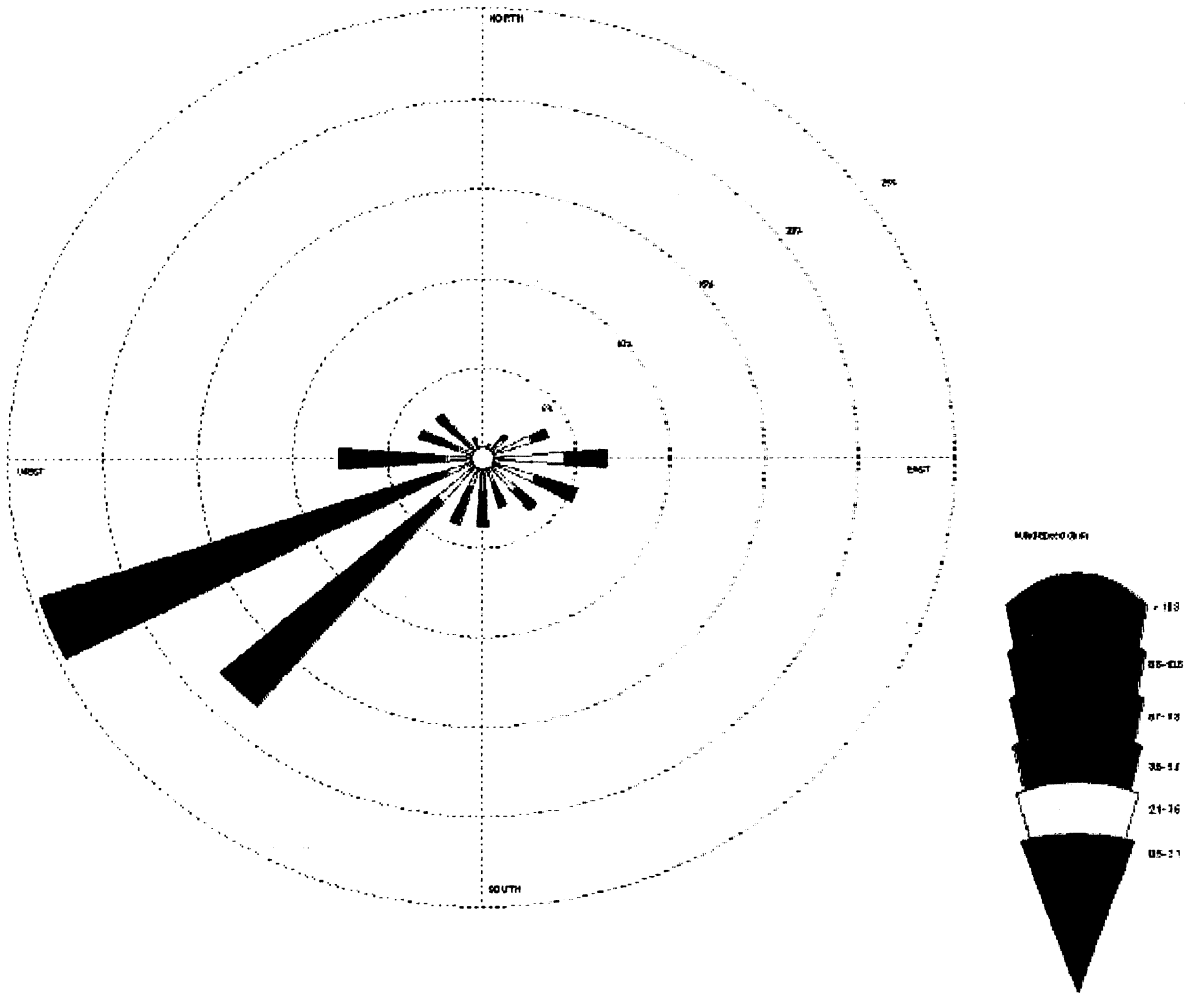
442 97 q3



442 97 q4



442 99 q1



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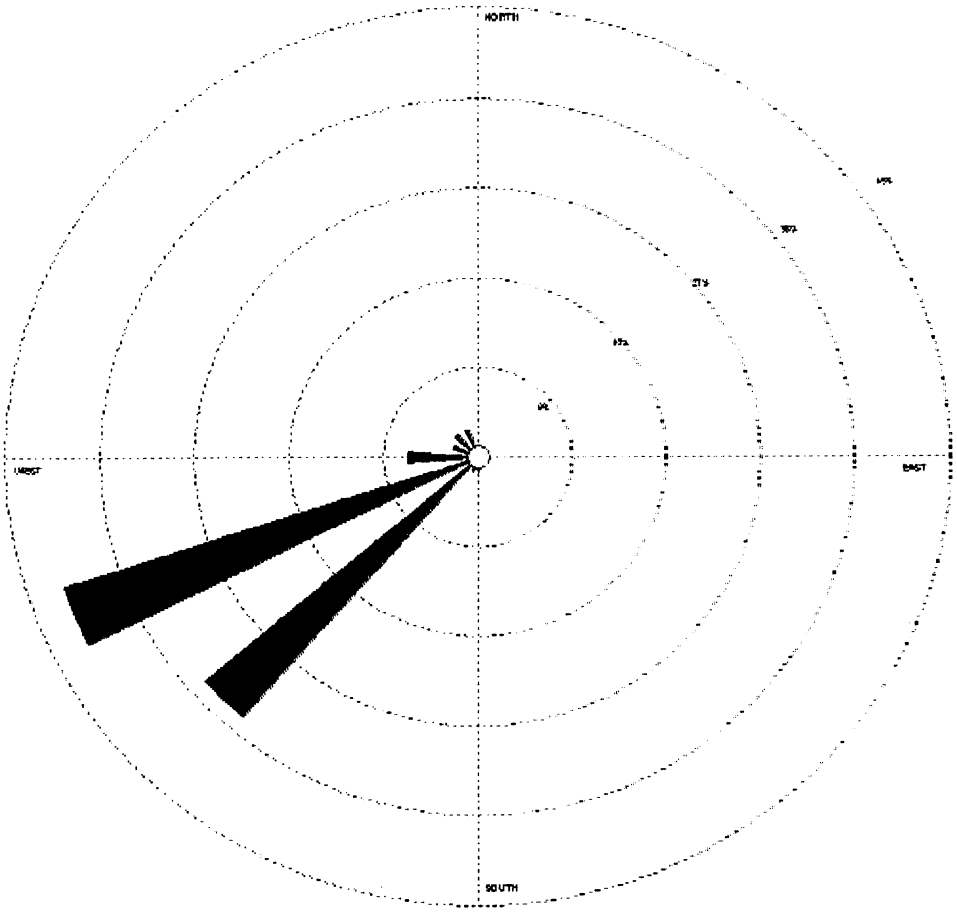

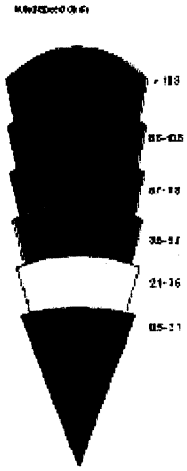

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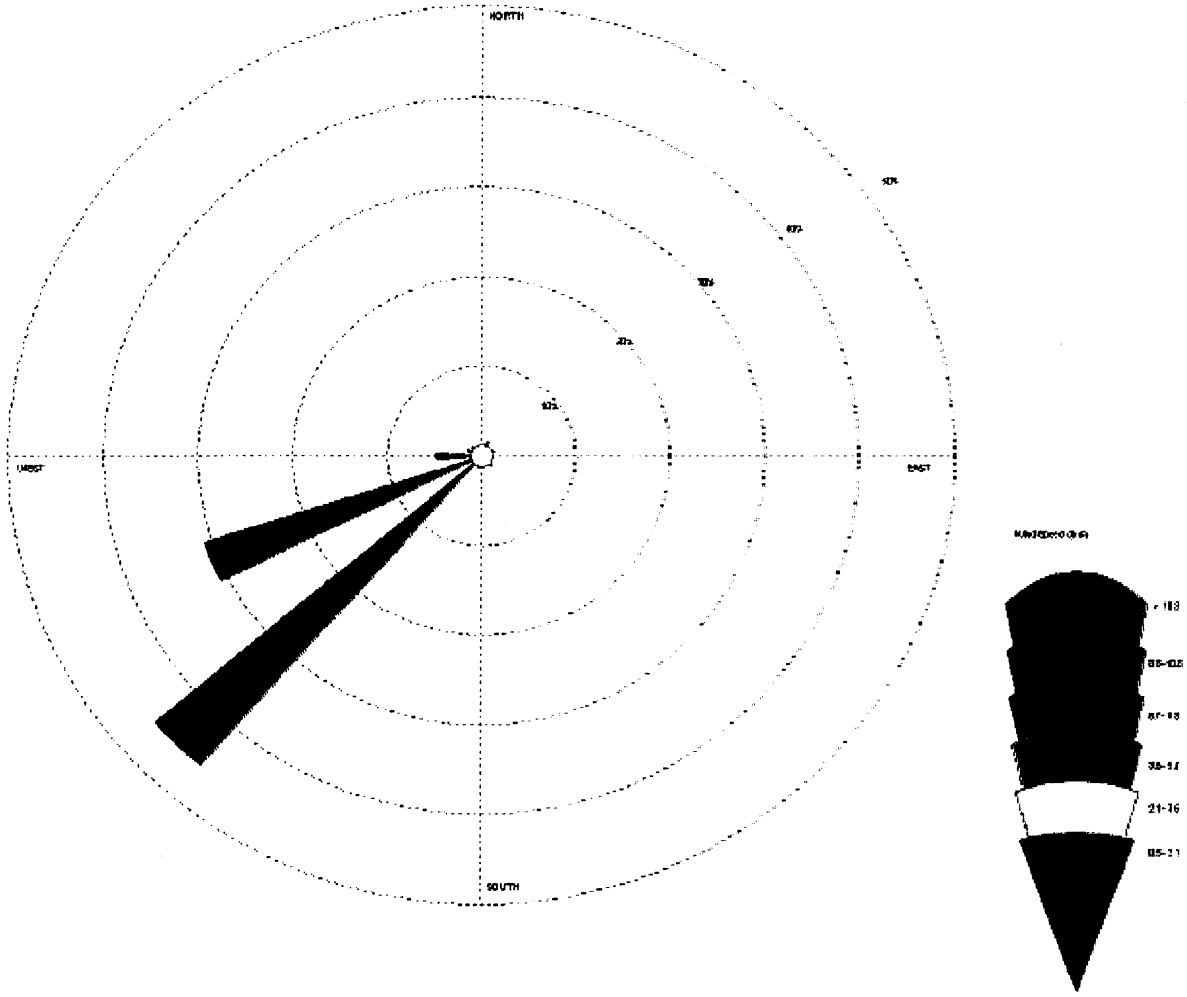

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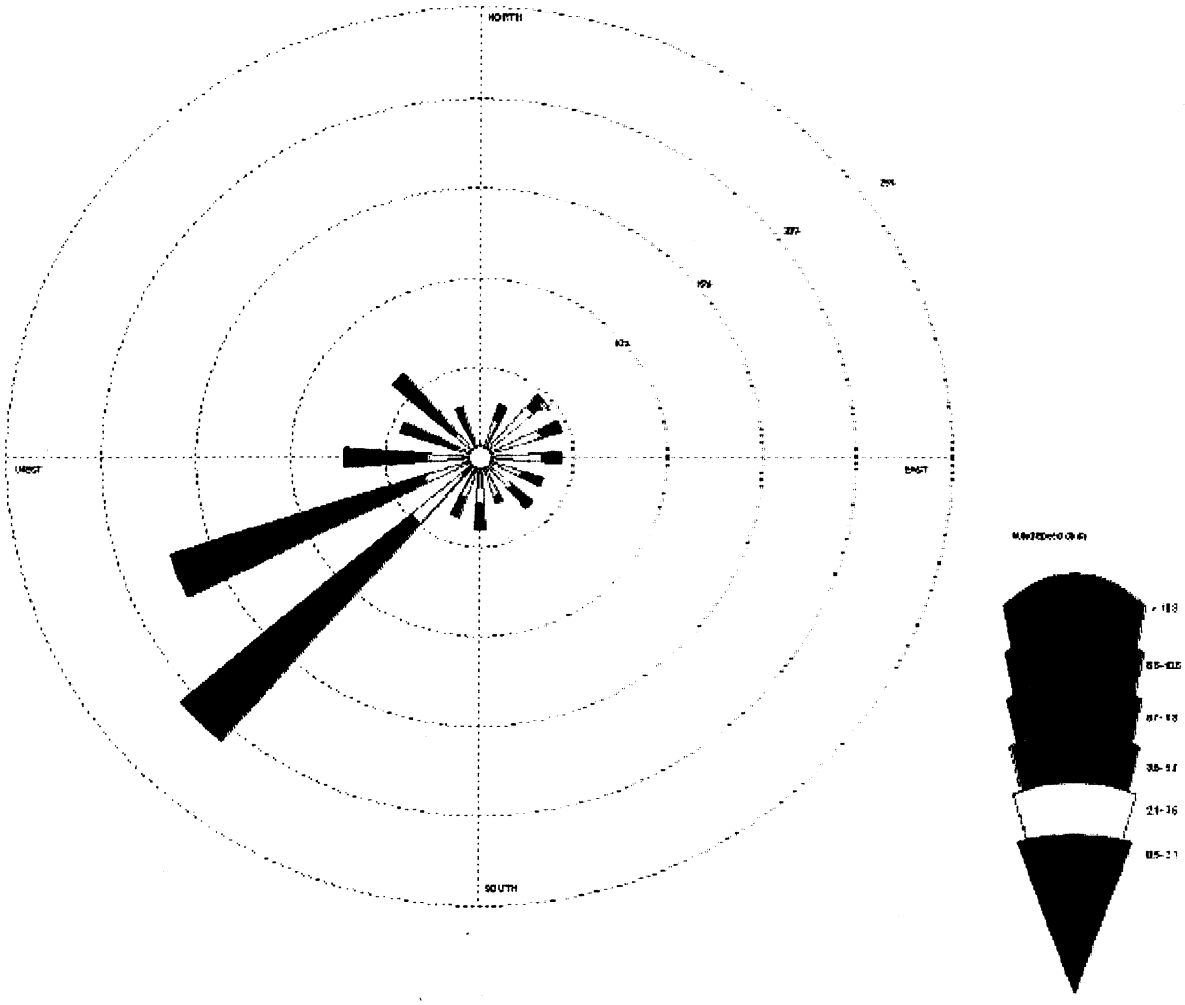

K-3: Construction Emissions Calculations

TABLE A - CONSTRUCTION EQUIPMENT MONTHLY SUMMARY

Construction Equipment	Aver. Hours per Day	Average Units On Site Per Month																							Total Months
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Excavator Loader	7	1	3	3	3	2	2	1	1	1	1	1	1	1											21
Excavator Backhoe	7	1	3	3	3	2	2	1	1	1	1	1	1	1											21
Dozer Tractor Crawler	7	1	1																						2
Fron End Loader	7				1	1	1	1	1	1	1	1	1	1	1	1	1	1							14
Trenching Machine	6	1	2	2	1																				6
Excavator Motor Grader	7	1	1	1																					3
Vibrating Plate Compactor	6	1	2	2	2	2	3	3	3	3	3	3	3	2	1	1	1	1	1						37
Roller Vibrator	6			1	1	1	2	2	2	2	2	1	1	1	1										17
Water Truck	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						18
Concrete Mixer	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						17
Concrete Pump, trailer mount	3				1	1	1	1	1	1	1	1	1												9
Mortar Mixer	4			1	1	2	2	2	2	2	2	2	1	1	1		1								20
Paving Machine	5	1	1																1	1	1				5
Dump Truck	7				1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	33
Crane (6-ton)	7		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					18
Crane (20-ton)	7	1	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	1							39
Crane (50-ton)	7	1	2	2	2	3	3	3	3	4	4	4	4	3	3	2	2	1	1						47
Crane (100-ton)	7					1	1	1	1	1	1	1	1	1	1	1	1								12
Crane (300-ton)	8							1	1	1	1	1	1	1											7
Crane (360-ton)	8							1	1	1	1	1	1	1											7
Crane (500-ton)	8							1	1	1	1	1													5
Manlift, telescoping	4				1	1	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	30
Welder (250 amp)	6		1	1	2	2	2	3	4	4	4	4	3	3	2	2	2	2	2	1	1				45
Air Compressor (185 cfm)	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			21
Air Compressor (750 cfm)	8					1	2	2	2	2	2	2	2	1	1	1	1	1	1	1					22
Generator (6 kW)	8	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2						32
Forklift (2-ton)	6	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	27
Forklift (4-ton)	6			1	1	2	2	2	2	2	2	2	2	2	2	2	2	2							28
Fuel/Lube Truck	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
Pickup Truck (1/2-ton)	5	3	3	3	3	3	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	3	2	2	95
Stakebed Truck	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					19
Hydrolic Boom Truck	4		1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1				18
Concrete Trowel	3	1	1	2	2	2	2	2	2	1	1	1	1												18
Concrete Floor Saw	2					1	1	1	1	1	1	1	1	1	1	1	1	1							13
Bobcat Skip Loader	6	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2						34
Hydrotest Pump	3																1	1	1	1	1				5

Notes:
1. Above estimates are for a single shift execution and 55-hour average work week.
2. Load factor is equivalent fraction of time equipment operated at 100% capacity during work week.
3. For equipment hourly emissins, see Table B.

TABLE B - CONSTRUCTION EQUIPMENT HOURLY EMISSIONS FACTORS

Construction Equipment	Fuel	Engine HP	Load Factor	Emission Factors, g/hp-hr					Hourly Emissions, lb/hr				
				NOx	CO	VOC	SOx	PM10	NOx	CO	VOC	SOx	PM10
Excavator Loader	Diesel	150	0.8	1.10	6.80	1.43	0.85	0.11	0.29	1.80	0.38	0.22	0.03
Excavator Backhoe	Diesel	150	0.8	1.10	6.80	1.43	0.85	0.11	0.29	1.80	0.38	0.22	0.03
Dozer Tractor Crawler	Diesel	100	0.7	10.30	4.80	1.29	0.85	0.11	1.59	0.74	0.20	0.13	0.02
Front End Loader	Diesel	100	0.9	10.30	4.80	1.29	0.85	0.11	2.04	0.95	0.26	0.17	0.02
Trenching Machine	Diesel	20	0.9	10.30	4.80	1.29	0.85	1.11	0.41	0.19	0.05	0.03	0.04
Excavator Motor Grader	Diesel	100	0.9	10.44	3.18	0.45	0.91	0.05	2.07	0.63	0.09	0.18	0.01
Vibrating Plate Compactor	Gasoline	8	0.65	8.00	5.00	1.22	0.93	1.00	0.09	0.06	0.01	0.01	0.01
Roller Vibrator	Diesel	100	0.65	8.00	5.00	1.22	0.93	0.10	1.14	0.72	0.17	0.13	0.01
Water Truck	Diesel	150	0.5	9.60	2.80	0.86	0.89	0.08	1.58	0.46	0.14	0.15	0.01
Concrete Mixer	Gasoline	20	0.8	9.60	2.80	0.86	0.89	0.80	0.34	0.10	0.03	0.03	0.03
Concrete Pump,trailer mount	Diesel	50	0.65	9.60	2.80	0.86	0.89	0.80	0.69	0.20	0.06	0.06	0.06
Mortar Mixer	Gasoline	11	0.65	9.60	2.80	0.86	0.89	0.80	0.15	0.04	0.01	0.01	0.01
Paving Machine	Diesel	100	0.85	10.44	3.18	0.45	0.91	0.05	1.95	0.59	0.08	0.17	0.01
Dump Truck	Diesel	150	0.65	9.60	2.80	0.86	0.89	0.08	2.06	0.60	0.18	0.19	0.02
Crane (6-ton)	Diesel	30	0.5	10.30	4.20	1.29	0.93	1.44	0.34	0.14	0.04	0.03	0.05
Crane (20-ton)	Diesel	75	0.5	10.30	4.20	1.29	0.93	1.44	0.85	0.35	0.11	0.08	0.12
Crane (50-ton)	Diesel	150	0.5	10.30	4.20	1.29	0.93	0.14	1.70	0.69	0.21	0.15	0.02
Crane (100-ton)	Diesel	270	0.5	10.30	4.20	1.29	0.93	0.14	3.06	1.25	0.38	0.28	0.04
Crane (300-ton)	Diesel	450	0.5	10.30	4.20	1.29	0.93	0.14	5.10	2.08	0.64	0.46	0.07
Crane (360-ton)	Diesel	450	0.5	10.30	4.20	1.29	0.93	0.14	5.10	2.08	0.64	0.46	0.07
Crane (500-ton)	Diesel	685	0.75	10.30	4.20	1.29	0.93	0.14	11.64	4.75	1.46	1.05	0.16
Manlift, telescoping	Diesel	43	0.75	9.60	2.80	0.86	0.89	0.80	0.68	0.20	0.06	0.06	0.06
Welder (250 amp)	Diesel	35	0.75	8.17	4.99	0.91	0.91	0.45	0.47	0.29	0.05	0.05	0.03
Air Compressor (185 cfm)	Diesel	5	0.75	8.00	5.00	1.22	0.93	1.00	0.07	0.04	0.01	0.01	0.01
Air Compressor (750 cfm)	Diesel	25	0.75	8.00	5.00	1.22	0.93	1.00	0.33	0.21	0.05	0.04	0.04
Generator (6 kW)	Diesel	30	0.75	8.00	5.00	1.22	0.93	1.00	0.40	0.25	0.06	0.05	0.05
Forklift (2-ton)	Gasoline	62	0.8	10.10	6.80	1.43	0.85	1.05	1.10	0.74	0.16	0.09	0.11
Forklift (4-ton)	Diesel	83	0.8	10.10	6.80	1.43	0.85	1.05	1.48	0.99	0.21	0.12	0.15
Fuel/Lube Truck	Diesel	175	0.5	9.60	2.80	0.86	0.89	0.08	1.85	0.54	0.17	0.17	0.02
Pickup Truck (1/2-ton)	Gasoline	150	0.8	10.10	2.80	0.86	0.89	0.08	2.67	0.74	0.23	0.23	0.02
Stakebed Truck	Diesel	325	0.5	10.30	4.20	1.29	0.93	0.14	3.68	1.50	0.46	0.33	0.05
Hydraulic Boom Truck	Diesel	260	0.5	10.30	4.20	1.29	0.93	0.14	2.95	1.20	0.37	0.27	0.04
Concrete Trowel	Gasoline	8	0.8	10.10	6.80	1.43	0.85	1.05	0.14	0.10	0.02	0.01	0.01
Concrete Floor Saw	Gasoline	14	0.8	10.10	6.80	1.43	0.85	1.05	0.25	0.17	0.04	0.02	0.03
Bobcat Skip Loader	Diesel	70	0.8	10.10	6.80	1.43	0.85	1.05	1.24	0.84	0.18	0.10	0.13
Hydrotest Pump	Diesel	25	0.76	8.00	5.00	1.22	0.93	1.00	0.33	0.21	0.05	0.04	0.04

CONSTRUCTION MONTHLY NOx EMISSIONS SUMMARY

Construction Equipment	NOx Emissions Per Month of Construction																							Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Months
Excavator Loader	45	134	134	134	89	89	45	45	45	45	45	45	45	0	0	0	0	0	0	0	0	0	0	939
Excavator Backhoe	45	134	134	134	89	89	45	45	45	45	45	45	45	0	0	0	0	0	0	0	0	0	0	939
Dozer Tractor Crawler	244	244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	489
Fron End Loader	0	0	0	314	314	314	314	314	314	314	314	314	314	314	314	314	314	0	0	0	0	0	0	4397
Trenching Machine	54	108	108	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	323
Excavator Motor Grader	318	318	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	955
Vibrating Plate Compactor	12	24	24	24	24	36	36	36	36	36	36	36	24	12	12	12	12	12	0	0	0	0	0	447
Roller Vibrator	0	0	151	151	151	302	302	302	302	302	151	151	151	151	0	0	0	0	0	0	0	0	0	2567
Water Truck	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	0	0	0	0	0	3764
Concrete Mixer	0	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	0	0	0	0	0	379
Concrete Pump, trailer mount	0	0	0	45	45	45	45	45	45	45	45	45	0	0	0	0	0	0	0	0	0	0	0	408
Mortar Mixer	0	0	13	13	27	27	27	27	27	27	27	13	13	13	0	13	0	0	0	0	0	0	0	266
Paving Machine	215	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215	215	215	0	0	0	1074
Dump Truck	0	0	0	317	634	634	634	634	634	634	634	634	634	634	634	634	634	317	317	317	317	317	317	10465
Crane (6-ton)	0	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	0	0	0	0	942
Crane (20-ton)	131	262	262	262	262	262	393	393	393	393	393	393	393	262	262	262	131	0	0	0	0	0	0	5104
Crane (50-ton)	262	523	523	523	785	785	785	785	1047	1047	1047	1047	785	785	523	523	262	262	0	0	0	0	0	12301
Crane (100-ton)	0	0	0	0	471	471	471	471	471	471	471	471	471	471	471	471	0	0	0	0	0	0	0	5653
Crane (300-ton)	0	0	0	0	0	0	897	897	897	897	897	897	897	0	0	0	0	0	0	0	0	0	0	6281
Crane (360-ton)	0	0	0	0	0	0	897	897	897	897	897	897	897	0	0	0	0	0	0	0	0	0	0	6281
Crane (500-ton)	0	0	0	0	0	0	2049	2049	2049	2049	2049	0	0	0	0	0	0	0	0	0	0	0	0	10245
Manlift, telescoping	0	0	0	60	60	120	120	120	120	120	120	120	120	120	60	120	60	60	60	60	60	60	60	1798
Welder (250 amp)	0	62	62	125	125	125	187	249	249	249	249	187	187	125	125	125	125	125	62	62	0	0	0	2803
Air Compressor (185 cfm)	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0	0	244
Air Compressor (750 cfm)	0	0	0	0	58	116	116	116	116	116	116	116	58	58	58	58	58	58	58	0	0	0	0	1278
Generator (6 kW)	70	70	70	70	139	139	139	139	139	139	139	139	139	139	139	139	139	139	0	0	0	0	0	2230
Forklift (2-ton)	145	145	145	145	145	145	291	291	291	291	145	145	145	145	145	145	145	145	145	145	145	145	145	3928
Forklift (4-ton)	0	0	195	195	390	390	390	390	390	390	390	390	390	390	390	390	390	0	0	0	0	0	0	5453
Fuel/Lube Truck	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	3740
Pickup Truck (1/2-ton)	880	880	880	880	880	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1173	1173	880	587	587	27864
Stakebed Truck	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	0	0	0	0	9235
Hydrolic Boom Truck	0	259	259	259	259	259	259	259	259	259	0	259	259	259	259	259	259	259	259	259	0	0	0	4666
Concrete Trowel	9	9	19	19	19	19	19	19	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	169
Concrete Floor Saw	0	0	0	0	11	11	11	11	11	11	11	11	11	11	11	11	11	0	0	0	0	0	0	142
Bobcat Skip Loader	164	164	329	329	329	329	329	329	329	329	329	329	329	329	329	329	329	329	0	0	0	0	0	5585
Hydrotest Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22	22	22	0	0	0	110
Total	3463	4497	4571	4997	6251	7118	11211	11273	11526	11526	10970	9105	8718	6629	6143	6238	5301	4353	3025	2428	1577	1272	1272	143463

Notes:

1. Above estimates are for a single shift execution and 55-hour average work week. (22 days per month, 240 hours per month)
2. Load factor is equivalent fraction of time equipment operated at 100% capacity during work week.
3. For equipment hourly emissions, see Table B.

CONSTRUCTION MONTHLY VOC EMISSIONS SUMMARY

Construction Equipment	VOC Emissions Per Month of Construction																							Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Months
Excavator Loader	58	174	174	174	116	116	58	58	58	58	58	58	58	0	0	0	0	0	0	0	0	0	0	1221
Excavator Backhoe	58	174	174	174	116	116	58	58	58	58	58	58	58	0	0	0	0	0	0	0	0	0	0	1221
Dozer Tractor Crawler	31	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61
Fron End Loader	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	0	0	0	0	0	0	551
Trenching Machine	7	13	13	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
Excavator Motor Grader	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
Vibrating Plate Compactor	2	4	4	4	4	6	6	6	6	6	6	6	4	2	2	2	2	2	0	0	0	0	0	68
Roller Vibrator	0	0	23	23	23	46	46	46	46	46	23	23	23	23	0	0	0	0	0	0	0	0	0	391
Water Truck	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	0	0	0	0	0	337
Concrete Mixer	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	34
Concrete Pump, trailer mount	0	0	0	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	37
Mortar Mixer	0	0	1	1	2	2	2	2	2	2	2	1	1	1	0	1	0	0	0	0	0	0	0	24
Paving Machine	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	0	0	0	46
Dump Truck	0	0	0	28	57	57	57	57	57	57	57	57	57	57	57	57	57	28	28	28	28	28	28	937
Crane (6-ton)	0	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	0	0	0	0	118
Crane (20-ton)	16	33	33	33	33	33	49	49	49	49	49	49	49	33	33	33	16	0	0	0	0	0	0	639
Crane (50-ton)	33	66	66	66	98	98	98	98	131	131	131	131	98	98	66	66	33	33	0	0	0	0	0	1541
Crane (100-ton)	0	0	0	0	59	59	59	59	59	59	59	59	59	59	59	59	0	0	0	0	0	0	0	708
Crane (300-ton)	0	0	0	0	0	0	112	112	112	112	112	112	112	0	0	0	0	0	0	0	0	0	0	787
Crane (360-ton)	0	0	0	0	0	0	112	112	112	112	112	112	112	0	0	0	0	0	0	0	0	0	0	787
Crane (500-ton)	0	0	0	0	0	0	257	257	257	257	257	0	0	0	0	0	0	0	0	0	0	0	0	1283
Manlift, telescoping	0	0	0	5	5	11	11	11	11	11	11	11	11	11	5	11	5	5	5	5	5	5	5	161
Welder (250 amp)	0	7	7	14	14	14	21	28	28	28	28	21	21	14	14	14	14	14	7	7	0	0	0	312
Air Compressor (185 cfm)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	37
Air Compressor (750 cfm)	0	0	0	0	9	18	18	18	18	18	18	18	9	9	9	9	9	9	9	0	0	0	0	195
Generator (6 kW)	11	11	11	11	21	21	21	21	21	21	21	21	21	21	21	21	21	21	0	0	0	0	0	340
Forklift (2-ton)	21	21	21	21	21	21	41	41	41	41	21	21	21	21	21	21	21	21	21	21	21	21	21	556
Forklift (4-ton)	0	0	28	28	55	55	55	55	55	55	55	55	55	55	55	55	55	0	0	0	0	0	0	772
Fuel/Lube Truck	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	335
Pickup Truck (1/2-ton)	75	75	75	75	75	125	125	125	125	125	125	125	125	125	125	125	125	125	100	100	75	50	50	2373
Stakebed Truck	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	0	0	0	0	1157
Hydrolic Boom Truck	0	32	32	32	32	32	32	32	32	32	0	32	32	32	32	32	32	32	32	32	0	0	0	584
Concrete Trowel	1	1	3	3	3	3	3	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	24
Concrete Floor Saw	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	20
Bobcat Skip Loader	23	23	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	0	0	0	0	0	791
Hydrotest Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	0	0	0	17
Total	454	793	829	893	940	1029	1438	1445	1476	1476	1400	1168	1119	753	690	700	586	454	299	223	146	119	119	18546

Notes:

1. Above estimates are for a single shift execution and 55-hour average work week.
2. Load factor is equivalent fraction of time equipment operated at 100% capacity during work week.
3. For equipment hourly emissins, see Table B.

CONSTRUCTION MONTHLY PM10 EMISSIONS SUMMARY

Construction Equipment	PM10 Emissions Per Month of Construction																							Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Months
Excavator Loader	4	13	13	13	9	9	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	90
Excavator Backhoe	4	13	13	13	9	9	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	90
Dozer Tractor Crawler	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Fron End Loader	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	47
Trenching Machine	6	12	12	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
Excavator Motor Grader	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Vibrating Plate Compactor	2	3	3	3	3	5	5	5	5	5	5	5	3	2	2	2	2	2	0	0	0	0	0	56
Roller Vibrator	0	0	2	2	2	4	4	4	4	4	2	2	2	2	0	0	0	0	0	0	0	0	0	32
Water Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	31
Concrete Mixer	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	32
Concrete Pump, trailer moun	0	0	0	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	34
Mortar Mixer	0	0	1	1	2	2	2	2	2	2	2	1	1	1	0	1	0	0	0	0	0	0	0	22
Paving Machine	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	5
Dump Truck	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	87
Crane (6-ton)	0	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	0	0	0	0	132
Crane (20-ton)	18	37	37	37	37	37	55	55	55	55	55	55	55	37	37	37	18	0	0	0	0	0	0	714
Crane (50-ton)	4	7	7	7	11	11	11	11	15	15	15	15	11	11	7	7	4	4	0	0	0	0	0	172
Crane (100-ton)	0	0	0	0	7	7	7	7	7	7	7	7	7	7	7	7	0	0	0	0	0	0	0	79
Crane (300-ton)	0	0	0	0	0	0	13	13	13	13	13	13	13	0	0	0	0	0	0	0	0	0	0	88
Crane (360-ton)	0	0	0	0	0	0	13	13	13	13	13	13	13	0	0	0	0	0	0	0	0	0	0	88
Crane (500-ton)	0	0	0	0	0	0	29	29	29	29	29	0	0	0	0	0	0	0	0	0	0	0	0	143
Manlift, telescoping	0	0	0	5	5	10	10	10	10	10	10	10	10	10	5	10	5	5	5	5	5	5	5	150
Welder (250 amp)	0	3	3	7	7	7	10	14	14	14	14	10	10	7	7	7	7	7	3	3	0	0	0	154
Air Compressor (185 cfm)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	30
Air Compressor (750 cfm)	0	0	0	0	7	15	15	15	15	15	15	15	7	7	7	7	7	7	7	0	0	0	0	160
Generator (6 kW)	9	9	9	9	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	279
Forklift (2-ton)	15	15	15	15	15	15	30	30	30	30	15	15	15	15	15	15	15	15	15	15	15	15	15	408
Forklift (4-ton)	0	0	20	20	40	40	40	40	40	40	40	40	40	40	40	40	40	0	0	0	0	0	0	567
Fuel/Lube Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31
Pickup Truck (1/2-ton)	7	7	7	7	7	12	12	12	12	12	12	12	12	12	12	12	12	12	9	9	7	5	5	221
Stakebed Truck	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	0	0	0	0	129
Hydraulic Boom Truck	0	4	4	4	4	4	4	4	4	4	0	4	4	4	4	4	4	4	4	4	0	0	0	65
Concrete Trowel	1	1	2	2	2	2	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	18
Concrete Floor Saw	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	15
Bobcat Skip Loader	17	17	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	0	0	0	0	0	581
Hydrotest Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	0	0	0	14
Total	103	166	203	214	251	272	354	357	360	360	339	310	292	236	224	233	198	133	67	46	33	29	29	4806

Notes:

1. Above estimates are for a single shift execution and 55-hour average work week.
2. Load factor is equivalent fraction of time equipment operated at 100% capacity during work week.
3. For equipment hourly emissins, see Table B.

Fugitive Dust from On-Site Construction

Uncontrolled Emission Factor[a]	0.11	tons PM10/acre-month
Controlled Emission Factor	0.011	tons PM10/acre-month
Control Efficiency[b]	90%	

Month	Main Facility (acres)	Site Access Road (acres)	Transmission Line (acres)	Natural Gas Pipeline (acres)	Water Supply Pipeline (acres)	Water Supply Pump Station (acres)	On Site Disturbed Area (acres)	Total Uncontrolled Emissions (tons/month)	Total Controlled Emissions (tons/month)
1	40					1	40	4.40	0.44
2	40					1	40	4.40	0.44
3	40					1	40	4.40	0.44
4	40					1	40	4.40	0.44
5	40					1	40	4.40	0.44
6	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
7	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
8	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
9	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
10	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
11	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
12	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
13	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
14	40	1	2.5	36.2	10.3	1	43.5	4.79	0.48
15	40					1	40	4.40	0.44
16	40					1	40	4.40	0.44
17	40					1	40	4.40	0.44
18	40					1	40	4.40	0.44
19	40					1	40	4.40	0.44
20	40					1	40	4.40	0.44
21	40					1	40	4.40	0.44
22	40					1	40	4.40	0.44
23	40					1	40	4.40	0.44

Worst-Case Onsite Controlled Emissions

Months	Total Annual Emissions (tons/year)
1-12	5.55
2-13	5.59
3-14	5.63
4-15	5.63
5-16	5.63
6-17	5.63
7-18	5.59
8-19	5.55
9-20	5.51
10-21	5.47
11-22	5.43
12-23	5.40

Annual Worst-case Emission Rate (ton/year)	5.63
Annual Worst-case Emission Rate (g/s)[c]	0.1619
Monthly Worst-case Emission Rate (ton/month)	0.48
1-hour Worst-case Emission Rate (lb/hr)[d]	4.0
1-hour Worst-case Emission Rate (g/s)	0.498

[a]Uncontrolled emission factor from Midwest Research Institute (MRI, 1996).

[b]A 90% control efficiency was assumed due to water application and other dust suppression measures.

[c] Based on 8760 hours per year.

[d] Based on 22 days/month and 11 hrs/day.

Off-Site Water Line Construction Equipment Monthly Summary

Equipment	Quantity		Total Months
	Month 1	Month 2	
Dozer Tractor Crawler	1	1	2
Excavator Backhoe	1	1	2
Trenching Machine	1	1	2
Vibrating Plate Compactor	1	1	2
Crane (20-ton)	1	1	2
Welder (250 amp)	4	4	8
Cold Bending Machine	0	0	0
HDD Drill Rig	0	0	0
Mud Mixer	0	0	0
Jack & Bore Equipment	0	0	0
Air Compressor (750 cfm)	1	1	2
X-Ray Truck	0	0	0
Water Truck	1	1	2
Dump Truck	1	1	2
Flatbed Truck	1	1	2
Pickup Truck (1 ton)	2	2	4
Excavator Motor Grader	1	1	2

Off-Site Gas Line Construction Equipment Monthly Summary

Equipment	Quantity			Total Months
	Month 1	Month 2	Month 3	
Dozer Tractor Crawler	1	2	1	4
Dozer Tractor Sideboom	2	2	1	5
Excavator Backhoe	2	4	1	7
Trenching Machine	0	1	0	1
Vibrating Plate Compactor	0	1	0	1
Crane (20-ton)	1	1	0	2
Welder (250 amp)	4	10	1	15
Cold Bending Machine	1	1	0	2
HDD Drill Rig	1	1	0	2
Mud Mixer	1	1	0	2
Jack & Bore Equipment	1	1	0	2
Air Compressor (750 cfm)	0	1	0	1
X-Ray Truck	0	1	1	2
Water Truck	1	1	0	2
Dump Truck	1	1	0	2
Flatbed Truck	2	2	1	5
Pickup Truck (1 ton)	11	11	4	26
Excavator Motor Grader	0	1	1	2

OFF-SITE CONSTRUCTION EQUIPMENT HOURLY EMISSION FACTORS

Construction Equipment	Fuel	Engine HP	Load Factor	Emission Factors, g/hp-hr					Hourly Emissions, lb/hr				
				NOx	CO	VOC	SOx	PM10	NOx	CO	VOC	SOx	PM10
Dozer Tractor Crawler	Diesel	100	0.7	10.30	4.80	1.29	0.85	1.11	1.59	0.74	0.20	0.13	0.17
Dozer Tractor Sideboom	Diesel	100	0.7	10.30	4.80	1.29	0.85	1.11	1.59	0.74	0.20	0.13	0.17
Excavator Backhoe	Diesel	150	0.8	1.10	6.80	1.43	0.85	1.05	0.29	1.80	0.38	0.22	0.28
Trenching Machine	Diesel	20	0.9	10.30	4.80	1.29	0.85	1.11	0.41	0.19	0.05	0.03	0.04
Vibrating Plate Compactor	Gasoline	8	0.65	8.00	5.00	1.22	0.93	1.00	0.09	0.06	0.01	0.01	0.01
Crane (20-ton)	Diesel	75	0.5	10.30	4.20	1.29	0.93	1.44	0.85	0.35	0.11	0.08	0.12
Welder (250 amp)	Diesel	35	0.75	8.17	4.99	0.91	0.91	0.45	0.47	0.29	0.05	0.05	0.03
Cold Bending Machine	Diesel	35	0.75	8.17	4.99	0.91	0.91	0.45	0.47	0.29	0.05	0.05	0.03
HDD Drill Rig	Diesel	150	0.8	1.10	6.80	1.43	0.85	1.05	0.29	1.80	0.38	0.22	0.28
Mud Mixer	Gasoline	20	0.8	9.60	2.80	0.86	0.89	0.80	0.34	0.10	0.03	0.03	0.03
Jack & Bore Equipment	Diesel	150	0.8	1.10	6.80	1.43	0.85	1.05	0.29	1.80	0.38	0.22	0.28
Air Compressor (750 cfm)	Diesel	25	0.75	8.00	5.00	1.22	0.93	1.00	0.33	0.21	0.05	0.04	0.04
X-Ray Truck	Diesel	150	0.5	9.60	2.80	0.86	0.89	0.80	1.58	0.46	0.14	0.15	0.13
Water Truck	Diesel	150	0.5	9.60	2.80	0.86	0.89	0.80	1.58	0.46	0.14	0.15	0.13
Dump Truck	Diesel	150	0.65	9.60	2.80	0.86	0.89	0.80	2.06	0.60	0.18	0.19	0.17
Flatbed Truck	Diesel	150	0.65	9.60	2.80	0.86	0.89	0.80	2.06	0.60	0.18	0.19	0.17
Pickup Truck (1 ton)	Gasoline	300	0.8	10.10	2.80	0.86	0.89	0.80	5.33	1.48	0.45	0.47	0.42
Excavator Motor Grader	Diesel	100	0.9	10.44	3.18	0.45	0.91	0.45	2.07	0.63	0.09	0.18	0.09

Off-Site Construction Equipment Emissions

Construction Equipment	Off-Site Construction Equipment Pollutant Emissions in lbs/month														
	NOx Emissions			CO Emissions			VOC Emissions			SOx Emissions			PM10 Emissions		
	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3
Dozer Tractor Crawler	767.72	1,151.58	383.86	357.77	536.66	178.89	96.15	144.23	48.08	63.36	95.03	31.68	82.73	124.10	41.37
Dozer Tractor Sideboom	767.72	767.72	383.86	357.77	357.77	178.89	96.15	96.15	48.08	63.36	63.36	31.68	82.73	82.73	41.37
Excavator Backhoe	210.83	351.38	70.28	1,303.32	2,172.19	434.44	274.08	456.80	91.36	162.91	271.52	54.30	201.25	335.41	67.08
Trenching Machine	98.71	197.41	0.00	46.00	92.00	0.00	12.36	24.72	0.00	8.15	16.29	0.00	10.64	21.27	0.00
Vibrating Plate Compactor	22.15	44.30	0.00	13.84	27.68	0.00	3.38	6.76	0.00	2.57	5.15	0.00	2.77	5.54	0.00
Crane (20-ton)	411.28	411.28	0.00	167.71	167.71	0.00	51.51	51.51	0.00	37.13	37.13	0.00	57.50	57.50	0.00
Welder (250 amp)	913.44	1,598.52	114.18	557.90	976.33	69.74	101.74	178.05	12.72	101.74	178.05	12.72	50.31	88.05	6.29
Cold Bending Machine	114.18	114.18	0.00	69.74	69.74	0.00	12.72	12.72	0.00	12.72	12.72	0.00	6.29	6.29	0.00
HDD Drill Rig	70.28	70.28	0.00	434.44	434.44	0.00	91.36	91.36	0.00	54.30	54.30	0.00	67.08	67.08	0.00
Mud Mixer	81.78	81.78	0.00	23.85	23.85	0.00	7.33	7.33	0.00	7.58	7.58	0.00	6.81	6.81	0.00
Jack & Bore Equipment	70.28	70.28	0.00	434.44	434.44	0.00	91.36	91.36	0.00	54.30	54.30	0.00	67.08	67.08	0.00
Air Compressor (750 cfm)	79.86	159.72	0.00	49.91	99.83	0.00	12.18	24.36	0.00	9.28	18.57	0.00	9.98	19.97	0.00
X-Ray Truck	0.00	383.33	383.33	0.00	111.80	111.80	0.00	34.34	34.34	0.00	35.54	35.54	0.00	31.94	31.94
Water Truck	766.66	766.66	0.00	223.61	223.61	0.00	68.68	68.68	0.00	71.08	71.08	0.00	63.89	63.89	0.00
Dump Truck	996.65	996.65	0.00	290.69	290.69	0.00	89.28	89.28	0.00	92.40	92.40	0.00	83.05	83.05	0.00
Flatbed Truck	1,494.98	1,494.98	498.33	436.04	436.04	145.35	133.93	133.93	44.64	138.60	138.60	46.20	124.58	124.58	41.53
Pickup Truck (1/2-ton)	16,776.99	16,776.99	5,162.15	4,651.05	4,651.05	1,431.09	1,428.54	1,428.54	439.55	1,478.37	1,478.37	454.88	1,328.87	1,328.87	408.88
Excavator Motor Grader	500.24	1,000.49	500.24	152.37	304.75	152.37	21.56	43.12	21.56	43.60	87.21	43.60	21.56	43.12	21.56
Total emissions (lb/month)	**24,144**	**26,438**	**7,496**	**9,570**	**11,411**	**2,703**	**2,592**	**2,983**	**740**	**2,401**	**2,717**	**711**	**2,267**	**2,557**	**660**
Max. hourly rates (lbs/hour)	**99.77**	**109.25**	**30.98**	**39.55**	**47.15**	**11.17**	**10.71**	**12.33**	**3.06**	**9.92**	**11.23**	**2.94**	**9.37**	**10.57**	**2.73**
Total Emission (ton/year)	**29.04**			**11.84**			**3.16**			**2.91**			**2.74**		

Based on 22 days/month, 11 hour/day for all machines
Includes both off-site gas line and water line construction equipment

K-4: Turbine, Duct Burner, Diesel Generator, and Cooling Tower Emissions Calculations

Table K-4-1: Summary of Operational Emissions

Annual Emissions (ton/yr)

	Generator Set #1	Generator Set #2	Cooling Tower	Fire Water Pump Engine	Diesel Generator	Total
NOx	122.6	122.6	--	0.185	0.322	245.76
CO	234.2	234.2	--	0.044	0.061	468.46
VOC	29.5	29.5	--	0.004	0.003	58.91
PM10	94.8	94.8	6.1	0.003	0.022	195.64
SO2	14.7	14.7	--	0.019	0.020	29.50

NOTE: Each generator set includes 2 gas turbines, 2 HRSGs and 1 steam turbine

Client:	Midway Power, LLC
Location:	Alameda County, California
Project:	Tesla Power Plant
Unit:	1&2
Equipment:	4-7FA's, 4-HRSG's, 2-STG's w/ Reheat, Fogger, DB
Case / Configuration:	

DUKE/FLUOR DANIEL

Contract :	04414032
Revision :	B
Date :	20-Jun-2001 10:07 AM
By:	S. Ngo
Chk:	CS / JR Appv'd: ZR

COMBUSTION TURBINE AND HRSG STACK EMISSIONS SUMMARY

(PER EACH STACK)

X:\x_env\Tesla\Emissions\[TeslaEmissionsRev1.xls]Turb Op Emissions

	Emissions Calculation Basis		Winter Minimum - 17 °F				Yearly Average - 62 °F				Hot Summer Day - 97 °F				Summer Maximum - 112 °F			
2	CTG Load		100%	100%	75%	50%	100%	100%	75%	50%	100%	100%	75%	50%	100%	100%	75%	50%
3	Fogger Status		Off	Off	Off	Off	On	On	Off	Off	On	On	Off	Off	On	On	Off	Off
4	Duct Burner Status		On	Off	Off	Off	On	Off	Off	Off	On	Off	Off	Off	On	Off	Off	Off
5	SCR Catalyst (2 ppm NO_X) - Removal Efficiency	%	81.2	77.8	77.8	77.8	81.3	77.8	77.8	77.8	81.5	77.8	77.8	77.8	81.5	77.8	77.8	77.8
6	Oxidation Catalyst (6 ppm CO) - Removal Efficiency	%	46.2	20.5	18.3	21.0	46.2	19.4	18.9	23.0	47.7	20.5	21.4	26.9	48.3	20.9	22.9	28.7
7	Aqueous NH_3 - Plant Usage (6)	lb/hr	859.9	659.9	529.7	415.8	808.8	616.4	491.6	389.6	787.1	590.7	451.0	356.4	776.9	578.3	430.2	340.0
8	Combustion Turbine Emissions (Each) (2)																	
9	CTG Heat Consumption [LHV]	mmBtu/hr	1,688	1,688	1,369	1,086	1,581	1,581	1,270	1,016	1,537	1,537	1,166	929	1,515	1,515	1,110	887
10	Exhaust Flow	lb/hr	3,847,000	3,847,000	3,008,000	2,440,000	3,569,000	3,569,000	2,832,000	2,356,000	3,467,000	3,467,000	2,674,000	2,262,000	3,413,000	3,413,000	2,601,000	2,212,000
11	NO_X @ 15% O_2	ppmvd	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
12	NO_X as NO_2	lb/hr	61.71	61.71	49.53	38.88	57.64	57.64	45.97	36.44	55.24	55.24	42.17	33.32	54.08	54.08	40.22	31.79
13	CO @ 15% O_2	ppmvd	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
14	CO	lb/hr	31.50	31.50	24.59	19.99	29.01	29.01	23.01	19.20	28.22	28.22	21.78	18.49	27.76	27.76	21.19	18.09
15	SO_2 @ 15% O_2	ppmvd	0.18	0.18	0.19	0.19	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
16	SO_2 (4)	lb/hr	1.76	1.76	1.42	1.13	1.64	1.64	1.32	1.06	1.60	1.60	1.21	0.97	1.58	1.58	1.15	0.92
17	VOC @ 15% O_2	ppmvd	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
18	VOC	lb/hr	3.03	3.03	2.37	1.92	2.83	2.83	2.24	1.86	2.74	2.74	2.12	1.79	2.70	2.70	2.06	1.75
19	Particulate, PM_{10}	lb/hr	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
20	Duct Burner Emissions (Each) (3)																	
21	Duct Burner Duty [LHV]	mmBtu/hr	245	0	0	0	236	0	0	0	240	0	0	0	243	0	0	0
22	NO_X as NO_2 (@ 0.08 lb/mmBtu, HHV)	lb/hr	21.74	0.00	0.00	0.00	20.91	0.00	0.00	0.00	21.35	0.00	0.00	0.00	21.59	0.00	0.00	0.00
23	CO (@ 0.08 lb/mmBtu, HHV)	lb/hr	21.74	0.00	0.00	0.00	20.91	0.00	0.00	0.00	21.35	0.00	0.00	0.00	21.59	0.00	0.00	0.00
24	SO_2 (4)	lb/hr	0.25	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00
25	VOC (@ 0.010 lb/mmBtu, HHV)	lb/hr	2.72	0.00	0.00	0.00	2.61	0.00	0.00	0.00	2.67	0.00	0.00	0.00	2.70	0.00	0.00	0.00
26	Particulate, PM_{10} (@ 0.010 lb/mmBtu, HHV)	lb/hr	2.72	0.00	0.00	0.00	2.61	0.00	0.00	0.00	2.67	0.00	0.00	0.00	2.70	0.00	0.00	0.00
27	Stack Emissions (Each)																	
28	Exhaust Flow	lb/hr	3,859,096	3,847,000	3,008,000	2,440,000	3,580,636	3,569,000	2,832,000	2,356,000	3,478,878	3,467,000	2,674,000	2,262,000	3,425,012	3,413,000	2,601,000	2,212,000
29	Exhaust Gas Molecular Weight	lb/lbmol	28.4	28.5	28.5	28.5	28.3	28.4	28.4	28.4	28.3	28.4	28.4	28.4	28.3	28.4	28.4	28.4
30	Exhaust Gas Moisture Content	vol%	8.5	7.5	7.7	7.4	9.6	8.5	8.6	8.2	9.5	8.4	8.3	7.8	9.6	8.5	8.3	7.8
31	Stack Diameter / Height	feet	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200	19 / 200
32	Stack Velocity	ft/sec	61.9	62.6	47.7	37.9	57.6	58.1	45.0	36.8	56.0	56.6	42.4	35.4	55.1	55.8	41.2	34.7
33	Stack Temperature	°F	186	197	180	168	186	195	179	169	186	197	178	170	186	197	178	171
34	NO_X @ 15% O_2	ppmvd	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
35	NO_X as NO_2	lb/hr	15.67	13.71	11.01	8.64	14.69	12.81	10.22	8.10	14.20	12.27	9.37	7.41	13.96	12.02	8.94	7.07
36	CO @ 15% O_2	ppmvd	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
37	CO	lb/hr	28.62	25.05	20.10	15.78	26.84	23.40	18.66	14.79	25.93	22.42	17.12	13.53	25.50	21.95	16.33	12.90
38	SO_2 @ 15% O_2	ppmvd	0.18	0.18	0.19	0.19	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
39	SO_2 (4)	lb/hr	2.01	1.76	1.42	1.13	1.89	1.64	1.32	1.06	1.85	1.60	1.21	0.97	1.83	1.58	1.15	0.92
40	VOC @ 15% O_2	ppmvd	1.56	0.94	0.91	0.95	1.57	0.94	0.93	0.98	1.62	0.95	0.96	1.02	1.64	0.95	0.98	1.05
41	VOC (7)	lb/hr	4.26	2.24	1.76	1.42	4.03	2.09	1.66	1.38	4.00	2.03	1.57	1.32	4.00	2.00	1.52	1.29
42	Additional sulfate particulate (5)	lb/hr	1.03	0.84	0.68	0.54	0.97	0.79	0.63	0.51	0.95	0.77	0.58	0.46	0.94	0.76	0.55	0.44
43	Total PM_{10} (including sulfate particulates)	lb/hr	12.75	9.84	9.68	9.54	12.58	9.79	9.63	9.51	12.62	9.77	9.58	9.46	12.64	9.76	9.55	9.44
44	Ammonia Slip @ 15% O_2	ppmvd	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
45	Ammonia Slip	lb/hr	14.50	12.69	10.19	8.00	13.60	11.85	9.45	7.49	13.14	11.36	8.67	6.85	12.92	11.12	8.27	6.54

46 Notes:
1. Emissions data shown are for one CTG / HRSG train unless otherwise noted.
47 2. NO_X, CO, VOC, & PM_{10} emissions based on CTG manufacturer's currently quoted expected values.
48 3. Duct burner emissions based on typical supplier guaranteed emission rates.
49 4. Sulfur content in fuel = 0.33 grains / 100 SCF.
50 5. Assumed SO_2 to SO_3 conversion of 5% in GTG, 20% by duct burners, 15% by oxidation catalyst, 5% by SCR. Resulting SO_3 reacts with ammonia slip to form ammonium sulfate particulate, $(NH_4)_2SO_4$, in stack.
51 6. Aqueous Ammonia usage at 19 wt% for total plant (4CTG/HRSG's, 2 STG's).
52 7. VOC reduction of 26% by oxidation catalyst.

Turbine Startup Emissions

Number and Duration of Startups per Generating Set (incl 2 gas turbine and 1 steam turbine)

Operating Mode (per Gen Sets)	# / year	Time/Event (Min.)	Annual Time (hr/yr)
Hot Start	27	90	40.5
Warm Start	6	180	18
Cold Start	12	300	60
Total			118.5

Number and Duration of Startups Entire Facility

Operating Mode (both Gen Sets)	# / year	Time/Event (Min.)	Annual Time (hr/yr)
Hot Start	54	90	81
Warm Start	12	180	36
Cold Start	24	300	120
Total			237

Startup Emissions per Generating Set (incl 2 gas turbines and 1 steam turbine)

	Cold Start	Warm Start	Hot Start
Duration (min.)	300	180	90
NOx emissions (lb/event)	831	451.6	232.4
CO emissions (lb/event)	1802.9	2360.5	711.8
VOC emissions (lb/event)	165.9	158	70.6
Peak hourly NOx (lb/hr)	300	263	219
Peak Hourly CO (lb/hr)	800	1325	700
Peak Hourly VOC (lb/hr)	64	90	70

Worst Case Startup Emissions - Assumes both Gen Sets (4 turbines) starting at the same time

	Cold Start	Warm Start	Hot Start
Duration (min.)	300	180	90
NOx emissions (lb/event)	1662	903.2	464.8
CO emissions (lb/event)	3605.8	4721	1423.6
VOC emissions (lb/event)	331.8	316	141.2
Peak hourly NOx (lb/hr)	600	526	438
Peak Hourly CO (lb/hr)	1600	2650	1400
Peak Hourly VOC (lb/hr)	128	180	140

Total Facility Annual Startup Emissions (includes both generating sets)

	Cold Start	Warm Start	Hot Start	**Total**
Annual NOx (lb/year)	19,944.00	5,419.20	12,549.60	**37,912.80**
Annual CO (lb/year)	43,269.60	28,326.00	38,437.20	**110,032.80**
Annual VOC (lb/year)	3,981.60	1,896.00	3,812.40	**9,690.00**

Startup Emissions per Gas Turbine

	Cold Start	Warm Start	Hot Start
Duration (min.)	300	180	90
NOx emissions (lb/event)	415.5	225.8	116.2
CO emissions (lb/event)	901.45	1180.25	355.9
VOC emissions (lb/event)	82.95	79	35.3
Peak hourly NOx (lb/hr)	150	131.5	109.5
Peak Hourly CO (lb/hr)	400	662.5	350
Peak Hourly VOC (lb/hr)	32	45	35

Turbine Annual Emissions

Events Durations per Gas Turbine (hrs)

		Total
Startups	Hot	40.5
	Warm	18
	Cold	60
Operation	Duct Burners off	2,800
	Duct Burners on	5,260
Total Hours		8,179

TOTAL EMISSIONS FOR ALL TURBINE UNITS

	Duct Burner Off (lbs)	Duct Burner On (lbs)	Startup (lbs)	Total Emissions lb/yr	ton/yr
NOx	143,461	309,133	37,913	490,507	245.25
CO	262,036	564,640	110,033	936,709	468.35
VOC	23,421	84,695	9,690	117,806	58.90
PM10	109,643	264,731	4,640	379,015	189.51
SO2	18,410	39,739	779	58,928	29.46

Turbine Short Term Emissions

1-Hour Emissions (lb/hr)				
	CT #1	CT #2	CT #3	CT #4
NOx	150	150	150	150
CO	663	663	663	663
VOC	45	45	45	45
PM10	12.7	12.7	12.7	12.7
SO2	2.0	2.0	2.0	2.0

24-Hour Emissions (lb/day)				
	CT #1	CT #2	CT #3	CT #4
NOx	713.3	713.3	713.3	713.3
CO	1781.4	1781.4	1781.4	1781.4
VOC	168.4	168.4	168.4	168.4
PM10	305.9	305.9	305.9	305.9
SO2	48.2	48.2	48.2	48.2

3-Hour Emissions (lb/hr)				
	CT #1	CT #2	CT #3	CT #4
SO2	2.0	2.0	2.0	2.0

8-Hour Emissions (lb/hr)				
	CT #1	CT #2	CT #3	CT #4
CO	165.4	165.4	165.4	165.4

1-Hour Emissions (g/s)				
	CT #1	CT #2	CT #3	CT #4
NOx	18.9	18.9	18.9	18.9
CO	83.5	83.5	83.5	83.5
VOC	5.7	5.7	5.7	5.7
PM10	1.6	1.6	1.6	1.6
SO2	0.25	0.25	0.25	0.25

24-Hour Emissions (g/s)				
	CT #1	CT #2	CT #3	CT #4
NOx	3.7	3.7	3.7	3.7
CO	9.4	9.4	9.4	9.4
VOC	0.9	0.9	0.9	0.9
PM10	1.6	1.6	1.6	1.6
SO2	0.25	0.25	0.25	0.25

3-Hour Emissions (g/s)				
	CT #1	CT #2	CT #3	CT #4
SO2	0.25	0.25	0.25	0.25

8-Hour Emissions (g/s)				
	CT #1	CT #2	CT #3	CT #4
CO	20.8	20.8	20.8	20.8

Emergency IC Engine Criteria Pollutant Emissions

	Fire Water Pump Engine	Emergency Generator Engine
Estimated Hrs/yr	50	50
Estimated BHP	368	985
Estimated kW	274	735
NOx (grams/hr)	3360	5835
CO (grams/hr)	795	1115
HC (grams/hr)	81	62
PM (grams/hr)	59	394
SOx (grams/hr)	342	362
NOx (lb/hr)	7.41	12.86
CO (lb/hr)	1.75	2.46
HC (lb/hr)	0.18	0.14
PM (lb/hr)	0.13	0.87
SOx (lb/hr)	0.75	0.80
NOx (tpy)	0.1852	0.3216
CO (tpy)	0.0438	0.0615
HC (tpy)	0.0045	0.0034
PM (tpy)	0.0033	0.0217
SOx (tpy)	0.0189	0.0199
NOx (grams/bhp)	9.130	5.924
CO (grams/bhp)	2.160	1.132
HC (grams/bhp)	0.220	0.063
PM (grams/bhp)	0.160	0.400
SOx (grams/bhp)	0.929	0.367

PM10		
Hourly g/s	8.19E-03	5.47E-02
Annual g/s	9.35E-05	6.25E-04

Table K-4-7: Cooling Tower PM10 Emissions

Cooling Tower PM10 Emissions

Emissions from Cooling Tower		
Water Rate	296,220 gpm	
Drift Rate	0.0005 %	
Number of Cells	22	
Maximum TDS	6000 lb/MMlbs (ppmw)	
PM10 Mass Fraction	0.31	
	lb/hr/cell	g/s/cell
PM_{10}	0.0633	7.98E-03

K-5: AQMD Permit Application Forms

Completed AQMD Permit Application Forms
will be submitted to the Bay Area AQMD

K-6: Input and Output Files for the BPIP Analysis

(Supplied in electronic format on the Air Modeling CD)

K-7: Construction Impacts Modeling Files

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*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 09/19/01 at 18:49:03 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - C:\Vicki\work\Tesla\TCArea_99_PM24.DTA
Output File - C:\Vicki\work\Tesla\TCArea_99_PM24.LST
   Met File - C:\Vicki\work\Tesla\442_99.ASC

      Number of sources -          4
Number of source groups -          1
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.31500E-01	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.31500E-01	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.31500E-01	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
DUST	0	0.19917E-05	625825.0	4175820.0	118.9	1.50	8	0.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	DUST , EQ1 , EQ2 , EQ3 ,

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM24 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	42.45504c	ON 99121624:	AT (626214.13, 4176162.25, 119.20, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 09/19/01 at 19:03:40 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - C:\Vicki\work\Tesla\TCArea_99_PMAnn.DTA
Output File - C:\Vicki\work\Tesla\TCArea_99_PMAnn.LST
   Met File - C:\Vicki\work\Tesla\442_99.ASC

     Number of sources -          4
Number of source groups -          1
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.17174E-01	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.17174E-01	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.17174E-01	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
DUST	0	0.14143E-05	625825.0	4175820.0	118.9	1.50	8	0.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	DUST , EQ1 , EQ2 , EQ3 ,

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	8.55718	AT (626269.00, 4176121.50, 116.90, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	8.09084	AT (626275.00, 4176125.00, 117.40, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	8.04433	AT (626280.69, 4176107.50, 116.90, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	8.03033	AT (626263.81, 4176133.00, 117.50, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	7.36077	AT (626292.38, 4176093.75, 116.80, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	7.25074	AT (626258.63, 4176145.00, 118.10, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	6.98993	AT (626250.00, 4176150.00, 118.30, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	6.92146	AT (626300.00, 4176100.00, 117.30, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	6.78051	AT (626236.38, 4176153.50, 118.50, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	6.77763	AT (626300.00, 4176125.00, 118.40, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                          ***
*** Model Executed on 09/06/01 at 15:30:44 ***


 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Construction\Construction_97_CO.DTA
Output File - D:\Brent\Tesla\Construction\Construction_97_CO.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          3
Number of source groups -          1
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.93618E+00	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.93618E+00	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.93618E+00	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	EQ1 , EQ2 , EQ3 ,

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

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

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	571.39429	ON 97030105:	AT (626675.00, 4176050.00, 144.60, 0.00)	DC	NA

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

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

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	292.76318	ON 97011808:	AT (625725.19, 4175900.50, 125.60, 0.00)	DC	NA

```
**BEE-Line Software: BEEST for Windows data input file
**                   Date: 8/15/01  Time: 11:35:03 AM
NO ECHO


 *** Message Summary For ISC3 Model Setup ***

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

A Total of            0 Fatal Error Message(s)
A Total of            3 Warning Message(s)
A Total of            0 Informational Message(s)


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


   ********   WARNING MESSAGES   ********
SO W320    19 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS
SO W320    21 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS
SO W320    23 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS

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

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.20160E+01	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.20160E+01	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.20160E+01	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

**MODELOPTs: CONC RURAL ELEV GRDRIS

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

** CONC OF NO2-OLM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	292.53336	ON 99071217: AT (	626490.13,	4175918.50,	120.40,	0.00)	DC	NA

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

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 09/06/01 at 15:33:56 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Construction\Construction_99_NOANN.DTA
Output File - D:\Brent\Tesla\Construction\Construction_99_NOANN.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          3
Number of source groups -          1
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.51156E+00	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.51156E+00	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.51156E+00	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	EQ1 , EQ2 , EQ3 ,

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	31.15119 AT	(626250.00, 4176150.00, 118.30, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	31.01600 AT	(626275.00, 4176175.00, 121.10, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	30.74394 AT	(626258.63, 4176145.00, 118.10, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	30.37669 AT	(626275.00, 4176150.00, 119.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	29.92648 AT	(626300.00, 4176175.00, 121.60, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	29.50186 AT	(626300.00, 4176200.00, 123.40, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	28.63954 AT	(626325.00, 4176200.00, 124.20, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	28.61832 AT	(626236.38, 4176153.50, 118.50, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	27.76875 AT	(626263.81, 4176133.00, 117.50, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	26.68729 AT	(626300.00, 4176150.00, 119.80, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                          ***
*** Model Executed on 09/06/01 at 15:36:55 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Construction\Construction_97_SO2.DTA
Output File - D:\Brent\Tesla\Construction\Construction_97_SO2.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          3
Number of source groups -          1
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.19316E+00	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.19316E+00	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.19316E+00	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	EQ1 , EQ2 , EQ3 ,

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

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	117.89456	ON 97030105:	AT (626675.00, 4176050.00, 144.60, 0.00)	DC	NA

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	73.87059	ON 97011006:	AT (626675.00, 4176025.00, 142.80, 0.00)	DC	NA

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	47.22530c	ON 97011824:	AT (625725.19, 4175900.50, 125.60, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 09/06/01 at 15:35:55 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Construction\Construction_99_SO2ANN.DTA
Output File - D:\Brent\Tesla\Construction\Construction_99_SO2ANN.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          3
Number of source groups -          1
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
EQ1	0	0.50400E-01	626093.3	4176026.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ2	0	0.50400E-01	625900.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	
EQ3	0	0.50400E-01	626275.0	4175870.0	118.9	3.00	622.00	70.00	0.15	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	EQ1 , EQ2 , EQ3 ,

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF SO2ANN IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	3.06908 AT	(626250.00, 4176150.00, 118.30, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	3.05575 AT	(626275.00, 4176175.00, 121.10, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	3.02896 AT	(626258.63, 4176145.00, 118.10, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	2.99278 AT	(626275.00, 4176150.00, 119.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	2.94843 AT	(626300.00, 4176175.00, 121.60, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	2.90659 AT	(626300.00, 4176200.00, 123.40, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	2.82163 AT	(626325.00, 4176200.00, 124.20, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	2.81953 AT	(626236.38, 4176153.50, 118.50, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	2.73584 AT	(626263.81, 4176133.00, 117.50, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	2.62928 AT	(626300.00, 4176150.00, 119.80, 0.00)	DC	NA

K-8: Project Operation Modeling Input Files

Receptor Locations and Elevations
Turbine Screening ISCST3 Output
CO: 1-hour and 8-hour ISCST3 Output
NO_2: 1-hour and Annual ISCST3 Output
PM_{10}: 24-hour and Annual ISCST3 Output
SO_2: 1-, 3-, 24-hour and Annual ISCST3 Output
Fumigation Results: SCREEN3 Output

Receptor Locations and Elevations

Turbine Operating Mode Screening - Stack Height 200' 1999 Station 442 Met Data

Emissions Calculation Basis		Winter Minimum - 17 °F				Yearly Average - 62 °F				Summer Maximum - 112 °F			
CTG Load		100%	100%	75%	50%	100%	100%	75%	50%	100%	100%	75%	50%
Fogger Status		Off	Off	Off	Off	On	On	Off	Off	On	On	Off	Off
Duct Burner Status		On	Off	Off	Off	On	Off	Off	Off	On	Off	Off	Off
Aqueous NH_3 - Plant Usage (6)	lb/hr	859.9	659.9	529.7	415.8	808.8	616.4	491.6	389.6	776.9	578.3	430.2	340.0
CTG Heat Consumption [LHV]	mmBtu/hr	1,688	1,688	1,369	1,086	1,581	1,581	1,270	1,016	1,515	1,515	1,110	887
Duct Burner Duty [LHV]	mmBtu/hr	245	0	0	0	236	0	0	0	243	0	0	0
Exhaust Flow	lb/hr	3,859,096	3,847,000	3,008,000	2,440,000	3,580,636	3,569,000	2,832,000	2,356,000	3,425,012	3,413,000	2,601,000	2,212,000
Exhaust Flow	cfm	1,066,567	1,078,953	822,111	654,102	993,687	1,001,991	775,679	634,743	950,624	961,075	710,914	597,403
Exhaust Gas Molecular Weight	lb/lb-mol	28.4	28.5	28.5	28.5	28.3	28.4	28.4	28.4	28.3	28.4	28.4	28.4
Stack Diameter / Height	feet	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150	19 / 150
Stack Velocity	ft/sec	61.9	62.6	47.7	37.9	57.6	58.1	45.0	36.8	55.1	55.8	41.2	34.7
Stack Temperature	°F	186	197	180	168	186	195	179	169	186	197	178	171
Stack Emissions (Each)													
NO_x as NO_2	lb/hr	15.67	13.71	11.01	8.64	14.69	12.81	10.22	8.10	13.96	12.02	8.94	7.07
CO	lb/hr	28.62	25.05	20.10	15.78	26.84	23.40	18.66	14.79	25.50	21.95	16.33	12.90
SO_2 (4)	lb/hr	2.01	1.76	1.42	1.13	1.89	1.64	1.32	1.06	1.83	1.58	1.15	0.92
VOC (7)	lb/hr	4.26	2.24	1.76	1.42	4.03	2.09	1.66	1.38	4.00	2.00	1.52	1.29
Total PM_{10}	lb/hr	12.75	9.84	9.68	9.54	12.58	9.79	9.63	9.51	12.64	9.76	9.55	9.44
Ammonia Slip	lb/hr	14.50	12.69	10.19	8.00	13.60	11.85	9.45	7.49	12.92	11.12	8.27	6.54

Screening Impacts [μg/m³]/[g/s] per Turbine													
	1hr	5.80338	5.74729	6.04164	6.64719	5.83619	5.81107	6.11154	6.71989	5.85643	5.82589	6.25733	6.92778
	3hr	3.29652	3.12645	3.83650	4.12579	3.43147	3.29761	3.91219	4.14185	3.51346	3.35280	3.99311	4.17062
	8hr	1.74824	1.64644	2.18123	2.61628	1.84999	1.76600	2.27610	2.64608	1.91448	1.81068	2.41303	2.70600
	24hr	0.63618	0.61599	0.79317	0.95137	0.67272	0.64218	0.82767	0.96221	0.69617	0.65843	0.87746	0.984
	Annual	0.03150	0.03058	0.03569	0.04067	0.03231	0.03159	0.03681	0.04099	0.03279	0.03195	0.03844	0.04161
	Scenario	1	2	3	4	5	6	7	8	9	10	11	12

Ambient Concentrations [μg/m³]													
Pollutant	Avg Time												
CO	1hr	20.9301	18.1380	15.3028	13.2186	19.7341	17.1301	14.3674	12.5215	18.8171	16.1118	12.8722	11.2643
CO	8hr	6.3051	5.1960	5.5248	5.2028	6.2554	5.2059	5.3508	4.9306	6.1513	5.0075	4.9639	4.3999
NO2	1hr	11.4590	9.9303	8.3781	7.2370	10.8041	9.3785	7.8660	6.8554	10.3021	8.8210	7.0474	6.1671
NO2	Annual	0.0622	0.0528	0.0495	0.0443	0.0598	0.0510	0.0474	0.0418	0.0577	0.0484	0.0433	0.0370
PM10	24hr	1.0217	0.7640	0.9678	1.1439	1.0665	0.7921	1.0047	1.1526	1.1087	0.8094	1.0563	1.1708
PM10	Annual	0.0506	0.0379	0.0435	0.0489	0.0512	0.0390	0.0447	0.0491	0.0522	0.0393	0.0463	0.0495
SO2	1hr	1.4700	1.2713	1.0835	0.9459	1.3889	1.2035	1.0169	0.8945	1.3490	1.1563	0.9103	0.8053
SO2	3hr	0.8350	0.6916	0.6880	0.5871	0.8166	0.6830	0.6510	0.5513	0.8093	0.6655	0.5809	0.4848
SO2	24hr	0.1611	0.1363	0.1422	0.1354	0.1601	0.1330	0.1377	0.1281	0.1604	0.1307	0.1277	0.1144
SO2	Annual	0.0080	0.0068	0.0064	0.0058	0.0077	0.0065	0.0061	0.0055	0.0076	0.0063	0.0056	0.0048
	Scenario	1	2	3	4	5	6	7	8	9	10	11	12

1999 MET DATA 200' STACKS

Maximum Impacts per Turbine

Pollutant	Avg Time	Impact	Scenario
CO	1hr	20.9301	1
CO	8hr	6.3051	1
NO2	1hr	11.4590	1
NO2	Annual	0.0622	1
PM10	24hr	1.1708	12
PM10	Annual	0.0522	9
SO2	1hr	1.4700	1
SO2	3hr	0.8350	1
SO2	24hr	0.1611	1
SO2	Annual	0.0080	1

Worst Case X/Q

Avg Time	X/Q	Scenario
1hr	6.92778	12
3hr	4.17062	12
8hr	2.70600	12
24hr	0.98400	12
Annual	0.04161	12

Turbine Screening ISCST3 Output

```
**BEE-Line Software: BEEST for Windows data input file
**                   Date: 8/15/01  Time: 11:35:03 AM
NO ECHO


 *** Message Summary For ISC3 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   ********
SO W320     75 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS
SO W320     89 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS

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

**MODELOPTs: CONC   RURAL ELEV   GRDRIS

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

-- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses RURAL Dispersion.

**Model Uses User-Specified Options:
1. Gradual Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.

**Model Accepts Receptors on ELEV Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.
**Model applies the Ozone Limiting Method by source group.
**Input ozone concentration file is in units of PPB.

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

**This Run Includes: 6 Source(s); 4 Source Group(s); and 1200 Receptor(s)

**The Model Assumes A Pollutant Type of: NO2-OLM

**Model Set To Continue RUNning After the Setup Testing.

**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 Tables of Overall Maximum Short Term Values (MAXTABLE 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: Anem. Hgt. (m) = 30.50 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Input Runstream File: 1h99NOa.dta ; **Output Print File: 1h99NOa.io3

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.18900E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.18900E+02	626011.4	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.19744E+01	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.19744E+01	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.46683E+00	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.81018E+00	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
GT	GT1 , GT2 , GT3 , GT4 ,
FW	FWPUMP ,
EMGEN	EMGEN ,

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: GT1

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT2

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT4

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: FWPUMP

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	0.0,	0.0,	0	2	14.6,	56.3,	0	3	14.6,	56.3,	0	4	14.6,	56.2,	0	5	14.6,	56.2,	0	6	14.6,	56.3,	0
7	14.6,	56.3,	0	8	14.6,	56.4,	0	9	14.6,	56.4,	0	10	14.6,	56.4,	0	11	14.6,	56.3,	0	12	0.0,	0.0,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	0.0,	0.0,	0	17	0.0,	0.0,	0	18	0.0,	0.0,	0
19	0.0,	0.0,	0	20	14.6,	56.3,	0	21	14.6,	56.3,	0	22	14.6,	56.2,	0	23	14.6,	56.2,	0	24	14.6,	56.3,	0
25	14.6,	56.3,	0	26	14.6,	56.4,	0	27	14.6,	56.4,	0	28	14.6,	56.4,	0	29	14.6,	56.3,	0	30	0.0,	0.0,	0
31	0.0,	0.0,	0	32	0.0,	0.0,	0	33	0.0,	0.0,	0	34	0.0,	0.0,	0	35	0.0,	0.0,	0	36	0.0,	0.0,	0

SOURCE ID: EMGEN

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	0.0,	0.0,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	15.2,	24.6,	0	16	0.0,	0.0,	0	17	0.0,	0.0,	0	18	0.0,	0.0,	0
19	0.0,	0.0,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	15.2,	38.6,	0	30	15.2,	36.7,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	15.2,	24.6,	0	34	0.0,	0.0,	0	35	0.0,	0.0,	0	36	0.0,	0.0,	0

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** Message Summary : ISC3_OLM Model Execution ***

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 270 Informational Message(s)

A Total of 270 Calm Hours Identified

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

******** WARNING MESSAGES ********
SO W320 75 PPARM :Source Parameter May Be Out-of-Range for Parameter VS
SO W320 89 PPARM :Source Parameter May Be Out-of-Range for Parameter VS

****
*** ISC3_OLM Finishes Successfully ***
****

**MODELOPTs: CONC RURAL ELEV GRDRIS

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

** CONC OF NO2-OLM IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	230.53406	ON 99092212: AT (	625946.63,	4176128.75,	120.90,	0.00)	DC	NA
GT	HIGH	1ST HIGH VALUE IS	64.60271	ON 99100818: AT (	625400.00,	4175850.00,	142.40,	0.00)	DC	NA
FW	HIGH	1ST HIGH VALUE IS	165.99518	ON 99102011: AT (	625564.00,	4175791.75,	121.30,	0.00)	DC	NA
EMGEN	HIGH	1ST HIGH VALUE IS	230.53401	ON 99092212: AT (	625946.63,	4176128.75,	120.90,	0.00)	DC	NA

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

CO: 1-hour and 8-hour ISCST3 Output

*** ISCST3 - VERSION 00101 *** *** FPL Tesla ***

BEE-Line ISCST3 "BEEST" Version 7.10

Input File - E:\FPLEnergy\TESLA\FineGrids\1HFN97CO.DTA
Output File - E:\FPLEnergy\TESLA\FineGrids\1HFN97CO.LST
Met File - E:\FPLEnergy\TESLA\MetData\442_97.ASC

Number of sources - 6
Number of source groups - 4
Number of receptors - 3362

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.83540E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.83540E+02	626011.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.36060E+01	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.36060E+01	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.11040E+00	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.15500E+00	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
TURB	GT1 , GT2 , GT3 , GT4 ,
FWPUMP	FWPUMP ,
EMGEN	EMGEN ,

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

** CONC OF CO1 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1717.07898	ON 97101809: AT (	624300.00, 4173800.00, 277.20, 0.00)	DC	NA
TURB	HIGH 1ST HIGH VALUE IS	1714.44482	ON 97101809: AT (	624300.00, 4173800.00, 277.20, 0.00)	DC	NA
FWPUMP	HIGH 1ST HIGH VALUE IS	3.51765	ON 97121213: AT (	625000.00, 4174000.00, 170.10, 0.00)	DC	NA
EMGEN	HIGH 1ST HIGH VALUE IS	18.18507	ON 97112904: AT (	624875.00, 4174000.00, 164.50, 0.00)	DC	NA

*** ISCST3 - VERSION 00101 *** *** FPL Tesla ***

BEE-Line ISCST3 "BEEST" Version 7.10

Input File - E:\FPLEnergy\TESLA\FineGrids\8HFN99CO.DTA
Output File - E:\FPLEnergy\TESLA\FineGrids\8HFN99CO.LST
Met File - E:\FPLEnergy\TESLA\MetData\442_99.ASC

Number of sources - 6
Number of source groups - 4
Number of receptors - 5402

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.20840E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.20840E+02	626011.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.20840E+02	626095.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT4	0	0.20840E+02	626138.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
FWPUMP	0	0.13860E-01	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.19400E-01	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
TURB	GT1 , GT2 , GT3 , GT4 ,
FWPUMP	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO8 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	274.25854	ON 99121516:	AT (624300.00, 4173775.00, 282.30, 0.00)	DC	NA
TURB	HIGH	1ST HIGH VALUE IS	274.06927	ON 99121516:	AT (624300.00, 4173775.00, 282.30, 0.00)	DC	NA
FWPUMP	HIGH	1ST HIGH VALUE IS	0.16066	ON 99121516:	AT (625000.00, 4174000.00, 170.10, 0.00)	DC	NA
EMGEN	HIGH	1ST HIGH VALUE IS	0.32359	ON 99112816:	AT (624850.00, 4174000.00, 165.10, 0.00)	DC	NA

NO_2: 1-hour and Annual ISCST3 Output

*** ISCST3 - VERSION 00101 *** *** FPL Tesla ***

BEE-Line ISCST3 "BEEST" Version 7.10

Input File - E:\FPLEnergy\TESLA\FineGrids\ANNF99NO.DTA
Output File - E:\FPLEnergy\TESLA\FineGrids\ANNF99NO.LST
Met File - E:\FPLEnergy\TESLA\MetData\442_99.ASC

Number of sources - 6
Number of source groups - 4
Number of receptors - 4941

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.17640E+01	625968.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT2	0	0.17640E+01	626011.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT3	0	0.17640E+01	626095.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT4	0	0.17640E+01	626138.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
FWPUMP	0	0.53301E-02	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.92484E-02	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
TURB	GT1 , GT2 , GT3 , GT4 ,
FWPUMP	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.25322 AT	(621400.00, 4175500.00, 295.50, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.25310 AT	(621375.00, 4175500.00, 299.60, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.25185 AT	(621375.00, 4175475.00, 305.30, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.25174 AT	(621400.00, 4175475.00, 299.50, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.25118 AT	(621425.00, 4175500.00, 291.40, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.25103 AT	(621350.00, 4175475.00, 306.50, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.25060 AT	(621350.00, 4175500.00, 298.10, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.25056 AT	(621425.00, 4175475.00, 294.00, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.25047 AT	(621425.00, 4175425.00, 298.60, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.25047 AT	(621450.00, 4175375.00, 300.10, 0.00)	DC	NA
TURB	1ST HIGHEST VALUE IS	0.25197 AT	(621400.00, 4175500.00, 295.50, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.25187 AT	(621375.00, 4175500.00, 299.60, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.25064 AT	(621375.00, 4175475.00, 305.30, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.25051 AT	(621400.00, 4175475.00, 299.50, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.24992 AT	(621425.00, 4175500.00, 291.40, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.24984 AT	(621350.00, 4175475.00, 306.50, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.24938 AT	(621350.00, 4175500.00, 298.10, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.24930 AT	(621425.00, 4175475.00, 294.00, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.24922 AT	(621425.00, 4175425.00, 298.60, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.24921 AT	(621450.00, 4175375.00, 300.10, 0.00)	DC	NA
FWPUMP	1ST HIGHEST VALUE IS	0.00066 AT	(621975.00, 4175300.00, 192.90, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.00065 AT	(621925.00, 4175350.00, 192.50, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.00065 AT	(622000.00, 4175850.00, 208.10, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.00065 AT	(621950.00, 4175350.00, 191.90, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.00065 AT	(622000.00, 4175300.00, 201.70, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.00065 AT	(621975.00, 4175375.00, 203.40, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.00065 AT	(622000.00, 4175375.00, 207.80, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.00065 AT	(621975.00, 4175350.00, 197.10, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.00065 AT	(621950.00, 4175300.00, 191.00, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.00065 AT	(621950.00, 4175325.00, 189.50, 0.00)	DC	NA

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
EMGEN	1ST HIGHEST VALUE IS	0.00118 AT	(622000.00, 4175850.00, 208.10, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.00118 AT	(622000.00, 4175875.00, 211.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.00118 AT	(621950.00, 4175375.00, 200.40, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.00117 AT	(622000.00, 4175900.00, 216.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.00117 AT	(622000.00, 4175375.00, 207.80, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.00117 AT	(621975.00, 4175375.00, 203.40, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.00117 AT	(621925.00, 4175375.00, 199.70, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.00116 AT	(621975.00, 4175850.00, 210.30, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.00116 AT	(621975.00, 4175875.00, 212.50, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.00116 AT	(621975.00, 4175900.00, 216.60, 0.00)	DC	NA

PM_{10}: 24-hour and Annual ISCST3 Output

*** ISCST3 - VERSION 00101 *** *** FPL Tesla ***

BEE-Line ISCST3 "BEEST" Version 7.10

Input File - E:\FPLEnergy\TESLA\FineGrids\Tesla_99_PM24Fn.DTA
Output File - E:\FPLEnergy\TESLA\FineGrids\Tesla_99_PM24Fn.LST
Met File - E:\FPLEnergy\TESLA\MetData\442_99.ASC

Number of sources - 28
Number of source groups - 5
Number of receptors - 3362

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.15930E+01	625968.8	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT2	0	0.15930E+01	626011.3	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT3	0	0.15930E+01	626095.8	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT4	0	0.15930E+01	626138.3	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
CT1	0	0.79810E-02	625945.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT2	0	0.79810E-02	625959.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT3	0	0.79810E-02	625973.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT4	0	0.79810E-02	625987.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT5	0	0.79810E-02	626001.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT6	0	0.79810E-02	626015.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT7	0	0.79810E-02	626029.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT8	0	0.79810E-02	626043.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT9	0	0.79810E-02	626057.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT10	0	0.79810E-02	626071.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT11	0	0.79810E-02	626085.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT12	0	0.79810E-02	626103.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT13	0	0.79810E-02	626117.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT14	0	0.79810E-02	626131.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT15	0	0.79810E-02	626145.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT16	0	0.79810E-02	626159.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT17	0	0.79810E-02	626173.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT18	0	0.79810E-02	626187.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT19	0	0.79810E-02	626201.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT20	0	0.79810E-02	626215.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT21	0	0.79810E-02	626229.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT22	0	0.79810E-02	626243.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
FWPUMP	0	0.34120E-03	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.22840E-02	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 , FWPUMP , EMGEN ,
TURB	GT1 , GT2 , GT3 , GT4 ,
CT	CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 ,
FWPUMP	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM24 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	4.85909c	ON 99102124:	AT (622700.00, 4174050.00, 288.00, 0.00)	DC	NA
TURB	HIGH 1ST HIGH VALUE IS	4.65307c	ON 99121524:	AT (623675.00, 4172900.00, 304.80, 0.00)	DC	NA
CT	HIGH 1ST HIGH VALUE IS	0.32827c	ON 99102124:	AT (622875.00, 4174175.00, 224.10, 0.00)	DC	NA
FWPUMP	HIGH 1ST HIGH VALUE IS	0.00095c	ON 99112824:	AT (623950.00, 4173500.00, 228.60, 0.00)	DC	NA
EMGEN	HIGH 1ST HIGH VALUE IS	0.00623c	ON 99112824:	AT (623825.00, 4173500.00, 223.20, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 09/06/01 at 14:37:17 ***


 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Tesla_99_PMANN.DTA
Output File - D:\Brent\Tesla\Tesla_99_PMANN.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -         28
Number of source groups -          5
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.13633E+01	625968.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT2	0	0.13633E+01	626011.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT3	0	0.13633E+01	626095.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT4	0	0.13633E+01	626138.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
CT1	0	0.79810E-02	625945.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT2	0	0.79810E-02	625959.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT3	0	0.79810E-02	625973.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT4	0	0.79810E-02	625987.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT5	0	0.79810E-02	626001.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT6	0	0.79810E-02	626015.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT7	0	0.79810E-02	626029.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT8	0	0.79810E-02	626043.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT9	0	0.79810E-02	626057.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT10	0	0.79810E-02	626071.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT11	0	0.79810E-02	626085.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT12	0	0.79810E-02	626103.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT13	0	0.79810E-02	626117.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT14	0	0.79810E-02	626131.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT15	0	0.79810E-02	626145.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT16	0	0.79810E-02	626159.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT17	0	0.79810E-02	626173.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT18	0	0.79810E-02	626187.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT19	0	0.79810E-02	626201.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT20	0	0.79810E-02	626215.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT21	0	0.79810E-02	626229.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT22	0	0.79810E-02	626243.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
FWPUMP	0	0.93492E-04	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.62622E-03	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 , FWPUMP , EMGEN ,
GT	GT1 , GT2 , GT3 , GT4 ,
CT	CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 ,
FW	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.84719 AT	(626375.00, 4176225.00, 129.20, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.80254 AT	(626350.00, 4176225.00, 127.50, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.79036 AT	(626300.00, 4176300.00, 140.30, 0.00)	DC	NA

	4TH HIGHEST VALUE IS	0.78138	AT (	626350.00,	4176200.00,	126.10,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.77360	AT (	626375.00,	4176200.00,	128.40,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.74952	AT (	626300.00,	4176275.00,	133.50,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.74896	AT (	626325.00,	4176225.00,	126.20,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.73318	AT (	626325.00,	4176200.00,	124.20,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.72444	AT (	626375.00,	4176250.00,	128.30,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.71897	AT (	626300.00,	4176250.00,	128.70,	0.00)	DC	NA
GT	1ST HIGHEST VALUE IS	0.17649	AT (	621500.00,	4175500.00,	273.60,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.17427	AT (	621500.00,	4175000.00,	289.60,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.17124	AT (	621000.00,	4175500.00,	337.10,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.17053	AT (	621000.00,	4176000.00,	312.40,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.15233	AT (	621500.00,	4174500.00,	294.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.14606	AT (	621000.00,	4175000.00,	373.00,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.14459	AT (	620500.00,	4175000.00,	314.90,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.14242	AT (	623500.00,	4173000.00,	291.90,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.14100	AT (	622500.00,	4174000.00,	287.10,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.13868	AT (	624500.00,	4173500.00,	261.00,	0.00)	DC	NA
CT	1ST HIGHEST VALUE IS	0.83264	AT (	626375.00,	4176225.00,	129.20,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.78958	AT (	626350.00,	4176225.00,	127.50,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.77222	AT (	626300.00,	4176300.00,	140.30,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.76760	AT (	626350.00,	4176200.00,	126.10,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.75910	AT (	626375.00,	4176200.00,	128.40,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.73975	AT (	626300.00,	4176275.00,	133.50,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.73745	AT (	626325.00,	4176225.00,	126.20,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.72039	AT (	626325.00,	4176200.00,	124.20,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.71098	AT (	626375.00,	4176250.00,	128.30,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.71014	AT (	626300.00,	4176250.00,	128.70,	0.00)	DC	NA

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC		RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
FW	1ST HIGHEST VALUE IS	0.00306	AT (	626375.00,	4176025.00,	114.80,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.00305	AT (	626362.88,	4176034.50,	114.80,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.00299	AT (	626380.50,	4176019.50,	115.10,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.00265	AT (	626375.00,	4176050.00,	114.60,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.00254	AT (	626400.00,	4176050.00,	114.20,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.00249	AT (	626400.00,	4176025.00,	113.10,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.00241	AT (	626475.00,	4176100.00,	122.70,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.00239	AT (	626398.13,	4176004.75,	114.80,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.00239	AT (	626350.00,	4176050.00,	115.20,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.00234	AT (	626345.31,	4176049.25,	115.40,	0.00)	DC	NA
EMGEN	1ST HIGHEST VALUE IS	0.01301	AT (	626269.00,	4176121.50,	116.90,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.01277	AT (	626263.81,	4176133.00,	117.50,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.01266	AT (	626275.00,	4176125.00,	117.40,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.01246	AT (	626325.00,	4176175.00,	121.50,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.01227	AT (	626300.00,	4176175.00,	121.60,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.01195	AT (	626350.00,	4176175.00,	122.40,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.01189	AT (	626280.69,	4176107.50,	116.90,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.01142	AT (	626275.00,	4176150.00,	119.00,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.01132	AT (	626375.00,	4176175.00,	124.90,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.01130	AT (	626258.63,	4176145.00,	118.10,	0.00)	DC	NA

SO_2: 1-, 3-, 24-hour and Annual ISCST3 Output

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*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                          ***
*** Model Executed on 08/28/01 at 15:06:05 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Tesla_97_SO1.DTA
Output File - D:\Brent\Tesla\Tesla_97_SO1.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          6
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25326E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25326E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25326E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25326E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.47250E-01	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.50400E-01	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
GT	GT1 , GT2 , GT3 , GT4 ,
FW	FWPUMP ,
EMGEN	EMGEN ,

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

** CONC OF SO1 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	79.69665	ON 97010415:	AT (625841.50, 4176030.25, 124.30, 0.00)	DC	NA
GT	HIGH	1ST HIGH VALUE IS	5.68400	ON 97092309:	AT (622500.00, 4173000.00, 317.60, 0.00)	DC	NA
FW	HIGH	1ST HIGH VALUE IS	68.41311	ON 97021507:	AT (626300.00, 4176175.00, 121.60, 0.00)	DC	NA
EMGEN	HIGH	1ST HIGH VALUE IS	67.41152	ON 97111306:	AT (625927.19, 4176119.50, 120.90, 0.00)	DC	NA

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*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/28/01 at 15:12:17 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Tesla_97_SO3.DTA
Output File - D:\Brent\Tesla\Tesla_97_SO3.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          6
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25326E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25326E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25326E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25326E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.15750E-01	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.16796E-01	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
GT	GT1 , GT2 , GT3 , GT4 ,
FW	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO3 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	11.44572c	ON 97011406: AT	(626525.00, 4176075.00, 132.20, 0.00)	DC	NA
GT	HIGH	1ST HIGH VALUE IS	2.47957	ON 97112209: AT	(621000.00, 4175500.00, 337.10, 0.00)	DC	NA
FW	HIGH	1ST HIGH VALUE IS	11.44572c	ON 97011406: AT	(626525.00, 4176075.00, 132.20, 0.00)	DC	NA
EMGEN	HIGH	1ST HIGH VALUE IS	9.79170c	ON 97011406: AT	(626292.38, 4176093.75, 116.80, 0.00)	DC	NA

*** ISCST3 - VERSION 00101 *** *** FPL Tesla ***

BEE-Line ISCST3 "BEEST" Version 7.10

Input File - E:\FPLEnergy\TESLA\FineGrids\24FN99SO.DTA
Output File - E:\FPLEnergy\TESLA\FineGrids\24FN99SO.LST
Met File - E:\FPLEnergy\TESLA\MetData\442_99.ASC

Number of sources - 6
Number of source groups - 4
Number of receptors - 1681

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25330E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25330E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25330E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25330E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.19660E-02	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.21000E-02	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
TURB	GT1 , GT2 , GT3 , GT4 ,
FWPUMP	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO24 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	0.72483c	ON 99121524:	AT (623675.00, 4172900.00, 304.80, 0.00)	DC	NA
TURB	HIGH 1ST HIGH VALUE IS	0.71948c	ON 99121524:	AT (623675.00, 4172900.00, 304.80, 0.00)	DC	NA
FWPUMP	HIGH 1ST HIGH VALUE IS	0.00548c	ON 99112824:	AT (623950.00, 4173500.00, 228.60, 0.00)	DC	NA
EMGEN	HIGH 1ST HIGH VALUE IS	0.00573c	ON 99112824:	AT (623825.00, 4173500.00, 223.20, 0.00)	DC	NA

*** ISCST3 - VERSION 00101 *** *** FPL Tesla ***

BEE-Line ISCST3 "BEEST" Version 7.10

Input File - E:\FPLEnergy\TESLA\FineGrids\ANNF99SO.DTA
Output File - E:\FPLEnergy\TESLA\FineGrids\ANNF99SO.LST
Met File - E:\FPLEnergy\TESLA\MetData\442_99.ASC

Number of sources - 6
Number of source groups - 4
Number of receptors - 1681

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25330E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25330E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25330E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25330E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.54180E-03	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.57330E-03	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
TURB	GT1 , GT2 , GT3 , GT4 ,
FWPUMP	FWPUMP ,
EMGEN	EMGEN ,

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.03548 AT	(621375.00, 4175500.00, 299.60, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.03545 AT	(621375.00, 4175475.00, 305.30, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.03541 AT	(621400.00, 4175500.00, 295.50, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.03535 AT	(621350.00, 4175475.00, 306.50, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.03530 AT	(621400.00, 4175475.00, 299.50, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.03525 AT	(621400.00, 4175425.00, 306.10, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.03519 AT	(621375.00, 4175425.00, 313.20, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.03518 AT	(621400.00, 4175450.00, 302.90, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.03516 AT	(621375.00, 4175450.00, 309.90, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.03515 AT	(621450.00, 4175375.00, 300.10, 0.00)	DC	NA
TURB	1ST HIGHEST VALUE IS	0.03539 AT	(621375.00, 4175500.00, 299.60, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.03535 AT	(621375.00, 4175475.00, 305.30, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.03532 AT	(621400.00, 4175500.00, 295.50, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.03526 AT	(621350.00, 4175475.00, 306.50, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.03521 AT	(621400.00, 4175475.00, 299.50, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.03516 AT	(621400.00, 4175425.00, 306.10, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.03510 AT	(621375.00, 4175425.00, 313.20, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.03509 AT	(621400.00, 4175450.00, 302.90, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.03507 AT	(621375.00, 4175450.00, 309.90, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.03505 AT	(621450.00, 4175375.00, 300.10, 0.00)	DC	NA
FWPUMP	1ST HIGHEST VALUE IS	0.00007 AT	(621975.00, 4175300.00, 192.90, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.00007 AT	(621925.00, 4175350.00, 192.50, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.00007 AT	(621950.00, 4175350.00, 191.90, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175300.00, 201.70, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.00007 AT	(621975.00, 4175375.00, 203.40, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175375.00, 207.80, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.00007 AT	(621975.00, 4175350.00, 197.10, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.00007 AT	(621950.00, 4175300.00, 191.00, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.00007 AT	(621950.00, 4175325.00, 189.50, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175425.00, 218.30, 0.00)	DC	NA

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
EMGEN	1ST HIGHEST VALUE IS	0.00007 AT	(621950.00, 4175375.00, 200.40, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175375.00, 207.80, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.00007 AT	(621975.00, 4175375.00, 203.40, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.00007 AT	(621925.00, 4175375.00, 199.70, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175500.00, 230.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.00007 AT	(621900.00, 4175375.00, 195.90, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175450.00, 224.00, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.00007 AT	(621975.00, 4175400.00, 211.70, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.00007 AT	(621950.00, 4175350.00, 191.90, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.00007 AT	(622000.00, 4175400.00, 214.30, 0.00)	DC	NA

Fumigation Results: SCREEN3 Output

08/28/01
11:28:46

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Tesla Power Plant - Turbine

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      1.00000
   STACK HEIGHT (M)       =      60.9600
   STK INSIDE DIAM (M)    =       5.7912
   STK EXIT VELOCITY (M/S)=      10.5800
   STK GAS EXIT TEMP (K)  =     350.3720
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =        .0000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =  142.440 M**4/S**3;  MOM. FLUX =  784.850 M**4/S**2.

*** FULL METEOROLOGY ***

 *** INVERSION BREAK-UP FUMIGATION CALC. ***
  CONC (UG/M**3)    =    1.557
  DIST TO MAX (M)   = 13483.19

     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************

 CALCULATION         MAX CONC    DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
INV BREAKUP FUMI     1.557        13483.       --


**************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**************************************************
```

K-9: Visibility Calculations

Level I Visual Effects Screening Analysis for
Source: Tesla Power Project
Class I Area: Point Reyes National Sea

*** Level-1 Screening ***

Input Emissions for

Particulates	63.00	LB /HR
NOx (as NO2)	600.00	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

**** Default Particle Characteristics Assumed

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	128.00 km
Source-Observer Distance:	102.00 km
Min. Source-Class I Distance:	102.00 km
Max. Source-Class I Distance:	140.00 km
Plume-Source-Observer Angle:	11.25 degrees

Stability: 6
Wind Speed: 1.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	84.	102.0	84.	2.00	2.051*	.05	.002
SKY	140.	84.	102.0	84.	2.00	1.054	.05	-.016
TERRAIN	10.	84.	102.0	84.	2.00	.760	.05	.010
TERRAIN	140.	84.	102.0	84.	2.00	.236	.05	.005

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	30.	77.3	139.	2.00	2.526*	.05	.003
SKY	140.	30.	77.3	139.	2.00	1.147	.05	-.025
TERRAIN	10.	5.	31.8	164.	2.00	2.041*	.05	.024
TERRAIN	140.	5.	31.8	164.	2.00	.738	.05	.023

Level II Visual Effects Screening Analysis for
Source: Tesla Power Project
Class I Area: Point Reyes National sea

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	63.00	LB /HR
NOx (as NO2)	600.00	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	6
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	128.00 km
Source-Observer Distance:	102.00 km
Min. Source-Class I Distance:	102.00 km
Max. Source-Class I Distance:	140.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	3.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	84.	102.0	84.	2.00	1.629	.05	.001
SKY	140.	84.	102.0	84.	2.00	.839	.05	-.013
TERRAIN	10.	84.	102.0	84.	2.00	.601	.05	.008
TERRAIN	140.	84.	102.0	84.	2.00	.186	.05	.004

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	50.	89.1	119.	2.00	1.657	.05	.002
SKY	140.	50.	89.1	119.	2.00	.829	.05	-.014
TERRAIN	10.	5.	31.8	164.	2.00	.721	.05	.009
TERRAIN	140.	5.	31.8	164.	2.00	.251	.05	.008

K-10: Modeling Files – Commissioning

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                                                    ***
*** Model Executed on 08/29/01 at 11:59:01 ***


 BEE-Line ISCST3 "BEEST" Version 8.10

  Input File - D:\Brent\Tesla\Commissioning\Tesla_97_CO1.DTA
 Output File - D:\Brent\Tesla\Commissioning\Tesla_97_CO1.LST
    Met File - D:\Brent\Tesla\442_97.ASC      ,

       Number of sources -          4
 Number of source groups -          1
     Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.12020E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.12020E+02	626011.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.12020E+02	626095.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT4	0	0.12020E+02	626138.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 ,

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

** CONC OF CO1 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	376.70782	ON 97101809:	AT (624500.00, 4173500.00, 261.00, 0.00)	DC	NA

```
**BEE-Line Software: BEEST for Windows data input file
**                   Date: 8/15/01  Time: 11:35:01 AM
NO ECHO

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

```
**MODELOPTs: CONC                    RURAL  ELEV                GRDRIS

                                      ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses RURAL Dispersion.

**Model Uses User-Specified Options:
          1. Gradual Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Accepts Receptors on ELEV Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.
**Model applies the Ozone Limiting Method        by source group.
**Input ozone concentration file is in units     of PPB.

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

**This Run Includes:     4 Source(s);       1 Source Group(s); and    1200 Receptor(s)

**The Model Assumes A Pollutant Type of:  NO2-OLM

**Model Set To Continue RUNning After the Setup Testing.

**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 Tables of Overall Maximum Short Term Values (MAXTABLE 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:  Anem. Hgt. (m) =    30.50 ;    Decay Coef. =   0.0000     ;    Rot. Angle =      0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units    = MICROGRAMS/M**3

**Input Runstream File: 1h97NOb.dta                          ;  **Output Print File: 1h97NOb.io3
```

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.19593E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.19593E+02	626011.4	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.19593E+02	626095.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT4	0	0.19593E+02	626138.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 ,

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: GT1

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT2

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT4

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

**MODELOPTs: CONC RURAL ELEV GRDRIS

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

** CONC OF NO2-OLM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	200.61319	ON 97092914:	AT (624500.00, 4173500.00, 261.00, 0.00)	DC	NA

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

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** Message Summary : ISC3_OLM Model Execution ***

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

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 287 Informational Message(s)

A Total of 287 Calm Hours Identified

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

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISC3_OLM Finishes Successfully ***
****

K-11: Cumulative Impact Analysis Modeling Files

```
**BEE-Line Software: BEEST for Windows data input file
**                   Date: 8/15/01  Time: 11:35:03 AM
NO ECHO


 *** Message Summary For ISC3 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   ********
SO W320    75 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS
SO W320    89 PPARM :Source Parameter May Be Out-of-Range for Parameter      VS

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

**MODELOPTs: CONC   RURAL ELEV   GRDRIS

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

-- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses RURAL Dispersion.

**Model Uses User-Specified Options:
1. Gradual Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.

**Model Accepts Receptors on ELEV Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.
**Model applies the Ozone Limiting Method   by source group.
**Input ozone concentration file is in units   of PPB.

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

**This Run Includes: 9 Source(s); 4 Source Group(s); and 1200 Receptor(s)

**The Model Assumes A Pollutant Type of: NO2-OLM

**Model Set To Continue RUNning After the Setup Testing.

**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 Tables of Overall Maximum Short Term Values (MAXTABLE 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: Anem. Hgt. (m) = 30.50 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Input Runstream File: 1h99NOa.dta ; **Output Print File: 1h99NOa.io3

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.18900E+02	625968.8	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT2	0	0.18900E+02	626011.4	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT3	0	0.19744E+01	626095.8	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT4	0	0.19744E+01	626138.3	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
FWPUMP	0	0.46683E+00	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.81018E+00	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.43445E+01	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.75058E+01	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.18900E+00	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: GT1

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT2

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

SOURCE ID: GT4

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	21.9,	15.8,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	21.9,	22.3,	0	17	21.9,	15.8,	0	18	21.9,	9.9,	0
19	21.9,	15.8,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	21.9,	46.6,	0	30	21.9,	44.1,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	21.9,	29.2,	0	34	21.9,	22.3,	0	35	21.9,	15.8,	0	36	21.9,	9.9,	0

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: FWPUMP

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	0.0,	0.0,	0	2	14.6,	56.3,	0	3	14.6,	56.3,	0	4	14.6,	56.2,	0	5	14.6,	56.2,	0	6	14.6,	56.3,	0
7	14.6,	56.3,	0	8	14.6,	56.4,	0	9	14.6,	56.4,	0	10	14.6,	56.4,	0	11	14.6,	56.3,	0	12	0.0,	0.0,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	21.9,	29.2,	0	16	0.0,	0.0,	0	17	0.0,	0.0,	0	18	0.0,	0.0,	0
19	0.0,	0.0,	0	20	14.6,	56.3,	0	21	14.6,	56.3,	0	22	14.6,	56.2,	0	23	14.6,	56.2,	0	24	14.6,	56.3,	0
25	14.6,	56.3,	0	26	14.6,	56.4,	0	27	14.6,	56.4,	0	28	14.6,	56.4,	0	29	14.6,	56.3,	0	30	0.0,	0.0,	0
31	0.0,	0.0,	0	32	0.0,	0.0,	0	33	0.0,	0.0,	0	34	0.0,	0.0,	0	35	0.0,	0.0,	0	36	0.0,	0.0,	0

SOURCE ID: EMGEN

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	0.0,	0.0,	0	2	21.9,	22.3,	0	3	21.9,	29.2,	0	4	21.9,	35.3,	0	5	21.9,	40.3,	0	6	21.9,	44.1,	0
7	21.9,	46.6,	0	8	21.9,	47.6,	0	9	21.9,	47.2,	0	10	21.9,	47.6,	0	11	21.9,	46.6,	0	12	21.9,	44.1,	0
13	21.9,	40.3,	0	14	21.9,	35.3,	0	15	15.2,	24.6,	0	16	0.0,	0.0,	0	17	0.0,	0.0,	0	18	0.0,	0.0,	0
19	0.0,	0.0,	0	20	21.9,	22.3,	0	21	21.9,	29.2,	0	22	21.9,	35.3,	0	23	21.9,	40.3,	0	24	21.9,	44.1,	0
25	21.9,	46.6,	0	26	21.9,	47.6,	0	27	21.9,	47.2,	0	28	21.9,	47.6,	0	29	15.2,	38.6,	0	30	15.2,	36.7,	0
31	21.9,	40.3,	0	32	21.9,	35.3,	0	33	15.2,	24.6,	0	34	0.0,	0.0,	0	35	0.0,	0.0,	0	36	0.0,	0.0,	0

**MODELOPTs: CONC RURAL ELEV GRDRIS

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

** CONC OF NO2-OLM IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	230.53423	ON 99092212: AT	(625946.63, 4176128.75, 120.90, 0.00)	DC	NA
TESLA	HIGH	1ST HIGH VALUE IS	230.53423	ON 99092212: AT	(625946.63, 4176128.75, 120.90, 0.00)	DC	NA
UNKNOWN	HIGH	1ST HIGH VALUE IS	1.35656	ON 99011313: AT	(624500.00, 4174700.00, 164.90, 0.00)	DC	NA
EASTALTM	HIGH	1ST HIGH VALUE IS	11.00282	ON 99121716: AT	(626525.00, 4175750.00, 108.20, 0.00)	DC	NA

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

**MODELOPTs: CONC RURAL ELEV GRDRIS

*** Message Summary : ISC3_OLM Model Execution ***

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

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 270 Informational Message(s)

A Total of 270 Calm Hours Identified

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

******** WARNING MESSAGES ********
SO W320 75 PPARM :Source Parameter May Be Out-of-Range for Parameter VS
SO W320 89 PPARM :Source Parameter May Be Out-of-Range for Parameter VS

****
*** ISC3_OLM Finishes Successfully ***
****

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/29/01 at 12:49:26 ***


 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_99_NOANN.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_99_NOANN.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          9
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.17640E+01	625968.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT2	0	0.17640E+01	626011.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT3	0	0.17640E+01	626095.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT4	0	0.17640E+01	626138.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
FWPUMP	0	0.53298E-02	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.92484E-02	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.43445E+01	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.75058E+01	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.18900E+00	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.37157	AT (627000.00, 4186000.00, 2.10, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.31280	AT (628000.00, 4186000.00, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.31156	AT (621500.00, 4175500.00, 273.60, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.30768	AT (621500.00, 4175000.00, 289.60, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.30446	AT (621000.00, 4176000.00, 312.40, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.30130	AT (621000.00, 4175500.00, 337.10, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.27450	AT (621500.00, 4174500.00, 294.00, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.26657	AT (620500.00, 4175000.00, 314.90, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.26242	AT (619000.00, 4184000.00, 219.70, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.26069	AT (621000.00, 4175000.00, 373.00, 0.00)	DC	NA
TESLA	1ST HIGHEST VALUE IS	0.22971	AT (621500.00, 4175500.00, 273.60, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.22665	AT (621500.00, 4175000.00, 289.60, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.22660	AT (626362.88, 4176034.50, 114.80, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.22256	AT (621000.00, 4175500.00, 337.10, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.22168	AT (621000.00, 4176000.00, 312.40, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.22039	AT (626375.00, 4176025.00, 114.80, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.21438	AT (626380.50, 4176019.50, 115.10, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.20890	AT (626269.00, 4176121.50, 116.90, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.20843	AT (626375.00, 4176050.00, 114.60, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.20648	AT (626475.00, 4176100.00, 122.70, 0.00)	DC	NA
UNKNOWN	1ST HIGHEST VALUE IS	0.08031	AT (630500.00, 4171500.00, 267.20, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.07979	AT (630500.00, 4171000.00, 306.70, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.07630	AT (631500.00, 4171500.00, 270.70, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.07608	AT (630000.00, 4171000.00, 311.80, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.07089	AT (630000.00, 4172500.00, 246.50, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.07001	AT (630000.00, 4172000.00, 264.80, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.06533	AT (630500.00, 4170500.00, 338.60, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.06493	AT (631500.00, 4171000.00, 272.10, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.06312	AT (630000.00, 4170500.00, 346.50, 0.00)	DC	NA

10TH HIGHEST VALUE IS	0.06309 AT (	631000.00,	4170500.00,	301.10,	0.00)	DC	NA

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR,	YR,	ZELEV,	ZFLAG)	OF TYPE	NETWORK GRID-ID
EASTALTM	1ST HIGHEST VALUE IS	0.36476 AT (	627000.00,	4186000.00,	2.10,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.30690 AT (	628000.00,	4186000.00,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.22681 AT (	620000.00,	4184000.00,	145.40,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.20328 AT (	619000.00,	4184000.00,	219.70,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.19673 AT (	629000.00,	4186000.00,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.17541 AT (	619000.00,	4183000.00,	157.60,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.17090 AT (	618000.00,	4184000.00,	226.10,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.15840 AT (	618000.00,	4185000.00,	150.90,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.15825 AT (	617000.00,	4184000.00,	171.60,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.15612 AT (	618000.00,	4183000.00,	192.80,	0.00)	DC	NA

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*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/29/01 at 13:07:46 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_99_PM24.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_99_PM24.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          32
Number of source groups -           4
    Number of receptors -        2673
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*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.15926E+01	625968.8	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT2	0	0.15926E+01	626011.3	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT3	0	0.15926E+01	626095.8	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
GT4	0	0.15926E+01	626138.3	4176031.0	118.9	60.96	358.71	16.81	5.79	YES	
CT1	0	0.60102E-02	625945.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT2	0	0.60102E-02	625959.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT3	0	0.60102E-02	625973.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT4	0	0.60102E-02	625987.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT5	0	0.60102E-02	626001.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT6	0	0.60102E-02	626015.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT7	0	0.60102E-02	626029.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT8	0	0.60102E-02	626043.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT9	0	0.60102E-02	626057.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT10	0	0.60102E-02	626071.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT11	0	0.60102E-02	626085.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT12	0	0.60102E-02	626103.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT13	0	0.60102E-02	626117.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT14	0	0.60102E-02	626131.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT15	0	0.60102E-02	626145.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT16	0	0.60102E-02	626159.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT17	0	0.60102E-02	626173.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT18	0	0.60102E-02	626187.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT19	0	0.60102E-02	626201.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT20	0	0.60102E-02	626215.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT21	0	0.60102E-02	626229.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT22	0	0.60102E-02	626243.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
FWPUMP	0	0.34125E-03	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.22838E-02	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.24066E+01	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.57708E+01	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.33390E+00	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	
EALTCT	0	0.30240E+00	625550.0	4184800.0	15.0	13.72	294.26	10.00	10.27	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR , EALTCT ,
TESLA	GT1 , GT2 , GT3 , GT4 , CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR , EALTCT ,

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM24 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	4.54071c	ON 99041624:	AT (623500.00, 4173000.00, 291.90, 0.00)	DC	NA

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TESLA    HIGH  1ST HIGH VALUE IS      4.49753c ON 99102124: AT (  622500.00,  4174000.00,    287.10,       0.00)  DC      NA
UNKNOWN  HIGH  1ST HIGH VALUE IS      1.36023c ON 99121524: AT (  630500.00,  4171000.00,    306.70,       0.00)  DC      NA
EASTALTM HIGH  1ST HIGH VALUE IS      3.30863c ON 99102124: AT (  621000.00,  4181000.00,    168.20,       0.00)  DC      NA
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*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                                    ***
*** Model Executed on 08/29/01 at 12:31:33 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_99_PMANN.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_99_PMANN.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          32
Number of source groups -           4
    Number of receptors -        2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.13633E+01	625968.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT2	0	0.13633E+01	626011.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT3	0	0.13633E+01	626095.8	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
GT4	0	0.13633E+01	626138.3	4176031.0	118.9	60.96	358.71	17.57	5.79	YES	
CT1	0	0.60102E-02	625945.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT2	0	0.60102E-02	625959.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT3	0	0.60102E-02	625973.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT4	0	0.60102E-02	625987.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT5	0	0.60102E-02	626001.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT6	0	0.60102E-02	626015.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT7	0	0.60102E-02	626029.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT8	0	0.60102E-02	626043.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT9	0	0.60102E-02	626057.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT10	0	0.60102E-02	626071.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT11	0	0.60102E-02	626085.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT12	0	0.60102E-02	626103.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT13	0	0.60102E-02	626117.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT14	0	0.60102E-02	626131.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT15	0	0.60102E-02	626145.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT16	0	0.60102E-02	626159.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT17	0	0.60102E-02	626173.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT18	0	0.60102E-02	626187.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT19	0	0.60102E-02	626201.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT20	0	0.60102E-02	626215.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT21	0	0.60102E-02	626229.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
CT22	0	0.60102E-02	626243.0	4176094.0	118.9	16.92	307.04	6.51	9.14	YES	
FWPUMP	0	0.93492E-04	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.62622E-03	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.24066E+01	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.57708E+01	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.33390E+00	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	
EALTCT	0	0.30240E+00	625550.0	4184800.0	15.0	13.72	294.26	10.00	10.27	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR , EALTCT ,
TESLA	GT1 , GT2 , GT3 , GT4 , CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 , CT13 , CT14 , CT15 , CT16 , CT17 , CT18 , CT19 , CT20 , CT21 , CT22 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR , EALTCT ,

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

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

ALL	1ST HIGHEST VALUE IS	0.64816 AT (	626375.00,	4176225.00,	129.20,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.61457 AT (	626350.00,	4176225.00,	127.50,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.60764 AT (	626300.00,	4176300.00,	140.30,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.59876 AT (	626350.00,	4176200.00,	126.10,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.59259 AT (	626375.00,	4176200.00,	128.40,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.57418 AT (	626300.00,	4176275.00,	133.50,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.57374 AT (	626325.00,	4176225.00,	126.20,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.56205 AT (	626325.00,	4176200.00,	124.20,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.55542 AT (	626375.00,	4176250.00,	128.30,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.55055 AT (	626300.00,	4176250.00,	128.70,	0.00)	DC	NA
TESLA	1ST HIGHEST VALUE IS	0.64158 AT (	626375.00,	4176225.00,	129.20,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.60756 AT (	626350.00,	4176225.00,	127.50,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.59967 AT (	626300.00,	4176300.00,	140.30,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.59183 AT (	626350.00,	4176200.00,	126.10,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.58615 AT (	626375.00,	4176200.00,	128.40,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.56686 AT (	626325.00,	4176225.00,	126.20,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.56685 AT (	626300.00,	4176275.00,	133.50,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.55529 AT (	626325.00,	4176200.00,	124.20,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.54888 AT (	626375.00,	4176250.00,	128.30,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.54361 AT (	626300.00,	4176250.00,	128.70,	0.00)	DC	NA
UNKNOWN	1ST HIGHEST VALUE IS	0.04449 AT (	630500.00,	4171500.00,	267.20,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.04420 AT (	630500.00,	4171000.00,	306.70,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.04226 AT (	631500.00,	4171500.00,	270.70,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.04214 AT (	630000.00,	4171000.00,	311.80,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.03927 AT (	630000.00,	4172500.00,	246.50,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.03878 AT (	630000.00,	4172000.00,	264.80,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.03619 AT (	630500.00,	4170500.00,	338.60,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.03597 AT (	631500.00,	4171000.00,	272.10,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.03496 AT (	630000.00,	4170500.00,	346.50,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.03495 AT (	631000.00,	4170500.00,	301.10,	0.00)	DC	NA

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
EASTALTM 1ST HIGHEST VALUE IS	0.52609 AT (	627000.00,	4186000.00,	2.10,	0.00)	DC	NA
2ND HIGHEST VALUE IS	0.35333 AT (	628000.00,	4186000.00,	0.00,	0.00)	DC	NA
3RD HIGHEST VALUE IS	0.23878 AT (	626000.00,	4185000.00,	9.10,	0.00)	DC	NA
4TH HIGHEST VALUE IS	0.20784 AT (	629000.00,	4186000.00,	0.00,	0.00)	DC	NA
5TH HIGHEST VALUE IS	0.20302 AT (	620000.00,	4184000.00,	145.40,	0.00)	DC	NA
6TH HIGHEST VALUE IS	0.17649 AT (	619000.00,	4184000.00,	219.70,	0.00)	DC	NA
7TH HIGHEST VALUE IS	0.15309 AT (	619000.00,	4183000.00,	157.60,	0.00)	DC	NA
8TH HIGHEST VALUE IS	0.14781 AT (	618000.00,	4184000.00,	226.10,	0.00)	DC	NA
9TH HIGHEST VALUE IS	0.14475 AT (	630000.00,	4186000.00,	0.00,	0.00)	DC	NA
10TH HIGHEST VALUE IS	0.13998 AT (	618000.00,	4185000.00,	150.90,	0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/29/01 at 13:22:33 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_97_CO1.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_97_CO1.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          9
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.83538E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.83538E+02	626011.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.36061E+01	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.36061E+01	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.11038E+00	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.15498E+00	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.12708E+02	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.26347E+02	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.63000E+00	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

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

** CONC OF CO1 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1361.10583	ON 97101809:	AT (624500.00, 4173500.00, 261.00, 0.00)	DC	NA
TESLA	HIGH 1ST HIGH VALUE IS	1361.10583	ON 97101809:	AT (624500.00, 4173500.00, 261.00, 0.00)	DC	NA
UNKNOWN	HIGH 1ST HIGH VALUE IS	53.73206	ON 97122715:	AT (630500.00, 4170500.00, 338.60, 0.00)	DC	NA
EASTALTM	HIGH 1ST HIGH VALUE IS	129.01736	ON 97092309:	AT (621000.00, 4181000.00, 168.20, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/29/01 at 13:32:46 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_99_CO8.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_99_CO8.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          9
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.20840E+02	625968.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT2	0	0.20840E+02	626011.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT3	0	0.20840E+02	626095.8	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
GT4	0	0.20840E+02	626138.3	4176031.0	118.9	60.96	350.37	10.56	5.79	YES	
FWPUMP	0	0.13860E-01	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.19404E-01	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.12708E+02	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.26347E+02	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.63000E+00	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO8 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	189.64598	ON 99121516:	AT (624000.00, 4173000.00, 269.10, 0.00)	DC	NA
TESLA	HIGH 1ST HIGH VALUE IS	189.64598	ON 99121516:	AT (624000.00, 4173000.00, 269.10, 0.00)	DC	NA
UNKNOWN	HIGH 1ST HIGH VALUE IS	19.75287	ON 99121516:	AT (630500.00, 4171000.00, 306.70, 0.00)	DC	NA
EASTALTM	HIGH 1ST HIGH VALUE IS	39.50509c	ON 99011316:	AT (620000.00, 4182000.00, 224.40, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/29/01 at 13:35:54 ***


 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_97_SO1.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_97_SO1.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          9
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25326E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25326E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25326E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25326E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.47250E-01	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.50400E-01	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.12600E+00	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.61236E+00	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.11340E-01	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

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

** CONC OF SO1 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	79.70871	ON 97010415:	AT (625841.50, 4176030.25, 124.30, 0.00)	DC	NA
TESLA	HIGH 1ST HIGH VALUE IS	79.69665	ON 97010415:	AT (625841.50, 4176030.25, 124.30, 0.00)	DC	NA
UNKNOWN	HIGH 1ST HIGH VALUE IS	0.53274	ON 97122715:	AT (630500.00, 4170500.00, 338.60, 0.00)	DC	NA
EASTALTM	HIGH 1ST HIGH VALUE IS	2.97597	ON 97092309:	AT (621000.00, 4181000.00, 168.20, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                          ***
*** Model Executed on 08/29/01 at 13:43:01 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_97_SO3.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_97_SO3.LST
   Met File - D:\Brent\Tesla\442_97.ASC

      Number of sources -          9
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25326E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25326E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25326E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25326E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.15750E-01	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.16796E-01	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.12600E+00	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.61236E+00	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.11340E-01	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO3 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	11.44572c	ON 97011406:	AT (626525.00, 4176075.00, 132.20, 0.00)	DC	NA
TESLA	HIGH 1ST HIGH VALUE IS	11.44572c	ON 97011406:	AT (626525.00, 4176075.00, 132.20, 0.00)	DC	NA
UNKNOWN	HIGH 1ST HIGH VALUE IS	0.21198	ON 97080712:	AT (630500.00, 4171000.00, 306.70, 0.00)	DC	NA
EASTALTM	HIGH 1ST HIGH VALUE IS	1.21215	ON 97112209:	AT (619000.00, 4184000.00, 219.70, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                          ***
*** Model Executed on 08/29/01 at 13:49:38 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

  Input File - D:\Brent\Tesla\Cumulative\Cumulative_97_SO24.DTA
 Output File - D:\Brent\Tesla\Cumulative\Cumulative_97_SO24.LST
    Met File - D:\Brent\Tesla\442_97.ASC

       Number of sources -          9
 Number of source groups -          4
     Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25326E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25326E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25326E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25326E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.19656E-02	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.21042E-02	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.12600E+00	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.61236E+00	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.11340E-01	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO24 IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	0.65784c	ON 97011724: AT (	621000.00, 4175500.00, 337.10, 0.00)	DC	NA
TESLA	HIGH	1ST HIGH VALUE IS	0.64363c	ON 97011724: AT (	621000.00, 4175500.00, 337.10, 0.00)	DC	NA
UNKNOWN	HIGH	1ST HIGH VALUE IS	0.05288c	ON 97120324: AT (	630500.00, 4171000.00, 306.70, 0.00)	DC	NA
EASTALTM	HIGH	1ST HIGH VALUE IS	0.33523c	ON 97011724: AT (	619000.00, 4184000.00, 219.70, 0.00)	DC	NA

```
*** ISCST3 - VERSION 00101 ***
*** FPL Tesla                                                    ***
*** Model Executed on 08/29/01 at 13:59:08 ***

 BEE-Line ISCST3 "BEEST" Version 8.10

 Input File - D:\Brent\Tesla\Cumulative\Cumulative_99_SOANN.DTA
Output File - D:\Brent\Tesla\Cumulative\Cumulative_99_SOANN.LST
   Met File - D:\Brent\Tesla\442_99.ASC

      Number of sources -          9
Number of source groups -          4
    Number of receptors -       2673
```

*** 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)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
GT1	0	0.25326E+00	625968.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT2	0	0.25326E+00	626011.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT3	0	0.25326E+00	626095.8	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
GT4	0	0.25326E+00	626138.3	4176031.0	118.9	60.96	358.71	18.86	5.79	YES	
FWPUMP	0	0.54180E-03	626217.2	4175917.0	118.9	3.00	622.00	75.00	0.13	YES	
EMGEN	0	0.57330E-03	626066.9	4175976.3	118.9	1.94	787.04	95.37	0.20	YES	
UNKGT	0	0.12600E+00	633100.0	4174603.0	54.0	30.48	727.59	36.58	5.18	NO	
EALTGT	0	0.61236E+00	625550.0	4184800.0	15.0	53.34	334.26	16.86	5.64	NO	
EALTBLR	0	0.11340E-01	625550.0	4184800.0	15.0	30.48	435.93	5.22	2.16	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN , UNKGT , EALTGT , EALTBLR ,
TESLA	GT1 , GT2 , GT3 , GT4 , FWPUMP , EMGEN ,
UNKNOWN	UNKGT ,
EASTALTM	EALTGT , EALTBLR ,

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.03638 AT	(621500.00, 4175500.00, 273.60, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.03616 AT	(621500.00, 4175000.00, 289.60, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.03602 AT	(621000.00, 4176000.00, 312.40, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.03591 AT	(621000.00, 4175500.00, 337.10, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.03179 AT	(621500.00, 4174500.00, 294.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.03097 AT	(620500.00, 4175000.00, 314.90, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.03073 AT	(621000.00, 4175000.00, 373.00, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.02862 AT	(622500.00, 4174000.00, 287.10, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.02854 AT	(627000.00, 4186000.00, 2.10, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.02830 AT	(623500.00, 4173000.00, 291.90, 0.00)	DC	NA
TESLA	1ST HIGHEST VALUE IS	0.03166 AT	(621500.00, 4175000.00, 289.60, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.03159 AT	(621500.00, 4175500.00, 273.60, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.03154 AT	(621000.00, 4175500.00, 337.10, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.03118 AT	(621000.00, 4176000.00, 312.40, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.02779 AT	(621500.00, 4174500.00, 294.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.02688 AT	(621000.00, 4175000.00, 373.00, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.02657 AT	(620500.00, 4175000.00, 314.90, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.02593 AT	(623500.00, 4173000.00, 291.90, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.02550 AT	(622500.00, 4174000.00, 287.10, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.02463 AT	(624500.00, 4173500.00, 261.00, 0.00)	DC	NA
UNKNOWN	1ST HIGHEST VALUE IS	0.00233 AT	(630500.00, 4171500.00, 267.20, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.00231 AT	(630500.00, 4171000.00, 306.70, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.00221 AT	(631500.00, 4171500.00, 270.70, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.00221 AT	(630000.00, 4171000.00, 311.80, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.00206 AT	(630000.00, 4172500.00, 246.50, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.00203 AT	(630000.00, 4172000.00, 264.80, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.00189 AT	(630500.00, 4170500.00, 338.60, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.00188 AT	(631500.00, 4171000.00, 272.10, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.00183 AT	(630000.00, 4170500.00, 346.50, 0.00)	DC	NA

10TH HIGHEST VALUE IS 0.00183 AT (631000.00, 4170500.00, 301.10, 0.00) DC NA

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

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

GROUP ID		AVERAGE CONC		RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
EASTALTM	1ST HIGHEST VALUE IS	0.02765	AT (	627000.00,	4186000.00,	2.10,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	0.02400	AT (	628000.00,	4186000.00,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	0.01828	AT (	620000.00,	4184000.00,	145.40,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	0.01643	AT (	619000.00,	4184000.00,	219.70,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.01554	AT (	629000.00,	4186000.00,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.01418	AT (	619000.00,	4183000.00,	157.60,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	0.01382	AT (	618000.00,	4184000.00,	226.10,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	0.01279	AT (	617000.00,	4184000.00,	171.60,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	0.01279	AT (	618000.00,	4185000.00,	150.90,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	0.01262	AT (	618000.00,	4183000.00,	192.80,	0.00)	DC	NA

K-12: Project HAPs Emissions

Turbine HAPs Emissions

Natural Gas Flow Rates			
	Fuel Flow (2CTs)[a]	Heat Content	Fuel Flow (1CT)
	MMBTU/hr	BTU/scf	MMscf/hr
Maximum Hourly Rate	3866	1030	1.8768
Annual Average Rate	3234	1030	1.5700

Emission Factors						
Compound	CAS #	Category	Emission Factor	Unit	Reference	Pollutant ID
Naphthalene	91-20-3	PAH	7.88E-03	lbs/MMscf	b	110
Total PAHs		PAH	7.78E-04	lbs/MMscf	b	130
Ethylbenzene	100-41-4	SVOC	5.70E-02	lbs/MMscf	b	158
1,3-Butadiene	106-99-0	VOC	1.33E-04	lbs/MMscf	b	20
Acetaldehyde	75-07-0	VOC	5.11E-01	lbs/MMscf	b	1
Acrolein	107-02-8	VOC	6.93E-02	lbs/MMscf	b	3
Benzene	71-43-2	VOC	4.72E-02	lbs/MMscf	b	13
Formaldehyde	50-00-0	VOC	9.17E-01	lbs/MMscf	b	70
Hexane	110-54-3	VOC	3.82E-01	lbs/MMscf	b	159
Propylene	115-07-1	VOC	2.00E+00	lbs/MMscf	b	134
Propylene Oxide	75-56-9	VOC	5.87E-02	lbs/MMscf	b	135
Toluene	108-88-3	VOC	1.68E-01	lbs/MMscf	b	145
Xylene (Total)	1330-20-7	VOC	6.26E-02	lbs/MMscf	b	151
Ammonia	7664-41-7	N/A	d			9

Emissions	Max. Hourly Emissions (lbs/hr)			Annual Emissions (tpy)		
Compound	Per Turbine		Four Turbines	Per Turbine		Four Turbines
	lb/hr	g/s	lb/hr	g/s	tpy	tpy
Naphthalene	0.015	1.863E-03	0.059	1.559E-03	5.42E-02	0.217
Total PAHs (minus Naph.)	0.001	1.840E-04	0.006	1.539E-04	5.35E-03	0.021
Ethylbenzene	0.107	1.348E-02	0.428	1.128E-02	3.92E-01	1.568
1,3-Butadiene	0.000	3.145E-05	0.0010	2.631E-05	9.15E-04	0.004
Acetaldehyde	0.959	1.208E-01	3.836	1.011E-01	3.51E+00	14.056
Acrolein	0.130	1.639E-02	0.520	1.371E-02	4.77E-01	1.906
Benzene	0.089	1.116E-02	0.354	9.337E-03	3.25E-01	1.298
Formaldehyde	1.721	2.168E-01	6.884	1.814E-01	6.31E+00	25.224
Hexane	0.717	9.033E-02	2.868	7.557E-02	2.63E+00	10.508
Propylene	3.754	4.729E-01	15.014	3.956E-01	1.38E+01	55.014
Propylene Oxide	0.110	1.388E-02	0.441	1.161E-02	4.04E-01	1.615
Toluene	0.315	3.973E-02	1.261	3.323E-02	1.16E+00	4.621
Xylene (Total)	0.117	1.480E-02	0.470	1.238E-02	4.30E-01	1.722
Ammonia[d]	14.503	1.827E+00	58.013	1.50	51.983	207.931

[a] FPLE Operating Emissions Data
Maximum: 17°F; 4 CTGs; 100% load with duct burners.

[b]Emission factors obtained from CARB's CATEF II database. Based on the maximum emission factor, except formaldehyde, which is based on the mean.

[d]Projected stack emission at 5 ppm NH_3 slip (15% O_2).

Cooling Tower HAPs Emissions

Maximum Drift Rate:	1.4811	gal/min

Projected Cooling Water Analysis[a]	Concentration[b] (ppmw)	Emission Rate (g/s/cell)	Annual Emission Rate (lb/year/cell)
Arsenic	0.04	1.70E-07	1.18E-02
Bromide	4.2	1.78E-05	1.24E+00
Cadmium	0.08	3.40E-07	2.36E-02
Chromium (hexavalent)[c]	0.05	2.12E-07	1.48E-02
Copper	0.1	4.24E-07	2.95E-02
Fluoride	1.8	7.64E-06	5.31E-01
Manganese	0.14	5.94E-07	4.13E-02
Mercury	0.016	6.79E-08	4.72E-03
Nickel	0.04	1.70E-07	1.18E-02
Sulfate	860	3.65E-03	2.54E+02
Zinc	0.18	7.64E-07	5.31E-02

a: Cooling water measurements from reservoir analysis.
b: Concentration in cooling tower is conservatively assumed to be 20 times the concentrations found in water sampled.
c: Chromium is conservatively assumed to be in the hexavalent oxidation state.

K-13: Health Risk Assessment Modeling Files

***** A C E 2 5 8 8 --- ASSESSMENT OF CHEMICAL EXPOSURE FOR AB 2588 --- VERSION 93288 *****

*** A MULTI-SOURCE, MULTI-POLLUTANT, MULTI-PATHWAY RISK ASSESSMENT MODEL

DEVELOPED BY APPLIED MODELING INC. AND SANTA BARBARA COUNTY APCD ***

Distributed and Maintained by CAPCOA

*** INPUT MODELING PARAMETERS ***

DISPERSION MODELING OPTION =	1
RISK ASSESSMENT OPTION =	0
NONCANCER ACUTE OPTION =	1
DIAGNOSTIC PRINT OUTPUT OPTION =	1
NUMBER OF RECEPTORS =	2673
NUMBER OF SOURCES =	4
NUMBER OF POLLUTANTS =	26
NUMBER OF DISPERSION MODELING HOURS =	8760
NUMBER OF DISPERSION MODELING DAYS =	365

IDODIS = 1 ==> ISCST DISPERSION MODELING WITH SEQUENTIAL METEOROLOGY
ANNUAL CONCENTRATIONS COMPUTED AS AVERAGES OF 1-HOUR CONC.

IDORISK = 0 ==> FULL MODEL RUN FOR RISK ASSESSMENT FROM ALL SOURCES AT ALL RECEPTORS

IDOACU = 1 ==> NONCANCER ACUTE EXPOSURE PERFORMED

IDOPRT = 1 ==> DIAGNOSTIC PRINT OUTPUT CREATED

IDENTIFICATION NUMBERS OF MODELED POLLUTANTS:

110	130	158	20	1	3	13	70	159	134	135	145	151	9	160
10	19	22	36	38	161	85	87	111	141	152				

*** POLLUTANT-SPECIFIC DATA ***

NAME	SYMBOL	NUM	UNIT RISK (ug/m3)-1	POTENCY (mg/kg-d)-1	ACUTE AEL (ug/m3)	CHRONIC AEL (ug/m3)	ORAL DOSE (mg/kg-d)	CHRONIC TOX ENDPOINTS CV	CN	IM	KI	LI	RP	RE	SK	ACUTE TOX ENDPOINTS CV	CN	IM	KI	LI	RP	RE	EY
Naphthalene	NAPTH	110	0.00E+00	0.00E+00	0.00E+00	9.00E+00	4.00E-03	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Polycyclic arom. HC	PAH	130	1.10E-03	1.20E+01	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ethylbenzene	ETHLB	158	0.00E+00	0.00E+00	0.00E+00	2.00E+03	0.00E+00	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
Butadiene-1,3	BUTAD	20	1.70E-04	0.00E+00	0.00E+00	2.00E+01	0.00E+00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Acetaldehyde	ACETA	1	2.70E-06	0.00E+00	0.00E+00	9.00E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acrolein	ACROL	3	0.00E+00	0.00E+00	1.90E-01	6.00E-02	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Benzene	BENZE	13	2.90E-05	0.00E+00	1.30E+03	6.00E+01	0.00E+00	1	1	0	0	0	1	0	0	1	0	1	0	0	1	0	0
Formaldehyde	HCHO	70	6.00E-06	0.00E+00	9.40E+01	3.00E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
N-hexane	NHEX	159	0.00E+00	0.00E+00	0.00E+00	7.00E+03	0.00E+00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Propylene	PROPL	134	0.00E+00	0.00E+00	0.00E+00	3.00E+03	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Propylene oxide	PROX	135	3.70E-06	2.40E-01	3.10E+03	3.00E+01	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Toluene	TOL	145	0.00E+00	0.00E+00	3.70E+04	3.00E+02	0.00E+00	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	1
Xylene	XYLEN	151	0.00E+00	0.00E+00	2.20E+04	7.00E+02	0.00E+00	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Ammonia	NH3	9	0.00E+00	0.00E+00	3.20E+03	2.00E+02	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
DieselExhaust	DIESL	160	3.00E-04	0.00E+00	0.00E+00	5.00E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Arsenic	As	10	3.30E-03	1.50E+00	1.90E-01	3.00E-02	3.00E-04	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
Bromine	Br	19	0.00E+00	0.00E+00	0.00E+00	1.70E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Cadmium	Cd	22	4.20E-03	0.00E+00	0.00E+00	2.00E-02	5.00E-04	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
Chromium (hex.)	Cr	36	1.50E-01	4.20E-01	0.00E+00	2.00E-01	2.00E-02	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Copper	Cu	38	0.00E+00	0.00E+00	1.00E+02	2.40E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Fluoride and Cmpnds	FLRID	161	0.00E+00	0.00E+00	2.40E+02	5.90E+00	0.00E+00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0
Manganese	Mn	85	0.00E+00	0.00E+00	0.00E+00	2.00E-01	0.00E+00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mercury	Hg	87	0.00E+00	0.00E+00	1.80E+00	9.00E-02	3.00E-04	1	1	0	1	1	1	1	0	0	1	0	1	1	0	0	0
Nickel	Ni	111	2.60E-04	0.00E+00	6.00E+00	5.00E-02	0.00E+00	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0
Sulfates	SO4	141	0.00E+00	0.00E+00	1.20E+02	2.50E+01	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Zinc	Zn	152	0.00E+00	0.00E+00	0.00E+00	3.50E+01	0.00E+00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

TOTAL NUMBER OF MODELED POLLUTANTS = 26

NUMBER OF CARCINOGENIC POLLUTANTS = 11

130 20 1 13 70 135 160 10 22 36
111

NUMBER OF MULTIPATHWAY POLLUTANTS = 7

110 130 135 10 22 36 87

NUMBER OF POLLUTANTS WITH ACUTE NON-CANCER RISK = 13

3 13 70 135 145 151 9 10 38 161
87 111 141

MAXIMUM NUMBER OF ACUTE TOXICOLOGICAL ENDPOINTS = 4

NUMBER OF POLLUTANTS WITH CHRONIC NON-CANCER RISK = 25

110	158	20	1	3	13	70	159	134	135
145	151	9	160	10	19	22	36	38	161
85	87	111	141	152					

MAXIMUM NUMBER OF CHRONIC TOXICOLOGICAL ENDPOINTS = 6

REQUIRED TOTAL ARRAY SIZE = 696676 WORDS

*** INPUT SOURCE EMISSION RATES ****

FOR SOURCE # 1 Gas Turbines
OPERATING HOURS = 8760.00 SURFACE AREA (m2) = 1.000E+00 DEPOSITION ADJUST. FACTOR = 1.00000

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
NAPTH	110	1.860E-03	1.476E-02	1.560E-03	1.085E+02
PAH	130	1.840E-04	1.460E-03	1.540E-04	1.071E+01
ETHLB	158	1.350E-02	1.071E-01	1.130E-02	7.856E+02
BUTAD	20	3.150E-05	2.500E-04	2.630E-05	1.828E+00
ACETA	1	1.210E-01	9.603E-01	1.010E-01	7.022E+03
ACROL	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	1.120E-02	8.889E-02	9.340E-03	6.494E+02
HCHO	70	2.170E-01	1.722E+00	1.810E-01	1.258E+04
NHEX	159	9.030E-02	7.167E-01	7.560E-02	5.256E+03
PROPL	134	4.730E-01	3.754E+00	3.960E-01	2.753E+04
PROX	135	1.390E-02	1.103E-01	1.160E-02	8.065E+02
TOL	145	3.970E-02	3.151E-01	3.320E-02	2.308E+03
XYLEN	151	1.480E-02	1.175E-01	1.240E-02	8.621E+02
NH3	9	1.830E+00	1.452E+01	1.500E+00	1.043E+05
DIESL	160	0.000E+00	0.000E+00	0.000E+00	0.000E+00
As	10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Br	19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cd	22	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cr	36	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cu	38	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FLRID	161	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mn	85	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Hg	87	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ni	111	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SO4	141	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zn	152	0.000E+00	0.000E+00	0.000E+00	0.000E+00

FOR SOURCE # 2 Cooling Towers
OPERATING HOURS = 8760.00 SURFACE AREA (m2) = 1.000E+00 DEPOSITION ADJUST. FACTOR = 1.00000

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
NAPTH	110	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PAH	130	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ETHLB	158	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BUTAD	20	0.000E+00	0.000E+00	0.000E+00	0.000E+00

ACETA	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ACROL	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HCHO	70	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NHEX	159	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOL	145	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XYLEN	151	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DIESL	160	0.000E+00	0.000E+00	0.000E+00	0.000E+00
As	10	1.700E-07	1.349E-06	1.700E-07	1.182E-02
Br	19	1.780E-05	1.413E-04	1.780E-05	1.238E+00
Cd	22	3.400E-07	2.698E-06	3.400E-07	2.364E-02
Cr	36	2.120E-07	1.683E-06	2.120E-07	1.474E-02
Cu	38	4.240E-07	3.365E-06	4.240E-07	2.948E-02
FLRID	161	7.640E-06	6.063E-05	7.640E-06	5.312E-01
Mn	85	5.940E-07	4.714E-06	5.940E-07	4.130E-02
Hg	87	6.790E-08	5.389E-07	6.790E-08	4.721E-03
Ni	111	1.700E-07	1.349E-06	1.700E-07	1.182E-02
SO4	141	3.650E-03	2.897E-02	3.650E-03	2.538E+02
Zn	152	7.640E-07	6.063E-06	7.640E-07	5.312E-02

FOR SOURCE # 3 FW Pump Eng
OPERATING HOURS = 8760.00 SURFACE AREA (m2) = 1.000E+00 DEPOSITION ADJUST. FACTOR = 1.00000

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
NAPTH	110	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PAH	130	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ETHLB	158	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BUTAD	20	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ACETA	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ACROL	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HCHO	70	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NHEX	159	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOL	145	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XYLEN	151	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DIESL	160	8.190E-03	6.500E-02	9.350E-05	6.500E+00
As	10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Br	19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cd	22	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cr	36	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cu	38	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FLRID	161	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Mn	85	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Hg	87	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ni	111	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SO4	141	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zn	152	0.000E+00	0.000E+00	0.000E+00	0.000E+00

FOR SOURCE # 4 Emerg Gen Eng
OPERATING HOURS = 8760.00 SURFACE AREA (m2) = 1.000E+00 DEPOSITION ADJUST. FACTOR = 1.00000

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
NAPTH	110	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PAH	130	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ETHLB	158	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BUTAD	20	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ACETA	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ACROL	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HCHO	70	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NHEX	159	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOL	145	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XYLEN	151	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DIESL	160	5.470E-02	4.341E-01	6.250E-04	4.345E+01
As	10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Br	19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cd	22	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cr	36	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cu	38	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FLRID	161	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mn	85	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Hg	87	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ni	111	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SO4	141	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zn	152	0.000E+00	0.000E+00	0.000E+00	0.000E+00

*** INPUT FACILITY-WIDE EMISSION RATES ***

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
NAPTH	110	1.860E-03	1.476E-02	1.560E-03	1.085E+02
PAH	130	1.840E-04	1.460E-03	1.540E-04	1.071E+01
ETHLB	158	1.350E-02	1.071E-01	1.130E-02	7.856E+02
BUTAD	20	3.150E-05	2.500E-04	2.630E-05	1.828E+00
ACETA	1	1.210E-01	9.603E-01	1.010E-01	7.022E+03
ACROL	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	1.120E-02	8.889E-02	9.340E-03	6.494E+02
HCHO	70	2.170E-01	1.722E+00	1.810E-01	1.258E+04
NHEX	159	9.030E-02	7.167E-01	7.560E-02	5.256E+03
PROPL	134	4.730E-01	3.754E+00	3.960E-01	2.753E+04
PROX	135	1.390E-02	1.103E-01	1.160E-02	8.065E+02
TOL	145	3.970E-02	3.151E-01	3.320E-02	2.308E+03
XYLEN	151	1.480E-02	1.175E-01	1.240E-02	8.621E+02
NH3	9	1.830E+00	1.452E+01	1.500E+00	1.043E+05
DIESL	160	6.289E-02	4.991E-01	7.185E-04	4.995E+01
As	10	1.700E-07	1.349E-06	1.700E-07	1.182E-02
Br	19	1.780E-05	1.413E-04	1.780E-05	1.238E+00
Cd	22	3.400E-07	2.698E-06	3.400E-07	2.364E-02
Cr	36	2.120E-07	1.683E-06	2.120E-07	1.474E-02
Cu	38	4.240E-07	3.365E-06	4.240E-07	2.948E-02
FLRID	161	7.640E-06	6.063E-05	7.640E-06	5.312E-01
Mn	85	5.940E-07	4.714E-06	5.940E-07	4.130E-02
Hg	87	6.790E-08	5.389E-07	6.790E-08	4.721E-03
Ni	111	1.700E-07	1.349E-06	1.700E-07	1.182E-02
SO4	141	3.650E-03	2.897E-02	3.650E-03	2.538E+02
Zn	152	7.640E-07	6.063E-06	7.640E-07	5.312E-02

*** INPUT POLLUTANT BACKGROUND CONCENTRATIONS (ug/m3) ****

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR BACKG.	ANNUAL BACKG.
NAPTH	110	0.000E+00	0.000E+00
PAH	130	0.000E+00	0.000E+00
ETHLB	158	0.000E+00	0.000E+00
BUTAD	20	0.000E+00	0.000E+00
ACETA	1	0.000E+00	0.000E+00
ACROL	3	0.000E+00	0.000E+00
BENZE	13	0.000E+00	0.000E+00
HCHO	70	0.000E+00	0.000E+00
NHEX	159	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00
TOL	145	0.000E+00	0.000E+00
XYLEN	151	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00
DIESL	160	0.000E+00	0.000E+00
As	10	0.000E+00	0.000E+00
Br	19	0.000E+00	0.000E+00
Cd	22	0.000E+00	0.000E+00
Cr	36	0.000E+00	0.000E+00
Cu	38	0.000E+00	0.000E+00
FLRID	161	0.000E+00	0.000E+00
Mn	85	0.000E+00	0.000E+00
Hg	87	0.000E+00	0.000E+00
Ni	111	0.000E+00	0.000E+00
SO4	141	0.000E+00	0.000E+00
Zn	152	0.000E+00	0.000E+00

*** 70-YEAR LIFETIME CANCER RISK BY SOURCE FOR PEAK RECEPTOR # 885 ***

SOURCE	INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOTHER MILK	SUM
1	3.072E-09	7.814E-10	6.647E-10	0.000E+00	7.693E-09	0.000E+00	0.000E+00	1.221E-08
2	3.254E-06	6.067E-09	8.611E-08	0.000E+00	3.557E-08	0.000E+00	0.000E+00	3.382E-06
3	1.117E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.117E-07
4	3.344E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.344E-06
SUM	6.713E-06	6.848E-09	8.677E-08	0.000E+00	4.326E-08	0.000E+00	0.000E+00	6.850E-06

RECEPTOR RISK OF 6.850E-06 IS BELOW SIGNIFICANT RISK LEVEL OF 1.000E-05

RECEPTOR RISK OF 6.850E-06 EXCEEDS IMPACT ZONE RISK LEVEL OF 1.000E-06
RECEPTOR POPULATION = 0
RECEPTOR BURDEN = 0.000E+00

*** 70-YEAR LIFETIME CANCER RISK BY POLLUTANT FOR PEAK RECEPTOR # 885 ***

POLLUTANT	INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOTHER MILK	SUM
PAH	2.819E-10	2.680E-10	4.221E-10	0.000E+00	3.069E-09	0.000E+00	0.000E+00	4.041E-09
BUTAD	7.439E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.439E-12
ACETA	4.537E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.537E-10
BENZE	4.507E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.507E-10
HCHO	1.807E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.807E-09
PROX	7.141E-11	5.134E-10	2.426E-10	0.000E+00	4.624E-09	0.000E+00	0.000E+00	5.451E-09
DIESL	3.456E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.456E-06
As	5.396E-08	1.351E-09	6.382E-08	0.000E+00	2.660E-08	0.000E+00	0.000E+00	1.457E-07
Cd	1.373E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.373E-07
Cr	3.058E-06	4.716E-09	2.228E-08	0.000E+00	8.969E-09	0.000E+00	0.000E+00	3.094E-06
Ni	4.251E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.251E-09
SUM	6.713E-06	6.848E-09	8.677E-08	0.000E+00	4.326E-08	0.000E+00	0.000E+00	6.850E-06

RECEPTOR RISK OF 6.850E-06 IS BELOW SIGNIFICANT RISK LEVEL OF 1.000E-05

RECEPTOR RISK OF 6.850E-06 EXCEEDS IMPACT ZONE RISK LEVEL OF 1.000E-06
RECEPTOR POPULATION = 0
RECEPTOR BURDEN = 0.000E+00

*** 70-YEAR LIFETIME DOSE (mg/kg/d) BY POLLUTANT FOR PEAK RECEPTOR # 885 ***

POLLUTANT	INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOTHER MILK	SUM
PAH	7.321E-11	2.233E-11	3.517E-11	0.000E+00	2.558E-10	0.000E+00	0.000E+00	3.865E-10
BUTAD	1.250E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.250E-11
ACETA	4.801E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.801E-08
BENZE	4.440E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.440E-09
HCHO	8.605E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.605E-08
PROX	5.515E-09	2.139E-09	1.011E-09	0.000E+00	1.927E-08	0.000E+00	0.000E+00	2.793E-08
DIESL	3.292E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.292E-06
As	4.672E-09	9.005E-10	4.255E-08	0.000E+00	1.773E-08	0.000E+00	0.000E+00	6.585E-08
Cd	9.343E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	9.343E-09
Cr	5.826E-09	1.123E-08	5.306E-08	0.000E+00	2.136E-08	0.000E+00	0.000E+00	9.147E-08
Ni	4.672E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.672E-09

*** MAXIMUM ACUTE HAZARD INDEX BY POLLUTANT ***

POLLUTANT	PEAK CONC (ug/m3)	BACKGR (ug/m3)	TOTAL (ug/m3)	AEL (ug/m3)	HAZARD INDEX	RECEPTOR
ACROL	0.000E+00	0.000E+00	0.000E+00	1.900E-01	0.000E+00	0
BENZE	2.658E-01	0.000E+00	2.658E-01	1.300E+03	2.044E-04	1973
HCHO	5.149E+00	0.000E+00	5.149E+00	9.400E+01	5.478E-02	1973
PROX	3.298E-01	0.000E+00	3.298E-01	3.100E+03	1.064E-04	1973
TOL	9.421E-01	0.000E+00	9.421E-01	3.700E+04	2.546E-05	1973
XYLEN	3.512E-01	0.000E+00	3.512E-01	2.200E+04	1.596E-05	1973
NH3	4.343E+01	0.000E+00	4.343E+01	3.200E+03	1.357E-02	1973
As	2.091E-04	0.000E+00	2.091E-04	1.900E-01	1.101E-03	713
Cu	5.216E-04	0.000E+00	5.216E-04	1.000E+02	5.216E-06	713
FLRID	9.398E-03	0.000E+00	9.398E-03	2.400E+02	3.916E-05	713
Hg	8.352E-05	0.000E+00	8.352E-05	1.800E+00	4.640E-05	713
Ni	2.091E-04	0.000E+00	2.091E-04	6.000E+00	3.485E-05	713
SO4	4.490E+00	0.000E+00	4.490E+00	1.200E+02	3.742E-02	713

*** ACUTE HAZARD INDEX BY POLLUTANT FOR PEAK RECEPTOR # 1973 ***

POLLUTANT	CONC (ug/m3)	BACKGR (ug/m3)	AEL (ug/m3)	CV	CNS	IMMUN	KIDN	LIVER	REPRO	RESP	EYE
ACROL	0.000E+00	0.000E+00	1.900E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	2.658E-01	0.000E+00	1.300E+03	2.044E-04	0.000E+00	2.044E-04	0.000E+00	0.000E+00	2.044E-04	0.000E+00	0.000E+00
HCHO	5.149E+00	0.000E+00	9.400E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.478E-02	5.478E-02
PROX	3.298E-01	0.000E+00	3.100E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.064E-04	1.064E-04
TOL	9.421E-01	0.000E+00	3.700E+04	0.000E+00	2.546E-05	0.000E+00	0.000E+00	0.000E+00	2.546E-05	2.546E-05	2.546E-05
XYLEN	3.512E-01	0.000E+00	2.200E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.596E-05	1.596E-05
NH3	4.343E+01	0.000E+00	3.200E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.357E-02	1.357E-02
As	2.988E-05	0.000E+00	1.900E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.572E-04	0.000E+00	0.000E+00
Cu	7.452E-05	0.000E+00	1.000E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.452E-07	0.000E+00
FLRID	1.343E-03	0.000E+00	2.400E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.595E-06	0.000E+00
Hg	1.193E-05	0.000E+00	1.800E+00	0.000E+00	6.630E-06	0.000E+00	6.630E-06	6.630E-06	0.000E+00	0.000E+00	0.000E+00
Ni	2.988E-05	0.000E+00	6.000E+00	0.000E+00	0.000E+00	4.980E-06	0.000E+00	0.000E+00	0.000E+00	4.980E-06	0.000E+00
SO4	6.415E-01	0.000E+00	1.200E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.346E-03	0.000E+00
			SUM =	2.044E-04	3.209E-05	2.094E-04	6.630E-06	6.630E-06	3.871E-04	7.386E-02	6.850E-02

*** MAXIMUM CHRONIC EXPOSURE BY POLLUTANT FROM ALL SOURCES ***

POL.	PATHWAY DOSE (mg/kg-d) INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOT MILK	NON-INH DOSE SUM	ACCEPTABL ORAL DOSE	INH CONC (ug/m3)	BACKGR (ug/m3)	AEL (ug/m3)	HAZARD INDEX	REC.
NAPTH	5.77E-08	1.76E-08	2.77E-08	0.00E+00	2.02E-07	0.00E+00	0.00E+00	2.47E-07	4.00E-03	2.02E-04	0.00E+00	9.00E+00	8.42E-05	2083
ETHLB	4.18E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-03	0.00E+00	2.00E+03	7.31E-07	2083
BUTAD	9.73E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-06	0.00E+00	2.00E+01	1.70E-07	2083
ACETA	3.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-02	0.00E+00	9.00E+00	1.45E-03	2083
ACROL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-02	0.00E+00	0
BENZE	3.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-03	0.00E+00	6.00E+01	2.02E-05	2083
HCHO	6.69E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.34E-02	0.00E+00	3.00E+00	7.81E-03	2083
NHEX	2.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.79E-03	0.00E+00	7.00E+03	1.40E-06	2083
PROPL	1.46E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.13E-02	0.00E+00	3.00E+03	1.71E-05	2083
PROX	4.29E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-03	0.00E+00	3.00E+01	5.01E-05	2083
TOL	1.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-03	0.00E+00	3.00E+02	1.43E-05	2083
XYLEN	4.59E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-03	0.00E+00	7.00E+02	2.29E-06	2083
NH3	5.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-01	0.00E+00	2.00E+02	9.71E-04	2083
DIESL	3.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-02	0.00E+00	5.00E+00	2.65E-03	42
As	5.07E-09	9.77E-10	4.62E-08	0.00E+00	1.92E-08	0.00E+00	0.00E+00	6.64E-08	3.00E-04	1.77E-05	0.00E+00	3.00E-02	8.12E-04	938
Br	5.31E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03	0.00E+00	1.70E+00	1.09E-03	938
Cd	1.01E-08	3.91E-09	9.23E-08	0.00E+00	9.92E-08	0.00E+00	0.00E+00	1.95E-07	5.00E-04	3.55E-05	0.00E+00	2.00E-02	2.16E-03	938
Cr	6.32E-09	1.22E-08	5.76E-08	0.00E+00	2.32E-08	0.00E+00	0.00E+00	9.29E-08	2.00E-02	2.21E-05	0.00E+00	2.00E-01	1.15E-04	938
Cu	1.26E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E-05	0.00E+00	2.40E+00	1.84E-05	938
FLRID	2.28E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.97E-04	0.00E+00	5.90E+00	1.35E-04	938
Mn	1.77E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.20E-05	0.00E+00	2.00E-01	3.10E-04	938
Hg	2.02E-09	3.90E-09	1.84E-08	0.00E+00	2.28E-08	0.00E+00	0.00E+00	4.52E-08	3.00E-04	7.08E-06	0.00E+00	9.00E-02	2.29E-04	938
Ni	5.07E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-05	0.00E+00	5.00E-02	3.55E-04	938
SO4	1.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.81E-01	0.00E+00	2.50E+01	1.52E-02	938
Zn	2.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.97E-05	0.00E+00	3.50E+01	2.28E-06	938

*** CHRONIC HAZARD INDEX BY POLLUTANT FOR PEAK RECEPTOR # 938 ***

POLLUTANT	ORAL DOSE (mg/kg-d)	BACKGR (ug/m3)	AEL (ug/m3)	CV	CNS	IMMUN	KIDN	LIVER	REPRO	RESP	SKIN
NAPTH	4.000E-03	0.000E+00	9.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.512E-07	0.000E+00
ETHLB	0.000E+00	0.000E+00	2.000E+03	0.000E+00	0.000E+00	0.000E+00	1.797E-08	1.797E-08	1.797E-08	0.000E+00	0.000E+00
BUTAD	0.000E+00	0.000E+00	2.000E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.182E-09	0.000E+00	0.000E+00
ACETA	0.000E+00	0.000E+00	9.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.569E-05	0.000E+00
ACROL	0.000E+00	0.000E+00	6.000E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	0.000E+00	0.000E+00	6.000E+01	4.951E-07	4.951E-07	0.000E+00	0.000E+00	0.000E+00	4.951E-07	0.000E+00	0.000E+00
HCHO	0.000E+00	0.000E+00	3.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.919E-04	0.000E+00
NHEX	0.000E+00	0.000E+00	7.000E+03	0.000E+00	3.435E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	0.000E+00	0.000E+00	3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.198E-07	0.000E+00
PROX	0.000E+00	0.000E+00	3.000E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.230E-06	0.000E+00
TOL	0.000E+00	0.000E+00	3.000E+02	0.000E+00	3.520E-07	0.000E+00	0.000E+00	0.000E+00	3.520E-07	3.520E-07	0.000E+00
XYLEN	0.000E+00	0.000E+00	7.000E+02	0.000E+00	5.634E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.634E-08	0.000E+00
NH3	0.000E+00	0.000E+00	2.000E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.385E-05	0.000E+00
DIESL	0.000E+00	0.000E+00	5.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.046E-03	0.000E+00
As	3.000E-04	0.000E+00	3.000E-02	8.124E-04	8.124E-04	0.000E+00	0.000E+00	0.000E+00	8.124E-04	0.000E+00	0.000E+00
Br	0.000E+00	0.000E+00	1.700E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.092E-03	0.000E+00
Cd	5.000E-04	0.000E+00	2.000E-02	0.000E+00	0.000E+00	0.000E+00	2.164E-03	0.000E+00	0.000E+00	1.774E-03	0.000E+00
Cr	2.000E-02	0.000E+00	2.000E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.106E-04	0.000E+00
Cu	0.000E+00	0.000E+00	2.400E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.843E-05	0.000E+00
FLRID	0.000E+00	0.000E+00	5.900E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.351E-04	1.351E-04
Mn	0.000E+00	0.000E+00	2.000E-01	0.000E+00	3.099E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Hg	3.000E-04	0.000E+00	9.000E-02	2.292E-04	2.292E-04	0.000E+00	2.292E-04	2.292E-04	2.292E-04	7.871E-05	0.000E+00
Ni	0.000E+00	0.000E+00	5.000E-02	0.000E+00	0.000E+00	3.547E-04	3.547E-04	0.000E+00	0.000E+00	3.547E-04	0.000E+00
SO4	0.000E+00	0.000E+00	2.500E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.523E-02	0.000E+00
Zn	0.000E+00	0.000E+00	3.500E+01	2.277E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.277E-06	0.000E+00
			SUM =	1.044E-03	1.352E-03	3.547E-04	2.748E-03	2.293E-04	1.043E-03	2.110E-02	1.351E-04

*** SUMMARY OF MAXIMUM PREDICTED RISKS ***

CANCER RISK ASSESSMENT

```
SIGNIFICANT RISK LEVEL =     1.000E-05
IMPACT ZONE RISK LEVEL =     1.000E-06
MAXIMUM PEAK RISK =          6.850E-06
PREDICTED AT RECEPTOR #            885
TOTAL EXCESS BURDEN =        0.000E+00

    0 RECEPTORS WITH RISK EXCEEDING SIGNIFICANT RISK LEVEL OF    1.000E-05
```

ACUTE EXPOSURE TO NON-CANCER POLLUTANTS

```
SIGNIFICANT HAZARD INDEX  =                 1.0000
MAXIMUM HAZARD INDEX FOR AN ENDPOINT =      0.0739
PREDICTED AT RECEPTOR #                       1973

    0 RECEPTORS WITH HAZARD INDEX .GE.     1.0000 FOR ONE OR MORE TOXICOLOGICAL ENDPOINTS
```

CHRONIC EXPOSURE TO NON-CANCER POLLUTANTS

```
SIGNIFICANT HAZARD INDEX =                  1.0000
MAXIMUM HAZARD INDEX FOR AN ENDPOINT =      0.0211
PREDICTED AT RECEPTOR #                        938

    0 RECEPTORS WITH HAZARD INDEX .GE.     1.0000 FOR ONE OR MORE TOXICOLOGICAL ENDPOINTS
```

K-14: Offsite Consequence Analysis

Appendix K-14
Offsite Consequence Analysis

The Tesla Power Plant (TPP) is required by both the Clean Air Act and the Bay Area Air Quality Management District to install Best Available Control Technology to control emissions of criteria air pollutants from the combustion turbines. The TPP turbines will incorporate dry low NOx combustors that reduce emissions of oxides of nitrogen (NOx), carbon monoxide (CO), and volatile organic compounds (VOC). In addition, the turbines (and duct burner) emissions of NOx will be further reduced through the use of selective catalytic reduction (SCR). The SCR control system utilizes ammonia as the reduction medium in the presence of a catalyst. Two forms of ammonia may be used in currently designed SCR systems, i.e., anhydrous ammonia or aqueous ammonia. The TPP facility is proposing to use aqueous ammonia in a 19.0% (by weight) solution. Chapter 3.0 of the AFC contains a detailed description of the facility location and process data. Figure 3.4-1 (Chapter 3.0) shows the facility site plan. The aqueous ammonia tank is delineated as structure "C". Aqueous ammonia is a water based ammonia solution, which can be mixed and delivered, in a wide variety of solution ratios. Solution mix ratios less than 30% (weight basis) are the most common. When spilled, aqueous ammonia solutions will slowly vaporize, releasing ammonia vapors. According to data prepared for the CEC by Ebasco (*Ammonia Release Risk Mitigation Guidance for Power Plants-Draft Report, November 1989*) when ammonia is diluted with water to solutions of less than or equal to 20% by volume, evaporation of ammonia gas from the fluid becomes negligible. The guidance further states that when ammonia is diluted with water at ambient temperatures to solutions less than 25% by weight, ammonia vapor pressure is reduced to atmospheric pressure, i.e., the evaporation of ammonia gas from the fluid would be negligible.

Accidental releases of aqueous ammonia in industrial use situations are rare. Statistics compiled on the normalized accident rates for RMP chemicals for the years 1994-1999 from *Chemical Accident Risks in U.S. Industry-A Preliminary Analysis of Accident Risk Data from U.S. Hazardous Chemical Facilities, J. C. Belke, Sept 2000,* indicates that aqueous ammonia averages 0.017 accidental releases per process per year, and 0.018 accidental releases per million pounds stored per year. Data derived from *The Center for Chemical Process Safety, 1989*, indicates the following accidental release scenarios and probabilities for ammonia in general.

Accident Scenario	Failure Probability
Onsite Truck Release	0.0000022
Loading Line Failure	0.005
Storage Tank Failure	0.000095
Process Line Failure	0.00053
Evaporator Failure	0.00015

TPP will store aqueous ammonia in a stationary, fixed roof storage tank. The tank capacity will be approximately 50,000 gallons. The tank will be enclosed by a containment berm capable of containing the full contents of the tank as well as incidental rainwater. The approximate berm dimensions are as follows:

- Length 45 ft.
- Width 45 ft.
- Depth 3.5 ft.

The surface area of the bermed area will be 2025 sq.ft., and the volume will be approximately 53,000 gallons.

An offsite consequence analysis (OCA) was performed for the release scenario involving the complete failure and discharge of the storage tank contents into the secondary containment area. In addition, an alternative release scenario was also evaluated, i.e., failure of the truck unloading hose with a resultant spill to the ground surface.

Table 1 shows the meteorological data values used in the modeling scenarios.

Table 1
Meteorological Data for Release Scenarios

Parameter	Worst Case Met	Alternate Case Met
Wind Speed m/sec	1.5	3
Stability Class	F	D
Relative Humidity %	50	50
Ambient Temperature deg C	31.9[1]	25

1 Temperature data from the Livermore station.

A total of four (4) modeling runs were conducted, i.e., tank failure and truck unloading hose failure for the met scenarios listed in Table 1.

OCA modeling was conducted using the SLAB model. A complete description of the SLAB model is available in *User's Manual for SLAB: An Atmospheric Dispersion Model for Denser-Than-Air-Releases, D. E. Ermak, Lawrence Livermore National Laboratory, June 1990.* The current version of SLAB contains an internal substance database which includes chemical specific data for ammonia. This data was used in all modeling runs without exception or modification.

Emissions of ammonia from the aqueous ammonia solution were calculated pursuant to the equations and guidance given in *RMP Offsite Consequence Analysis Guidance, EPA, April 1999.* The equation used to predict the emissions is as follows;

Eq 1. $QR=(1.4)(LFA)(A)(Tcf)$

Where QR = emissions rate, lbs/min
LFA = liquid factor ambient (0.015, 19% solution)
A = diked surface area, sq.ft.
Tcf = 1.37

Unadjusted emissions for the tank rupture scenario would be as follows:

$QR=(1.4)(0.015)(2025)$

= 42.53 lbs/min
for a 10 minute release
= 425.3 lbs/10 minutes

Emissions adjusted for the temperature correction factor of 1.37 for the worst case scenario would be:

TCF = 1.37
42.53 lbs/min X 1.37 = 58.27 lbs/min
= 582.7 lbs/10 minutes

Please note that per *Risk Management Program Guidance for WWTPs, EPA-OSWER, October 1998*, ammonia emissions from the diked area are only calculated for the first 10 minutes of the spill life. EPA states that the release of ammonia from the aqueous solution should only be used for the first 10 minutes after which the ammonia in the pool (diked area) will be more dilute than it was initially and will be evaporating much less rapidly.

Emissions for the truck unloading hose failure scenario would be as follows:

Hose length = 25 ft.
Hose diameter (ID) = 4 in.
Hose volume = 2.2 cu.ft. or 16.5 gallons

For conservative purposes, the hose volume was doubled to account for truck drainage losses.

Total product spilled = 33 gallons
@ ~7.5 lbs/gal
= 247.5 lbs spilled to ground surface
Total ammonia spilled = 47.03 lbs. (based on a 19% by wt. solution)

Surface area of the spill (m^2) = 33 gals ÷ 2.642
= 12.5 m^2

For the hose failure scenario, the conservative assumption that all ammonia in the aqueous mixture is lost within the 10-minute release period, i.e., 47.03 lbs.

The specified toxic endpoint (Te) value for ammonia is 0.14 mg/l which is approximately equal to 201 ppm. The Te value is based on a one-hour exposure, therefore, the modeling concentrations at all offsite receptors will be given in terms of one-hour (or 60 minute) exposures. A 19% solution of aqueous ammonia has an approximate vapor pressure of 222 mm/Hg at 70 deg F.

The ammonia storage and unloading area is located at the following UTM coordinates: 625996.43m E, 4176036.18m N. Table 2 presents data on the identified sensitive receptors (per the AFC) and the distances from the tank/unloading area. The tank/unloading area is approximately 32m from the nearest main facility fence line (to the west) and 76m from the nearest inner property fenceline (to the north). The closest point from the tank area to the outer property fenceline lies approximately 65m to the NW.

Table 2
Sensitive Receptors Within 4 KM of the Ammonia Storage Area.

Receptor Name	Receptor Type	Direction from TPP	Distance from TPP Tank Area
Altamont Raceway	Public Use Raceway	NNE	4.0 km
Nearest Residence	Residence	SE	1.6 km
Mulqueeny Ranch	Residence	S	1.9 km

With respect to the assessment of potential impacts associated with an accidental release of ammonia, four offsite "bench mark" exposure levels are typically evaluated, as follows; (1) the lowest concentration posing a risk of lethality, 2000 ppm; (2) the Immediately Dangerous to Life and Health (IDLH) level of 300 ppm; (3) the Emergency Response Planning Guideline (ERPG) level of 200 ppm, which is also the RMP level 1 criterion used by the USEPA and California; and (4) the level considered by CEC staff to be without serious adverse effects on the public for a one-time exposure of 75 ppm (*Preliminary Staff Assessment-Otay Mesa Generating Project, 99-AFC-5, May 2000)*.

Table 3 delineates a summary of the OCA results.

Table 3 OCA Summary

Scenario	Distance to CalARP Te of 201 ppm 1 Hour Exposure	Distance to CEC-LOC of 75 ppm 30 Min Exposure	Sensitive Receptors Impacted
Worst Case	~20m	~ 20m	None
Alternate Case	~ 24m	~ 75m	None

Figures 1 and 2 show the individual scenario results in terms of concentration vs. downwind distance for a 1 hour exposure for the CalARP Te level of 201 ppm. Figures 1a and 2a show the individual scenario results for the CEC-LOC value of 75 ppm for a 30 minute exposure.

In summary, the conservative OCA analysis for the aqueous ammonia worst and alternate case releases scenarios indicates that offsite impacts may occur for both the 1 hour and 30 minute exposure levels at locations immediately past the inner site fence line but within the outer plant fence line for all directional scenarios except releases which would be transported to the WNW through NNW. In these instances offsite impacts would occur beyond the outer property fenceline. Presently this area is uninhabited and it is highly unlikely that any development would occur that would result in the location of a sensitive receptor on the NW side of the proposed plant site. No impacts occurred at any identified sensitive receptor location.

Figure 1
1.5 Meter Centerline Plot
Worst Case Scenario-Tank Failure

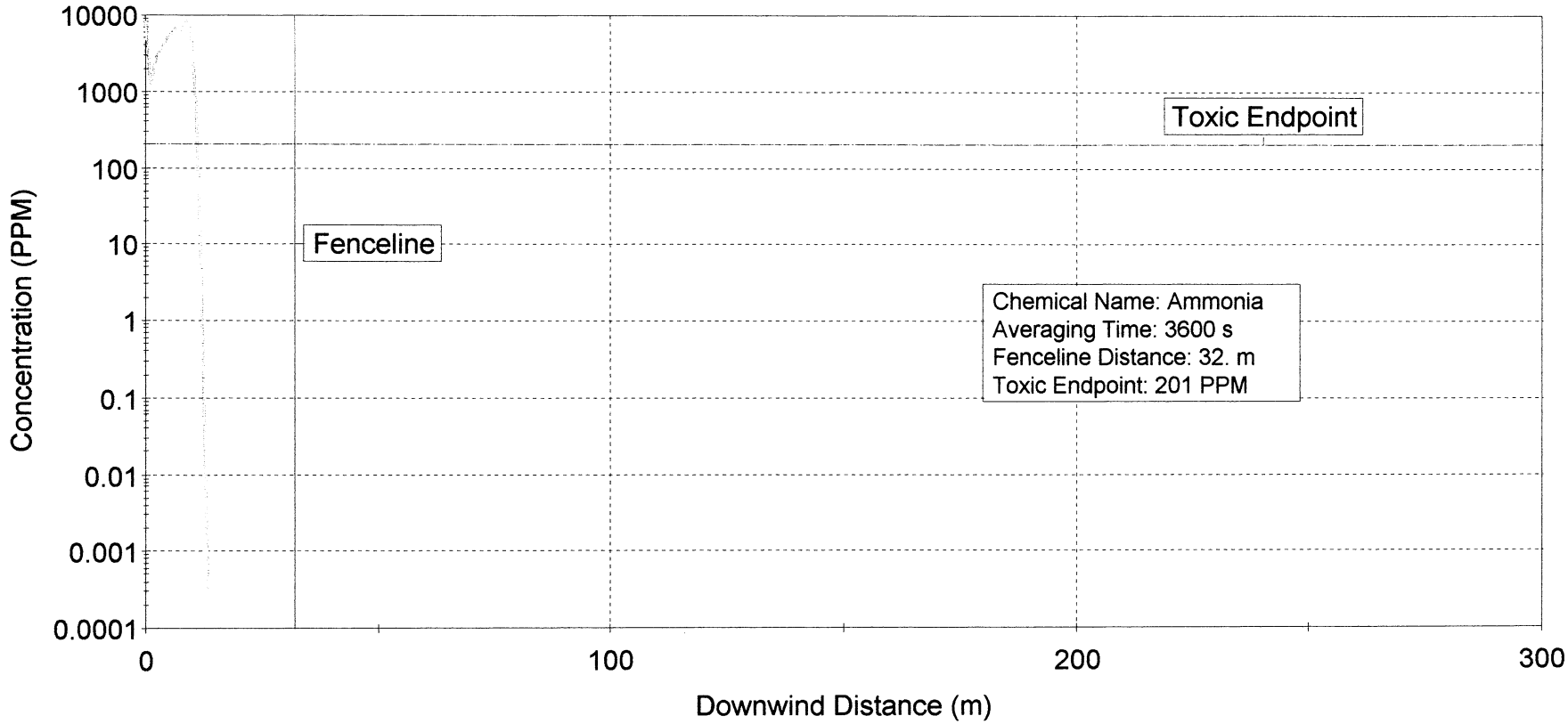


Figure 2
1.5 Meter Centerline Plot
Alternate Case Scenario-Hose Failure

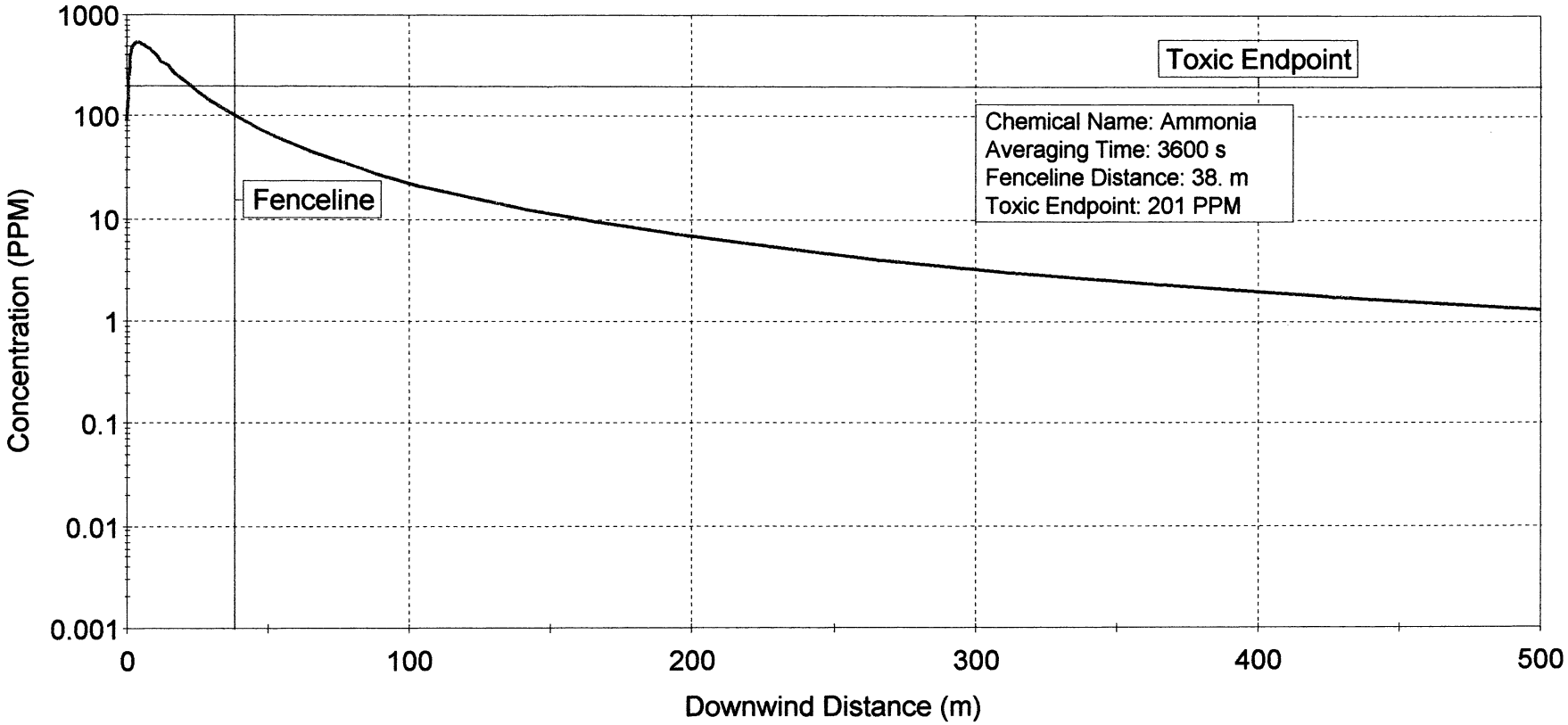


Figure 1A
1.5 Meter Centerline Plot
Worst Case Scenario-Tank Failure

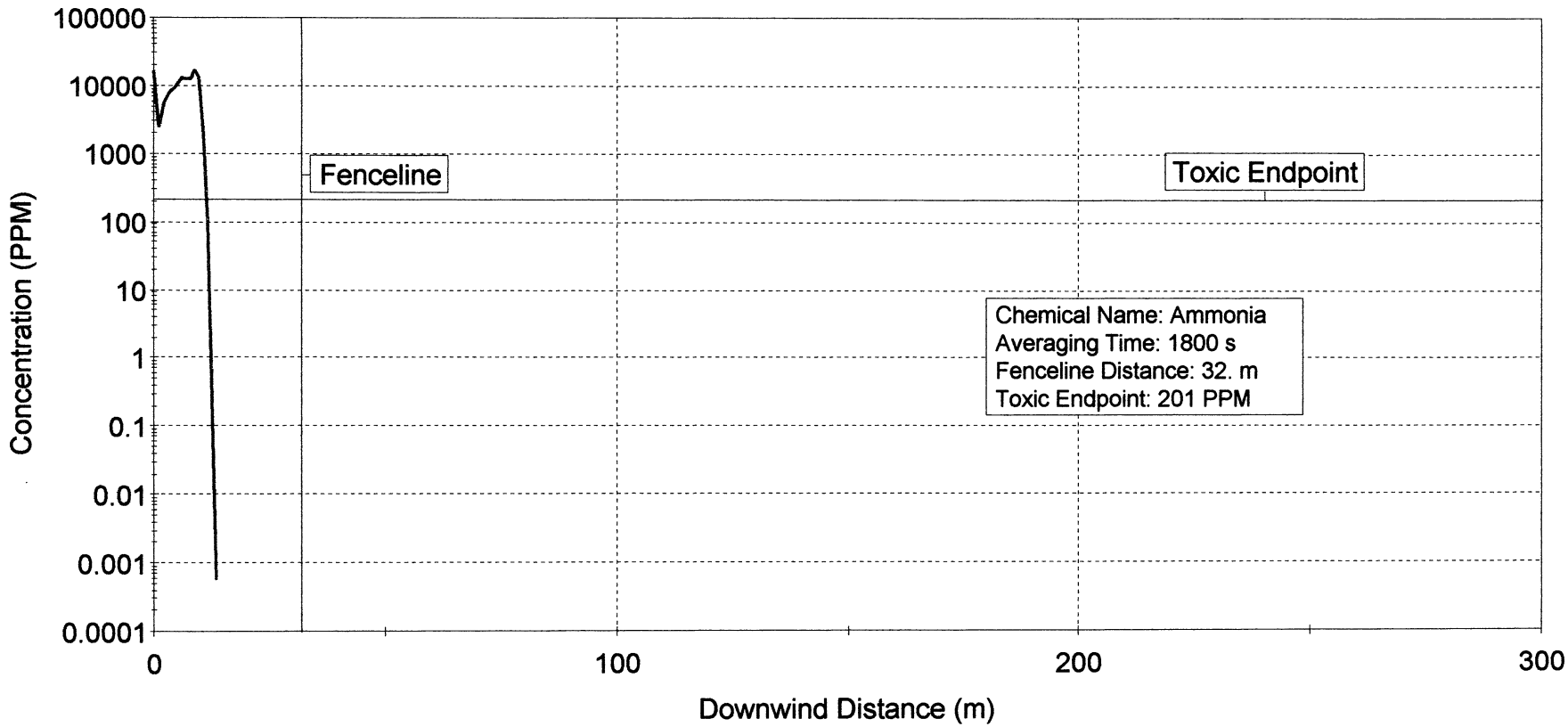
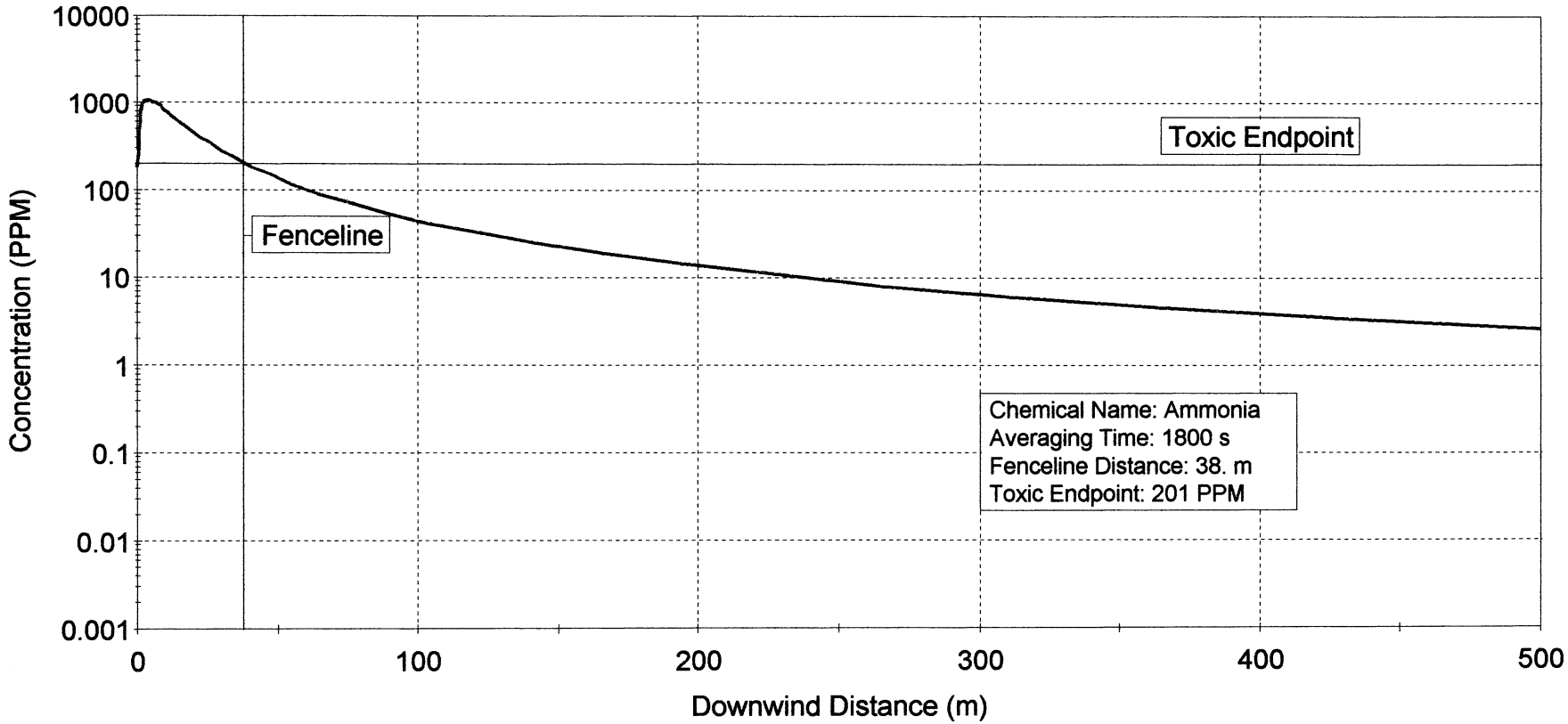


Figure 2A
1.5 Meter Centerline Plot
Alternate Case Scenario-Hose Failure



SESSION INFORMATION

INPUT DATA FILE NAME : C:\FPL\TESLA\NH3TANK.SLB
OUTPUT LIST FILE NAME : C:\FPL\TESLA\NH3TANK.LST

problem input

```
idspl =        1
ncalc =        1
wms   =  0.017031
cps   =   2093.65
tbp   =    239.70
cmed0 =      0.83
dhe   =  1370837.
cpsl  =   4956.39
rhosl =    639.00
spb   =   2132.50
spc   =    -32.98
ts    =    304.90
qs    =      0.44
as    =    188.13
tsd   =      600.
qtis  =      0.00
hs    =      0.00
tav   =   3600.00
xffm  =    300.00
zp(1) =      1.50
zp(2) =      0.00
zp(3) =      0.00
zp(4) =      0.00
z0    =  0.100000
za    =     10.00
ua    =      1.50
ta    =    304.90
rh    =     50.00
stab  =      6.00
```

release gas properties

```
molecular weight of source gas (kg)          - wms  =  1.7031E-02
vapor heat capacity, const. p.  (j/kg-k)     - cps  =  2.0936E+03
temperature of source gas (k)                - ts   =  2.3970E+02
density of source gas (kg/m3)                - rhos =  8.6589E-01
boiling point temperature                    - tbp  =  2.3970E+02
liquid mass fraction                         - cmed0=  0.0000E+00
liquid heat capacity (j/kg-k)                - cpsl =  4.9564E+03
heat of vaporization (j/kg)                  - dhe  =  1.3708E+06
liquid source density (kg/m3)                - rhosl=  6.3900E+02
saturation pressure constant                 - spa  =  1.0316E+01
saturation pressure constant (k)             - spb  =  2.1325E+03
saturation pressure constant (k)             - spc  = -3.2980E+01
```

spill characteristics

```
spill type                                   - idspl=          1
mass source rate (kg/s)                      - qs   =  4.4091E-01
continuous source duration (s)               - tsd  =  6.0000E+02
continuous source mass (kg)                  - qtcs =  2.6455E+02
instantaneous source mass (kg)               - qtis =  0.0000E+00
source area (m2)                             - as   =  1.8813E+02
vertical vapor velocity (m/s)                - ws   =  2.7067E-03
source half width (m)                        - bs   =  6.8580E+00
source height (m)                            - hs   =  0.0000E+00
```

horizontal vapor velocity (m/s) - us = 0.0000E+00

field parameters

concentration averaging time (s) - tav = 3.6000E+03
mixing layer height (m) - hmx = 2.6000E+02
maximum downwind distrace (m) - xffm = 3.0000E+02
concentration measurement height (m) - zp(1)= 1.5000E+00
- zp(2)= 0.0000E+00
- zp(3)= 0.0000E+00
- zp(4)= 0.0000E+00

ambient meteorological properties

molecular weight of ambient air (kg) - wmae = 2.8689E-02
heat capacity of ambient air at const p. (j/kg-k)- cpaa = 1.0189E+03
density of ambient air (kg/m3) - rhoa = 1.1467E+00
ambient measurement height (m) - za = 1.0000E+01
ambient atmospheric pressure (pa=n/m2=j/m3) - pa = 1.0133E+05
ambient wind speed (m/s) - ua = 1.5000E+00
ambient temperature (k) - ta = 3.0490E+02
relative humidity (percent) - rh = 5.0000E+01
ambient friction velocity (m/s) - uastr = 6.1310E-02
atmospheric stability class value - stab = 6.0000E+00
inverse monin-obukhov length (1/m) - ala = 5.7143E-02
surface roughness height (m) - z0 = 1.0000E-01

additional parameters

sub-step multiplier - ncalc = 1
number of calculational sub-steps - nssm = 3
acceleration of gravity (m/s2) - grav = 9.8067E+00
gas constant (j/mol- k) - rr = 8.3143E+00
von karman constant - xk = 4.1000E-01
1

instantaneous spatially averaged cloud parameters

x	zc	h	bb	b	bbx	bx	cv	rho	t	u	ua
-6.86E+00	0.00E+00	0.00E+00	6.86E+00	6.17E+00	6.86E+00	6.86E+00	0.00E+00	1.15E+00	3.05E+02	0.00E+00	0.00E+00
-5.49E+00	0.00E+00	1.07E+00	6.91E+00	6.17E+00	7.54E+00	7.54E+00	1.48E-02	1.14E+00	3.04E+02	2.95E-01	3.06E-01
-4.11E+00	0.00E+00	1.34E+00	6.97E+00	6.17E+00	8.23E+00	8.23E+00	2.19E-02	1.14E+00	3.03E+02	3.15E-01	3.57E-01
-2.74E+00	0.00E+00	1.62E+00	7.05E+00	6.17E+00	8.92E+00	8.91E+00	2.70E-02	1.14E+00	3.03E+02	3.13E-01	4.03E-01
-1.37E+00	0.00E+00	1.97E+00	7.17E+00	6.17E+00	9.60E+00	9.60E+00	3.12E-02	1.14E+00	3.03E+02	2.92E-01	4.54E-01
4.17E-07	0.00E+00	2.52E+00	7.37E+00	6.18E+00	1.03E+01	1.03E+01	3.45E-02	1.14E+00	3.02E+02	2.50E-01	5.25E-01
1.37E+00	0.00E+00	3.83E+00	7.83E+00	6.18E+00	1.10E+01	1.10E+01	3.57E-02	1.14E+00	3.02E+02	1.80E-01	6.60E-01
2.74E+00	0.00E+00	2.38E+01	1.19E+01	6.16E+00	1.17E+01	1.17E+01	6.12E-04	1.15E+00	3.05E+02	1.30E+00	1.46E+00
4.11E+00	0.00E+00	2.40E+01	1.20E+01	6.16E+00	1.23E+01	1.23E+01	6.96E-04	1.15E+00	3.05E+02	1.29E+00	1.46E+00
5.49E+00	0.00E+00	2.42E+01	1.21E+01	6.16E+00	1.30E+01	1.30E+01	7.79E-04	1.15E+00	3.05E+02	1.28E+00	1.47E+00
6.86E+00	4.88E-05	2.43E+01	1.22E+01	6.16E+00	1.37E+01	1.37E+01	8.61E-04	1.15E+00	3.05E+02	1.27E+00	1.47E+00
6.95E+00	1.11E-04	2.44E+01	1.22E+01	6.16E+00	1.38E+01	1.38E+01	8.60E-04	1.15E+00	3.05E+02	1.27E+00	1.47E+00
7.05E+00	1.95E-04	2.44E+01	1.22E+01	6.16E+00	1.39E+01	1.39E+01	8.60E-04	1.15E+00	3.05E+02	1.27E+00	1.47E+00

7.16E+00	3.07E-04	2.44E+01	1.22E+01	6.16E+00	1.40E+01	1.40E+01	8.60E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.29E+00	4.54E-04	2.44E+01	1.22E+01	6.16E+00	1.41E+01	1.41E+01	8.59E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.43E+00	6.48E-04	2.44E+01	1.22E+01	6.16E+00	1.43E+01	1.43E+01	8.59E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.59E+00	9.02E-04	2.44E+01	1.22E+01	6.16E+00	1.45E+01	1.44E+01	8.58E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.78E+00	1.23E-03	2.44E+01	1.22E+01	6.16E+00	1.46E+01	1.46E+01	8.57E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.98E+00	1.66E-03	2.44E+01	1.22E+01	6.16E+00	1.48E+01	1.48E+01	8.57E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
8.22E+00	2.22E-03	2.44E+01	1.22E+01	6.16E+00	1.51E+01	1.51E+01	8.56E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
8.48E+00	2.94E-03	2.44E+01	1.23E+01	6.16E+00	1.53E+01	1.53E+01	8.55E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
8.78E+00	3.88E-03	2.44E+01	1.23E+01	6.16E+00	1.56E+01	1.56E+01	8.54E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
9.11E+00	5.08E-03	2.44E+01	1.23E+01	6.16E+00	1.60E+01	1.60E+01	8.53E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
9.49E+00	6.62E-03	2.44E+01	1.23E+01	6.16E+00	1.63E+01	1.63E+01	8.52E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
9.92E+00	8.59E-03	2.43E+01	1.23E+01	6.16E+00	1.68E+01	1.68E+01	8.50E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.04E+01	1.11E-02	2.43E+01	1.23E+01	6.16E+00	1.73E+01	1.73E+01	8.48E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.09E+01	1.44E-02	2.43E+01	1.24E+01	6.16E+00	1.78E+01	1.78E+01	8.47E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.16E+01	1.85E-02	2.43E+01	1.24E+01	6.16E+00	1.84E+01	1.84E+01	8.45E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.23E+01	2.38E-02	2.43E+01	1.24E+01	6.16E+00	1.91E+01	1.91E+01	8.42E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.30E+01	3.06E-02	2.43E+01	1.25E+01	6.16E+00	1.99E+01	1.99E+01	8.40E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.39E+01	3.92E-02	2.43E+01	1.25E+01	6.16E+00	2.08E+01	2.08E+01	8.37E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.49E+01	5.02E-02	2.43E+01	1.26E+01	6.16E+00	2.18E+01	2.18E+01	8.33E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.61E+01	6.42E-02	2.43E+01	1.26E+01	6.16E+00	2.29E+01	2.29E+01	8.30E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.73E+01	8.19E-02	2.43E+01	1.27E+01	6.16E+00	2.42E+01	2.42E+01	8.26E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.88E+01	1.04E-01	2.43E+01	1.27E+01	6.16E+00	2.56E+01	2.56E+01	8.21E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.04E+01	1.33E-01	2.43E+01	1.28E+01	6.16E+00	2.72E+01	2.72E+01	8.16E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.22E+01	1.69E-01	2.43E+01	1.29E+01	6.16E+00	2.91E+01	2.91E+01	8.11E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.43E+01	2.15E-01	2.43E+01	1.30E+01	6.16E+00	3.11E+01	3.11E+01	8.04E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.66E+01	2.73E-01	2.42E+01	1.31E+01	6.16E+00	3.35E+01	3.35E+01	7.98E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.92E+01	3.46E-01	2.42E+01	1.32E+01	6.16E+00	3.61E+01	3.61E+01	7.90E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
3.22E+01	4.38E-01	2.42E+01	1.33E+01	6.16E+00	3.91E+01	3.91E+01	7.82E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
3.56E+01	5.54E-01	2.42E+01	1.35E+01	6.16E+00	4.24E+01	4.24E+01	7.73E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
3.94E+01	7.00E-01	2.42E+01	1.36E+01	6.16E+00	4.62E+01	4.62E+01	7.62E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
4.36E+01	8.83E-01	2.42E+01	1.38E+01	6.16E+00	5.05E+01	5.05E+01	7.51E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
4.85E+01	1.11E+00	2.41E+01	1.40E+01	6.16E+00	5.53E+01	5.53E+01	7.39E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
5.39E+01	1.40E+00	2.41E+01	1.43E+01	6.16E+00	6.08E+01	6.08E+01	7.26E-04	1.15E+00	3.05E+02	1.30E+00
1.47E+00										
6.01E+01	1.75E+00	2.41E+01	1.45E+01	6.16E+00	6.69E+01	6.69E+01	7.12E-04	1.15E+00	3.05E+02	1.30E+00
1.47E+00										
6.70E+01	2.20E+00	2.41E+01	1.48E+01	6.16E+00	7.39E+01	7.38E+01	6.97E-04	1.15E+00	3.05E+02	1.30E+00
1.47E+00										

7.48E+01	2.75E+00	2.41E+01	1.51E+01	6.16E+00	8.17E+01	8.17E+01	6.81E-04	1.15E+00	3.05E+02	1.31E+00
1.47E+00										
8.37E+01	3.43E+00	2.40E+01	1.55E+01	6.16E+00	9.05E+01	9.05E+01	6.63E-04	1.15E+00	3.05E+02	1.31E+00
1.46E+00										
9.37E+01	4.27E+00	2.40E+01	1.59E+01	6.16E+00	1.01E+02	1.01E+02	6.45E-04	1.15E+00	3.05E+02	1.31E+00
1.46E+00										
1.05E+02	5.31E+00	2.40E+01	1.64E+01	6.16E+00	1.12E+02	1.12E+02	6.25E-04	1.15E+00	3.05E+02	1.32E+00
1.46E+00										
1.18E+02	6.58E+00	2.40E+01	1.69E+01	6.16E+00	1.24E+02	1.24E+02	6.05E-04	1.15E+00	3.05E+02	1.32E+00
1.46E+00										
1.32E+02	8.14E+00	2.39E+01	1.75E+01	6.16E+00	1.39E+02	1.39E+02	5.83E-04	1.15E+00	3.05E+02	1.33E+00
1.46E+00										
1.48E+02	1.00E+01	2.39E+01	1.81E+01	6.16E+00	1.55E+02	1.55E+02	5.61E-04	1.15E+00	3.05E+02	1.33E+00
1.46E+00										
1.66E+02	1.23E+01	2.38E+01	1.88E+01	6.16E+00	1.73E+02	1.73E+02	5.37E-04	1.15E+00	3.05E+02	1.35E+00
1.47E+00										
1.87E+02	1.50E+01	2.33E+01	1.96E+01	6.16E+00	1.94E+02	1.94E+02	5.04E-04	1.15E+00	3.05E+02	1.41E+00
1.52E+00										
2.10E+02	1.81E+01	2.29E+01	2.04E+01	6.16E+00	2.17E+02	2.17E+02	4.73E-04	1.15E+00	3.05E+02	1.47E+00
1.58E+00										
2.37E+02	2.15E+01	2.24E+01	2.14E+01	6.16E+00	2.44E+02	2.44E+02	4.43E-04	1.15E+00	3.05E+02	1.53E+00
1.63E+00										
2.66E+02	2.54E+01	2.19E+01	2.24E+01	6.16E+00	2.73E+02	2.73E+02	4.14E-04	1.15E+00	3.05E+02	1.59E+00
1.69E+00										
3.00E+02	2.98E+01	2.14E+01	2.36E+01	6.16E+00	3.07E+02	3.07E+02	3.87E-04	1.15E+00	3.05E+02	1.66E+00
1.75E+00										
1										

x	cm	cmv	cmda	cmw	cmwv	wc	vg	ug	w	v
vx										
-6.86E+00	0.00E+00	0.00E+00	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	1.00E+00	3.12E-02
0.00E+00										
-5.49E+00	8.84E-03	8.84E-03	9.76E-01	1.54E-02	1.54E-02	0.00E+00	0.00E+00	0.00E+00	4.93E-02	6.22E-03
9.37E-02										
-4.11E+00	1.31E-02	1.31E-02	9.72E-01	1.54E-02	1.54E-02	0.00E+00	0.00E+00	0.00E+00	3.99E-02	8.01E-03
1.05E-01										
-2.74E+00	1.62E-02	1.62E-02	9.68E-01	1.53E-02	1.53E-02	0.00E+00	0.00E+00	0.00E+00	3.18E-02	1.12E-02
1.15E-01										
-1.37E+00	1.87E-02	1.87E-02	9.66E-01	1.53E-02	1.53E-02	0.00E+00	0.00E+00	0.00E+00	2.52E-02	1.68E-02
1.26E-01										
4.17E-07	2.07E-02	2.07E-02	9.64E-01	1.52E-02	1.52E-02	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.62E-02
1.41E-01										
1.37E+00	2.15E-02	2.15E-02	9.63E-01	1.52E-02	1.52E-02	0.00E+00	0.00E+00	0.00E+00	2.38E-02	4.40E-02
1.71E-01										
2.74E+00	3.64E-04	3.64E-04	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	4.40E-03	3.17E-02
3.13E-01										
4.11E+00	4.13E-04	4.13E-04	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	4.52E-03	3.22E-02
3.13E-01										
5.49E+00	4.63E-04	4.63E-04	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	4.64E-03	3.28E-02
3.13E-01										
6.86E+00	5.11E-04	5.11E-04	9.84E-01	1.56E-02	1.56E-02	8.14E-04	0.00E+00	0.00E+00	4.80E-03	3.35E-02
3.14E-01										
6.95E+00	5.11E-04	5.11E-04	9.84E-01	1.56E-02	1.56E-02	9.73E-04	0.00E+00	0.00E+00	4.86E-03	3.38E-02
3.14E-01										
7.05E+00	5.11E-04	5.11E-04	9.84E-01	1.56E-02	1.56E-02	1.15E-03	0.00E+00	0.00E+00	4.86E-03	3.38E-02
3.14E-01										
7.16E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	1.35E-03	0.00E+00	0.00E+00	4.86E-03	3.38E-02
3.14E-01										
7.29E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	1.58E-03	0.00E+00	0.00E+00	4.85E-03	3.37E-02
3.14E-01										
7.43E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	1.84E-03	0.00E+00	0.00E+00	4.85E-03	3.37E-02
3.14E-01										
7.59E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	2.13E-03	0.00E+00	0.00E+00	4.85E-03	3.37E-02
3.14E-01										
7.78E+00	5.09E-04	5.09E-04	9.84E-01	1.56E-02	1.56E-02	2.46E-03	0.00E+00	0.00E+00	4.84E-03	3.37E-02
3.14E-01										
7.98E+00	5.09E-04	5.09E-04	9.84E-01	1.56E-02	1.56E-02	2.83E-03	0.00E+00	0.00E+00	4.84E-03	3.37E-02
3.14E-01										
8.22E+00	5.08E-04	5.08E-04	9.84E-01	1.56E-02	1.56E-02	3.24E-03	0.00E+00	0.00E+00	4.83E-03	3.37E-02
3.14E-01										

8.48E+00	5.08E-04	5.08E-04	9.84E-01	1.56E-02	1.56E-02	3.71E-03	0.00E+00	0.00E+00	4.82E-03	3.37E-02
3.14E-01										
8.78E+00	5.07E-04	5.07E-04	9.84E-01	1.56E-02	1.56E-02	4.24E-03	0.00E+00	0.00E+00	4.81E-03	3.37E-02
3.14E-01										
9.11E+00	5.06E-04	5.06E-04	9.84E-01	1.56E-02	1.56E-02	4.83E-03	0.00E+00	0.00E+00	4.80E-03	3.37E-02
3.14E-01										
9.49E+00	5.06E-04	5.06E-04	9.84E-01	1.56E-02	1.56E-02	5.50E-03	0.00E+00	0.00E+00	4.79E-03	3.36E-02
3.14E-01										
9.92E+00	5.05E-04	5.05E-04	9.84E-01	1.56E-02	1.56E-02	6.25E-03	0.00E+00	0.00E+00	4.78E-03	3.36E-02
3.14E-01										
1.04E+01	5.04E-04	5.04E-04	9.84E-01	1.56E-02	1.56E-02	7.09E-03	0.00E+00	0.00E+00	4.76E-03	3.36E-02
3.14E-01										
1.09E+01	5.03E-04	5.03E-04	9.84E-01	1.56E-02	1.56E-02	8.04E-03	0.00E+00	0.00E+00	4.74E-03	3.36E-02
3.14E-01										
1.16E+01	5.02E-04	5.02E-04	9.84E-01	1.56E-02	1.56E-02	9.10E-03	0.00E+00	0.00E+00	4.73E-03	3.35E-02
3.14E-01										
1.23E+01	5.00E-04	5.00E-04	9.84E-01	1.56E-02	1.56E-02	1.03E-02	0.00E+00	0.00E+00	4.71E-03	3.35E-02
3.14E-01										
1.30E+01	4.99E-04	4.99E-04	9.84E-01	1.56E-02	1.56E-02	1.16E-02	0.00E+00	0.00E+00	4.68E-03	3.35E-02
3.14E-01										
1.39E+01	4.97E-04	4.97E-04	9.84E-01	1.56E-02	1.56E-02	1.31E-02	0.00E+00	0.00E+00	4.66E-03	3.34E-02
3.14E-01										
1.49E+01	4.95E-04	4.95E-04	9.84E-01	1.56E-02	1.56E-02	1.48E-02	0.00E+00	0.00E+00	4.64E-03	3.34E-02
3.14E-01										
1.61E+01	4.93E-04	4.93E-04	9.84E-01	1.56E-02	1.56E-02	1.67E-02	0.00E+00	0.00E+00	4.61E-03	3.33E-02
3.14E-01										
1.73E+01	4.90E-04	4.90E-04	9.84E-01	1.56E-02	1.56E-02	1.88E-02	0.00E+00	0.00E+00	4.58E-03	3.33E-02
3.14E-01										
1.88E+01	4.88E-04	4.88E-04	9.84E-01	1.56E-02	1.56E-02	2.12E-02	0.00E+00	0.00E+00	4.56E-03	3.32E-02
3.14E-01										
2.04E+01	4.85E-04	4.85E-04	9.84E-01	1.56E-02	1.56E-02	2.38E-02	0.00E+00	0.00E+00	4.53E-03	3.32E-02
3.14E-01										
2.22E+01	4.81E-04	4.81E-04	9.84E-01	1.56E-02	1.56E-02	2.67E-02	0.00E+00	0.00E+00	4.50E-03	3.31E-02
3.15E-01										
2.43E+01	4.78E-04	4.78E-04	9.84E-01	1.56E-02	1.56E-02	3.00E-02	0.00E+00	0.00E+00	4.47E-03	3.30E-02
3.15E-01										
2.66E+01	4.74E-04	4.74E-04	9.84E-01	1.56E-02	1.56E-02	3.36E-02	0.00E+00	0.00E+00	4.44E-03	3.29E-02
3.15E-01										
2.92E+01	4.69E-04	4.69E-04	9.84E-01	1.56E-02	1.56E-02	3.76E-02	0.00E+00	0.00E+00	4.41E-03	3.28E-02
3.15E-01										
3.22E+01	4.64E-04	4.64E-04	9.84E-01	1.56E-02	1.56E-02	4.20E-02	0.00E+00	0.00E+00	4.39E-03	3.27E-02
3.16E-01										
3.56E+01	4.59E-04	4.59E-04	9.84E-01	1.56E-02	1.56E-02	4.68E-02	0.00E+00	0.00E+00	4.36E-03	3.26E-02
3.16E-01										
3.94E+01	4.53E-04	4.53E-04	9.84E-01	1.56E-02	1.56E-02	5.22E-02	0.00E+00	0.00E+00	4.34E-03	3.24E-02
3.17E-01										
4.36E+01	4.46E-04	4.46E-04	9.84E-01	1.56E-02	1.56E-02	5.80E-02	0.00E+00	0.00E+00	4.32E-03	3.23E-02
3.18E-01										
4.85E+01	4.39E-04	4.39E-04	9.84E-01	1.56E-02	1.56E-02	6.45E-02	0.00E+00	0.00E+00	4.30E-03	3.21E-02
3.19E-01										
5.39E+01	4.31E-04	4.31E-04	9.84E-01	1.56E-02	1.56E-02	7.14E-02	0.00E+00	0.00E+00	4.28E-03	3.19E-02
3.20E-01										
6.01E+01	4.23E-04	4.23E-04	9.84E-01	1.56E-02	1.56E-02	7.90E-02	0.00E+00	0.00E+00	4.27E-03	3.18E-02
3.22E-01										
6.70E+01	4.14E-04	4.14E-04	9.84E-01	1.56E-02	1.56E-02	8.72E-02	0.00E+00	0.00E+00	4.25E-03	3.16E-02
3.24E-01										
7.48E+01	4.04E-04	4.04E-04	9.84E-01	1.56E-02	1.56E-02	9.61E-02	0.00E+00	0.00E+00	4.24E-03	3.14E-02
3.26E-01										
8.37E+01	3.94E-04	3.94E-04	9.84E-01	1.56E-02	1.56E-02	1.06E-01	0.00E+00	0.00E+00	4.22E-03	3.11E-02
3.28E-01										
9.37E+01	3.83E-04	3.83E-04	9.84E-01	1.56E-02	1.56E-02	1.16E-01	0.00E+00	0.00E+00	4.20E-03	3.09E-02
3.31E-01										
1.05E+02	3.71E-04	3.71E-04	9.84E-01	1.56E-02	1.56E-02	1.26E-01	0.00E+00	0.00E+00	4.19E-03	3.06E-02
3.33E-01										
1.18E+02	3.59E-04	3.59E-04	9.84E-01	1.56E-02	1.56E-02	1.38E-01	0.00E+00	0.00E+00	4.18E-03	3.04E-02
3.36E-01										
1.32E+02	3.46E-04	3.46E-04	9.84E-01	1.56E-02	1.56E-02	1.50E-01	0.00E+00	0.00E+00	4.16E-03	3.01E-02
3.39E-01										
1.48E+02	3.33E-04	3.33E-04	9.84E-01	1.56E-02	1.56E-02	1.62E-01	0.00E+00	0.00E+00	4.15E-03	2.98E-02
3.42E-01										

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  1.66E+02  3.19E-04  3.19E-04  9.84E-01  1.56E-02  1.56E-02  1.75E-01  0.00E+00  0.00E+00  2.26E-02  2.97E-02
3.44E-01
  1.87E+02  2.99E-04  2.99E-04  9.84E-01  1.56E-02  1.56E-02  1.84E-01  0.00E+00  0.00E+00  1.89E-02  3.02E-02
3.46E-01
  2.10E+02  2.81E-04  2.81E-04  9.84E-01  1.56E-02  1.56E-02  1.92E-01  0.00E+00  0.00E+00  1.57E-02  3.09E-02
3.47E-01
  2.37E+02  2.63E-04  2.63E-04  9.84E-01  1.56E-02  1.56E-02  2.00E-01  0.00E+00  0.00E+00  1.33E-02  3.16E-02
3.46E-01
  2.66E+02  2.46E-04  2.46E-04  9.84E-01  1.56E-02  1.56E-02  2.08E-01  0.00E+00  0.00E+00  1.16E-02  3.23E-02
3.44E-01
  3.00E+02  2.30E-04  2.30E-04  9.84E-01  1.56E-02  1.56E-02  2.14E-01  0.00E+00  0.00E+00  1.02E-02  3.31E-02
3.41E-01
1

time averaged (tav = 3600. s) volume concentration:  concentration contour parameters

c(x,y,z,t) = cc(x) * (erf(xa)-erf(xb)) * (erf(ya)-erf(yb)) * (exp(-za*za)+exp(-zb*zb))

   c(x,y,z,t) = concentration (volume fraction) at (x,y,z,t)
            x = downwind distance (m)
            y = crosswind horizontal distance (m)
            z = height (m)
            t = time (s)

          erf = error functon
           xa = (x-xc+bx)/(sr2*betax)
           xb = (x-xc-bx)/(sr2*betax)
           ya = (y+b)/(sr2*betac)
           yb = (y-b)/(sr2*betac)
          exp = exponential function
           za = (z-zc)/(sr2*sig)
           zb = (z+zc)/(sr2*sig)
          sr2 = sqrt(2.0)
```

x	cc(x)	b(x)	betac(x)	zc(x)	sig(x)	t	xc(t)	bx(t)	betax(t)
-6.86E+00	0.00E+00	6.17E+00	1.73E+00	0.00E+00	0.00E+00	1.20E+01	0.00E+00	6.86E+00	5.60E-02
-5.49E+00	2.87E-03	6.17E+00	1.80E+00	0.00E+00	6.17E-01	1.58E+01	6.86E-01	7.54E+00	6.16E-02
-4.11E+00	4.28E-03	6.17E+00	1.87E+00	0.00E+00	7.73E-01	1.96E+01	1.37E+00	8.23E+00	6.72E-02
-2.74E+00	5.33E-03	6.17E+00	1.97E+00	0.00E+00	9.35E-01	2.90E+01	2.06E+00	8.91E+00	7.28E-02
-1.37E+00	6.26E-03	6.17E+00	2.11E+00	0.00E+00	1.14E+00	3.83E+01	2.74E+00	9.60E+00	7.84E-02
4.17E-07	7.12E-03	6.18E+00	2.34E+00	0.00E+00	1.46E+00	3.91E+01	3.43E+00	1.03E+01	8.40E-02
1.37E+00	7.85E-03	6.18E+00	2.81E+00	0.00E+00	2.21E+00	3.99E+01	4.11E+00	1.10E+01	8.96E-02
2.74E+00	2.05E-04	6.16E+00	5.91E+00	0.00E+00	1.38E+01	4.08E+01	4.80E+00	1.17E+01	9.52E-02
4.11E+00	2.35E-04	6.16E+00	5.96E+00	0.00E+00	1.39E+01	4.17E+01	5.49E+00	1.23E+01	1.01E-01
5.49E+00	2.65E-04	6.16E+00	6.02E+00	0.00E+00	1.39E+01	4.28E+01	6.17E+00	1.30E+01	1.06E-01
6.86E+00	2.94E-04	6.16E+00	6.08E+00	4.88E-05	1.40E+01	4.38E+01	6.86E+00	1.37E+01	1.12E-01
6.95E+00	2.95E-04	6.16E+00	6.10E+00	1.11E-04	1.41E+01	4.39E+01	6.95E+00	1.38E+01	1.13E-01
7.05E+00	2.95E-04	6.16E+00	6.10E+00	1.95E-04	1.41E+01	4.41E+01	7.05E+00	1.39E+01	1.14E-01
7.16E+00	2.95E-04	6.16E+00	6.11E+00	3.07E-04	1.41E+01	4.43E+01	7.16E+00	1.40E+01	1.14E-01
7.29E+00	2.95E-04	6.16E+00	6.11E+00	4.54E-04	1.41E+01	4.45E+01	7.29E+00	1.41E+01	1.15E-01
7.43E+00	2.95E-04	6.16E+00	6.12E+00	6.48E-04	1.41E+01	4.47E+01	7.43E+00	1.43E+01	1.17E-01
7.59E+00	2.95E-04	6.16E+00	6.12E+00	9.02E-04	1.41E+01	4.50E+01	7.59E+00	1.44E+01	1.18E-01
7.78E+00	2.95E-04	6.16E+00	6.13E+00	1.23E-03	1.41E+01	4.52E+01	7.78E+00	1.46E+01	1.19E-01
7.98E+00	2.95E-04	6.16E+00	6.13E+00	1.66E-03	1.41E+01	4.56E+01	7.98E+00	1.48E+01	1.21E-01
8.22E+00	2.95E-04	6.16E+00	6.14E+00	2.22E-03	1.41E+01	4.59E+01	8.22E+00	1.51E+01	1.23E-01
8.48E+00	2.95E-04	6.16E+00	6.15E+00	2.94E-03	1.41E+01	4.63E+01	8.48E+00	1.53E+01	1.25E-01
8.78E+00	2.95E-04	6.16E+00	6.16E+00	3.88E-03	1.41E+01	4.68E+01	8.78E+00	1.56E+01	1.28E-01
9.11E+00	2.95E-04	6.16E+00	6.17E+00	5.08E-03	1.41E+01	4.73E+01	9.11E+00	1.60E+01	1.30E-01
9.49E+00	2.95E-04	6.16E+00	6.19E+00	6.62E-03	1.41E+01	4.79E+01	9.49E+00	1.63E+01	1.34E-01
9.92E+00	2.95E-04	6.16E+00	6.20E+00	8.59E-03	1.41E+01	4.86E+01	9.92E+00	1.68E+01	1.37E-01
1.04E+01	2.95E-04	6.16E+00	6.22E+00	1.11E-02	1.40E+01	4.94E+01	1.04E+01	1.73E+01	1.41E-01
1.09E+01	2.95E-04	6.16E+00	6.24E+00	1.44E-02	1.40E+01	5.02E+01	1.09E+01	1.78E+01	1.45E-01
1.16E+01	2.96E-04	6.16E+00	6.26E+00	1.85E-02	1.40E+01	5.12E+01	1.16E+01	1.84E+01	1.50E-01
1.23E+01	2.96E-04	6.16E+00	6.29E+00	2.38E-02	1.40E+01	5.23E+01	1.23E+01	1.91E+01	1.56E-01
1.30E+01	2.96E-04	6.16E+00	6.31E+00	3.06E-02	1.40E+01	5.35E+01	1.30E+01	1.99E+01	1.62E-01
1.39E+01	2.96E-04	6.16E+00	6.34E+00	3.92E-02	1.40E+01	5.49E+01	1.39E+01	2.08E+01	1.70E-01
1.49E+01	2.96E-04	6.16E+00	6.38E+00	5.02E-02	1.40E+01	5.65E+01	1.49E+01	2.18E+01	1.78E-01
1.61E+01	2.97E-04	6.16E+00	6.42E+00	6.42E-02	1.40E+01	5.83E+01	1.61E+01	2.29E+01	1.87E-01
1.73E+01	2.97E-04	6.16E+00	6.47E+00	8.19E-02	1.40E+01	6.03E+01	1.73E+01	2.42E+01	1.97E-01
1.88E+01	2.98E-04	6.16E+00	6.52E+00	1.04E-01	1.40E+01	6.25E+01	1.88E+01	2.56E+01	2.09E-01
2.04E+01	2.98E-04	6.16E+00	6.58E+00	1.33E-01	1.39E+01	6.51E+01	2.04E+01	2.72E+01	2.22E-01

2.22E+01	2.99E-04	6.16E+00	6.65E+00	1.69E-01	1.39E+01	6.79E+01	2.22E+01	2.91E+01	2.37E-01
2.43E+01	3.00E-04	6.16E+00	6.72E+00	2.15E-01	1.39E+01	7.12E+01	2.43E+01	3.11E+01	2.54E-01
2.66E+01	3.01E-04	6.16E+00	6.81E+00	2.73E-01	1.38E+01	7.48E+01	2.66E+01	3.35E+01	2.73E-01
2.92E+01	3.02E-04	6.16E+00	6.91E+00	3.46E-01	1.38E+01	7.89E+01	2.92E+01	3.61E+01	2.95E-01
3.22E+01	3.04E-04	6.16E+00	7.02E+00	4.38E-01	1.37E+01	8.35E+01	3.22E+01	3.91E+01	3.19E-01
3.56E+01	3.07E-04	6.16E+00	7.15E+00	5.54E-01	1.37E+01	8.88E+01	3.56E+01	4.24E+01	3.46E-01
3.94E+01	3.09E-04	6.16E+00	7.29E+00	7.00E-01	1.36E+01	9.46E+01	3.94E+01	4.62E+01	3.77E-01
4.36E+01	3.13E-04	6.16E+00	7.45E+00	8.83E-01	1.34E+01	1.01E+02	4.36E+01	5.05E+01	4.12E-01
4.85E+01	3.17E-04	6.16E+00	7.64E+00	1.11E+00	1.33E+01	1.09E+02	4.85E+01	5.53E+01	4.52E-01
5.39E+01	3.23E-04	6.16E+00	7.86E+00	1.40E+00	1.31E+01	1.17E+02	5.39E+01	6.08E+01	4.96E-01
6.01E+01	3.30E-04	6.16E+00	8.10E+00	1.75E+00	1.29E+01	1.27E+02	6.01E+01	6.69E+01	5.46E-01
6.70E+01	3.39E-04	6.16E+00	8.38E+00	2.20E+00	1.26E+01	1.37E+02	6.70E+01	7.38E+01	6.03E-01
7.48E+01	3.51E-04	6.16E+00	8.70E+00	2.75E+00	1.23E+01	1.49E+02	7.48E+01	8.17E+01	6.67E-01
8.37E+01	3.66E-04	6.16E+00	9.06E+00	3.43E+00	1.19E+01	1.63E+02	8.37E+01	9.05E+01	7.39E-01
9.37E+01	3.85E-04	6.16E+00	9.47E+00	4.27E+00	1.14E+01	1.78E+02	9.37E+01	1.01E+02	8.21E-01
1.05E+02	4.12E-04	6.16E+00	9.93E+00	5.31E+00	1.08E+01	1.95E+02	1.05E+02	1.12E+02	9.13E-01
1.18E+02	4.48E-04	6.16E+00	1.05E+01	6.58E+00	1.00E+01	2.14E+02	1.18E+02	1.24E+02	1.02E+00
1.32E+02	4.99E-04	6.16E+00	1.11E+01	8.14E+00	9.13E+00	2.36E+02	1.32E+02	1.39E+02	1.13E+00
1.48E+02	5.76E-04	6.16E+00	1.18E+01	1.00E+01	8.02E+00	2.60E+02	1.48E+02	1.55E+02	1.27E+00
1.66E+02	6.80E-04	6.16E+00	1.25E+01	1.23E+01	6.88E+00	2.88E+02	1.66E+02	1.73E+02	1.42E+00
1.87E+02	6.79E-04	6.16E+00	1.34E+01	1.50E+01	6.74E+00	3.18E+02	1.87E+02	1.94E+02	1.58E+00
2.10E+02	6.82E-04	6.16E+00	1.44E+01	1.81E+01	6.60E+00	3.50E+02	2.10E+02	2.17E+02	1.77E+00
2.37E+02	6.86E-04	6.16E+00	1.55E+01	2.15E+01	6.45E+00	3.85E+02	2.37E+02	2.44E+02	1.99E+00
2.66E+02	6.91E-04	6.16E+00	1.68E+01	2.54E+01	6.31E+00	4.23E+02	2.66E+02	2.73E+02	2.23E+00
3.00E+02	6.98E-04	6.16E+00	1.82E+01	2.98E+01	6.18E+00	4.65E+02	3.00E+02	3.07E+02	2.51E+00

1

time averaged (tav = 3600. s) volume concentration: concentration in the z = 1.50 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at (x,y,z) y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	y/bbc= 2.0	y/bbc= 2.5
-6.86E+00	3.05E+02	6.00E+02	6.86E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-5.49E+00	3.04E+02	6.00E+02	6.92E+00	1.99E-04	1.86E-04	6.77E-05	1.95E-06	2.08E-09	0.00E+00
-4.11E+00	3.03E+02	6.00E+02	6.97E+00	8.66E-04	8.01E-04	2.90E-04	9.58E-06	1.44E-08	0.00E+00
-2.74E+00	3.02E+02	6.00E+02	7.05E+00	1.96E-03	1.78E-03	6.41E-04	2.48E-05	5.53E-08	0.00E+00
-1.37E+00	3.01E+02	6.00E+02	7.18E+00	3.48E-03	3.10E-03	1.11E-03	5.19E-05	1.88E-07	0.00E+00
4.17E-07	3.00E+02	6.00E+02	7.39E+00	5.53E-03	4.77E-03	1.69E-03	1.01E-04	6.69E-07	4.99E-10
1.37E+00	3.01E+02	6.00E+02	7.86E+00	8.06E-03	6.53E-03	2.27E-03	1.88E-04	2.79E-06	6.42E-09
2.74E+00	3.02E+02	6.00E+02	1.19E+01	1.91E-04	1.34E-04	4.42E-05	6.32E-06	3.66E-07	8.19E-09
4.11E+00	3.03E+02	6.00E+02	1.20E+01	2.17E-04	1.52E-04	5.01E-05	7.19E-06	4.18E-07	9.47E-09
5.49E+00	3.04E+02	6.00E+02	1.21E+01	2.43E-04	1.70E-04	5.60E-05	8.05E-06	4.72E-07	1.08E-08
6.86E+00	3.05E+02	6.00E+02	1.22E+01	2.68E-04	1.88E-04	6.18E-05	8.91E-06	5.25E-07	1.22E-08
6.95E+00	3.05E+02	6.00E+02	1.22E+01	2.68E-04	1.87E-04	6.18E-05	8.91E-06	5.26E-07	1.22E-08
7.05E+00	3.05E+02	6.00E+02	1.22E+01	2.68E-04	1.87E-04	6.18E-05	8.91E-06	5.26E-07	1.22E-08
7.16E+00	3.06E+02	6.00E+02	1.22E+01	2.68E-04	1.87E-04	6.17E-05	8.90E-06	5.26E-07	1.22E-08
7.29E+00	3.06E+02	6.00E+02	1.22E+01	2.68E-04	1.87E-04	6.17E-05	8.90E-06	5.26E-07	1.22E-08
7.43E+00	3.06E+02	6.00E+02	1.23E+01	2.67E-04	1.87E-04	6.17E-05	8.89E-06	5.26E-07	1.22E-08
7.59E+00	3.06E+02	6.00E+02	1.23E+01	2.67E-04	1.87E-04	6.16E-05	8.89E-06	5.26E-07	1.23E-08

7.78E+00	3.06E+02	6.00E+02	1.23E+01	2.67E-04	1.87E-04	6.16E-05	8.88E-06	5.26E-07	1.23E-08
7.98E+00	3.06E+02	6.00E+02	1.23E+01	2.67E-04	1.87E-04	6.15E-05	8.87E-06	5.26E-07	1.23E-08
8.22E+00	3.06E+02	6.00E+02	1.23E+01	2.67E-04	1.86E-04	6.14E-05	8.87E-06	5.26E-07	1.23E-08
8.48E+00	3.07E+02	6.00E+02	1.23E+01	2.66E-04	1.86E-04	6.14E-05	8.86E-06	5.26E-07	1.23E-08
8.78E+00	3.07E+02	6.00E+02	1.23E+01	2.66E-04	1.86E-04	6.13E-05	8.85E-06	5.26E-07	1.23E-08
9.11E+00	3.07E+02	6.00E+02	1.23E+01	2.66E-04	1.86E-04	6.12E-05	8.84E-06	5.26E-07	1.24E-08
9.49E+00	3.07E+02	6.00E+02	1.24E+01	2.65E-04	1.85E-04	6.11E-05	8.83E-06	5.26E-07	1.24E-08
9.92E+00	3.08E+02	6.00E+02	1.24E+01	2.65E-04	1.85E-04	6.09E-05	8.81E-06	5.26E-07	1.24E-08
1.04E+01	3.08E+02	6.00E+02	1.24E+01	2.64E-04	1.85E-04	6.08E-05	8.80E-06	5.26E-07	1.25E-08
1.09E+01	3.08E+02	6.00E+02	1.24E+01	2.64E-04	1.84E-04	6.07E-05	8.78E-06	5.26E-07	1.25E-08
1.16E+01	3.09E+02	6.00E+02	1.25E+01	2.63E-04	1.84E-04	6.05E-05	8.76E-06	5.26E-07	1.25E-08
1.23E+01	3.09E+02	6.00E+02	1.25E+01	2.62E-04	1.83E-04	6.03E-05	8.74E-06	5.25E-07	1.26E-08
1.30E+01	3.10E+02	6.00E+02	1.26E+01	2.61E-04	1.82E-04	6.01E-05	8.72E-06	5.25E-07	1.26E-08
1.39E+01	3.11E+02	6.00E+02	1.26E+01	2.60E-04	1.82E-04	5.98E-05	8.69E-06	5.25E-07	1.27E-08
1.49E+01	3.11E+02	6.00E+02	1.27E+01	2.59E-04	1.81E-04	5.96E-05	8.66E-06	5.25E-07	1.28E-08
1.61E+01	3.12E+02	6.00E+02	1.27E+01	2.58E-04	1.80E-04	5.93E-05	8.63E-06	5.25E-07	1.28E-08
1.73E+01	3.13E+02	6.00E+02	1.28E+01	2.57E-04	1.79E-04	5.90E-05	8.59E-06	5.25E-07	1.29E-08
1.88E+01	3.14E+02	6.00E+02	1.29E+01	2.56E-04	1.78E-04	5.86E-05	8.55E-06	5.25E-07	1.30E-08
2.04E+01	3.16E+02	6.00E+02	1.30E+01	2.54E-04	1.77E-04	5.82E-05	8.51E-06	5.24E-07	1.31E-08
2.22E+01	3.17E+02	6.00E+02	1.31E+01	2.53E-04	1.76E-04	5.78E-05	8.46E-06	5.24E-07	1.32E-08
2.43E+01	3.19E+02	6.00E+02	1.32E+01	2.51E-04	1.74E-04	5.73E-05	8.41E-06	5.23E-07	1.33E-08
2.66E+01	3.21E+02	6.00E+02	1.33E+01	2.49E-04	1.73E-04	5.68E-05	8.35E-06	5.23E-07	1.35E-08
2.92E+01	3.23E+02	6.00E+02	1.35E+01	2.47E-04	1.71E-04	5.63E-05	8.29E-06	5.22E-07	1.36E-08
3.22E+01	3.25E+02	6.00E+02	1.36E+01	2.44E-04	1.70E-04	5.57E-05	8.22E-06	5.22E-07	1.38E-08
3.56E+01	3.27E+02	6.00E+02	1.38E+01	2.42E-04	1.68E-04	5.50E-05	8.14E-06	5.21E-07	1.39E-08
3.94E+01	3.30E+02	6.00E+02	1.40E+01	2.39E-04	1.66E-04	5.44E-05	8.07E-06	5.20E-07	1.41E-08
4.36E+01	3.34E+02	6.00E+02	1.43E+01	2.36E-04	1.64E-04	5.37E-05	7.98E-06	5.18E-07	1.43E-08
4.85E+01	3.37E+02	6.00E+02	1.46E+01	2.33E-04	1.62E-04	5.29E-05	7.89E-06	5.17E-07	1.45E-08
5.39E+01	3.42E+02	6.00E+02	1.49E+01	2.30E-04	1.59E-04	5.21E-05	7.80E-06	5.15E-07	1.47E-08
6.01E+01	3.46E+02	6.00E+02	1.53E+01	2.27E-04	1.57E-04	5.13E-05	7.70E-06	5.13E-07	1.48E-08
6.70E+01	3.52E+02	6.00E+02	1.58E+01	2.24E-04	1.55E-04	5.05E-05	7.59E-06	5.10E-07	1.50E-08
7.48E+01	3.58E+02	6.00E+02	1.63E+01	2.20E-04	1.52E-04	4.95E-05	7.47E-06	5.07E-07	1.51E-08
8.37E+01	3.64E+02	6.00E+02	1.69E+01	2.15E-04	1.49E-04	4.84E-05	7.32E-06	5.01E-07	1.52E-08
9.37E+01	3.72E+02	6.00E+02	1.75E+01	2.09E-04	1.44E-04	4.71E-05	7.13E-06	4.92E-07	1.52E-08
1.05E+02	3.81E+02	6.00E+02	1.83E+01	2.01E-04	1.39E-04	4.51E-05	6.85E-06	4.76E-07	1.49E-08

1.18E+02	3.91E+02	6.00E+02	1.91E+01	1.87E-04	1.29E-04	4.20E-05	6.38E-06	4.47E-07	1.42E-08
1.32E+02	4.02E+02	6.00E+02	2.01E+01	1.63E-04	1.12E-04	3.65E-05	5.56E-06	3.92E-07	1.26E-08
1.48E+02	4.14E+02	6.00E+02	2.13E+01	1.20E-04	8.29E-05	2.70E-05	4.11E-06	2.91E-07	9.49E-09
1.66E+02	4.28E+02	6.00E+02	2.26E+01	5.97E-05	4.11E-05	1.34E-05	2.04E-06	1.45E-07	4.77E-09
1.87E+02	4.44E+02	6.00E+02	2.40E+01	2.38E-05	1.64E-05	5.33E-06	8.14E-07	5.81E-08	1.93E-09
2.10E+02	4.62E+02	6.00E+02	2.57E+01	6.53E-06	4.49E-06	1.46E-06	2.23E-07	1.60E-08	5.35E-10
2.37E+02	4.82E+02	6.00E+02	2.76E+01	1.07E-06	7.37E-07	2.39E-07	3.66E-08	2.63E-09	8.84E-11
2.66E+02	5.05E+02	6.00E+02	2.97E+01	8.76E-08	6.02E-08	1.96E-08	2.99E-09	2.16E-10	7.27E-12
3.00E+02	5.31E+02	6.00E+02	3.22E+01	2.83E-09	1.94E-09	6.32E-10	9.68E-11	6.98E-12	2.36E-13

1

time averaged (tav = 3600. s) volume concentration: maximum concentration (volume fraction) along centerline.

downwind distance x (m)	height z (m)	maximum concentration c(x,0,z)	time of max conc (s)	cloud duration (s)
-6.86E+00	0.00E+00	0.00E+00	3.05E+02	6.00E+02
-5.49E+00	0.00E+00	3.82E-03	3.04E+02	6.00E+02
-4.11E+00	0.00E+00	5.69E-03	3.03E+02	6.00E+02
-2.74E+00	0.00E+00	7.08E-03	3.02E+02	6.00E+02
-1.37E+00	0.00E+00	8.30E-03	3.01E+02	6.00E+02
4.17E-07	0.00E+00	9.40E-03	3.00E+02	6.00E+02
1.37E+00	0.00E+00	1.01E-02	3.01E+02	6.00E+02
2.74E+00	0.00E+00	1.92E-04	3.02E+02	6.00E+02
4.11E+00	0.00E+00	2.18E-04	3.03E+02	6.00E+02
5.49E+00	0.00E+00	2.44E-04	3.04E+02	6.00E+02
6.86E+00	0.00E+00	2.70E-04	3.05E+02	6.00E+02
6.95E+00	0.00E+00	2.70E-04	3.05E+02	6.00E+02
7.05E+00	0.00E+00	2.69E-04	3.05E+02	6.00E+02
7.16E+00	0.00E+00	2.69E-04	3.06E+02	6.00E+02
7.29E+00	0.00E+00	2.69E-04	3.06E+02	6.00E+02
7.43E+00	0.00E+00	2.69E-04	3.06E+02	6.00E+02
7.59E+00	0.00E+00	2.69E-04	3.06E+02	6.00E+02
7.78E+00	0.00E+00	2.69E-04	3.06E+02	6.00E+02
7.98E+00	0.00E+00	2.68E-04	3.06E+02	6.00E+02
8.22E+00	0.00E+00	2.68E-04	3.06E+02	6.00E+02
8.48E+00	0.00E+00	2.68E-04	3.07E+02	6.00E+02
8.78E+00	0.00E+00	2.67E-04	3.07E+02	6.00E+02
9.11E+00	0.00E+00	2.67E-04	3.07E+02	6.00E+02
9.49E+00	0.00E+00	2.67E-04	3.07E+02	6.00E+02
9.92E+00	0.00E+00	2.66E-04	3.08E+02	6.00E+02
1.04E+01	0.00E+00	2.66E-04	3.08E+02	6.00E+02
1.09E+01	0.00E+00	2.65E-04	3.08E+02	6.00E+02
1.16E+01	0.00E+00	2.64E-04	3.09E+02	6.00E+02
1.23E+01	0.00E+00	2.64E-04	3.09E+02	6.00E+02
1.30E+01	0.00E+00	2.63E-04	3.10E+02	6.00E+02
1.39E+01	0.00E+00	2.62E-04	3.11E+02	6.00E+02
1.49E+01	0.00E+00	2.61E-04	3.11E+02	6.00E+02
1.61E+01	0.00E+00	2.60E-04	3.12E+02	6.00E+02
1.73E+01	0.00E+00	2.59E-04	3.13E+02	6.00E+02
1.88E+01	0.00E+00	2.57E-04	3.14E+02	6.00E+02
2.04E+01	0.00E+00	2.56E-04	3.16E+02	6.00E+02
2.22E+01	0.00E+00	2.54E-04	3.17E+02	6.00E+02
2.43E+01	0.00E+00	2.52E-04	3.19E+02	6.00E+02
2.66E+01	0.00E+00	2.50E-04	3.21E+02	6.00E+02
2.92E+01	0.00E+00	2.48E-04	3.23E+02	6.00E+02
3.22E+01	0.00E+00	2.46E-04	3.25E+02	6.00E+02
3.56E+01	0.00E+00	2.43E-04	3.27E+02	6.00E+02
3.94E+01	0.00E+00	2.41E-04	3.30E+02	6.00E+02
4.36E+01	0.00E+00	2.38E-04	3.34E+02	6.00E+02
4.85E+01	0.00E+00	2.35E-04	3.37E+02	6.00E+02

5.39E+01	0.00E+00	2.32E-04	3.42E+02	6.00E+02
6.01E+01	0.00E+00	2.29E-04	3.46E+02	6.00E+02
6.70E+01	0.00E+00	2.25E-04	3.52E+02	6.00E+02
7.48E+01	0.00E+00	2.21E-04	3.58E+02	6.00E+02
8.37E+01	0.00E+00	2.17E-04	3.64E+02	6.00E+02
9.37E+01	0.00E+00	2.11E-04	3.72E+02	6.00E+02
1.05E+02	0.00E+00	2.02E-04	3.81E+02	6.00E+02
1.18E+02	0.00E+00	1.88E-04	3.91E+02	6.00E+02
1.32E+02	0.00E+00	1.63E-04	4.02E+02	6.00E+02
1.48E+02	8.84E+00	1.37E-04	4.14E+02	6.00E+02
1.66E+02	1.23E+01	1.42E-04	4.28E+02	6.00E+02
1.87E+02	1.50E+01	1.30E-04	4.44E+02	6.00E+02
2.10E+02	1.81E+01	1.19E-04	4.62E+02	6.00E+02
2.37E+02	2.15E+01	1.09E-04	4.82E+02	6.00E+02
2.66E+02	2.54E+01	9.95E-05	5.05E+02	6.00E+02
3.00E+02	2.98E+01	9.03E-05	5.31E+02	6.00E+02

SESSION INFORMATION

INPUT DATA FILE NAME : C:\FPL\TESLA\NH3TANK.SLB
OUTPUT LIST FILE NAME : C:\FPL\TESLA\RUNA.LST

problem input

```
idspl =        1
ncalc =        1
wms   =  0.017031
cps   =   2093.65
tbp   =    239.70
cmed0 =      0.83
dhe   =  1370837.
cpsl  =   4956.39
rhosl =    639.00
spb   =   2132.50
spc   =    -32.98
ts    =    304.90
qs    =      0.44
as    =    188.13
tsd   =      600.
qtis  =      0.00
hs    =      0.00
tav   =   1800.00
xffm  =    300.00
zp(1) =      1.50
zp(2) =      0.00
zp(3) =      0.00
zp(4) =      0.00
z0    =  0.100000
za    =     10.00
ua    =      1.50
ta    =    304.90
rh    =     50.00
stab  =      6.00
```

release gas properties

```
molecular weight of source gas (kg)          - wms  =  1.7031E-02
vapor heat capacity, const. p.  (j/kg-k)     - cps  =  2.0936E+03
temperature of source gas (k)                - ts   =  2.3970E+02
density of source gas (kg/m3)                - rhos =  8.6589E-01
boiling point temperature                    - tbp  =  2.3970E+02
liquid mass fraction                         - cmed0=  0.0000E+00
liquid heat capacity (j/kg-k)                - cpsl =  4.9564E+03
heat of vaporization (j/kg)                  - dhe  =  1.3708E+06
liquid source density (kg/m3)                - rhosl=  6.3900E+02
saturation pressure constant                 - spa  =  1.0316E+01
saturation pressure constant (k)             - spb  =  2.1325E+03
saturation pressure constant (k)             - spc  = -3.2980E+01
```

spill characteristics

```
spill type                                   - idspl=          1
mass source rate (kg/s)                      - qs   =  4.4091E-01
continuous source duration (s)               - tsd  =  6.0000E+02
continuous source mass (kg)                  - qtcs =  2.6455E+02
instantaneous source mass (kg)               - qtis =  0.0000E+00
source area (m2)                             - as   =  1.8813E+02
vertical vapor velocity (m/s)                - ws   =  2.7067E-03
source half width (m)                        - bs   =  6.8580E+00
source height (m)                            - hs   =  0.0000E+00
```

horizontal vapor velocity (m/s) - us = 0.0000E+00

field parameters

concentration averaging time (s) - tav = 1.8000E+03
mixing layer height (m) - hmx = 2.6000E+02
maximum downwind distrace (m) - xffm = 3.0000E+02
concentration measurement height (m) - zp(1)= 1.5000E+00
- zp(2)= 0.0000E+00
- zp(3)= 0.0000E+00
- zp(4)= 0.0000E+00

ambient meteorological properties

molecular weight of ambient air (kg) - wmae = 2.8689E-02
heat capacity of ambient air at const p. (j/kg-k)- cpaa = 1.0189E+03
density of ambient air (kg/m3) - rhoa = 1.1467E+00
ambient measurement height (m) - za = 1.0000E+01
ambient atmospheric pressure (pa=n/m2=j/m3) - pa = 1.0133E+05
ambient wind speed (m/s) - ua = 1.5000E+00
ambient temperature (k) - ta = 3.0490E+02
relative humidity (percent) - rh = 5.0000E+01
ambient friction velocity (m/s) - uastr = 6.1310E-02
atmospheric stability class value - stab = 6.0000E+00
inverse monin-obukhov length (1/m) - ala = 5.7143E-02
surface roughness height (m) - z0 = 1.0000E-01

additional parameters

sub-step multiplier - ncalc = 1
number of calculational sub-steps - nssm = 3
acceleration of gravity (m/s2) - grav = 9.8067E+00
gas constant (j/mol- k) - rr = 8.3143E+00
von karman constant - xk = 4.1000E-01
1

instantaneous spatially averaged cloud parameters

x	zc	h	bb	b	bbx	bx	cv	rho	t	u	ua
-6.86E+00	0.00E+00	0.00E+00	6.86E+00	6.17E+00	6.86E+00	6.86E+00	0.00E+00	1.15E+00	3.05E+02	0.00E+00	0.00E+00
-5.49E+00	0.00E+00	1.07E+00	6.91E+00	6.17E+00	7.54E+00	7.54E+00	1.48E-02	1.14E+00	3.04E+02	2.95E-01	3.06E-01
-4.11E+00	0.00E+00	1.34E+00	6.97E+00	6.17E+00	8.23E+00	8.23E+00	2.19E-02	1.14E+00	3.03E+02	3.15E-01	3.57E-01
-2.74E+00	0.00E+00	1.62E+00	7.05E+00	6.17E+00	8.92E+00	8.91E+00	2.70E-02	1.14E+00	3.03E+02	3.13E-01	4.03E-01
-1.37E+00	0.00E+00	1.97E+00	7.17E+00	6.17E+00	9.60E+00	9.60E+00	3.12E-02	1.14E+00	3.03E+02	2.92E-01	4.54E-01
4.17E-07	0.00E+00	2.52E+00	7.37E+00	6.18E+00	1.03E+01	1.03E+01	3.45E-02	1.14E+00	3.02E+02	2.50E-01	5.25E-01
1.37E+00	0.00E+00	3.83E+00	7.83E+00	6.18E+00	1.10E+01	1.10E+01	3.57E-02	1.14E+00	3.02E+02	1.80E-01	6.60E-01
2.74E+00	0.00E+00	2.38E+01	1.19E+01	6.16E+00	1.17E+01	1.17E+01	6.12E-04	1.15E+00	3.05E+02	1.30E+00	1.46E+00
4.11E+00	0.00E+00	2.40E+01	1.20E+01	6.16E+00	1.23E+01	1.23E+01	6.96E-04	1.15E+00	3.05E+02	1.29E+00	1.46E+00
5.49E+00	0.00E+00	2.42E+01	1.21E+01	6.16E+00	1.30E+01	1.30E+01	7.79E-04	1.15E+00	3.05E+02	1.28E+00	1.47E+00
6.86E+00	4.88E-05	2.43E+01	1.22E+01	6.16E+00	1.37E+01	1.37E+01	8.61E-04	1.15E+00	3.05E+02	1.27E+00	1.47E+00
6.95E+00	1.11E-04	2.44E+01	1.22E+01	6.16E+00	1.38E+01	1.38E+01	8.60E-04	1.15E+00	3.05E+02	1.27E+00	1.47E+00
7.05E+00	1.95E-04	2.44E+01	1.22E+01	6.16E+00	1.39E+01	1.39E+01	8.60E-04	1.15E+00	3.05E+02	1.27E+00	1.47E+00

7.16E+00	3.07E-04	2.44E+01	1.22E+01	6.16E+00	1.40E+01	1.40E+01	8.60E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.29E+00	4.54E-04	2.44E+01	1.22E+01	6.16E+00	1.41E+01	1.41E+01	8.59E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.43E+00	6.48E-04	2.44E+01	1.22E+01	6.16E+00	1.43E+01	1.43E+01	8.59E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.59E+00	9.02E-04	2.44E+01	1.22E+01	6.16E+00	1.45E+01	1.44E+01	8.58E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.78E+00	1.23E-03	2.44E+01	1.22E+01	6.16E+00	1.46E+01	1.46E+01	8.57E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
7.98E+00	1.66E-03	2.44E+01	1.22E+01	6.16E+00	1.48E+01	1.48E+01	8.57E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
8.22E+00	2.22E-03	2.44E+01	1.22E+01	6.16E+00	1.51E+01	1.51E+01	8.56E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
8.48E+00	2.94E-03	2.44E+01	1.23E+01	6.16E+00	1.53E+01	1.53E+01	8.55E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
8.78E+00	3.88E-03	2.44E+01	1.23E+01	6.16E+00	1.56E+01	1.56E+01	8.54E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
9.11E+00	5.08E-03	2.44E+01	1.23E+01	6.16E+00	1.60E+01	1.60E+01	8.53E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
9.49E+00	6.62E-03	2.44E+01	1.23E+01	6.16E+00	1.63E+01	1.63E+01	8.52E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
9.92E+00	8.59E-03	2.43E+01	1.23E+01	6.16E+00	1.68E+01	1.68E+01	8.50E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.04E+01	1.11E-02	2.43E+01	1.23E+01	6.16E+00	1.73E+01	1.73E+01	8.48E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.09E+01	1.44E-02	2.43E+01	1.24E+01	6.16E+00	1.78E+01	1.78E+01	8.47E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.16E+01	1.85E-02	2.43E+01	1.24E+01	6.16E+00	1.84E+01	1.84E+01	8.45E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.23E+01	2.38E-02	2.43E+01	1.24E+01	6.16E+00	1.91E+01	1.91E+01	8.42E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.30E+01	3.06E-02	2.43E+01	1.25E+01	6.16E+00	1.99E+01	1.99E+01	8.40E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.39E+01	3.92E-02	2.43E+01	1.25E+01	6.16E+00	2.08E+01	2.08E+01	8.37E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.49E+01	5.02E-02	2.43E+01	1.26E+01	6.16E+00	2.18E+01	2.18E+01	8.33E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.61E+01	6.42E-02	2.43E+01	1.26E+01	6.16E+00	2.29E+01	2.29E+01	8.30E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.73E+01	8.19E-02	2.43E+01	1.27E+01	6.16E+00	2.42E+01	2.42E+01	8.26E-04	1.15E+00	3.05E+02	1.27E+00
1.47E+00										
1.88E+01	1.04E-01	2.43E+01	1.27E+01	6.16E+00	2.56E+01	2.56E+01	8.21E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.04E+01	1.33E-01	2.43E+01	1.28E+01	6.16E+00	2.72E+01	2.72E+01	8.16E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.22E+01	1.69E-01	2.43E+01	1.29E+01	6.16E+00	2.91E+01	2.91E+01	8.11E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.43E+01	2.15E-01	2.43E+01	1.30E+01	6.16E+00	3.11E+01	3.11E+01	8.04E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.66E+01	2.73E-01	2.42E+01	1.31E+01	6.16E+00	3.35E+01	3.35E+01	7.98E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
2.92E+01	3.46E-01	2.42E+01	1.32E+01	6.16E+00	3.61E+01	3.61E+01	7.90E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
3.22E+01	4.38E-01	2.42E+01	1.33E+01	6.16E+00	3.91E+01	3.91E+01	7.82E-04	1.15E+00	3.05E+02	1.28E+00
1.47E+00										
3.56E+01	5.54E-01	2.42E+01	1.35E+01	6.16E+00	4.24E+01	4.24E+01	7.73E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
3.94E+01	7.00E-01	2.42E+01	1.36E+01	6.16E+00	4.62E+01	4.62E+01	7.62E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
4.36E+01	8.83E-01	2.42E+01	1.38E+01	6.16E+00	5.05E+01	5.05E+01	7.51E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
4.85E+01	1.11E+00	2.41E+01	1.40E+01	6.16E+00	5.53E+01	5.53E+01	7.39E-04	1.15E+00	3.05E+02	1.29E+00
1.47E+00										
5.39E+01	1.40E+00	2.41E+01	1.43E+01	6.16E+00	6.08E+01	6.08E+01	7.26E-04	1.15E+00	3.05E+02	1.30E+00
1.47E+00										
6.01E+01	1.75E+00	2.41E+01	1.45E+01	6.16E+00	6.69E+01	6.69E+01	7.12E-04	1.15E+00	3.05E+02	1.30E+00
1.47E+00										
6.70E+01	2.20E+00	2.41E+01	1.48E+01	6.16E+00	7.39E+01	7.38E+01	6.97E-04	1.15E+00	3.05E+02	1.30E+00
1.47E+00										

7.48E+01	2.75E+00	2.41E+01	1.51E+01	6.16E+00	8.17E+01	8.17E+01	6.81E-04	1.15E+00	3.05E+02	1.31E+00	1.47E+00
8.37E+01	3.43E+00	2.40E+01	1.55E+01	6.16E+00	9.05E+01	9.05E+01	6.63E-04	1.15E+00	3.05E+02	1.31E+00	1.46E+00
9.37E+01	4.27E+00	2.40E+01	1.59E+01	6.16E+00	1.01E+02	1.01E+02	6.45E-04	1.15E+00	3.05E+02	1.31E+00	1.46E+00
1.05E+02	5.31E+00	2.40E+01	1.64E+01	6.16E+00	1.12E+02	1.12E+02	6.25E-04	1.15E+00	3.05E+02	1.32E+00	1.46E+00
1.18E+02	6.58E+00	2.40E+01	1.69E+01	6.16E+00	1.24E+02	1.24E+02	6.05E-04	1.15E+00	3.05E+02	1.32E+00	1.46E+00
1.32E+02	8.14E+00	2.39E+01	1.75E+01	6.16E+00	1.39E+02	1.39E+02	5.83E-04	1.15E+00	3.05E+02	1.33E+00	1.46E+00
1.48E+02	1.00E+01	2.39E+01	1.81E+01	6.16E+00	1.55E+02	1.55E+02	5.61E-04	1.15E+00	3.05E+02	1.33E+00	1.46E+00
1.66E+02	1.23E+01	2.38E+01	1.88E+01	6.16E+00	1.73E+02	1.73E+02	5.37E-04	1.15E+00	3.05E+02	1.35E+00	1.47E+00
1.87E+02	1.50E+01	2.33E+01	1.96E+01	6.16E+00	1.94E+02	1.94E+02	5.04E-04	1.15E+00	3.05E+02	1.41E+00	1.52E+00
2.10E+02	1.81E+01	2.29E+01	2.04E+01	6.16E+00	2.17E+02	2.17E+02	4.73E-04	1.15E+00	3.05E+02	1.47E+00	1.58E+00
2.37E+02	2.15E+01	2.24E+01	2.14E+01	6.16E+00	2.44E+02	2.44E+02	4.43E-04	1.15E+00	3.05E+02	1.53E+00	1.63E+00
2.66E+02	2.54E+01	2.19E+01	2.24E+01	6.16E+00	2.73E+02	2.73E+02	4.14E-04	1.15E+00	3.05E+02	1.59E+00	1.69E+00
3.00E+02	2.98E+01	2.14E+01	2.36E+01	6.16E+00	3.07E+02	3.07E+02	3.87E-04	1.15E+00	3.05E+02	1.66E+00	1.75E+00

1

x	cm	cmv	cmda	cmw	cmwv	wc	vg	ug	w	v	vx
-6.86E+00	0.00E+00	0.00E+00	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	1.00E+00	3.12E-02	0.00E+00
-5.49E+00	8.84E-03	8.84E-03	9.76E-01	1.54E-02	1.54E-02	0.00E+00	0.00E+00	0.00E+00	4.93E-02	6.22E-03	9.37E-02
-4.11E+00	1.31E-02	1.31E-02	9.72E-01	1.54E-02	1.54E-02	0.00E+00	0.00E+00	0.00E+00	3.99E-02	8.01E-03	1.05E-01
-2.74E+00	1.62E-02	1.62E-02	9.68E-01	1.53E-02	1.53E-02	0.00E+00	0.00E+00	0.00E+00	3.18E-02	1.12E-02	1.15E-01
-1.37E+00	1.87E-02	1.87E-02	9.66E-01	1.53E-02	1.53E-02	0.00E+00	0.00E+00	0.00E+00	2.52E-02	1.68E-02	1.26E-01
4.17E-07	2.07E-02	2.07E-02	9.64E-01	1.52E-02	1.52E-02	0.00E+00	0.00E+00	0.00E+00	2.14E-02	2.62E-02	1.41E-01
1.37E+00	2.15E-02	2.15E-02	9.63E-01	1.52E-02	1.52E-02	0.00E+00	0.00E+00	0.00E+00	2.38E-02	4.40E-02	1.71E-01
2.74E+00	3.64E-04	3.64E-04	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	4.40E-03	3.17E-02	3.13E-01
4.11E+00	4.13E-04	4.13E-04	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	4.52E-03	3.22E-02	3.13E-01
5.49E+00	4.63E-04	4.63E-04	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	4.64E-03	3.28E-02	3.13E-01
6.86E+00	5.11E-04	5.11E-04	9.84E-01	1.56E-02	1.56E-02	8.14E-04	0.00E+00	0.00E+00	4.80E-03	3.35E-02	3.14E-01
6.95E+00	5.11E-04	5.11E-04	9.84E-01	1.56E-02	1.56E-02	9.73E-04	0.00E+00	0.00E+00	4.86E-03	3.38E-02	3.14E-01
7.05E+00	5.11E-04	5.11E-04	9.84E-01	1.56E-02	1.56E-02	1.15E-03	0.00E+00	0.00E+00	4.86E-03	3.38E-02	3.14E-01
7.16E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	1.35E-03	0.00E+00	0.00E+00	4.86E-03	3.38E-02	3.14E-01
7.29E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	1.58E-03	0.00E+00	0.00E+00	4.85E-03	3.37E-02	3.14E-01
7.43E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	1.84E-03	0.00E+00	0.00E+00	4.85E-03	3.37E-02	3.14E-01
7.59E+00	5.10E-04	5.10E-04	9.84E-01	1.56E-02	1.56E-02	2.13E-03	0.00E+00	0.00E+00	4.85E-03	3.37E-02	3.14E-01
7.78E+00	5.09E-04	5.09E-04	9.84E-01	1.56E-02	1.56E-02	2.46E-03	0.00E+00	0.00E+00	4.84E-03	3.37E-02	3.14E-01
7.98E+00	5.09E-04	5.09E-04	9.84E-01	1.56E-02	1.56E-02	2.83E-03	0.00E+00	0.00E+00	4.84E-03	3.37E-02	3.14E-01
8.22E+00	5.08E-04	5.08E-04	9.84E-01	1.56E-02	1.56E-02	3.24E-03	0.00E+00	0.00E+00	4.83E-03	3.37E-02	3.14E-01

8.48E+00	5.08E-04	5.08E-04	9.84E-01	1.56E-02	1.56E-02	3.71E-03	0.00E+00	0.00E+00	4.82E-03	3.37E-02
3.14E-01										
8.78E+00	5.07E-04	5.07E-04	9.84E-01	1.56E-02	1.56E-02	4.24E-03	0.00E+00	0.00E+00	4.81E-03	3.37E-02
3.14E-01										
9.11E+00	5.06E-04	5.06E-04	9.84E-01	1.56E-02	1.56E-02	4.83E-03	0.00E+00	0.00E+00	4.80E-03	3.37E-02
3.14E-01										
9.49E+00	5.06E-04	5.06E-04	9.84E-01	1.56E-02	1.56E-02	5.50E-03	0.00E+00	0.00E+00	4.79E-03	3.36E-02
3.14E-01										
9.92E+00	5.05E-04	5.05E-04	9.84E-01	1.56E-02	1.56E-02	6.25E-03	0.00E+00	0.00E+00	4.78E-03	3.36E-02
3.14E-01										
1.04E+01	5.04E-04	5.04E-04	9.84E-01	1.56E-02	1.56E-02	7.09E-03	0.00E+00	0.00E+00	4.76E-03	3.36E-02
3.14E-01										
1.09E+01	5.03E-04	5.03E-04	9.84E-01	1.56E-02	1.56E-02	8.04E-03	0.00E+00	0.00E+00	4.74E-03	3.36E-02
3.14E-01										
1.16E+01	5.02E-04	5.02E-04	9.84E-01	1.56E-02	1.56E-02	9.10E-03	0.00E+00	0.00E+00	4.73E-03	3.35E-02
3.14E-01										
1.23E+01	5.00E-04	5.00E-04	9.84E-01	1.56E-02	1.56E-02	1.03E-02	0.00E+00	0.00E+00	4.71E-03	3.35E-02
3.14E-01										
1.30E+01	4.99E-04	4.99E-04	9.84E-01	1.56E-02	1.56E-02	1.16E-02	0.00E+00	0.00E+00	4.68E-03	3.35E-02
3.14E-01										
1.39E+01	4.97E-04	4.97E-04	9.84E-01	1.56E-02	1.56E-02	1.31E-02	0.00E+00	0.00E+00	4.66E-03	3.34E-02
3.14E-01										
1.49E+01	4.95E-04	4.95E-04	9.84E-01	1.56E-02	1.56E-02	1.48E-02	0.00E+00	0.00E+00	4.64E-03	3.34E-02
3.14E-01										
1.61E+01	4.93E-04	4.93E-04	9.84E-01	1.56E-02	1.56E-02	1.67E-02	0.00E+00	0.00E+00	4.61E-03	3.33E-02
3.14E-01										
1.73E+01	4.90E-04	4.90E-04	9.84E-01	1.56E-02	1.56E-02	1.88E-02	0.00E+00	0.00E+00	4.58E-03	3.33E-02
3.14E-01										
1.88E+01	4.88E-04	4.88E-04	9.84E-01	1.56E-02	1.56E-02	2.12E-02	0.00E+00	0.00E+00	4.56E-03	3.32E-02
3.14E-01										
2.04E+01	4.85E-04	4.85E-04	9.84E-01	1.56E-02	1.56E-02	2.38E-02	0.00E+00	0.00E+00	4.53E-03	3.32E-02
3.14E-01										
2.22E+01	4.81E-04	4.81E-04	9.84E-01	1.56E-02	1.56E-02	2.67E-02	0.00E+00	0.00E+00	4.50E-03	3.31E-02
3.15E-01										
2.43E+01	4.78E-04	4.78E-04	9.84E-01	1.56E-02	1.56E-02	3.00E-02	0.00E+00	0.00E+00	4.47E-03	3.30E-02
3.15E-01										
2.66E+01	4.74E-04	4.74E-04	9.84E-01	1.56E-02	1.56E-02	3.36E-02	0.00E+00	0.00E+00	4.44E-03	3.29E-02
3.15E-01										
2.92E+01	4.69E-04	4.69E-04	9.84E-01	1.56E-02	1.56E-02	3.76E-02	0.00E+00	0.00E+00	4.41E-03	3.28E-02
3.15E-01										
3.22E+01	4.64E-04	4.64E-04	9.84E-01	1.56E-02	1.56E-02	4.20E-02	0.00E+00	0.00E+00	4.39E-03	3.27E-02
3.16E-01										
3.56E+01	4.59E-04	4.59E-04	9.84E-01	1.56E-02	1.56E-02	4.68E-02	0.00E+00	0.00E+00	4.36E-03	3.26E-02
3.16E-01										
3.94E+01	4.53E-04	4.53E-04	9.84E-01	1.56E-02	1.56E-02	5.22E-02	0.00E+00	0.00E+00	4.34E-03	3.24E-02
3.17E-01										
4.36E+01	4.46E-04	4.46E-04	9.84E-01	1.56E-02	1.56E-02	5.80E-02	0.00E+00	0.00E+00	4.32E-03	3.23E-02
3.18E-01										
4.85E+01	4.39E-04	4.39E-04	9.84E-01	1.56E-02	1.56E-02	6.45E-02	0.00E+00	0.00E+00	4.30E-03	3.21E-02
3.19E-01										
5.39E+01	4.31E-04	4.31E-04	9.84E-01	1.56E-02	1.56E-02	7.14E-02	0.00E+00	0.00E+00	4.28E-03	3.19E-02
3.20E-01										
6.01E+01	4.23E-04	4.23E-04	9.84E-01	1.56E-02	1.56E-02	7.90E-02	0.00E+00	0.00E+00	4.27E-03	3.18E-02
3.22E-01										
6.70E+01	4.14E-04	4.14E-04	9.84E-01	1.56E-02	1.56E-02	8.72E-02	0.00E+00	0.00E+00	4.25E-03	3.16E-02
3.24E-01										
7.48E+01	4.04E-04	4.04E-04	9.84E-01	1.56E-02	1.56E-02	9.61E-02	0.00E+00	0.00E+00	4.24E-03	3.14E-02
3.26E-01										
8.37E+01	3.94E-04	3.94E-04	9.84E-01	1.56E-02	1.56E-02	1.06E-01	0.00E+00	0.00E+00	4.22E-03	3.11E-02
3.28E-01										
9.37E+01	3.83E-04	3.83E-04	9.84E-01	1.56E-02	1.56E-02	1.16E-01	0.00E+00	0.00E+00	4.20E-03	3.09E-02
3.31E-01										
1.05E+02	3.71E-04	3.71E-04	9.84E-01	1.56E-02	1.56E-02	1.26E-01	0.00E+00	0.00E+00	4.19E-03	3.06E-02
3.33E-01										
1.18E+02	3.59E-04	3.59E-04	9.84E-01	1.56E-02	1.56E-02	1.38E-01	0.00E+00	0.00E+00	4.18E-03	3.04E-02
3.36E-01										
1.32E+02	3.46E-04	3.46E-04	9.84E-01	1.56E-02	1.56E-02	1.50E-01	0.00E+00	0.00E+00	4.16E-03	3.01E-02
3.39E-01										
1.48E+02	3.33E-04	3.33E-04	9.84E-01	1.56E-02	1.56E-02	1.62E-01	0.00E+00	0.00E+00	4.15E-03	2.98E-02
3.42E-01										

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  1.66E+02  3.19E-04  3.19E-04  9.84E-01  1.56E-02  1.56E-02  1.75E-01  0.00E+00  0.00E+00  2.26E-02  2.97E-02
3.44E-01
  1.87E+02  2.99E-04  2.99E-04  9.84E-01  1.56E-02  1.56E-02  1.84E-01  0.00E+00  0.00E+00  1.89E-02  3.02E-02
3.46E-01
  2.10E+02  2.81E-04  2.81E-04  9.84E-01  1.56E-02  1.56E-02  1.92E-01  0.00E+00  0.00E+00  1.57E-02  3.09E-02
3.47E-01
  2.37E+02  2.63E-04  2.63E-04  9.84E-01  1.56E-02  1.56E-02  2.00E-01  0.00E+00  0.00E+00  1.33E-02  3.16E-02
3.46E-01
  2.66E+02  2.46E-04  2.46E-04  9.84E-01  1.56E-02  1.56E-02  2.08E-01  0.00E+00  0.00E+00  1.16E-02  3.23E-02
3.44E-01
  3.00E+02  2.30E-04  2.30E-04  9.84E-01  1.56E-02  1.56E-02  2.14E-01  0.00E+00  0.00E+00  1.02E-02  3.31E-02
3.41E-01
1

time averaged (tav = 1800. s) volume concentration:  concentration contour parameters

c(x,y,z,t) = cc(x) * (erf(xa)-erf(xb)) * (erf(ya)-erf(yb)) * (exp(-za*za)+exp(-zb*zb))

   c(x,y,z,t) = concentration (volume fraction) at (x,y,z,t)
            x = downwind distance (m)
            y = crosswind horizontal distance (m)
            z = height (m)
            t = time (s)

          erf = error functon
           xa = (x-xc+bx)/(sr2*betax)
           xb = (x-xc-bx)/(sr2*betax)
           ya = (y+b)/(sr2*betac)
           yb = (y-b)/(sr2*betac)
          exp = exponential function
           za = (z-zc)/(sr2*sig)
           zb = (z+zc)/(sr2*sig)
          sr2 = sqrt(2.0)
```

x	cc(x)	b(x)	betac(x)	zc(x)	sig(x)	t	xc(t)	bx(t)	betax(t)
-6.86E+00	0.00E+00	6.17E+00	1.73E+00	0.00E+00	0.00E+00	1.20E+01	0.00E+00	6.86E+00	5.60E-02
-5.49E+00	2.87E-03	6.17E+00	1.80E+00	0.00E+00	6.17E-01	1.58E+01	6.86E-01	7.54E+00	6.16E-02
-4.11E+00	4.28E-03	6.17E+00	1.87E+00	0.00E+00	7.73E-01	1.96E+01	1.37E+00	8.23E+00	6.72E-02
-2.74E+00	5.33E-03	6.17E+00	1.97E+00	0.00E+00	9.35E-01	2.90E+01	2.06E+00	8.91E+00	7.28E-02
-1.37E+00	6.26E-03	6.17E+00	2.11E+00	0.00E+00	1.14E+00	3.83E+01	2.74E+00	9.60E+00	7.84E-02
4.17E-07	7.12E-03	6.18E+00	2.34E+00	0.00E+00	1.46E+00	3.91E+01	3.43E+00	1.03E+01	8.40E-02
1.37E+00	7.85E-03	6.18E+00	2.81E+00	0.00E+00	2.21E+00	3.99E+01	4.11E+00	1.10E+01	8.96E-02
2.74E+00	2.05E-04	6.16E+00	5.91E+00	0.00E+00	1.38E+01	4.08E+01	4.80E+00	1.17E+01	9.52E-02
4.11E+00	2.35E-04	6.16E+00	5.96E+00	0.00E+00	1.39E+01	4.17E+01	5.49E+00	1.23E+01	1.01E-01
5.49E+00	2.65E-04	6.16E+00	6.02E+00	0.00E+00	1.39E+01	4.28E+01	6.17E+00	1.30E+01	1.06E-01
6.86E+00	2.94E-04	6.16E+00	6.08E+00	4.88E-05	1.40E+01	4.38E+01	6.86E+00	1.37E+01	1.12E-01
6.95E+00	2.95E-04	6.16E+00	6.10E+00	1.11E-04	1.41E+01	4.39E+01	6.95E+00	1.38E+01	1.13E-01
7.05E+00	2.95E-04	6.16E+00	6.10E+00	1.95E-04	1.41E+01	4.41E+01	7.05E+00	1.39E+01	1.14E-01
7.16E+00	2.95E-04	6.16E+00	6.11E+00	3.07E-04	1.41E+01	4.43E+01	7.16E+00	1.40E+01	1.14E-01
7.29E+00	2.95E-04	6.16E+00	6.11E+00	4.54E-04	1.41E+01	4.45E+01	7.29E+00	1.41E+01	1.15E-01
7.43E+00	2.95E-04	6.16E+00	6.12E+00	6.48E-04	1.41E+01	4.47E+01	7.43E+00	1.43E+01	1.17E-01
7.59E+00	2.95E-04	6.16E+00	6.12E+00	9.02E-04	1.41E+01	4.50E+01	7.59E+00	1.44E+01	1.18E-01
7.78E+00	2.95E-04	6.16E+00	6.13E+00	1.23E-03	1.41E+01	4.52E+01	7.78E+00	1.46E+01	1.19E-01
7.98E+00	2.95E-04	6.16E+00	6.13E+00	1.66E-03	1.41E+01	4.56E+01	7.98E+00	1.48E+01	1.21E-01
8.22E+00	2.95E-04	6.16E+00	6.14E+00	2.22E-03	1.41E+01	4.59E+01	8.22E+00	1.51E+01	1.23E-01
8.48E+00	2.95E-04	6.16E+00	6.15E+00	2.94E-03	1.41E+01	4.63E+01	8.48E+00	1.53E+01	1.25E-01
8.78E+00	2.95E-04	6.16E+00	6.16E+00	3.88E-03	1.41E+01	4.68E+01	8.78E+00	1.56E+01	1.28E-01
9.11E+00	2.95E-04	6.16E+00	6.17E+00	5.08E-03	1.41E+01	4.73E+01	9.11E+00	1.60E+01	1.30E-01
9.49E+00	2.95E-04	6.16E+00	6.19E+00	6.62E-03	1.41E+01	4.79E+01	9.49E+00	1.63E+01	1.34E-01
9.92E+00	2.95E-04	6.16E+00	6.20E+00	8.59E-03	1.41E+01	4.86E+01	9.92E+00	1.68E+01	1.37E-01
1.04E+01	2.95E-04	6.16E+00	6.22E+00	1.11E-02	1.40E+01	4.94E+01	1.04E+01	1.73E+01	1.41E-01
1.09E+01	2.95E-04	6.16E+00	6.24E+00	1.44E-02	1.40E+01	5.02E+01	1.09E+01	1.78E+01	1.45E-01
1.16E+01	2.96E-04	6.16E+00	6.26E+00	1.85E-02	1.40E+01	5.12E+01	1.16E+01	1.84E+01	1.50E-01
1.23E+01	2.96E-04	6.16E+00	6.29E+00	2.38E-02	1.40E+01	5.23E+01	1.23E+01	1.91E+01	1.56E-01
1.30E+01	2.96E-04	6.16E+00	6.31E+00	3.06E-02	1.40E+01	5.35E+01	1.30E+01	1.99E+01	1.62E-01
1.39E+01	2.96E-04	6.16E+00	6.34E+00	3.92E-02	1.40E+01	5.49E+01	1.39E+01	2.08E+01	1.70E-01
1.49E+01	2.96E-04	6.16E+00	6.38E+00	5.02E-02	1.40E+01	5.65E+01	1.49E+01	2.18E+01	1.78E-01
1.61E+01	2.97E-04	6.16E+00	6.42E+00	6.42E-02	1.40E+01	5.83E+01	1.61E+01	2.29E+01	1.87E-01
1.73E+01	2.97E-04	6.16E+00	6.47E+00	8.19E-02	1.40E+01	6.03E+01	1.73E+01	2.42E+01	1.97E-01
1.88E+01	2.98E-04	6.16E+00	6.52E+00	1.04E-01	1.40E+01	6.25E+01	1.88E+01	2.56E+01	2.09E-01
2.04E+01	2.98E-04	6.16E+00	6.58E+00	1.33E-01	1.39E+01	6.51E+01	2.04E+01	2.72E+01	2.22E-01

2.22E+01	2.99E-04	6.16E+00	6.65E+00	1.69E-01	1.39E+01	6.79E+01	2.22E+01	2.91E+01	2.37E-01
2.43E+01	3.00E-04	6.16E+00	6.72E+00	2.15E-01	1.39E+01	7.12E+01	2.43E+01	3.11E+01	2.54E-01
2.66E+01	3.01E-04	6.16E+00	6.81E+00	2.73E-01	1.38E+01	7.48E+01	2.66E+01	3.35E+01	2.73E-01
2.92E+01	3.02E-04	6.16E+00	6.91E+00	3.46E-01	1.38E+01	7.89E+01	2.92E+01	3.61E+01	2.95E-01
3.22E+01	3.04E-04	6.16E+00	7.02E+00	4.38E-01	1.37E+01	8.35E+01	3.22E+01	3.91E+01	3.19E-01
3.56E+01	3.07E-04	6.16E+00	7.15E+00	5.54E-01	1.37E+01	8.88E+01	3.56E+01	4.24E+01	3.46E-01
3.94E+01	3.09E-04	6.16E+00	7.29E+00	7.00E-01	1.36E+01	9.46E+01	3.94E+01	4.62E+01	3.77E-01
4.36E+01	3.13E-04	6.16E+00	7.45E+00	8.83E-01	1.34E+01	1.01E+02	4.36E+01	5.05E+01	4.12E-01
4.85E+01	3.17E-04	6.16E+00	7.64E+00	1.11E+00	1.33E+01	1.09E+02	4.85E+01	5.53E+01	4.52E-01
5.39E+01	3.23E-04	6.16E+00	7.86E+00	1.40E+00	1.31E+01	1.17E+02	5.39E+01	6.08E+01	4.96E-01
6.01E+01	3.30E-04	6.16E+00	8.10E+00	1.75E+00	1.29E+01	1.27E+02	6.01E+01	6.69E+01	5.46E-01
6.70E+01	3.39E-04	6.16E+00	8.38E+00	2.20E+00	1.26E+01	1.37E+02	6.70E+01	7.38E+01	6.03E-01
7.48E+01	3.51E-04	6.16E+00	8.70E+00	2.75E+00	1.23E+01	1.49E+02	7.48E+01	8.17E+01	6.67E-01
8.37E+01	3.66E-04	6.16E+00	9.06E+00	3.43E+00	1.19E+01	1.63E+02	8.37E+01	9.05E+01	7.39E-01
9.37E+01	3.85E-04	6.16E+00	9.47E+00	4.27E+00	1.14E+01	1.78E+02	9.37E+01	1.01E+02	8.21E-01
1.05E+02	4.12E-04	6.16E+00	9.93E+00	5.31E+00	1.08E+01	1.95E+02	1.05E+02	1.12E+02	9.13E-01
1.18E+02	4.48E-04	6.16E+00	1.05E+01	6.58E+00	1.00E+01	2.14E+02	1.18E+02	1.24E+02	1.02E+00
1.32E+02	4.99E-04	6.16E+00	1.11E+01	8.14E+00	9.13E+00	2.36E+02	1.32E+02	1.39E+02	1.13E+00
1.48E+02	5.76E-04	6.16E+00	1.18E+01	1.00E+01	8.02E+00	2.60E+02	1.48E+02	1.55E+02	1.27E+00
1.66E+02	6.80E-04	6.16E+00	1.25E+01	1.23E+01	6.88E+00	2.88E+02	1.66E+02	1.73E+02	1.42E+00
1.87E+02	6.79E-04	6.16E+00	1.34E+01	1.50E+01	6.74E+00	3.18E+02	1.87E+02	1.94E+02	1.58E+00
2.10E+02	6.82E-04	6.16E+00	1.44E+01	1.81E+01	6.60E+00	3.50E+02	2.10E+02	2.17E+02	1.77E+00
2.37E+02	6.86E-04	6.16E+00	1.55E+01	2.15E+01	6.45E+00	3.85E+02	2.37E+02	2.44E+02	1.99E+00
2.66E+02	6.91E-04	6.16E+00	1.68E+01	2.54E+01	6.31E+00	4.23E+02	2.66E+02	2.73E+02	2.23E+00
3.00E+02	6.98E-04	6.16E+00	1.82E+01	2.98E+01	6.18E+00	4.65E+02	3.00E+02	3.07E+02	2.51E+00

1

time averaged (tav = 1800. s) volume concentration: concentration in the z = 1.50 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at (x,y,z) y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	y/bbc= 2.0	y/bbc= 2.5
-6.86E+00	3.05E+02	6.00E+02	6.86E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-5.49E+00	3.04E+02	6.00E+02	6.92E+00	3.98E-04	3.72E-04	1.35E-04	3.90E-06	4.16E-09	0.00E+00
-4.11E+00	3.03E+02	6.00E+02	6.97E+00	1.73E-03	1.60E-03	5.80E-04	1.92E-05	2.88E-08	0.00E+00
-2.74E+00	3.02E+02	6.00E+02	7.05E+00	3.91E-03	3.57E-03	1.28E-03	4.95E-05	1.11E-07	0.00E+00
-1.37E+00	3.01E+02	6.00E+02	7.18E+00	6.95E-03	6.21E-03	2.22E-03	1.04E-04	3.76E-07	0.00E+00
4.17E-07	3.00E+02	6.00E+02	7.39E+00	1.11E-02	9.54E-03	3.37E-03	2.01E-04	1.34E-06	9.97E-10
1.37E+00	3.01E+02	6.00E+02	7.86E+00	1.61E-02	1.31E-02	4.55E-03	3.77E-04	5.57E-06	1.28E-08
2.74E+00	3.02E+02	6.00E+02	1.19E+01	3.81E-04	2.67E-04	8.83E-05	1.26E-05	7.31E-07	1.64E-08
4.11E+00	3.03E+02	6.00E+02	1.20E+01	4.34E-04	3.04E-04	1.00E-04	1.44E-05	8.37E-07	1.89E-08
5.49E+00	3.04E+02	6.00E+02	1.21E+01	4.85E-04	3.40E-04	1.12E-04	1.61E-05	9.43E-07	2.16E-08
6.86E+00	3.05E+02	6.00E+02	1.22E+01	5.36E-04	3.75E-04	1.24E-04	1.78E-05	1.05E-06	2.43E-08
6.95E+00	3.05E+02	6.00E+02	1.22E+01	5.36E-04	3.75E-04	1.24E-04	1.78E-05	1.05E-06	2.44E-08
7.05E+00	3.05E+02	6.00E+02	1.22E+01	5.36E-04	3.75E-04	1.24E-04	1.78E-05	1.05E-06	2.44E-08
7.16E+00	3.06E+02	6.00E+02	1.22E+01	5.35E-04	3.75E-04	1.23E-04	1.78E-05	1.05E-06	2.45E-08
7.29E+00	3.06E+02	6.00E+02	1.22E+01	5.35E-04	3.74E-04	1.23E-04	1.78E-05	1.05E-06	2.45E-08
7.43E+00	3.06E+02	6.00E+02	1.23E+01	5.35E-04	3.74E-04	1.23E-04	1.78E-05	1.05E-06	2.45E-08
7.59E+00	3.06E+02	6.00E+02	1.23E+01	5.34E-04	3.74E-04	1.23E-04	1.78E-05	1.05E-06	2.45E-08

7.78E+00	3.06E+02	6.00E+02	1.23E+01	5.34E-04	3.73E-04	1.23E-04	1.78E-05	1.05E-06	2.46E-08
7.98E+00	3.06E+02	6.00E+02	1.23E+01	5.34E-04	3.73E-04	1.23E-04	1.77E-05	1.05E-06	2.46E-08
8.22E+00	3.06E+02	6.00E+02	1.23E+01	5.33E-04	3.73E-04	1.23E-04	1.77E-05	1.05E-06	2.46E-08
8.48E+00	3.07E+02	6.00E+02	1.23E+01	5.33E-04	3.72E-04	1.23E-04	1.77E-05	1.05E-06	2.46E-08
8.78E+00	3.07E+02	6.00E+02	1.23E+01	5.32E-04	3.72E-04	1.23E-04	1.77E-05	1.05E-06	2.47E-08
9.11E+00	3.07E+02	6.00E+02	1.23E+01	5.31E-04	3.71E-04	1.22E-04	1.77E-05	1.05E-06	2.47E-08
9.49E+00	3.07E+02	6.00E+02	1.24E+01	5.30E-04	3.71E-04	1.22E-04	1.77E-05	1.05E-06	2.48E-08
9.92E+00	3.08E+02	6.00E+02	1.24E+01	5.29E-04	3.70E-04	1.22E-04	1.76E-05	1.05E-06	2.48E-08
1.04E+01	3.08E+02	6.00E+02	1.24E+01	5.28E-04	3.69E-04	1.22E-04	1.76E-05	1.05E-06	2.49E-08
1.09E+01	3.08E+02	6.00E+02	1.24E+01	5.27E-04	3.68E-04	1.21E-04	1.76E-05	1.05E-06	2.50E-08
1.16E+01	3.09E+02	6.00E+02	1.25E+01	5.26E-04	3.67E-04	1.21E-04	1.75E-05	1.05E-06	2.51E-08
1.23E+01	3.09E+02	6.00E+02	1.25E+01	5.24E-04	3.66E-04	1.21E-04	1.75E-05	1.05E-06	2.52E-08
1.30E+01	3.10E+02	6.00E+02	1.26E+01	5.23E-04	3.65E-04	1.20E-04	1.74E-05	1.05E-06	2.53E-08
1.39E+01	3.11E+02	6.00E+02	1.26E+01	5.21E-04	3.64E-04	1.20E-04	1.74E-05	1.05E-06	2.54E-08
1.49E+01	3.11E+02	6.00E+02	1.27E+01	5.19E-04	3.62E-04	1.19E-04	1.73E-05	1.05E-06	2.56E-08
1.61E+01	3.12E+02	6.00E+02	1.27E+01	5.17E-04	3.60E-04	1.19E-04	1.73E-05	1.05E-06	2.57E-08
1.73E+01	3.13E+02	6.00E+02	1.28E+01	5.14E-04	3.58E-04	1.18E-04	1.72E-05	1.05E-06	2.58E-08
1.88E+01	3.14E+02	6.00E+02	1.29E+01	5.11E-04	3.56E-04	1.17E-04	1.71E-05	1.05E-06	2.60E-08
2.04E+01	3.16E+02	6.00E+02	1.30E+01	5.08E-04	3.54E-04	1.16E-04	1.70E-05	1.05E-06	2.62E-08
2.22E+01	3.17E+02	6.00E+02	1.31E+01	5.05E-04	3.52E-04	1.16E-04	1.69E-05	1.05E-06	2.64E-08
2.43E+01	3.19E+02	6.00E+02	1.32E+01	5.01E-04	3.49E-04	1.15E-04	1.68E-05	1.05E-06	2.67E-08
2.66E+01	3.21E+02	6.00E+02	1.33E+01	4.97E-04	3.46E-04	1.14E-04	1.67E-05	1.05E-06	2.69E-08
2.92E+01	3.23E+02	6.00E+02	1.35E+01	4.93E-04	3.43E-04	1.13E-04	1.66E-05	1.04E-06	2.72E-08
3.22E+01	3.25E+02	6.00E+02	1.36E+01	4.89E-04	3.39E-04	1.11E-04	1.64E-05	1.04E-06	2.76E-08
3.56E+01	3.27E+02	6.00E+02	1.38E+01	4.84E-04	3.36E-04	1.10E-04	1.63E-05	1.04E-06	2.79E-08
3.94E+01	3.30E+02	6.00E+02	1.40E+01	4.78E-04	3.32E-04	1.09E-04	1.61E-05	1.04E-06	2.82E-08
4.36E+01	3.34E+02	6.00E+02	1.43E+01	4.73E-04	3.28E-04	1.07E-04	1.60E-05	1.04E-06	2.86E-08
4.85E+01	3.37E+02	6.00E+02	1.46E+01	4.67E-04	3.23E-04	1.06E-04	1.58E-05	1.03E-06	2.89E-08
5.39E+01	3.42E+02	6.00E+02	1.49E+01	4.61E-04	3.19E-04	1.04E-04	1.56E-05	1.03E-06	2.93E-08
6.01E+01	3.46E+02	6.00E+02	1.53E+01	4.54E-04	3.14E-04	1.03E-04	1.54E-05	1.03E-06	2.97E-08
6.70E+01	3.52E+02	6.00E+02	1.58E+01	4.47E-04	3.09E-04	1.01E-04	1.52E-05	1.02E-06	3.00E-08
7.48E+01	3.58E+02	6.00E+02	1.63E+01	4.40E-04	3.04E-04	9.91E-05	1.49E-05	1.01E-06	3.03E-08
8.37E+01	3.64E+02	6.00E+02	1.69E+01	4.31E-04	2.97E-04	9.69E-05	1.46E-05	1.00E-06	3.04E-08
9.37E+01	3.72E+02	6.00E+02	1.75E+01	4.19E-04	2.89E-04	9.42E-05	1.43E-05	9.84E-07	3.04E-08
1.05E+02	3.81E+02	6.00E+02	1.83E+01	4.02E-04	2.77E-04	9.02E-05	1.37E-05	9.52E-07	2.98E-08

1.18E+02	3.91E+02	6.00E+02	1.91E+01	3.74E-04	2.58E-04	8.40E-05	1.28E-05	8.94E-07	2.84E-08
1.32E+02	4.02E+02	6.00E+02	2.01E+01	3.26E-04	2.25E-04	7.31E-05	1.11E-05	7.84E-07	2.52E-08
1.48E+02	4.14E+02	6.00E+02	2.13E+01	2.41E-04	1.66E-04	5.39E-05	8.23E-06	5.83E-07	1.90E-08
1.66E+02	4.28E+02	6.00E+02	2.26E+01	1.19E-04	8.22E-05	2.67E-05	4.08E-06	2.90E-07	9.54E-09
1.87E+02	4.44E+02	6.00E+02	2.40E+01	4.76E-05	3.28E-05	1.07E-05	1.63E-06	1.16E-07	3.85E-09
2.10E+02	4.62E+02	6.00E+02	2.57E+01	1.31E-05	8.99E-06	2.92E-06	4.47E-07	3.20E-08	1.07E-09
2.37E+02	4.82E+02	6.00E+02	2.76E+01	2.14E-06	1.47E-06	4.79E-07	7.33E-08	5.27E-09	1.77E-10
2.66E+02	5.05E+02	6.00E+02	2.97E+01	1.75E-07	1.20E-07	3.91E-08	5.99E-09	4.31E-10	1.45E-11
3.00E+02	5.31E+02	6.00E+02	3.22E+01	5.66E-09	3.89E-09	1.26E-09	1.94E-10	1.40E-11	4.73E-13

1

time averaged (tav = 1800. s) volume concentration: maximum concentration (volume fraction) along centerline.

downwind distance x (m)	height z (m)	maximum concentration c(x,0,z)	time of max conc (s)	cloud duration (s)
-6.86E+00	0.00E+00	0.00E+00	3.05E+02	6.00E+02
-5.49E+00	0.00E+00	7.64E-03	3.04E+02	6.00E+02
-4.11E+00	0.00E+00	1.14E-02	3.03E+02	6.00E+02
-2.74E+00	0.00E+00	1.42E-02	3.02E+02	6.00E+02
-1.37E+00	0.00E+00	1.66E-02	3.01E+02	6.00E+02
4.17E-07	0.00E+00	1.88E-02	3.00E+02	6.00E+02
1.37E+00	0.00E+00	2.03E-02	3.01E+02	6.00E+02
2.74E+00	0.00E+00	3.84E-04	3.02E+02	6.00E+02
4.11E+00	0.00E+00	4.36E-04	3.03E+02	6.00E+02
5.49E+00	0.00E+00	4.88E-04	3.04E+02	6.00E+02
6.86E+00	0.00E+00	5.39E-04	3.05E+02	6.00E+02
6.95E+00	0.00E+00	5.39E-04	3.05E+02	6.00E+02
7.05E+00	0.00E+00	5.39E-04	3.05E+02	6.00E+02
7.16E+00	0.00E+00	5.39E-04	3.06E+02	6.00E+02
7.29E+00	0.00E+00	5.38E-04	3.06E+02	6.00E+02
7.43E+00	0.00E+00	5.38E-04	3.06E+02	6.00E+02
7.59E+00	0.00E+00	5.38E-04	3.06E+02	6.00E+02
7.78E+00	0.00E+00	5.37E-04	3.06E+02	6.00E+02
7.98E+00	0.00E+00	5.37E-04	3.06E+02	6.00E+02
8.22E+00	0.00E+00	5.36E-04	3.06E+02	6.00E+02
8.48E+00	0.00E+00	5.36E-04	3.07E+02	6.00E+02
8.78E+00	0.00E+00	5.35E-04	3.07E+02	6.00E+02
9.11E+00	0.00E+00	5.34E-04	3.07E+02	6.00E+02
9.49E+00	0.00E+00	5.33E-04	3.07E+02	6.00E+02
9.92E+00	0.00E+00	5.32E-04	3.08E+02	6.00E+02
1.04E+01	0.00E+00	5.31E-04	3.08E+02	6.00E+02
1.09E+01	0.00E+00	5.30E-04	3.08E+02	6.00E+02
1.16E+01	0.00E+00	5.29E-04	3.09E+02	6.00E+02
1.23E+01	0.00E+00	5.27E-04	3.09E+02	6.00E+02
1.30E+01	0.00E+00	5.26E-04	3.10E+02	6.00E+02
1.39E+01	0.00E+00	5.24E-04	3.11E+02	6.00E+02
1.49E+01	0.00E+00	5.22E-04	3.11E+02	6.00E+02
1.61E+01	0.00E+00	5.20E-04	3.12E+02	6.00E+02
1.73E+01	0.00E+00	5.17E-04	3.13E+02	6.00E+02
1.88E+01	0.00E+00	5.14E-04	3.14E+02	6.00E+02
2.04E+01	0.00E+00	5.11E-04	3.16E+02	6.00E+02
2.22E+01	0.00E+00	5.08E-04	3.17E+02	6.00E+02
2.43E+01	0.00E+00	5.04E-04	3.19E+02	6.00E+02
2.66E+01	0.00E+00	5.00E-04	3.21E+02	6.00E+02
2.92E+01	0.00E+00	4.96E-04	3.23E+02	6.00E+02
3.22E+01	0.00E+00	4.92E-04	3.25E+02	6.00E+02
3.56E+01	0.00E+00	4.87E-04	3.27E+02	6.00E+02
3.94E+01	0.00E+00	4.81E-04	3.30E+02	6.00E+02
4.36E+01	0.00E+00	4.76E-04	3.34E+02	6.00E+02
4.85E+01	0.00E+00	4.70E-04	3.37E+02	6.00E+02

5.39E+01	0.00E+00	4.64E-04	3.42E+02	6.00E+02
6.01E+01	0.00E+00	4.57E-04	3.46E+02	6.00E+02
6.70E+01	0.00E+00	4.50E-04	3.52E+02	6.00E+02
7.48E+01	0.00E+00	4.43E-04	3.58E+02	6.00E+02
8.37E+01	0.00E+00	4.34E-04	3.64E+02	6.00E+02
9.37E+01	0.00E+00	4.22E-04	3.72E+02	6.00E+02
1.05E+02	0.00E+00	4.05E-04	3.81E+02	6.00E+02
1.18E+02	0.00E+00	3.77E-04	3.91E+02	6.00E+02
1.32E+02	0.00E+00	3.27E-04	4.02E+02	6.00E+02
1.48E+02	8.84E+00	2.75E-04	4.14E+02	6.00E+02
1.66E+02	1.23E+01	2.85E-04	4.28E+02	6.00E+02
1.87E+02	1.50E+01	2.61E-04	4.44E+02	6.00E+02
2.10E+02	1.81E+01	2.39E-04	4.62E+02	6.00E+02
2.37E+02	2.15E+01	2.18E-04	4.82E+02	6.00E+02
2.66E+02	2.54E+01	1.99E-04	5.05E+02	6.00E+02
3.00E+02	2.98E+01	1.81E-04	5.31E+02	6.00E+02

SESSION INFORMATION

INPUT DATA FILE NAME : C:\FPL\TESLA\NH3TANK.SLB
OUTPUT LIST FILE NAME : C:\FPL\TESLA\RUNB.LST

problem input

```
idspl =         1
ncalc =         1
wms   =  0.017031
cps   =   2093.65
tbp   =    239.70
cmed0 =      0.83
dhe   =  1370837.
cpsl  =   4956.39
rhosl =    639.00
spb   =   2132.50
spc   =    -32.98
ts    =    304.90
qs    =      0.04
as    =     12.50
tsd   =      600.
qtis  =      0.00
hs    =      0.00
tav   =   3600.00
xffm  =    300.00
zp(1) =      1.50
zp(2) =      0.00
zp(3) =      0.00
zp(4) =      0.00
z0    =  0.100000
za    =     10.00
ua    =      3.00
ta    =    304.90
rh    =     50.00
stab  =      4.00
```

release gas properties

```
molecular weight of source gas (kg)          - wms  =  1.7031E-02
vapor heat capacity, const. p.  (j/kg-k)     - cps  =  2.0936E+03
temperature of source gas (k)                - ts   =  2.3970E+02
density of source gas (kg/m3)                - rhos =  8.6589E-01
boiling point temperature                    - tbp  =  2.3970E+02
liquid mass fraction                         - cmed0=  0.0000E+00
liquid heat capacity (j/kg-k)                - cpsl =  4.9564E+03
heat of vaporization (j/kg)                  - dhe  =  1.3708E+06
liquid source density (kg/m3)                - rhosl=  6.3900E+02
saturation pressure constant                 - spa  =  1.0316E+01
saturation pressure constant (k)             - spb  =  2.1325E+03
saturation pressure constant (k)             - spc  = -3.2980E+01
```

spill characteristics

```
spill type                                   - idspl=          1
mass source rate (kg/s)                      - qs   =  3.5590E-02
continuous source duration (s)               - tsd  =  6.0000E+02
continuous source mass (kg)                  - qtcs =  2.1354E+01
instantaneous source mass (kg)               - qtis =  0.0000E+00
source area (m2)                             - as   =  1.2500E+01
vertical vapor velocity (m/s)                - ws   =  3.2882E-03
source half width (m)                        - bs   =  1.7678E+00
```

source height (m)	- hs	=	0.0000E+00
horizontal vapor velocity (m/s)	- us	=	0.0000E+00

field parameters

concentration averaging time (s)	- tav	=	3.6000E+03
mixing layer height (m)	- hmx	=	1.0400E+03
maximum downwind distrace (m)	- xffm	=	3.0000E+02
concentration measurement height (m)	- zp(1)	=	1.5000E+00
	- zp(2)	=	0.0000E+00
	- zp(3)	=	0.0000E+00
	- zp(4)	=	0.0000E+00

ambient meteorological properties

molecular weight of ambient air (kg)	- wmae	=	2.8689E-02
heat capacity of ambient air at const p. (j/kg-k)	- cpaa	=	1.0189E+03
density of ambient air (kg/m3)	- rhoa	=	1.1467E+00
ambient measurement height (m)	- za	=	1.0000E+01
ambient atmospheric pressure (pa=n/m2=j/m3)	- pa	=	1.0133E+05
ambient wind speed (m/s)	- ua	=	3.0000E+00
ambient temperature (k)	- ta	=	3.0490E+02
relative humidity (percent)	- rh	=	5.0000E+01
ambient friction velocity (m/s)	- uastr	=	2.6764E-01
atmospheric stability class value	- stab	=	4.0000E+00
inverse monin-obukhov length (1/m)	- ala	=	0.0000E+00
surface roughness height (m)	- z0	=	1.0000E-01

additional parameters

sub-step multiplier	- ncalc	=	1
number of calculational sub-steps	- nssm	=	3
acceleration of gravity (m/s2)	- grav	=	9.8067E+00
gas constant (j/mol- k)	- rr	=	8.3143E+00
von karman constant	- xk	=	4.1000E-01

1

instantaneous spatially averaged cloud parameters

x	zc	h	bb	b	bbx	bx	cv	rho	t	u	ua
-1.77E+00	0.00E+00	0.00E+00	1.77E+00	1.59E+00	1.77E+00	1.77E+00	0.00E+00	1.15E+00	3.05E+02	0.00E+00	0.00E+00
-1.41E+00	0.00E+00	5.19E-01	1.80E+00	1.59E+00	1.94E+00	1.94E+00	4.75E-03	1.15E+00	3.05E+02	5.90E-01	5.92E-01
-1.06E+00	0.00E+00	6.98E-01	1.82E+00	1.59E+00	2.12E+00	2.12E+00	5.58E-03	1.15E+00	3.05E+02	7.38E-01	7.42E-01
-7.07E-01	0.00E+00	8.39E-01	1.84E+00	1.59E+00	2.30E+00	2.30E+00	6.09E-03	1.15E+00	3.04E+02	8.34E-01	8.41E-01
-3.54E-01	0.00E+00	9.62E-01	1.86E+00	1.59E+00	2.47E+00	2.47E+00	6.45E-03	1.15E+00	3.04E+02	9.07E-01	9.16E-01
1.04E-07	0.00E+00	1.07E+00	1.88E+00	1.59E+00	2.65E+00	2.65E+00	6.72E-03	1.15E+00	3.04E+02	9.65E-01	9.78E-01
3.54E-01	0.00E+00	1.17E+00	1.90E+00	1.59E+00	2.83E+00	2.83E+00	6.94E-03	1.15E+00	3.04E+02	1.01E+00	1.03E+00
7.07E-01	0.00E+00	1.27E+00	1.92E+00	1.59E+00	3.01E+00	3.00E+00	7.11E-03	1.15E+00	3.04E+02	1.06E+00	1.08E+00
1.06E+00	0.00E+00	1.36E+00	1.94E+00	1.59E+00	3.18E+00	3.18E+00	7.25E-03	1.15E+00	3.04E+02	1.09E+00	1.12E+00
1.41E+00	0.00E+00	1.45E+00	1.96E+00	1.59E+00	3.36E+00	3.36E+00	7.37E-03	1.15E+00	3.04E+02	1.13E+00	1.15E+00
1.77E+00	2.19E-05	1.53E+00	1.98E+00	1.59E+00	3.54E+00	3.54E+00	7.47E-03	1.15E+00	3.04E+02	1.16E+00	1.18E+00
1.80E+00	5.71E-05	1.54E+00	1.98E+00	1.59E+00	3.56E+00	3.56E+00	7.42E-03	1.15E+00	3.04E+02	1.16E+00	1.19E+00
1.83E+00	1.07E-04	1.54E+00	1.98E+00	1.59E+00	3.60E+00	3.60E+00	7.36E-03	1.15E+00	3.04E+02	1.16E+00	1.19E+00

1.87E+00	1.77E-04	1.55E+00	1.98E+00	1.59E+00	3.63E+00	3.63E+00	7.29E-03	1.15E+00	3.04E+02	1.16E+00	1.19E+00
1.91E+00	2.74E-04	1.56E+00	1.98E+00	1.59E+00	3.68E+00	3.68E+00	7.21E-03	1.15E+00	3.04E+02	1.17E+00	1.20E+00
1.96E+00	4.07E-04	1.57E+00	1.99E+00	1.59E+00	3.73E+00	3.73E+00	7.13E-03	1.15E+00	3.04E+02	1.17E+00	1.20E+00
2.02E+00	5.88E-04	1.58E+00	1.99E+00	1.59E+00	3.79E+00	3.79E+00	7.03E-03	1.15E+00	3.04E+02	1.18E+00	1.21E+00
2.09E+00	8.32E-04	1.60E+00	2.00E+00	1.59E+00	3.86E+00	3.86E+00	6.92E-03	1.15E+00	3.04E+02	1.18E+00	1.21E+00
2.17E+00	1.16E-03	1.62E+00	2.00E+00	1.59E+00	3.94E+00	3.94E+00	6.79E-03	1.15E+00	3.04E+02	1.19E+00	1.22E+00
2.26E+00	1.60E-03	1.63E+00	2.01E+00	1.59E+00	4.03E+00	4.03E+00	6.65E-03	1.15E+00	3.04E+02	1.20E+00	1.22E+00
2.37E+00	2.17E-03	1.66E+00	2.01E+00	1.59E+00	4.14E+00	4.14E+00	6.50E-03	1.15E+00	3.04E+02	1.21E+00	1.23E+00
2.50E+00	2.94E-03	1.68E+00	2.02E+00	1.59E+00	4.27E+00	4.27E+00	6.33E-03	1.15E+00	3.04E+02	1.22E+00	1.24E+00
2.64E+00	3.93E-03	1.71E+00	2.03E+00	1.59E+00	4.41E+00	4.41E+00	6.14E-03	1.15E+00	3.04E+02	1.23E+00	1.25E+00
2.81E+00	5.23E-03	1.74E+00	2.04E+00	1.59E+00	4.58E+00	4.58E+00	5.93E-03	1.15E+00	3.04E+02	1.24E+00	1.26E+00
3.01E+00	6.90E-03	1.78E+00	2.05E+00	1.59E+00	4.78E+00	4.77E+00	5.71E-03	1.15E+00	3.05E+02	1.25E+00	1.28E+00
3.23E+00	9.05E-03	1.82E+00	2.06E+00	1.59E+00	5.00E+00	5.00E+00	5.47E-03	1.15E+00	3.05E+02	1.27E+00	1.29E+00
3.50E+00	1.18E-02	1.87E+00	2.08E+00	1.59E+00	5.27E+00	5.27E+00	5.22E-03	1.15E+00	3.05E+02	1.29E+00	1.31E+00
3.80E+00	1.52E-02	1.93E+00	2.09E+00	1.59E+00	5.57E+00	5.57E+00	4.95E-03	1.15E+00	3.05E+02	1.31E+00	1.32E+00
4.16E+00	1.96E-02	1.99E+00	2.11E+00	1.59E+00	5.93E+00	5.93E+00	4.67E-03	1.15E+00	3.05E+02	1.33E+00	1.34E+00
4.57E+00	2.49E-02	2.07E+00	2.14E+00	1.59E+00	6.34E+00	6.34E+00	4.38E-03	1.15E+00	3.05E+02	1.35E+00	1.37E+00
5.05E+00	3.16E-02	2.15E+00	2.16E+00	1.59E+00	6.81E+00	6.81E+00	4.09E-03	1.15E+00	3.05E+02	1.37E+00	1.39E+00
5.60E+00	3.97E-02	2.24E+00	2.19E+00	1.59E+00	7.37E+00	7.37E+00	3.79E-03	1.15E+00	3.05E+02	1.40E+00	1.42E+00
6.24E+00	4.96E-02	2.35E+00	2.23E+00	1.59E+00	8.01E+00	8.01E+00	3.49E-03	1.15E+00	3.05E+02	1.43E+00	1.44E+00
6.99E+00	6.14E-02	2.47E+00	2.27E+00	1.59E+00	8.76E+00	8.75E+00	3.19E-03	1.15E+00	3.05E+02	1.46E+00	1.47E+00
7.85E+00	7.55E-02	2.60E+00	2.32E+00	1.59E+00	9.62E+00	9.62E+00	2.89E-03	1.15E+00	3.05E+02	1.50E+00	1.51E+00
8.86E+00	9.23E-02	2.75E+00	2.38E+00	1.59E+00	1.06E+01	1.06E+01	2.61E-03	1.15E+00	3.05E+02	1.53E+00	1.54E+00
1.00E+01	1.12E-01	2.92E+00	2.44E+00	1.59E+00	1.18E+01	1.18E+01	2.33E-03	1.15E+00	3.05E+02	1.57E+00	1.58E+00
1.14E+01	1.35E-01	3.11E+00	2.52E+00	1.59E+00	1.31E+01	1.31E+01	2.07E-03	1.15E+00	3.05E+02	1.61E+00	1.62E+00
1.29E+01	1.61E-01	3.32E+00	2.61E+00	1.59E+00	1.47E+01	1.47E+01	1.83E-03	1.15E+00	3.05E+02	1.65E+00	1.66E+00
1.48E+01	1.91E-01	3.55E+00	2.71E+00	1.59E+00	1.65E+01	1.65E+01	1.60E-03	1.15E+00	3.05E+02	1.70E+00	1.70E+00
1.69E+01	2.25E-01	3.81E+00	2.83E+00	1.59E+00	1.86E+01	1.86E+01	1.39E-03	1.15E+00	3.05E+02	1.74E+00	1.75E+00
1.93E+01	2.63E-01	4.11E+00	2.96E+00	1.59E+00	2.11E+01	2.11E+01	1.20E-03	1.15E+00	3.05E+02	1.79E+00	1.79E+00
2.22E+01	3.05E-01	4.43E+00	3.12E+00	1.59E+00	2.39E+01	2.39E+01	1.03E-03	1.15E+00	3.05E+02	1.84E+00	1.84E+00
2.54E+01	3.52E-01	4.80E+00	3.31E+00	1.59E+00	2.72E+01	2.72E+01	8.74E-04	1.15E+00	3.05E+02	1.89E+00	1.89E+00
2.93E+01	4.04E-01	5.20E+00	3.52E+00	1.59E+00	3.10E+01	3.10E+01	7.37E-04	1.15E+00	3.05E+02	1.94E+00	1.94E+00
3.37E+01	4.60E-01	5.65E+00	3.77E+00	1.59E+00	3.55E+01	3.55E+01	6.17E-04	1.15E+00	3.05E+02	1.99E+00	1.99E+00
3.88E+01	5.20E-01	6.15E+00	4.05E+00	1.59E+00	4.06E+01	4.06E+01	5.13E-04	1.15E+00	3.05E+02	2.04E+00	2.05E+00
4.48E+01	5.85E-01	6.70E+00	4.39E+00	1.59E+00	4.66E+01	4.66E+01	4.24E-04	1.15E+00	3.05E+02	2.10E+00	2.10E+00

5.17E+01	6.54E-01	7.32E+00	4.77E+00	1.59E+00	5.35E+01	5.35E+01	3.47E-04	1.15E+00	3.05E+02	2.16E+00
2.16E+00										
5.98E+01	7.27E-01	8.00E+00	5.22E+00	1.59E+00	6.15E+01	6.15E+01	2.83E-04	1.15E+00	3.05E+02	2.21E+00
2.22E+00										
6.91E+01	8.04E-01	8.77E+00	5.73E+00	1.59E+00	7.09E+01	7.09E+01	2.29E-04	1.15E+00	3.05E+02	2.27E+00
2.27E+00										
7.99E+01	8.84E-01	9.62E+00	6.33E+00	1.59E+00	8.17E+01	8.17E+01	1.84E-04	1.15E+00	3.05E+02	2.33E+00
2.33E+00										
9.25E+01	9.66E-01	1.06E+01	7.02E+00	1.59E+00	9.42E+01	9.42E+01	1.47E-04	1.15E+00	3.05E+02	2.39E+00
2.39E+00										
1.07E+02	1.05E+00	1.16E+01	7.82E+00	1.59E+00	1.09E+02	1.09E+02	1.17E-04	1.15E+00	3.05E+02	2.45E+00
2.46E+00										
1.24E+02	1.14E+00	1.28E+01	8.75E+00	1.59E+00	1.26E+02	1.26E+02	9.29E-05	1.15E+00	3.05E+02	2.52E+00
2.52E+00										
1.44E+02	1.23E+00	1.41E+01	9.82E+00	1.59E+00	1.45E+02	1.45E+02	7.33E-05	1.15E+00	3.05E+02	2.58E+00
2.58E+00										
1.66E+02	1.32E+00	1.55E+01	1.11E+01	1.59E+00	1.68E+02	1.68E+02	5.76E-05	1.15E+00	3.05E+02	2.64E+00
2.64E+00										
1.93E+02	1.42E+00	1.72E+01	1.25E+01	1.59E+00	1.94E+02	1.94E+02	4.51E-05	1.15E+00	3.05E+02	2.70E+00
2.71E+00										
2.23E+02	1.51E+00	1.90E+01	1.41E+01	1.59E+00	2.25E+02	2.25E+02	3.52E-05	1.15E+00	3.05E+02	2.77E+00
2.77E+00										
2.59E+02	1.61E+00	2.10E+01	1.60E+01	1.59E+00	2.61E+02	2.61E+02	2.74E-05	1.15E+00	3.05E+02	2.83E+00
2.84E+00										
3.00E+02	1.70E+00	2.32E+01	1.82E+01	1.59E+00	3.02E+02	3.02E+02	2.13E-05	1.15E+00	3.05E+02	2.90E+00
2.90E+00										
1										

x	cm	cmv	cmda	cmw	cmwv	wc	vg	ug	w	v
vx										
-1.77E+00	0.00E+00	0.00E+00	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	5.85E-01	9.76E-02
0.00E+00										
-1.41E+00	2.83E-03	2.83E-03	9.82E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	3.73E-01	1.91E-02
2.36E-01										
-1.06E+00	3.32E-03	3.32E-03	9.81E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	3.16E-01	2.40E-02
2.63E-01										
-7.07E-01	3.63E-03	3.63E-03	9.81E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.88E-01	2.72E-02
2.79E-01										
-3.54E-01	3.84E-03	3.84E-03	9.81E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.71E-01	2.96E-02
2.89E-01										
1.04E-07	4.00E-03	4.00E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.58E-01	3.16E-02
2.98E-01										
3.54E-01	4.13E-03	4.13E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.48E-01	3.33E-02
3.04E-01										
7.07E-01	4.23E-03	4.23E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.40E-01	3.48E-02
3.10E-01										
1.06E+00	4.32E-03	4.32E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.34E-01	3.61E-02
3.14E-01										
1.41E+00	4.39E-03	4.39E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.28E-01	3.73E-02
3.18E-01										
1.77E+00	4.45E-03	4.45E-03	9.80E-01	1.55E-02	1.55E-02	1.29E-03	0.00E+00	0.00E+00	2.23E-01	3.84E-02
3.22E-01										
1.80E+00	4.42E-03	4.42E-03	9.80E-01	1.55E-02	1.55E-02	1.59E-03	0.00E+00	0.00E+00	2.22E-01	3.85E-02
3.22E-01										
1.83E+00	4.38E-03	4.38E-03	9.80E-01	1.55E-02	1.55E-02	1.93E-03	0.00E+00	0.00E+00	2.22E-01	3.85E-02
3.22E-01										
1.87E+00	4.34E-03	4.34E-03	9.80E-01	1.55E-02	1.55E-02	2.33E-03	0.00E+00	0.00E+00	2.22E-01	3.86E-02
3.22E-01										
1.91E+00	4.29E-03	4.29E-03	9.80E-01	1.55E-02	1.55E-02	2.77E-03	0.00E+00	0.00E+00	2.21E-01	3.88E-02
3.23E-01										
1.96E+00	4.24E-03	4.24E-03	9.80E-01	1.55E-02	1.55E-02	3.28E-03	0.00E+00	0.00E+00	2.20E-01	3.89E-02
3.23E-01										
2.02E+00	4.18E-03	4.18E-03	9.80E-01	1.55E-02	1.55E-02	3.85E-03	0.00E+00	0.00E+00	2.20E-01	3.90E-02
3.24E-01										
2.09E+00	4.12E-03	4.12E-03	9.80E-01	1.55E-02	1.55E-02	4.49E-03	0.00E+00	0.00E+00	2.19E-01	3.92E-02
3.24E-01										
2.17E+00	4.04E-03	4.04E-03	9.80E-01	1.55E-02	1.55E-02	5.20E-03	0.00E+00	0.00E+00	2.18E-01	3.94E-02
3.25E-01										
2.26E+00	3.96E-03	3.96E-03	9.81E-01	1.55E-02	1.55E-02	6.00E-03	0.00E+00	0.00E+00	2.17E-01	3.96E-02
3.26E-01										

2.37E+00	3.87E-03	3.87E-03	9.81E-01	1.55E-02	1.55E-02	6.88E-03	0.00E+00	0.00E+00	2.16E-01	3.99E-02
3.26E-01										
2.50E+00	3.76E-03	3.76E-03	9.81E-01	1.55E-02	1.55E-02	7.85E-03	0.00E+00	0.00E+00	2.15E-01	4.02E-02
3.27E-01										
2.64E+00	3.65E-03	3.65E-03	9.81E-01	1.55E-02	1.55E-02	8.90E-03	0.00E+00	0.00E+00	2.14E-01	4.05E-02
3.28E-01										
2.81E+00	3.53E-03	3.53E-03	9.81E-01	1.55E-02	1.55E-02	1.00E-02	0.00E+00	0.00E+00	2.12E-01	4.08E-02
3.30E-01										
3.01E+00	3.40E-03	3.40E-03	9.81E-01	1.55E-02	1.55E-02	1.13E-02	0.00E+00	0.00E+00	2.11E-01	4.13E-02
3.31E-01										
3.23E+00	3.26E-03	3.26E-03	9.81E-01	1.55E-02	1.55E-02	1.26E-02	0.00E+00	0.00E+00	2.09E-01	4.17E-02
3.32E-01										
3.50E+00	3.11E-03	3.11E-03	9.81E-01	1.55E-02	1.55E-02	1.39E-02	0.00E+00	0.00E+00	2.07E-01	4.22E-02
3.34E-01										
3.80E+00	2.95E-03	2.95E-03	9.82E-01	1.55E-02	1.55E-02	1.53E-02	0.00E+00	0.00E+00	2.05E-01	4.28E-02
3.36E-01										
4.16E+00	2.78E-03	2.78E-03	9.82E-01	1.55E-02	1.55E-02	1.68E-02	0.00E+00	0.00E+00	2.03E-01	4.34E-02
3.38E-01										
4.57E+00	2.61E-03	2.61E-03	9.82E-01	1.55E-02	1.55E-02	1.82E-02	0.00E+00	0.00E+00	2.01E-01	4.41E-02
3.40E-01										
5.05E+00	2.43E-03	2.43E-03	9.82E-01	1.55E-02	1.55E-02	1.97E-02	0.00E+00	0.00E+00	1.99E-01	4.49E-02
3.42E-01										
5.60E+00	2.25E-03	2.25E-03	9.82E-01	1.55E-02	1.55E-02	2.11E-02	0.00E+00	0.00E+00	1.96E-01	4.57E-02
3.44E-01										
6.24E+00	2.07E-03	2.07E-03	9.82E-01	1.55E-02	1.55E-02	2.24E-02	0.00E+00	0.00E+00	1.93E-01	4.66E-02
3.46E-01										
6.99E+00	1.89E-03	1.89E-03	9.83E-01	1.55E-02	1.55E-02	2.36E-02	0.00E+00	0.00E+00	1.90E-01	4.76E-02
3.49E-01										
7.85E+00	1.72E-03	1.72E-03	9.83E-01	1.55E-02	1.55E-02	2.47E-02	0.00E+00	0.00E+00	1.87E-01	4.86E-02
3.52E-01										
8.86E+00	1.55E-03	1.55E-03	9.83E-01	1.55E-02	1.55E-02	2.57E-02	0.00E+00	0.00E+00	1.84E-01	4.97E-02
3.54E-01										
1.00E+01	1.39E-03	1.39E-03	9.83E-01	1.55E-02	1.55E-02	2.65E-02	0.00E+00	0.00E+00	1.81E-01	5.09E-02
3.57E-01										
1.14E+01	1.23E-03	1.23E-03	9.83E-01	1.55E-02	1.55E-02	2.71E-02	0.00E+00	0.00E+00	1.78E-01	5.22E-02
3.59E-01										
1.29E+01	1.09E-03	1.09E-03	9.83E-01	1.55E-02	1.55E-02	2.75E-02	0.00E+00	0.00E+00	1.74E-01	5.35E-02
3.62E-01										
1.48E+01	9.52E-04	9.52E-04	9.83E-01	1.55E-02	1.55E-02	2.77E-02	0.00E+00	0.00E+00	1.71E-01	5.48E-02
3.64E-01										
1.69E+01	8.27E-04	8.27E-04	9.84E-01	1.56E-02	1.56E-02	2.76E-02	0.00E+00	0.00E+00	1.67E-01	5.62E-02
3.67E-01										
1.93E+01	7.14E-04	7.14E-04	9.84E-01	1.56E-02	1.56E-02	2.73E-02	0.00E+00	0.00E+00	1.64E-01	5.77E-02
3.69E-01										
2.22E+01	6.11E-04	6.11E-04	9.84E-01	1.56E-02	1.56E-02	2.69E-02	0.00E+00	0.00E+00	1.60E-01	5.92E-02
3.71E-01										
2.54E+01	5.19E-04	5.19E-04	9.84E-01	1.56E-02	1.56E-02	2.62E-02	0.00E+00	0.00E+00	1.57E-01	6.08E-02
3.74E-01										
2.93E+01	4.38E-04	4.38E-04	9.84E-01	1.56E-02	1.56E-02	2.53E-02	0.00E+00	0.00E+00	1.54E-01	6.24E-02
3.76E-01										
3.37E+01	3.67E-04	3.67E-04	9.84E-01	1.56E-02	1.56E-02	2.43E-02	0.00E+00	0.00E+00	1.50E-01	6.40E-02
3.78E-01										
3.88E+01	3.05E-04	3.05E-04	9.84E-01	1.56E-02	1.56E-02	2.31E-02	0.00E+00	0.00E+00	1.47E-01	6.57E-02
3.79E-01										
4.48E+01	2.52E-04	2.52E-04	9.84E-01	1.56E-02	1.56E-02	2.19E-02	0.00E+00	0.00E+00	1.44E-01	6.74E-02
3.81E-01										
5.17E+01	2.06E-04	2.06E-04	9.84E-01	1.56E-02	1.56E-02	2.05E-02	0.00E+00	0.00E+00	1.41E-01	6.91E-02
3.83E-01										
5.98E+01	1.68E-04	1.68E-04	9.84E-01	1.56E-02	1.56E-02	1.91E-02	0.00E+00	0.00E+00	1.38E-01	7.08E-02
3.84E-01										
6.91E+01	1.36E-04	1.36E-04	9.84E-01	1.56E-02	1.56E-02	1.77E-02	0.00E+00	0.00E+00	1.35E-01	7.25E-02
3.85E-01										
7.99E+01	1.09E-04	1.09E-04	9.84E-01	1.56E-02	1.56E-02	1.63E-02	0.00E+00	0.00E+00	1.32E-01	7.43E-02
3.87E-01										
9.25E+01	8.75E-05	8.75E-05	9.84E-01	1.56E-02	1.56E-02	1.49E-02	0.00E+00	0.00E+00	1.29E-01	7.60E-02
3.88E-01										
1.07E+02	6.96E-05	6.96E-05	9.84E-01	1.56E-02	1.56E-02	1.36E-02	0.00E+00	0.00E+00	1.27E-01	7.77E-02
3.89E-01										
1.24E+02	5.52E-05	5.52E-05	9.84E-01	1.56E-02	1.56E-02	1.23E-02	0.00E+00	0.00E+00	1.24E-01	7.94E-02
3.90E-01										

1.44E+02	4.35E-05	4.35E-05	9.84E-01	1.56E-02	1.56E-02	1.11E-02	0.00E+00	0.00E+00	1.21E-01	8.11E-02
3.91E-01										
1.66E+02	3.42E-05	3.42E-05	9.84E-01	1.56E-02	1.56E-02	1.00E-02	0.00E+00	0.00E+00	1.19E-01	8.27E-02
3.92E-01										
1.93E+02	2.68E-05	2.68E-05	9.84E-01	1.56E-02	1.56E-02	8.96E-03	0.00E+00	0.00E+00	1.16E-01	8.43E-02
3.93E-01										
2.23E+02	2.09E-05	2.09E-05	9.84E-01	1.56E-02	1.56E-02	7.98E-03	0.00E+00	0.00E+00	1.14E-01	8.58E-02
3.94E-01										
2.59E+02	1.63E-05	1.63E-05	9.84E-01	1.56E-02	1.56E-02	7.10E-03	0.00E+00	0.00E+00	1.12E-01	8.73E-02
3.95E-01										
3.00E+02	1.26E-05	1.26E-05	9.84E-01	1.56E-02	1.56E-02	6.28E-03	0.00E+00	0.00E+00	1.09E-01	8.86E-02
3.95E-01										
1										

time averaged (tav = 3600. s) volume concentration: concentration contour parameters

c(x,y,z,t) = cc(x) * (erf(xa)-erf(xb)) * (erf(ya)-erf(yb)) * (exp(-za*za)+exp(-zb*zb))

```
c(x,y,z,t) = concentration (volume fraction) at (x,y,z,t)
         x = downwind distance (m)
         y = crosswind horizontal distance (m)
         z = height (m)
         t = time (s)

       erf = error functon
        xa = (x-xc+bx)/(sr2*betax)
        xb = (x-xc-bx)/(sr2*betax)
        ya = (y+b)/(sr2*betac)
        yb = (y-b)/(sr2*betac)
       exp = exponential function
        za = (z-zc)/(sr2*sig)
        zb = (z+zc)/(sr2*sig)
       sr2 = sqrt(2.0)
```

x	cc(x)	b(x)	betac(x)	zc(x)	sig(x)
-1.77E+00	0.00E+00	1.59E+00	4.45E-01	0.00E+00	0.00E+00
-1.41E+00	9.27E-04	1.59E+00	4.81E-01	0.00E+00	3.00E-01
-1.06E+00	1.10E-03	1.59E+00	5.07E-01	0.00E+00	4.03E-01
-7.07E-01	1.22E-03	1.59E+00	5.33E-01	0.00E+00	4.85E-01
-3.54E-01	1.30E-03	1.59E+00	5.59E-01	0.00E+00	5.55E-01
1.04E-07	1.38E-03	1.59E+00	5.85E-01	0.00E+00	6.19E-01
3.54E-01	1.44E-03	1.59E+00	6.11E-01	0.00E+00	6.78E-01
7.07E-01	1.50E-03	1.59E+00	6.37E-01	0.00E+00	7.33E-01
1.06E+00	1.55E-03	1.59E+00	6.64E-01	0.00E+00	7.85E-01
1.41E+00	1.59E-03	1.59E+00	6.90E-01	0.00E+00	8.35E-01
1.77E+00	1.64E-03	1.59E+00	7.16E-01	2.19E-05	8.83E-01
1.80E+00	1.63E-03	1.59E+00	7.18E-01	5.71E-05	8.87E-01
1.83E+00	1.62E-03	1.59E+00	7.21E-01	1.07E-04	8.91E-01
1.87E+00	1.60E-03	1.59E+00	7.24E-01	1.77E-04	8.96E-01
1.91E+00	1.59E-03	1.59E+00	7.27E-01	2.74E-04	9.01E-01
1.96E+00	1.57E-03	1.59E+00	7.31E-01	4.07E-04	9.07E-01
2.02E+00	1.56E-03	1.59E+00	7.35E-01	5.88E-04	9.14E-01
2.09E+00	1.54E-03	1.59E+00	7.40E-01	8.32E-04	9.23E-01
2.17E+00	1.51E-03	1.59E+00	7.46E-01	1.16E-03	9.32E-01
2.26E+00	1.49E-03	1.59E+00	7.53E-01	1.60E-03	9.43E-01
2.37E+00	1.46E-03	1.59E+00	7.61E-01	2.17E-03	9.55E-01
2.50E+00	1.43E-03	1.59E+00	7.71E-01	2.94E-03	9.69E-01
2.64E+00	1.40E-03	1.59E+00	7.81E-01	3.93E-03	9.85E-01
2.81E+00	1.36E-03	1.59E+00	7.94E-01	5.23E-03	1.00E+00
3.01E+00	1.32E-03	1.59E+00	8.08E-01	6.90E-03	1.02E+00
3.23E+00	1.28E-03	1.59E+00	8.25E-01	9.05E-03	1.05E+00
3.50E+00	1.23E-03	1.59E+00	8.45E-01	1.18E-02	1.07E+00
3.80E+00	1.19E-03	1.59E+00	8.67E-01	1.52E-02	1.11E+00
4.16E+00	1.14E-03	1.59E+00	8.93E-01	1.96E-02	1.14E+00
4.57E+00	1.09E-03	1.59E+00	9.24E-01	2.49E-02	1.18E+00
5.05E+00	1.04E-03	1.59E+00	9.59E-01	3.16E-02	1.22E+00
5.60E+00	9.84E-04	1.59E+00	1.00E+00	3.97E-02	1.27E+00
6.24E+00	9.33E-04	1.59E+00	1.05E+00	4.96E-02	1.33E+00
6.99E+00	8.82E-04	1.59E+00	1.10E+00	6.14E-02	1.39E+00
7.85E+00	8.31E-04	1.59E+00	1.17E+00	7.55E-02	1.46E+00
8.86E+00	7.83E-04	1.59E+00	1.24E+00	9.23E-02	1.53E+00

t	xc(t)	bx(t)	betax(t)
1.08E+00	0.00E+00	1.77E+00	1.44E-02
1.27E+00	1.77E-01	1.94E+00	1.59E-02
1.47E+00	3.54E-01	2.12E+00	1.73E-02
1.69E+00	5.30E-01	2.30E+00	1.88E-02
1.91E+00	7.07E-01	2.47E+00	2.02E-02
2.16E+00	8.84E-01	2.65E+00	2.17E-02
2.41E+00	1.06E+00	2.83E+00	2.31E-02
2.68E+00	1.24E+00	3.00E+00	2.45E-02
2.95E+00	1.41E+00	3.18E+00	2.60E-02
3.24E+00	1.59E+00	3.36E+00	2.74E-02
3.54E+00	1.77E+00	3.54E+00	2.89E-02
3.59E+00	1.80E+00	3.56E+00	2.91E-02
3.64E+00	1.83E+00	3.60E+00	2.94E-02
3.71E+00	1.87E+00	3.63E+00	2.97E-02
3.78E+00	1.91E+00	3.68E+00	3.00E-02
3.87E+00	1.96E+00	3.73E+00	3.05E-02
3.97E+00	2.02E+00	3.79E+00	3.09E-02
4.09E+00	2.09E+00	3.86E+00	3.15E-02
4.23E+00	2.17E+00	3.94E+00	3.22E-02
4.38E+00	2.26E+00	4.03E+00	3.29E-02
4.56E+00	2.37E+00	4.14E+00	3.38E-02
4.77E+00	2.50E+00	4.27E+00	3.48E-02
5.01E+00	2.64E+00	4.41E+00	3.60E-02
5.28E+00	2.81E+00	4.58E+00	3.74E-02
5.59E+00	3.01E+00	4.77E+00	3.90E-02
5.95E+00	3.23E+00	5.00E+00	4.08E-02
6.37E+00	3.50E+00	5.27E+00	4.30E-02
6.84E+00	3.80E+00	5.57E+00	4.55E-02
7.38E+00	4.16E+00	5.93E+00	4.84E-02
7.99E+00	4.57E+00	6.34E+00	5.17E-02
8.69E+00	5.05E+00	6.81E+00	5.56E-02
9.49E+00	5.60E+00	7.37E+00	6.02E-02
1.04E+01	6.24E+00	8.01E+00	6.54E-02
1.14E+01	6.99E+00	8.75E+00	7.15E-02
1.26E+01	7.85E+00	9.62E+00	7.86E-02
1.39E+01	8.86E+00	1.06E+01	8.67E-02

1.00E+01	7.36E-04	1.59E+00	1.32E+00	1.12E-01	1.62E+00	1.54E+01	1.00E+01	1.18E+01	9.63E-02
1.14E+01	6.91E-04	1.59E+00	1.42E+00	1.35E-01	1.72E+00	1.71E+01	1.14E+01	1.31E+01	1.07E-01
1.29E+01	6.48E-04	1.59E+00	1.54E+00	1.61E-01	1.82E+00	1.90E+01	1.29E+01	1.47E+01	1.20E-01
1.48E+01	6.08E-04	1.59E+00	1.67E+00	1.91E-01	1.94E+00	2.12E+01	1.48E+01	1.65E+01	1.35E-01
1.69E+01	5.69E-04	1.59E+00	1.83E+00	2.25E-01	2.07E+00	2.37E+01	1.69E+01	1.86E+01	1.52E-01
1.93E+01	5.33E-04	1.59E+00	2.01E+00	2.63E-01	2.22E+00	2.64E+01	1.93E+01	2.11E+01	1.72E-01
2.22E+01	4.98E-04	1.59E+00	2.21E+00	3.05E-01	2.38E+00	2.96E+01	2.22E+01	2.39E+01	1.95E-01
2.54E+01	4.65E-04	1.59E+00	2.46E+00	3.52E-01	2.57E+00	3.31E+01	2.54E+01	2.72E+01	2.22E-01
2.93E+01	4.34E-04	1.59E+00	2.74E+00	4.04E-01	2.77E+00	3.71E+01	2.93E+01	3.10E+01	2.53E-01
3.37E+01	4.04E-04	1.59E+00	3.06E+00	4.60E-01	3.00E+00	4.16E+01	3.37E+01	3.55E+01	2.90E-01
3.88E+01	3.75E-04	1.59E+00	3.44E+00	5.20E-01	3.25E+00	4.67E+01	3.88E+01	4.06E+01	3.32E-01
4.48E+01	3.48E-04	1.59E+00	3.87E+00	5.85E-01	3.53E+00	5.25E+01	4.48E+01	4.66E+01	3.80E-01
5.17E+01	3.21E-04	1.59E+00	4.38E+00	6.54E-01	3.85E+00	5.90E+01	5.17E+01	5.35E+01	4.37E-01
5.98E+01	2.95E-04	1.59E+00	4.96E+00	7.27E-01	4.20E+00	6.64E+01	5.98E+01	6.15E+01	5.03E-01
6.91E+01	2.71E-04	1.59E+00	5.64E+00	8.04E-01	4.60E+00	7.47E+01	6.91E+01	7.09E+01	5.79E-01
7.99E+01	2.48E-04	1.59E+00	6.43E+00	8.84E-01	5.04E+00	8.41E+01	7.99E+01	8.17E+01	6.67E-01
9.25E+01	2.26E-04	1.59E+00	7.34E+00	9.66E-01	5.54E+00	9.47E+01	9.25E+01	9.42E+01	7.70E-01
1.07E+02	2.05E-04	1.59E+00	8.39E+00	1.05E+00	6.10E+00	1.07E+02	1.07E+02	1.09E+02	8.88E-01
1.24E+02	1.85E-04	1.59E+00	9.60E+00	1.14E+00	6.73E+00	1.20E+02	1.24E+02	1.26E+02	1.03E+00
1.44E+02	1.67E-04	1.59E+00	1.10E+01	1.23E+00	7.43E+00	1.36E+02	1.44E+02	1.45E+02	1.19E+00
1.66E+02	1.50E-04	1.59E+00	1.26E+01	1.32E+00	8.21E+00	1.53E+02	1.66E+02	1.68E+02	1.37E+00
1.93E+02	1.34E-04	1.59E+00	1.45E+01	1.42E+00	9.10E+00	1.73E+02	1.93E+02	1.94E+02	1.59E+00
2.23E+02	1.20E-04	1.59E+00	1.67E+01	1.51E+00	1.01E+01	1.95E+02	2.23E+02	2.25E+02	1.84E+00
2.59E+02	1.07E-04	1.59E+00	1.92E+01	1.61E+00	1.12E+01	2.21E+02	2.59E+02	2.61E+02	2.13E+00
3.00E+02	9.54E-05	1.59E+00	2.21E+01	1.70E+00	1.24E+01	2.49E+02	3.00E+02	3.02E+02	2.46E+00

1

time averaged (tav = 3600. s) volume concentration: concentration in the z = 1.50 plane.

downwind distance (x,y,z) x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	y/bbc= 2.0	y/bbc= 2.5
-1.77E+00	3.01E+02	6.00E+02	1.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.41E+00	3.01E+02	6.00E+02	1.80E+00	4.44E-09	4.12E-09	1.49E-09	4.85E-11	7.05E-14	0.00E+00
-1.06E+00	3.00E+02	6.00E+02	1.82E+00	1.45E-06	1.32E-06	4.75E-07	1.82E-08	4.01E-11	0.00E+00
-7.07E-01	3.00E+02	6.00E+02	1.84E+00	1.34E-05	1.21E-05	4.31E-06	1.91E-07	6.00E-10	0.00E+00
-3.54E-01	3.00E+02	6.00E+02	1.86E+00	4.48E-05	3.97E-05	1.41E-05	7.07E-07	3.03E-09	1.34E-12
1.04E-07	3.00E+02	6.00E+02	1.89E+00	9.61E-05	8.38E-05	2.97E-05	1.66E-06	9.28E-09	5.76E-12
3.54E-01	3.00E+02	6.00E+02	1.91E+00	1.63E-04	1.40E-04	4.94E-05	3.03E-06	2.15E-08	1.47E-11
7.07E-01	3.00E+02	6.00E+02	1.94E+00	2.40E-04	2.03E-04	7.13E-05	4.77E-06	4.16E-08	4.34E-11
1.06E+00	3.00E+02	6.00E+02	1.96E+00	3.22E-04	2.69E-04	9.42E-05	6.79E-06	7.12E-08	9.76E-11
1.41E+00	3.01E+02	6.00E+02	1.99E+00	4.07E-04	3.35E-04	1.17E-04	9.01E-06	1.11E-07	1.98E-10
1.77E+00	3.01E+02	6.00E+02	2.02E+00	4.91E-04	4.00E-04	1.39E-04	1.14E-05	1.63E-07	3.61E-10
1.80E+00	3.01E+02	6.00E+02	2.02E+00	4.95E-04	4.02E-04	1.40E-04	1.15E-05	1.66E-07	3.79E-10
1.83E+00	3.01E+02	6.00E+02	2.02E+00	4.98E-04	4.04E-04	1.41E-04	1.16E-05	1.70E-07	3.97E-10
1.87E+00	3.01E+02	6.00E+02	2.03E+00	5.01E-04	4.06E-04	1.41E-04	1.17E-05	1.74E-07	4.15E-10
1.91E+00	3.01E+02	6.00E+02	2.03E+00	5.04E-04	4.08E-04	1.42E-04	1.19E-05	1.79E-07	4.33E-10
1.96E+00	3.01E+02	6.00E+02	2.03E+00	5.08E-04	4.10E-04	1.43E-04	1.20E-05	1.85E-07	4.68E-10
2.02E+00	3.01E+02	6.00E+02	2.04E+00	5.12E-04	4.12E-04	1.43E-04	1.22E-05	1.92E-07	5.03E-10

2.09E+00	3.01E+02	6.00E+02	2.04E+00	5.16E-04	4.15E-04	1.44E-04	1.24E-05	1.99E-07
5.40E-10								
2.17E+00	3.01E+02	6.00E+02	2.05E+00	5.21E-04	4.18E-04	1.45E-04	1.26E-05	2.09E-07
5.94E-10								
2.26E+00	3.01E+02	6.00E+02	2.06E+00	5.26E-04	4.21E-04	1.46E-04	1.28E-05	2.19E-07
6.49E-10								
2.37E+00	3.01E+02	6.00E+02	2.07E+00	5.31E-04	4.23E-04	1.47E-04	1.31E-05	2.32E-07
7.23E-10								
2.50E+00	3.01E+02	6.00E+02	2.08E+00	5.37E-04	4.26E-04	1.48E-04	1.34E-05	2.47E-07
8.32E-10								
2.64E+00	3.01E+02	6.00E+02	2.09E+00	5.42E-04	4.29E-04	1.48E-04	1.37E-05	2.64E-07
9.62E-10								
2.81E+00	3.01E+02	6.00E+02	2.10E+00	5.48E-04	4.31E-04	1.49E-04	1.40E-05	2.84E-07
1.11E-09								
3.01E+00	3.01E+02	6.00E+02	2.12E+00	5.53E-04	4.33E-04	1.49E-04	1.44E-05	3.07E-07
1.32E-09								
3.23E+00	3.01E+02	6.00E+02	2.14E+00	5.57E-04	4.33E-04	1.49E-04	1.47E-05	3.33E-07
1.56E-09								
3.50E+00	3.01E+02	6.00E+02	2.16E+00	5.60E-04	4.33E-04	1.49E-04	1.51E-05	3.63E-07
1.90E-09								
3.80E+00	3.02E+02	6.00E+02	2.19E+00	5.62E-04	4.31E-04	1.48E-04	1.54E-05	3.97E-07
2.31E-09								
4.16E+00	3.02E+02	6.00E+02	2.22E+00	5.62E-04	4.27E-04	1.46E-04	1.57E-05	4.35E-07
2.86E-09								
4.57E+00	3.02E+02	6.00E+02	2.26E+00	5.59E-04	4.21E-04	1.44E-04	1.59E-05	4.77E-07
3.55E-09								
5.05E+00	3.02E+02	6.00E+02	2.30E+00	5.52E-04	4.13E-04	1.41E-04	1.61E-05	5.21E-07
4.41E-09								
5.60E+00	3.02E+02	6.00E+02	2.35E+00	5.43E-04	4.02E-04	1.36E-04	1.61E-05	5.66E-07
5.48E-09								
6.24E+00	3.03E+02	6.00E+02	2.41E+00	5.29E-04	3.88E-04	1.31E-04	1.60E-05	6.10E-07
6.75E-09								
6.99E+00	3.03E+02	6.00E+02	2.48E+00	5.11E-04	3.71E-04	1.25E-04	1.58E-05	6.50E-07
8.24E-09								
7.85E+00	3.03E+02	6.00E+02	2.57E+00	4.88E-04	3.52E-04	1.18E-04	1.53E-05	6.84E-07
9.87E-09								
8.86E+00	3.04E+02	6.00E+02	2.67E+00	4.61E-04	3.30E-04	1.10E-04	1.47E-05	7.09E-07
1.16E-08								
1.00E+01	3.04E+02	6.00E+02	2.79E+00	4.31E-04	3.06E-04	1.02E-04	1.40E-05	7.20E-07
1.32E-08								
1.14E+01	3.05E+02	6.00E+02	2.93E+00	3.97E-04	2.80E-04	9.27E-05	1.30E-05	7.16E-07
1.47E-08								
1.29E+01	3.05E+02	6.00E+02	3.10E+00	3.61E-04	2.53E-04	8.35E-05	1.20E-05	6.96E-07
1.58E-08								
1.48E+01	3.06E+02	6.00E+02	3.30E+00	3.24E-04	2.26E-04	7.43E-05	1.08E-05	6.62E-07
1.63E-08								
1.69E+01	3.07E+02	6.00E+02	3.54E+00	2.86E-04	1.99E-04	6.52E-05	9.64E-06	6.14E-07
1.63E-08								
1.93E+01	3.08E+02	6.00E+02	3.82E+00	2.50E-04	1.73E-04	5.66E-05	8.45E-06	5.57E-07
1.57E-08								
2.22E+01	3.09E+02	6.00E+02	4.15E+00	2.15E-04	1.49E-04	4.85E-05	7.30E-06	4.94E-07
1.47E-08								
2.54E+01	3.11E+02	6.00E+02	4.54E+00	1.83E-04	1.26E-04	4.11E-05	6.22E-06	4.29E-07
1.33E-08								
2.93E+01	3.12E+02	6.00E+02	5.00E+00	1.53E-04	1.06E-04	3.44E-05	5.23E-06	3.67E-07
1.17E-08								
3.37E+01	3.14E+02	6.00E+02	5.53E+00	1.27E-04	8.76E-05	2.85E-05	4.34E-06	3.08E-07
1.00E-08								
3.88E+01	3.16E+02	6.00E+02	6.16E+00	1.04E-04	7.18E-05	2.34E-05	3.57E-06	2.55E-07
8.44E-09								
4.48E+01	3.19E+02	6.00E+02	6.89E+00	8.49E-05	5.84E-05	1.90E-05	2.90E-06	2.08E-07
6.98E-09								
5.17E+01	3.21E+02	6.00E+02	7.75E+00	6.84E-05	4.70E-05	1.53E-05	2.34E-06	1.69E-07
5.69E-09								
5.98E+01	3.25E+02	6.00E+02	8.74E+00	5.47E-05	3.76E-05	1.22E-05	1.87E-06	1.35E-07
4.58E-09								
6.91E+01	3.29E+02	6.00E+02	9.90E+00	4.34E-05	2.99E-05	9.70E-06	1.49E-06	1.07E-07
3.66E-09								
7.99E+01	3.33E+02	6.00E+02	1.12E+01	3.43E-05	2.36E-05	7.65E-06	1.17E-06	8.48E-08
2.90E-09								

9.25E+01	3.38E+02	6.00E+02	1.28E+01	2.69E-05	1.85E-05	6.00E-06	9.21E-07	6.66E-08	2.27E-09
1.07E+02	3.44E+02	6.00E+02	1.46E+01	2.10E-05	1.44E-05	4.69E-06	7.19E-07	5.21E-08	1.78E-09
1.24E+02	3.51E+02	6.00E+02	1.67E+01	1.64E-05	1.12E-05	3.65E-06	5.60E-07	4.05E-08	1.39E-09
1.44E+02	3.59E+02	6.00E+02	1.91E+01	1.27E-05	8.71E-06	2.83E-06	4.34E-07	3.14E-08	1.07E-09
1.66E+02	3.69E+02	6.00E+02	2.19E+01	9.80E-06	6.74E-06	2.19E-06	3.35E-07	2.43E-08	8.31E-10
1.93E+02	3.80E+02	6.00E+02	2.52E+01	7.56E-06	5.19E-06	1.69E-06	2.59E-07	1.87E-08	6.40E-10
2.23E+02	3.92E+02	6.00E+02	2.89E+01	5.82E-06	4.00E-06	1.30E-06	1.99E-07	1.44E-08	4.93E-10
2.59E+02	4.07E+02	6.00E+02	3.33E+01	4.47E-06	3.07E-06	9.97E-07	1.53E-07	1.11E-08	3.79E-10
3.00E+02	4.24E+02	6.00E+02	3.82E+01	3.43E-06	2.36E-06	7.65E-07	1.17E-07	8.50E-09	2.90E-10

1

time averaged (tav = 3600. s) volume concentration: maximum concentration (volume fraction) along centerline.

downwind distance x (m)	height z (m)	maximum concentration c(x,0,z)	time of max conc (s)	cloud duration (s)
-1.77E+00	0.00E+00	0.00E+00	3.01E+02	6.00E+02
-1.41E+00	0.00E+00	1.23E-03	3.01E+02	6.00E+02
-1.06E+00	0.00E+00	1.46E-03	3.00E+02	6.00E+02
-7.07E-01	0.00E+00	1.61E-03	3.00E+02	6.00E+02
-3.54E-01	0.00E+00	1.73E-03	3.00E+02	6.00E+02
1.04E-07	0.00E+00	1.81E-03	3.00E+02	6.00E+02
3.54E-01	0.00E+00	1.89E-03	3.00E+02	6.00E+02
7.07E-01	0.00E+00	1.95E-03	3.00E+02	6.00E+02
1.06E+00	0.00E+00	2.00E-03	3.00E+02	6.00E+02
1.41E+00	0.00E+00	2.04E-03	3.01E+02	6.00E+02
1.77E+00	0.00E+00	2.08E-03	3.01E+02	6.00E+02
1.80E+00	0.00E+00	2.07E-03	3.01E+02	6.00E+02
1.83E+00	0.00E+00	2.05E-03	3.01E+02	6.00E+02
1.87E+00	0.00E+00	2.03E-03	3.01E+02	6.00E+02
1.91E+00	0.00E+00	2.01E-03	3.01E+02	6.00E+02
1.96E+00	0.00E+00	1.99E-03	3.01E+02	6.00E+02
2.02E+00	0.00E+00	1.96E-03	3.01E+02	6.00E+02
2.09E+00	0.00E+00	1.94E-03	3.01E+02	6.00E+02
2.17E+00	0.00E+00	1.90E-03	3.01E+02	6.00E+02
2.26E+00	0.00E+00	1.87E-03	3.01E+02	6.00E+02
2.37E+00	0.00E+00	1.82E-03	3.01E+02	6.00E+02
2.50E+00	0.00E+00	1.78E-03	3.01E+02	6.00E+02
2.64E+00	0.00E+00	1.73E-03	3.01E+02	6.00E+02
2.81E+00	0.00E+00	1.68E-03	3.01E+02	6.00E+02
3.01E+00	0.00E+00	1.62E-03	3.01E+02	6.00E+02
3.23E+00	0.00E+00	1.55E-03	3.01E+02	6.00E+02
3.50E+00	0.00E+00	1.48E-03	3.01E+02	6.00E+02
3.80E+00	0.00E+00	1.41E-03	3.02E+02	6.00E+02
4.16E+00	0.00E+00	1.34E-03	3.02E+02	6.00E+02
4.57E+00	0.00E+00	1.26E-03	3.02E+02	6.00E+02
5.05E+00	0.00E+00	1.17E-03	3.02E+02	6.00E+02
5.60E+00	0.00E+00	1.09E-03	3.02E+02	6.00E+02
6.24E+00	0.00E+00	1.00E-03	3.03E+02	6.00E+02
6.99E+00	0.00E+00	9.14E-04	3.03E+02	6.00E+02
7.85E+00	0.00E+00	8.28E-04	3.03E+02	6.00E+02
8.86E+00	0.00E+00	7.43E-04	3.04E+02	6.00E+02
1.00E+01	0.00E+00	6.60E-04	3.04E+02	6.00E+02
1.14E+01	0.00E+00	5.80E-04	3.05E+02	6.00E+02
1.29E+01	0.00E+00	5.05E-04	3.05E+02	6.00E+02
1.48E+01	0.00E+00	4.35E-04	3.06E+02	6.00E+02
1.69E+01	0.00E+00	3.71E-04	3.07E+02	6.00E+02
1.93E+01	0.00E+00	3.13E-04	3.08E+02	6.00E+02
2.22E+01	0.00E+00	2.61E-04	3.09E+02	6.00E+02
2.54E+01	0.00E+00	2.16E-04	3.11E+02	6.00E+02
2.93E+01	0.00E+00	1.77E-04	3.12E+02	6.00E+02

3.37E+01	0.00E+00	1.44E-04	3.14E+02	6.00E+02
3.88E+01	0.00E+00	1.16E-04	3.16E+02	6.00E+02
4.48E+01	0.00E+00	9.27E-05	3.19E+02	6.00E+02
5.17E+01	0.00E+00	7.37E-05	3.21E+02	6.00E+02
5.98E+01	0.00E+00	5.82E-05	3.25E+02	6.00E+02
6.91E+01	0.00E+00	4.57E-05	3.29E+02	6.00E+02
7.99E+01	0.00E+00	3.58E-05	3.33E+02	6.00E+02
9.25E+01	0.00E+00	2.79E-05	3.38E+02	6.00E+02
1.07E+02	0.00E+00	2.16E-05	3.44E+02	6.00E+02
1.24E+02	0.00E+00	1.68E-05	3.51E+02	6.00E+02
1.44E+02	0.00E+00	1.29E-05	3.59E+02	6.00E+02
1.66E+02	0.00E+00	9.96E-06	3.69E+02	6.00E+02
1.93E+02	0.00E+00	7.66E-06	3.80E+02	6.00E+02
2.23E+02	0.00E+00	5.88E-06	3.92E+02	6.00E+02
2.59E+02	0.00E+00	4.51E-06	4.07E+02	6.00E+02
3.00E+02	0.00E+00	3.45E-06	4.24E+02	6.00E+02

SESSION INFORMATION

INPUT DATA FILE NAME : C:\FPL\TESLA\NH3TANK.SLB
OUTPUT LIST FILE NAME : C:\FPL\TESLA\RUNC.LST

problem input

```
idspl =        1
ncalc =        1
wms   =  0.017031
cps   =   2093.65
tbp   =    239.70
cmed0 =      0.83
dhe   =  1370837.
cpsl  =   4956.39
rhosl =    639.00
spb   =   2132.50
spc   =    -32.98
ts    =    304.90
qs    =      0.04
as    =     12.50
tsd   =      600.
qtis  =      0.00
hs    =      0.00
tav   =   1800.00
xffm  =    300.00
zp(1) =      1.50
zp(2) =      0.00
zp(3) =      0.00
zp(4) =      0.00
z0    =  0.100000
za    =     10.00
ua    =      3.00
ta    =    304.90
rh    =     50.00
stab  =      4.00
```

release gas properties

```
molecular weight of source gas (kg)          - wms  =  1.7031E-02
vapor heat capacity, const. p.  (j/kg-k)     - cps  =  2.0936E+03
temperature of source gas (k)                - ts   =  2.3970E+02
density of source gas (kg/m3)                - rhos =  8.6589E-01
boiling point temperature                    - tbp  =  2.3970E+02
liquid mass fraction                         - cmed0=  0.0000E+00
liquid heat capacity (j/kg-k)                - cpsl =  4.9564E+03
heat of vaporization (j/kg)                  - dhe  =  1.3708E+06
liquid source density (kg/m3)                - rhosl=  6.3900E+02
saturation pressure constant                 - spa  =  1.0316E+01
saturation pressure constant (k)             - spb  =  2.1325E+03
saturation pressure constant (k)             - spc  = -3.2980E+01
```

spill characteristics

```
spill type                                   - idspl=          1
mass source rate (kg/s)                      - qs   =  3.5590E-02
continuous source duration (s)               - tsd  =  6.0000E+02
continuous source mass (kg)                  - qtcs =  2.1354E+01
instantaneous source mass (kg)               - qtis =  0.0000E+00
source area (m2)                             - as   =  1.2500E+01
vertical vapor velocity (m/s)                - ws   =  3.2882E-03
source half width (m)                        - bs   =  1.7678E+00
source height (m)                            - hs   =  0.0000E+00
```

horizontal vapor velocity (m/s) - us = 0.0000E+00

field parameters

concentration averaging time (s) - tav = 1.8000E+03
mixing layer height (m) - hmx = 1.0400E+03
maximum downwind distrace (m) - xffm = 3.0000E+02
concentration measurement height (m) - zp(1)= 1.5000E+00
- zp(2)= 0.0000E+00
- zp(3)= 0.0000E+00
- zp(4)= 0.0000E+00

ambient meteorological properties

molecular weight of ambient air (kg) - wmae = 2.8689E-02
heat capacity of ambient air at const p. (j/kg-k)- cpaa = 1.0189E+03
density of ambient air (kg/m3) - rhoa = 1.1467E+00
ambient measurement height (m) - za = 1.0000E+01
ambient atmospheric pressure (pa=n/m2=j/m3) - pa = 1.0133E+05
ambient wind speed (m/s) - ua = 3.0000E+00
ambient temperature (k) - ta = 3.0490E+02
relative humidity (percent) - rh = 5.0000E+01
ambient friction velocity (m/s) - uastr = 2.6764E-01
atmospheric stability class value - stab = 4.0000E+00
inverse monin-obukhov length (1/m) - ala = 0.0000E+00
surface roughness height (m) - z0 = 1.0000E-01

additional parameters

sub-step multiplier - ncalc = 1
number of calculational sub-steps - nssm = 3
acceleration of gravity (m/s2) - grav = 9.8067E+00
gas constant (j/mol- k) - rr = 8.3143E+00
von karman constant - xk = 4.1000E-01
1

instantaneous spatially averaged cloud parameters

x	zc	h	bb	b	bbx	bx	cv	rho	t	u	ua
-1.77E+00	0.00E+00	0.00E+00	1.77E+00	1.59E+00	1.77E+00	1.77E+00	0.00E+00	1.15E+00	3.05E+02	0.00E+00	0.00E+00
-1.41E+00	0.00E+00	5.19E-01	1.80E+00	1.59E+00	1.94E+00	1.94E+00	4.75E-03	1.15E+00	3.05E+02	5.90E-01	5.92E-01
-1.06E+00	0.00E+00	6.98E-01	1.82E+00	1.59E+00	2.12E+00	2.12E+00	5.58E-03	1.15E+00	3.05E+02	7.38E-01	7.42E-01
-7.07E-01	0.00E+00	8.39E-01	1.84E+00	1.59E+00	2.30E+00	2.30E+00	6.09E-03	1.15E+00	3.04E+02	8.34E-01	8.41E-01
-3.54E-01	0.00E+00	9.62E-01	1.86E+00	1.59E+00	2.47E+00	2.47E+00	6.45E-03	1.15E+00	3.04E+02	9.07E-01	9.16E-01
1.04E-07	0.00E+00	1.07E+00	1.88E+00	1.59E+00	2.65E+00	2.65E+00	6.72E-03	1.15E+00	3.04E+02	9.65E-01	9.78E-01
3.54E-01	0.00E+00	1.17E+00	1.90E+00	1.59E+00	2.83E+00	2.83E+00	6.94E-03	1.15E+00	3.04E+02	1.01E+00	1.03E+00
7.07E-01	0.00E+00	1.27E+00	1.92E+00	1.59E+00	3.01E+00	3.00E+00	7.11E-03	1.15E+00	3.04E+02	1.06E+00	1.08E+00
1.06E+00	0.00E+00	1.36E+00	1.94E+00	1.59E+00	3.18E+00	3.18E+00	7.25E-03	1.15E+00	3.04E+02	1.09E+00	1.12E+00
1.41E+00	0.00E+00	1.45E+00	1.96E+00	1.59E+00	3.36E+00	3.36E+00	7.37E-03	1.15E+00	3.04E+02	1.13E+00	1.15E+00
1.77E+00	2.19E-05	1.53E+00	1.98E+00	1.59E+00	3.54E+00	3.54E+00	7.47E-03	1.15E+00	3.04E+02	1.16E+00	1.18E+00
1.80E+00	5.71E-05	1.54E+00	1.98E+00	1.59E+00	3.56E+00	3.56E+00	7.42E-03	1.15E+00	3.04E+02	1.16E+00	1.19E+00
1.83E+00	1.07E-04	1.54E+00	1.98E+00	1.59E+00	3.60E+00	3.60E+00	7.36E-03	1.15E+00	3.04E+02	1.16E+00	1.19E+00

1.87E+00	1.77E-04	1.55E+00	1.98E+00	1.59E+00	3.63E+00	3.63E+00	7.29E-03	1.15E+00	3.04E+02	1.16E+00
1.19E+00										
1.91E+00	2.74E-04	1.56E+00	1.98E+00	1.59E+00	3.68E+00	3.68E+00	7.21E-03	1.15E+00	3.04E+02	1.17E+00
1.20E+00										
1.96E+00	4.07E-04	1.57E+00	1.99E+00	1.59E+00	3.73E+00	3.73E+00	7.13E-03	1.15E+00	3.04E+02	1.17E+00
1.20E+00										
2.02E+00	5.88E-04	1.58E+00	1.99E+00	1.59E+00	3.79E+00	3.79E+00	7.03E-03	1.15E+00	3.04E+02	1.18E+00
1.21E+00										
2.09E+00	8.32E-04	1.60E+00	2.00E+00	1.59E+00	3.86E+00	3.86E+00	6.92E-03	1.15E+00	3.04E+02	1.18E+00
1.21E+00										
2.17E+00	1.16E-03	1.62E+00	2.00E+00	1.59E+00	3.94E+00	3.94E+00	6.79E-03	1.15E+00	3.04E+02	1.19E+00
1.22E+00										
2.26E+00	1.60E-03	1.63E+00	2.01E+00	1.59E+00	4.03E+00	4.03E+00	6.65E-03	1.15E+00	3.04E+02	1.20E+00
1.22E+00										
2.37E+00	2.17E-03	1.66E+00	2.01E+00	1.59E+00	4.14E+00	4.14E+00	6.50E-03	1.15E+00	3.04E+02	1.21E+00
1.23E+00										
2.50E+00	2.94E-03	1.68E+00	2.02E+00	1.59E+00	4.27E+00	4.27E+00	6.33E-03	1.15E+00	3.04E+02	1.22E+00
1.24E+00										
2.64E+00	3.93E-03	1.71E+00	2.03E+00	1.59E+00	4.41E+00	4.41E+00	6.14E-03	1.15E+00	3.04E+02	1.23E+00
1.25E+00										
2.81E+00	5.23E-03	1.74E+00	2.04E+00	1.59E+00	4.58E+00	4.58E+00	5.93E-03	1.15E+00	3.04E+02	1.24E+00
1.26E+00										
3.01E+00	6.90E-03	1.78E+00	2.05E+00	1.59E+00	4.78E+00	4.77E+00	5.71E-03	1.15E+00	3.05E+02	1.25E+00
1.28E+00										
3.23E+00	9.05E-03	1.82E+00	2.06E+00	1.59E+00	5.00E+00	5.00E+00	5.47E-03	1.15E+00	3.05E+02	1.27E+00
1.29E+00										
3.50E+00	1.18E-02	1.87E+00	2.08E+00	1.59E+00	5.27E+00	5.27E+00	5.22E-03	1.15E+00	3.05E+02	1.29E+00
1.31E+00										
3.80E+00	1.52E-02	1.93E+00	2.09E+00	1.59E+00	5.57E+00	5.57E+00	4.95E-03	1.15E+00	3.05E+02	1.31E+00
1.32E+00										
4.16E+00	1.96E-02	1.99E+00	2.11E+00	1.59E+00	5.93E+00	5.93E+00	4.67E-03	1.15E+00	3.05E+02	1.33E+00
1.34E+00										
4.57E+00	2.49E-02	2.07E+00	2.14E+00	1.59E+00	6.34E+00	6.34E+00	4.38E-03	1.15E+00	3.05E+02	1.35E+00
1.37E+00										
5.05E+00	3.16E-02	2.15E+00	2.16E+00	1.59E+00	6.81E+00	6.81E+00	4.09E-03	1.15E+00	3.05E+02	1.37E+00
1.39E+00										
5.60E+00	3.97E-02	2.24E+00	2.19E+00	1.59E+00	7.37E+00	7.37E+00	3.79E-03	1.15E+00	3.05E+02	1.40E+00
1.42E+00										
6.24E+00	4.96E-02	2.35E+00	2.23E+00	1.59E+00	8.01E+00	8.01E+00	3.49E-03	1.15E+00	3.05E+02	1.43E+00
1.44E+00										
6.99E+00	6.14E-02	2.47E+00	2.27E+00	1.59E+00	8.76E+00	8.75E+00	3.19E-03	1.15E+00	3.05E+02	1.46E+00
1.47E+00										
7.85E+00	7.55E-02	2.60E+00	2.32E+00	1.59E+00	9.62E+00	9.62E+00	2.89E-03	1.15E+00	3.05E+02	1.50E+00
1.51E+00										
8.86E+00	9.23E-02	2.75E+00	2.38E+00	1.59E+00	1.06E+01	1.06E+01	2.61E-03	1.15E+00	3.05E+02	1.53E+00
1.54E+00										
1.00E+01	1.12E-01	2.92E+00	2.44E+00	1.59E+00	1.18E+01	1.18E+01	2.33E-03	1.15E+00	3.05E+02	1.57E+00
1.58E+00										
1.14E+01	1.35E-01	3.11E+00	2.52E+00	1.59E+00	1.31E+01	1.31E+01	2.07E-03	1.15E+00	3.05E+02	1.61E+00
1.62E+00										
1.29E+01	1.61E-01	3.32E+00	2.61E+00	1.59E+00	1.47E+01	1.47E+01	1.83E-03	1.15E+00	3.05E+02	1.65E+00
1.66E+00										
1.48E+01	1.91E-01	3.55E+00	2.71E+00	1.59E+00	1.65E+01	1.65E+01	1.60E-03	1.15E+00	3.05E+02	1.70E+00
1.70E+00										
1.69E+01	2.25E-01	3.81E+00	2.83E+00	1.59E+00	1.86E+01	1.86E+01	1.39E-03	1.15E+00	3.05E+02	1.74E+00
1.75E+00										
1.93E+01	2.63E-01	4.11E+00	2.96E+00	1.59E+00	2.11E+01	2.11E+01	1.20E-03	1.15E+00	3.05E+02	1.79E+00
1.79E+00										
2.22E+01	3.05E-01	4.43E+00	3.12E+00	1.59E+00	2.39E+01	2.39E+01	1.03E-03	1.15E+00	3.05E+02	1.84E+00
1.84E+00										
2.54E+01	3.52E-01	4.80E+00	3.31E+00	1.59E+00	2.72E+01	2.72E+01	8.74E-04	1.15E+00	3.05E+02	1.89E+00
1.89E+00										
2.93E+01	4.04E-01	5.20E+00	3.52E+00	1.59E+00	3.10E+01	3.10E+01	7.37E-04	1.15E+00	3.05E+02	1.94E+00
1.94E+00										
3.37E+01	4.60E-01	5.65E+00	3.77E+00	1.59E+00	3.55E+01	3.55E+01	6.17E-04	1.15E+00	3.05E+02	1.99E+00
1.99E+00										
3.88E+01	5.20E-01	6.15E+00	4.05E+00	1.59E+00	4.06E+01	4.06E+01	5.13E-04	1.15E+00	3.05E+02	2.04E+00
2.05E+00										
4.48E+01	5.85E-01	6.70E+00	4.39E+00	1.59E+00	4.66E+01	4.66E+01	4.24E-04	1.15E+00	3.05E+02	2.10E+00
2.10E+00										

5.17E+01	6.54E-01	7.32E+00	4.77E+00	1.59E+00	5.35E+01	5.35E+01	3.47E-04	1.15E+00	3.05E+02	2.16E+00
2.16E+00										
5.98E+01	7.27E-01	8.00E+00	5.22E+00	1.59E+00	6.15E+01	6.15E+01	2.83E-04	1.15E+00	3.05E+02	2.21E+00
2.22E+00										
6.91E+01	8.04E-01	8.77E+00	5.73E+00	1.59E+00	7.09E+01	7.09E+01	2.29E-04	1.15E+00	3.05E+02	2.27E+00
2.27E+00										
7.99E+01	8.84E-01	9.62E+00	6.33E+00	1.59E+00	8.17E+01	8.17E+01	1.84E-04	1.15E+00	3.05E+02	2.33E+00
2.33E+00										
9.25E+01	9.66E-01	1.06E+01	7.02E+00	1.59E+00	9.42E+01	9.42E+01	1.47E-04	1.15E+00	3.05E+02	2.39E+00
2.39E+00										
1.07E+02	1.05E+00	1.16E+01	7.82E+00	1.59E+00	1.09E+02	1.09E+02	1.17E-04	1.15E+00	3.05E+02	2.45E+00
2.46E+00										
1.24E+02	1.14E+00	1.28E+01	8.75E+00	1.59E+00	1.26E+02	1.26E+02	9.29E-05	1.15E+00	3.05E+02	2.52E+00
2.52E+00										
1.44E+02	1.23E+00	1.41E+01	9.82E+00	1.59E+00	1.45E+02	1.45E+02	7.33E-05	1.15E+00	3.05E+02	2.58E+00
2.58E+00										
1.66E+02	1.32E+00	1.55E+01	1.11E+01	1.59E+00	1.68E+02	1.68E+02	5.76E-05	1.15E+00	3.05E+02	2.64E+00
2.64E+00										
1.93E+02	1.42E+00	1.72E+01	1.25E+01	1.59E+00	1.94E+02	1.94E+02	4.51E-05	1.15E+00	3.05E+02	2.70E+00
2.71E+00										
2.23E+02	1.51E+00	1.90E+01	1.41E+01	1.59E+00	2.25E+02	2.25E+02	3.52E-05	1.15E+00	3.05E+02	2.77E+00
2.77E+00										
2.59E+02	1.61E+00	2.10E+01	1.60E+01	1.59E+00	2.61E+02	2.61E+02	2.74E-05	1.15E+00	3.05E+02	2.83E+00
2.84E+00										
3.00E+02	1.70E+00	2.32E+01	1.82E+01	1.59E+00	3.02E+02	3.02E+02	2.13E-05	1.15E+00	3.05E+02	2.90E+00
2.90E+00										
1										

x	cm	cmv	cmda	cmw	cmwv	wc	vg	ug	w	v
vx										
-1.77E+00	0.00E+00	0.00E+00	9.84E-01	1.56E-02	1.56E-02	0.00E+00	0.00E+00	0.00E+00	5.85E-01	9.76E-02
0.00E+00										
-1.41E+00	2.83E-03	2.83E-03	9.82E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	3.73E-01	1.91E-02
2.36E-01										
-1.06E+00	3.32E-03	3.32E-03	9.81E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	3.16E-01	2.40E-02
2.63E-01										
-7.07E-01	3.63E-03	3.63E-03	9.81E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.88E-01	2.72E-02
2.79E-01										
-3.54E-01	3.84E-03	3.84E-03	9.81E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.71E-01	2.96E-02
2.89E-01										
1.04E-07	4.00E-03	4.00E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.58E-01	3.16E-02
2.98E-01										
3.54E-01	4.13E-03	4.13E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.48E-01	3.33E-02
3.04E-01										
7.07E-01	4.23E-03	4.23E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.40E-01	3.48E-02
3.10E-01										
1.06E+00	4.32E-03	4.32E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.34E-01	3.61E-02
3.14E-01										
1.41E+00	4.39E-03	4.39E-03	9.80E-01	1.55E-02	1.55E-02	0.00E+00	0.00E+00	0.00E+00	2.28E-01	3.73E-02
3.18E-01										
1.77E+00	4.45E-03	4.45E-03	9.80E-01	1.55E-02	1.55E-02	1.29E-03	0.00E+00	0.00E+00	2.23E-01	3.84E-02
3.22E-01										
1.80E+00	4.42E-03	4.42E-03	9.80E-01	1.55E-02	1.55E-02	1.59E-03	0.00E+00	0.00E+00	2.22E-01	3.85E-02
3.22E-01										
1.83E+00	4.38E-03	4.38E-03	9.80E-01	1.55E-02	1.55E-02	1.93E-03	0.00E+00	0.00E+00	2.22E-01	3.85E-02
3.22E-01										
1.87E+00	4.34E-03	4.34E-03	9.80E-01	1.55E-02	1.55E-02	2.33E-03	0.00E+00	0.00E+00	2.22E-01	3.86E-02
3.22E-01										
1.91E+00	4.29E-03	4.29E-03	9.80E-01	1.55E-02	1.55E-02	2.77E-03	0.00E+00	0.00E+00	2.21E-01	3.88E-02
3.23E-01										
1.96E+00	4.24E-03	4.24E-03	9.80E-01	1.55E-02	1.55E-02	3.28E-03	0.00E+00	0.00E+00	2.20E-01	3.89E-02
3.23E-01										
2.02E+00	4.18E-03	4.18E-03	9.80E-01	1.55E-02	1.55E-02	3.85E-03	0.00E+00	0.00E+00	2.20E-01	3.90E-02
3.24E-01										
2.09E+00	4.12E-03	4.12E-03	9.80E-01	1.55E-02	1.55E-02	4.49E-03	0.00E+00	0.00E+00	2.19E-01	3.92E-02
3.24E-01										
2.17E+00	4.04E-03	4.04E-03	9.80E-01	1.55E-02	1.55E-02	5.20E-03	0.00E+00	0.00E+00	2.18E-01	3.94E-02
3.25E-01										
2.26E+00	3.96E-03	3.96E-03	9.81E-01	1.55E-02	1.55E-02	6.00E-03	0.00E+00	0.00E+00	2.17E-01	3.96E-02
3.26E-01										

2.37E+00	3.87E-03	3.87E-03	9.81E-01	1.55E-02	1.55E-02	6.88E-03	0.00E+00	0.00E+00	2.16E-01	3.99E-02	3.26E-01
2.50E+00	3.76E-03	3.76E-03	9.81E-01	1.55E-02	1.55E-02	7.85E-03	0.00E+00	0.00E+00	2.15E-01	4.02E-02	3.27E-01
2.64E+00	3.65E-03	3.65E-03	9.81E-01	1.55E-02	1.55E-02	8.90E-03	0.00E+00	0.00E+00	2.14E-01	4.05E-02	3.28E-01
2.81E+00	3.53E-03	3.53E-03	9.81E-01	1.55E-02	1.55E-02	1.00E-02	0.00E+00	0.00E+00	2.12E-01	4.08E-02	3.30E-01
3.01E+00	3.40E-03	3.40E-03	9.81E-01	1.55E-02	1.55E-02	1.13E-02	0.00E+00	0.00E+00	2.11E-01	4.13E-02	3.31E-01
3.23E+00	3.26E-03	3.26E-03	9.81E-01	1.55E-02	1.55E-02	1.26E-02	0.00E+00	0.00E+00	2.09E-01	4.17E-02	3.32E-01
3.50E+00	3.11E-03	3.11E-03	9.81E-01	1.55E-02	1.55E-02	1.39E-02	0.00E+00	0.00E+00	2.07E-01	4.22E-02	3.34E-01
3.80E+00	2.95E-03	2.95E-03	9.82E-01	1.55E-02	1.55E-02	1.53E-02	0.00E+00	0.00E+00	2.05E-01	4.28E-02	3.36E-01
4.16E+00	2.78E-03	2.78E-03	9.82E-01	1.55E-02	1.55E-02	1.68E-02	0.00E+00	0.00E+00	2.03E-01	4.34E-02	3.38E-01
4.57E+00	2.61E-03	2.61E-03	9.82E-01	1.55E-02	1.55E-02	1.82E-02	0.00E+00	0.00E+00	2.01E-01	4.41E-02	3.40E-01
5.05E+00	2.43E-03	2.43E-03	9.82E-01	1.55E-02	1.55E-02	1.97E-02	0.00E+00	0.00E+00	1.99E-01	4.49E-02	3.42E-01
5.60E+00	2.25E-03	2.25E-03	9.82E-01	1.55E-02	1.55E-02	2.11E-02	0.00E+00	0.00E+00	1.96E-01	4.57E-02	3.44E-01
6.24E+00	2.07E-03	2.07E-03	9.82E-01	1.55E-02	1.55E-02	2.24E-02	0.00E+00	0.00E+00	1.93E-01	4.66E-02	3.46E-01
6.99E+00	1.89E-03	1.89E-03	9.83E-01	1.55E-02	1.55E-02	2.36E-02	0.00E+00	0.00E+00	1.90E-01	4.76E-02	3.49E-01
7.85E+00	1.72E-03	1.72E-03	9.83E-01	1.55E-02	1.55E-02	2.47E-02	0.00E+00	0.00E+00	1.87E-01	4.86E-02	3.52E-01
8.86E+00	1.55E-03	1.55E-03	9.83E-01	1.55E-02	1.55E-02	2.57E-02	0.00E+00	0.00E+00	1.84E-01	4.97E-02	3.54E-01
1.00E+01	1.39E-03	1.39E-03	9.83E-01	1.55E-02	1.55E-02	2.65E-02	0.00E+00	0.00E+00	1.81E-01	5.09E-02	3.57E-01
1.14E+01	1.23E-03	1.23E-03	9.83E-01	1.55E-02	1.55E-02	2.71E-02	0.00E+00	0.00E+00	1.78E-01	5.22E-02	3.59E-01
1.29E+01	1.09E-03	1.09E-03	9.83E-01	1.55E-02	1.55E-02	2.75E-02	0.00E+00	0.00E+00	1.74E-01	5.35E-02	3.62E-01
1.48E+01	9.52E-04	9.52E-04	9.83E-01	1.55E-02	1.55E-02	2.77E-02	0.00E+00	0.00E+00	1.71E-01	5.48E-02	3.64E-01
1.69E+01	8.27E-04	8.27E-04	9.84E-01	1.56E-02	1.56E-02	2.76E-02	0.00E+00	0.00E+00	1.67E-01	5.62E-02	3.67E-01
1.93E+01	7.14E-04	7.14E-04	9.84E-01	1.56E-02	1.56E-02	2.73E-02	0.00E+00	0.00E+00	1.64E-01	5.77E-02	3.69E-01
2.22E+01	6.11E-04	6.11E-04	9.84E-01	1.56E-02	1.56E-02	2.69E-02	0.00E+00	0.00E+00	1.60E-01	5.92E-02	3.71E-01
2.54E+01	5.19E-04	5.19E-04	9.84E-01	1.56E-02	1.56E-02	2.62E-02	0.00E+00	0.00E+00	1.57E-01	6.08E-02	3.74E-01
2.93E+01	4.38E-04	4.38E-04	9.84E-01	1.56E-02	1.56E-02	2.53E-02	0.00E+00	0.00E+00	1.54E-01	6.24E-02	3.76E-01
3.37E+01	3.67E-04	3.67E-04	9.84E-01	1.56E-02	1.56E-02	2.43E-02	0.00E+00	0.00E+00	1.50E-01	6.40E-02	3.78E-01
3.88E+01	3.05E-04	3.05E-04	9.84E-01	1.56E-02	1.56E-02	2.31E-02	0.00E+00	0.00E+00	1.47E-01	6.57E-02	3.79E-01
4.48E+01	2.52E-04	2.52E-04	9.84E-01	1.56E-02	1.56E-02	2.19E-02	0.00E+00	0.00E+00	1.44E-01	6.74E-02	3.81E-01
5.17E+01	2.06E-04	2.06E-04	9.84E-01	1.56E-02	1.56E-02	2.05E-02	0.00E+00	0.00E+00	1.41E-01	6.91E-02	3.83E-01
5.98E+01	1.68E-04	1.68E-04	9.84E-01	1.56E-02	1.56E-02	1.91E-02	0.00E+00	0.00E+00	1.38E-01	7.08E-02	3.84E-01
6.91E+01	1.36E-04	1.36E-04	9.84E-01	1.56E-02	1.56E-02	1.77E-02	0.00E+00	0.00E+00	1.35E-01	7.25E-02	3.85E-01
7.99E+01	1.09E-04	1.09E-04	9.84E-01	1.56E-02	1.56E-02	1.63E-02	0.00E+00	0.00E+00	1.32E-01	7.43E-02	3.87E-01
9.25E+01	8.75E-05	8.75E-05	9.84E-01	1.56E-02	1.56E-02	1.49E-02	0.00E+00	0.00E+00	1.29E-01	7.60E-02	3.88E-01
1.07E+02	6.96E-05	6.96E-05	9.84E-01	1.56E-02	1.56E-02	1.36E-02	0.00E+00	0.00E+00	1.27E-01	7.77E-02	3.89E-01
1.24E+02	5.52E-05	5.52E-05	9.84E-01	1.56E-02	1.56E-02	1.23E-02	0.00E+00	0.00E+00	1.24E-01	7.94E-02	3.90E-01

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  1.44E+02  4.35E-05  4.35E-05  9.84E-01  1.56E-02  1.56E-02  1.11E-02  0.00E+00  0.00E+00  1.21E-01  8.11E-02
3.91E-01
  1.66E+02  3.42E-05  3.42E-05  9.84E-01  1.56E-02  1.56E-02  1.00E-02  0.00E+00  0.00E+00  1.19E-01  8.27E-02
3.92E-01
  1.93E+02  2.68E-05  2.68E-05  9.84E-01  1.56E-02  1.56E-02  8.96E-03  0.00E+00  0.00E+00  1.16E-01  8.43E-02
3.93E-01
  2.23E+02  2.09E-05  2.09E-05  9.84E-01  1.56E-02  1.56E-02  7.98E-03  0.00E+00  0.00E+00  1.14E-01  8.58E-02
3.94E-01
  2.59E+02  1.63E-05  1.63E-05  9.84E-01  1.56E-02  1.56E-02  7.10E-03  0.00E+00  0.00E+00  1.12E-01  8.73E-02
3.95E-01
  3.00E+02  1.26E-05  1.26E-05  9.84E-01  1.56E-02  1.56E-02  6.28E-03  0.00E+00  0.00E+00  1.09E-01  8.86E-02
3.95E-01
1

time averaged (tav = 1800. s) volume concentration:  concentration contour parameters

c(x,y,z,t) = cc(x) * (erf(xa)-erf(xb)) * (erf(ya)-erf(yb)) * (exp(-za*za)+exp(-zb*zb))

   c(x,y,z,t) = concentration (volume fraction) at (x,y,z,t)
            x = downwind distance (m)
            y = crosswind horizontal distance (m)
            z = height (m)
            t = time (s)

          erf = error functon
           xa = (x-xc+bx)/(sr2*betax)
           xb = (x-xc-bx)/(sr2*betax)
           ya = (y+b)/(sr2*betac)
           yb = (y-b)/(sr2*betac)
          exp = exponential function
           za = (z-zc)/(sr2*sig)
           zb = (z+zc)/(sr2*sig)
          sr2 = sqrt(2.0)
```

x	cc(x)	b(x)	betac(x)	zc(x)	sig(x)	t	xc(t)	bx(t)	betax(t)
-1.77E+00	0.00E+00	1.59E+00	4.45E-01	0.00E+00	0.00E+00	1.08E+00	0.00E+00	1.77E+00	1.44E-02
-1.41E+00	9.27E-04	1.59E+00	4.81E-01	0.00E+00	3.00E-01	1.27E+00	1.77E-01	1.94E+00	1.59E-02
-1.06E+00	1.10E-03	1.59E+00	5.07E-01	0.00E+00	4.03E-01	1.47E+00	3.54E-01	2.12E+00	1.73E-02
-7.07E-01	1.22E-03	1.59E+00	5.33E-01	0.00E+00	4.85E-01	1.69E+00	5.30E-01	2.30E+00	1.88E-02
-3.54E-01	1.30E-03	1.59E+00	5.59E-01	0.00E+00	5.55E-01	1.91E+00	7.07E-01	2.47E+00	2.02E-02
1.04E-07	1.38E-03	1.59E+00	5.85E-01	0.00E+00	6.19E-01	2.16E+00	8.84E-01	2.65E+00	2.17E-02
3.54E-01	1.44E-03	1.59E+00	6.11E-01	0.00E+00	6.78E-01	2.41E+00	1.06E+00	2.83E+00	2.31E-02
7.07E-01	1.50E-03	1.59E+00	6.37E-01	0.00E+00	7.33E-01	2.68E+00	1.24E+00	3.00E+00	2.45E-02
1.06E+00	1.55E-03	1.59E+00	6.64E-01	0.00E+00	7.85E-01	2.95E+00	1.41E+00	3.18E+00	2.60E-02
1.41E+00	1.59E-03	1.59E+00	6.90E-01	0.00E+00	8.35E-01	3.24E+00	1.59E+00	3.36E+00	2.74E-02
1.77E+00	1.64E-03	1.59E+00	7.16E-01	2.19E-05	8.83E-01	3.54E+00	1.77E+00	3.54E+00	2.89E-02
1.80E+00	1.63E-03	1.59E+00	7.18E-01	5.71E-05	8.87E-01	3.59E+00	1.80E+00	3.56E+00	2.91E-02
1.83E+00	1.62E-03	1.59E+00	7.21E-01	1.07E-04	8.91E-01	3.64E+00	1.83E+00	3.60E+00	2.94E-02
1.87E+00	1.60E-03	1.59E+00	7.24E-01	1.77E-04	8.96E-01	3.71E+00	1.87E+00	3.63E+00	2.97E-02
1.91E+00	1.59E-03	1.59E+00	7.27E-01	2.74E-04	9.01E-01	3.78E+00	1.91E+00	3.68E+00	3.00E-02
1.96E+00	1.57E-03	1.59E+00	7.31E-01	4.07E-04	9.07E-01	3.87E+00	1.96E+00	3.73E+00	3.05E-02
2.02E+00	1.56E-03	1.59E+00	7.35E-01	5.88E-04	9.14E-01	3.97E+00	2.02E+00	3.79E+00	3.09E-02
2.09E+00	1.54E-03	1.59E+00	7.40E-01	8.32E-04	9.23E-01	4.09E+00	2.09E+00	3.86E+00	3.15E-02
2.17E+00	1.51E-03	1.59E+00	7.46E-01	1.16E-03	9.32E-01	4.23E+00	2.17E+00	3.94E+00	3.22E-02
2.26E+00	1.49E-03	1.59E+00	7.53E-01	1.60E-03	9.43E-01	4.38E+00	2.26E+00	4.03E+00	3.29E-02
2.37E+00	1.46E-03	1.59E+00	7.61E-01	2.17E-03	9.55E-01	4.56E+00	2.37E+00	4.14E+00	3.38E-02
2.50E+00	1.43E-03	1.59E+00	7.71E-01	2.94E-03	9.69E-01	4.77E+00	2.50E+00	4.27E+00	3.48E-02
2.64E+00	1.40E-03	1.59E+00	7.81E-01	3.93E-03	9.85E-01	5.01E+00	2.64E+00	4.41E+00	3.60E-02
2.81E+00	1.36E-03	1.59E+00	7.94E-01	5.23E-03	1.00E+00	5.28E+00	2.81E+00	4.58E+00	3.74E-02
3.01E+00	1.32E-03	1.59E+00	8.08E-01	6.90E-03	1.02E+00	5.59E+00	3.01E+00	4.77E+00	3.90E-02
3.23E+00	1.28E-03	1.59E+00	8.25E-01	9.05E-03	1.05E+00	5.95E+00	3.23E+00	5.00E+00	4.08E-02
3.50E+00	1.23E-03	1.59E+00	8.45E-01	1.18E-02	1.07E+00	6.37E+00	3.50E+00	5.27E+00	4.30E-02
3.80E+00	1.19E-03	1.59E+00	8.67E-01	1.52E-02	1.11E+00	6.84E+00	3.80E+00	5.57E+00	4.55E-02
4.16E+00	1.14E-03	1.59E+00	8.93E-01	1.96E-02	1.14E+00	7.38E+00	4.16E+00	5.93E+00	4.84E-02
4.57E+00	1.09E-03	1.59E+00	9.24E-01	2.49E-02	1.18E+00	7.99E+00	4.57E+00	6.34E+00	5.17E-02
5.05E+00	1.04E-03	1.59E+00	9.59E-01	3.16E-02	1.22E+00	8.69E+00	5.05E+00	6.81E+00	5.56E-02
5.60E+00	9.84E-04	1.59E+00	1.00E+00	3.97E-02	1.27E+00	9.49E+00	5.60E+00	7.37E+00	6.02E-02
6.24E+00	9.33E-04	1.59E+00	1.05E+00	4.96E-02	1.33E+00	1.04E+01	6.24E+00	8.01E+00	6.54E-02
6.99E+00	8.82E-04	1.59E+00	1.10E+00	6.14E-02	1.39E+00	1.14E+01	6.99E+00	8.75E+00	7.15E-02
7.85E+00	8.31E-04	1.59E+00	1.17E+00	7.55E-02	1.46E+00	1.26E+01	7.85E+00	9.62E+00	7.86E-02
8.86E+00	7.83E-04	1.59E+00	1.24E+00	9.23E-02	1.53E+00	1.39E+01	8.86E+00	1.06E+01	8.67E-02

1.00E+01	7.36E-04	1.59E+00	1.32E+00	1.12E-01	1.62E+00	1.54E+01	1.00E+01	1.18E+01	9.63E-02
1.14E+01	6.91E-04	1.59E+00	1.42E+00	1.35E-01	1.72E+00	1.71E+01	1.14E+01	1.31E+01	1.07E-01
1.29E+01	6.48E-04	1.59E+00	1.54E+00	1.61E-01	1.82E+00	1.90E+01	1.29E+01	1.47E+01	1.20E-01
1.48E+01	6.08E-04	1.59E+00	1.67E+00	1.91E-01	1.94E+00	2.12E+01	1.48E+01	1.65E+01	1.35E-01
1.69E+01	5.69E-04	1.59E+00	1.83E+00	2.25E-01	2.07E+00	2.37E+01	1.69E+01	1.86E+01	1.52E-01
1.93E+01	5.33E-04	1.59E+00	2.01E+00	2.63E-01	2.22E+00	2.64E+01	1.93E+01	2.11E+01	1.72E-01
2.22E+01	4.98E-04	1.59E+00	2.21E+00	3.05E-01	2.38E+00	2.96E+01	2.22E+01	2.39E+01	1.95E-01
2.54E+01	4.65E-04	1.59E+00	2.46E+00	3.52E-01	2.57E+00	3.31E+01	2.54E+01	2.72E+01	2.22E-01
2.93E+01	4.34E-04	1.59E+00	2.74E+00	4.04E-01	2.77E+00	3.71E+01	2.93E+01	3.10E+01	2.53E-01
3.37E+01	4.04E-04	1.59E+00	3.06E+00	4.60E-01	3.00E+00	4.16E+01	3.37E+01	3.55E+01	2.90E-01
3.88E+01	3.75E-04	1.59E+00	3.44E+00	5.20E-01	3.25E+00	4.67E+01	3.88E+01	4.06E+01	3.32E-01
4.48E+01	3.48E-04	1.59E+00	3.87E+00	5.85E-01	3.53E+00	5.25E+01	4.48E+01	4.66E+01	3.80E-01
5.17E+01	3.21E-04	1.59E+00	4.38E+00	6.54E-01	3.85E+00	5.90E+01	5.17E+01	5.35E+01	4.37E-01
5.98E+01	2.95E-04	1.59E+00	4.96E+00	7.27E-01	4.20E+00	6.64E+01	5.98E+01	6.15E+01	5.03E-01
6.91E+01	2.71E-04	1.59E+00	5.64E+00	8.04E-01	4.60E+00	7.47E+01	6.91E+01	7.09E+01	5.79E-01
7.99E+01	2.48E-04	1.59E+00	6.43E+00	8.84E-01	5.04E+00	8.41E+01	7.99E+01	8.17E+01	6.67E-01
9.25E+01	2.26E-04	1.59E+00	7.34E+00	9.66E-01	5.54E+00	9.47E+01	9.25E+01	9.42E+01	7.70E-01
1.07E+02	2.05E-04	1.59E+00	8.39E+00	1.05E+00	6.10E+00	1.07E+02	1.07E+02	1.09E+02	8.88E-01
1.24E+02	1.85E-04	1.59E+00	9.60E+00	1.14E+00	6.73E+00	1.20E+02	1.24E+02	1.26E+02	1.03E+00
1.44E+02	1.67E-04	1.59E+00	1.10E+01	1.23E+00	7.43E+00	1.36E+02	1.44E+02	1.45E+02	1.19E+00
1.66E+02	1.50E-04	1.59E+00	1.26E+01	1.32E+00	8.21E+00	1.53E+02	1.66E+02	1.68E+02	1.37E+00
1.93E+02	1.34E-04	1.59E+00	1.45E+01	1.42E+00	9.10E+00	1.73E+02	1.93E+02	1.94E+02	1.59E+00
2.23E+02	1.20E-04	1.59E+00	1.67E+01	1.51E+00	1.01E+01	1.95E+02	2.23E+02	2.25E+02	1.84E+00
2.59E+02	1.07E-04	1.59E+00	1.92E+01	1.61E+00	1.12E+01	2.21E+02	2.59E+02	2.61E+02	2.13E+00
3.00E+02	9.54E-05	1.59E+00	2.21E+01	1.70E+00	1.24E+01	2.49E+02	3.00E+02	3.02E+02	2.46E+00

1

time averaged (tav = 1800. s) volume concentration: concentration in the z = 1.50 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	y/bbc= 2.0
(x,y,z)								
-1.77E+00	3.01E+02	6.00E+02	1.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.41E+00	3.01E+02	6.00E+02	1.80E+00	8.89E-09	8.23E-09	2.98E-09	9.71E-11	1.41E-13
-1.06E+00	3.00E+02	6.00E+02	1.82E+00	2.89E-06	2.64E-06	9.50E-07	3.64E-08	8.01E-11
-7.07E-01	3.00E+02	6.00E+02	1.84E+00	2.68E-05	2.41E-05	8.63E-06	3.82E-07	1.20E-09
-3.54E-01	3.00E+02	6.00E+02	1.86E+00	8.97E-05	7.94E-05	2.83E-05	1.41E-06	6.06E-09
1.04E-07	3.00E+02	6.00E+02	1.89E+00	1.92E-04	1.68E-04	5.94E-05	3.31E-06	1.86E-08
3.54E-01	3.00E+02	6.00E+02	1.91E+00	3.26E-04	2.80E-04	9.87E-05	6.06E-06	4.30E-08
7.07E-01	3.00E+02	6.00E+02	1.94E+00	4.79E-04	4.06E-04	1.43E-04	9.53E-06	8.32E-08
1.06E+00	3.00E+02	6.00E+02	1.96E+00	6.44E-04	5.38E-04	1.88E-04	1.36E-05	1.42E-07
1.41E+00	3.01E+02	6.00E+02	1.99E+00	8.14E-04	6.70E-04	2.34E-04	1.80E-05	2.23E-07
1.77E+00	3.01E+02	6.00E+02	2.02E+00	9.83E-04	7.99E-04	2.78E-04	2.28E-05	3.25E-07
1.80E+00	3.01E+02	6.00E+02	2.02E+00	9.91E-04	8.05E-04	2.80E-04	2.30E-05	3.32E-07
1.83E+00	3.01E+02	6.00E+02	2.02E+00	9.96E-04	8.08E-04	2.81E-04	2.32E-05	3.40E-07
1.87E+00	3.01E+02	6.00E+02	2.03E+00	1.00E-03	8.12E-04	2.82E-04	2.35E-05	3.48E-07
1.91E+00	3.01E+02	6.00E+02	2.03E+00	1.01E-03	8.16E-04	2.84E-04	2.37E-05	3.58E-07
1.96E+00	3.01E+02	6.00E+02	2.03E+00	1.02E-03	8.20E-04	2.85E-04	2.40E-05	3.70E-07
2.02E+00	3.01E+02	6.00E+02	2.04E+00	1.02E-03	8.25E-04	2.87E-04	2.44E-05	3.83E-07

2.09E+00	3.01E+02	6.00E+02	2.04E+00	1.03E-03	8.30E-04	2.88E-04	2.48E-05	3.99E-07
1.08E-09								
2.17E+00	3.01E+02	6.00E+02	2.05E+00	1.04E-03	8.36E-04	2.90E-04	2.52E-05	4.17E-07
1.19E-09								
2.26E+00	3.01E+02	6.00E+02	2.06E+00	1.05E-03	8.41E-04	2.92E-04	2.57E-05	4.39E-07
1.30E-09								
2.37E+00	3.01E+02	6.00E+02	2.07E+00	1.06E-03	8.47E-04	2.94E-04	2.62E-05	4.64E-07
1.45E-09								
2.50E+00	3.01E+02	6.00E+02	2.08E+00	1.07E-03	8.52E-04	2.95E-04	2.68E-05	4.93E-07
1.66E-09								
2.64E+00	3.01E+02	6.00E+02	2.09E+00	1.08E-03	8.58E-04	2.97E-04	2.74E-05	5.28E-07
1.92E-09								
2.81E+00	3.01E+02	6.00E+02	2.10E+00	1.10E-03	8.62E-04	2.98E-04	2.81E-05	5.67E-07
2.22E-09								
3.01E+00	3.01E+02	6.00E+02	2.12E+00	1.11E-03	8.65E-04	2.98E-04	2.88E-05	6.13E-07
2.63E-09								
3.23E+00	3.01E+02	6.00E+02	2.14E+00	1.11E-03	8.67E-04	2.99E-04	2.95E-05	6.66E-07
3.12E-09								
3.50E+00	3.01E+02	6.00E+02	2.16E+00	1.12E-03	8.66E-04	2.98E-04	3.02E-05	7.27E-07
3.80E-09								
3.80E+00	3.02E+02	6.00E+02	2.19E+00	1.12E-03	8.62E-04	2.96E-04	3.08E-05	7.95E-07
4.63E-09								
4.16E+00	3.02E+02	6.00E+02	2.22E+00	1.12E-03	8.55E-04	2.93E-04	3.14E-05	8.71E-07
5.72E-09								
4.57E+00	3.02E+02	6.00E+02	2.26E+00	1.12E-03	8.43E-04	2.88E-04	3.19E-05	9.53E-07
7.10E-09								
5.05E+00	3.02E+02	6.00E+02	2.30E+00	1.10E-03	8.26E-04	2.81E-04	3.22E-05	1.04E-06
8.83E-09								
5.60E+00	3.02E+02	6.00E+02	2.35E+00	1.09E-03	8.04E-04	2.73E-04	3.22E-05	1.13E-06
1.10E-08								
6.24E+00	3.03E+02	6.00E+02	2.41E+00	1.06E-03	7.76E-04	2.63E-04	3.20E-05	1.22E-06
1.35E-08								
6.99E+00	3.03E+02	6.00E+02	2.48E+00	1.02E-03	7.43E-04	2.50E-04	3.15E-05	1.30E-06
1.65E-08								
7.85E+00	3.03E+02	6.00E+02	2.57E+00	9.76E-04	7.04E-04	2.36E-04	3.07E-05	1.37E-06
1.97E-08								
8.86E+00	3.04E+02	6.00E+02	2.67E+00	9.23E-04	6.60E-04	2.20E-04	2.95E-05	1.42E-06
2.32E-08								
1.00E+01	3.04E+02	6.00E+02	2.79E+00	8.61E-04	6.11E-04	2.03E-04	2.79E-05	1.44E-06
2.65E-08								
1.14E+01	3.05E+02	6.00E+02	2.93E+00	7.94E-04	5.59E-04	1.85E-04	2.61E-05	1.43E-06
2.93E-08								
1.29E+01	3.05E+02	6.00E+02	3.10E+00	7.22E-04	5.06E-04	1.67E-04	2.39E-05	1.39E-06
3.15E-08								
1.48E+01	3.06E+02	6.00E+02	3.30E+00	6.48E-04	4.52E-04	1.49E-04	2.17E-05	1.32E-06
3.26E-08								
1.69E+01	3.07E+02	6.00E+02	3.54E+00	5.73E-04	3.98E-04	1.30E-04	1.93E-05	1.23E-06
3.26E-08								
1.93E+01	3.08E+02	6.00E+02	3.82E+00	5.00E-04	3.46E-04	1.13E-04	1.69E-05	1.11E-06
3.15E-08								
2.22E+01	3.09E+02	6.00E+02	4.15E+00	4.30E-04	2.97E-04	9.70E-05	1.46E-05	9.88E-07
2.94E-08								
2.54E+01	3.11E+02	6.00E+02	4.54E+00	3.65E-04	2.52E-04	8.21E-05	1.24E-05	8.59E-07
2.65E-08								
2.93E+01	3.12E+02	6.00E+02	5.00E+00	3.07E-04	2.11E-04	6.88E-05	1.05E-05	7.33E-07
2.34E-08								
3.37E+01	3.14E+02	6.00E+02	5.53E+00	2.54E-04	1.75E-04	5.70E-05	8.69E-06	6.16E-07
2.01E-08								
3.88E+01	3.16E+02	6.00E+02	6.16E+00	2.09E-04	1.44E-04	4.67E-05	7.14E-06	5.10E-07
1.69E-08								
4.48E+01	3.19E+02	6.00E+02	6.89E+00	1.70E-04	1.17E-04	3.79E-05	5.81E-06	4.17E-07
1.40E-08								
5.17E+01	3.21E+02	6.00E+02	7.75E+00	1.37E-04	9.41E-05	3.06E-05	4.68E-06	3.37E-07
1.14E-08								
5.98E+01	3.25E+02	6.00E+02	8.74E+00	1.09E-04	7.52E-05	2.44E-05	3.74E-06	2.70E-07
9.16E-09								
6.91E+01	3.29E+02	6.00E+02	9.90E+00	8.69E-05	5.97E-05	1.94E-05	2.97E-06	2.15E-07
7.31E-09								
7.99E+01	3.33E+02	6.00E+02	1.12E+01	6.86E-05	4.71E-05	1.53E-05	2.35E-06	1.70E-07
5.79E-09								

9.25E+01	3.38E+02	6.00E+02	1.28E+01	5.38E-05	3.70E-05	1.20E-05	1.84E-06	1.33E-07	4.55E-09
1.07E+02	3.44E+02	6.00E+02	1.46E+01	4.20E-05	2.89E-05	9.38E-06	1.44E-06	1.04E-07	3.56E-09
1.24E+02	3.51E+02	6.00E+02	1.67E+01	3.27E-05	2.25E-05	7.30E-06	1.12E-06	8.11E-08	2.77E-09
1.44E+02	3.59E+02	6.00E+02	1.91E+01	2.54E-05	1.74E-05	5.66E-06	8.68E-07	6.28E-08	2.14E-09
1.66E+02	3.69E+02	6.00E+02	2.19E+01	1.96E-05	1.35E-05	4.37E-06	6.71E-07	4.86E-08	1.66E-09
1.93E+02	3.80E+02	6.00E+02	2.52E+01	1.51E-05	1.04E-05	3.37E-06	5.17E-07	3.75E-08	1.28E-09
2.23E+02	3.92E+02	6.00E+02	2.89E+01	1.16E-05	7.99E-06	2.60E-06	3.98E-07	2.88E-08	9.86E-10
2.59E+02	4.07E+02	6.00E+02	3.33E+01	8.94E-06	6.14E-06	1.99E-06	3.06E-07	2.21E-08	7.58E-10
3.00E+02	4.24E+02	6.00E+02	3.82E+01	6.86E-06	4.71E-06	1.53E-06	2.35E-07	1.70E-08	5.79E-10

1

time averaged (tav = 1800. s) volume concentration: maximum concentration (volume fraction) along centerline.

downwind distance x (m)	height z (m)	maximum concentration c(x,0,z)	time of max conc (s)	cloud duration (s)
-1.77E+00	0.00E+00	0.00E+00	3.01E+02	6.00E+02
-1.41E+00	0.00E+00	2.47E-03	3.01E+02	6.00E+02
-1.06E+00	0.00E+00	2.93E-03	3.00E+02	6.00E+02
-7.07E-01	0.00E+00	3.23E-03	3.00E+02	6.00E+02
-3.54E-01	0.00E+00	3.45E-03	3.00E+02	6.00E+02
1.04E-07	0.00E+00	3.63E-03	3.00E+02	6.00E+02
3.54E-01	0.00E+00	3.77E-03	3.00E+02	6.00E+02
7.07E-01	0.00E+00	3.89E-03	3.00E+02	6.00E+02
1.06E+00	0.00E+00	4.00E-03	3.00E+02	6.00E+02
1.41E+00	0.00E+00	4.09E-03	3.01E+02	6.00E+02
1.77E+00	0.00E+00	4.16E-03	3.01E+02	6.00E+02
1.80E+00	0.00E+00	4.13E-03	3.01E+02	6.00E+02
1.83E+00	0.00E+00	4.10E-03	3.01E+02	6.00E+02
1.87E+00	0.00E+00	4.07E-03	3.01E+02	6.00E+02
1.91E+00	0.00E+00	4.03E-03	3.01E+02	6.00E+02
1.96E+00	0.00E+00	3.98E-03	3.01E+02	6.00E+02
2.02E+00	0.00E+00	3.93E-03	3.01E+02	6.00E+02
2.09E+00	0.00E+00	3.87E-03	3.01E+02	6.00E+02
2.17E+00	0.00E+00	3.80E-03	3.01E+02	6.00E+02
2.26E+00	0.00E+00	3.73E-03	3.01E+02	6.00E+02
2.37E+00	0.00E+00	3.65E-03	3.01E+02	6.00E+02
2.50E+00	0.00E+00	3.56E-03	3.01E+02	6.00E+02
2.64E+00	0.00E+00	3.46E-03	3.01E+02	6.00E+02
2.81E+00	0.00E+00	3.35E-03	3.01E+02	6.00E+02
3.01E+00	0.00E+00	3.23E-03	3.01E+02	6.00E+02
3.23E+00	0.00E+00	3.11E-03	3.01E+02	6.00E+02
3.50E+00	0.00E+00	2.97E-03	3.01E+02	6.00E+02
3.80E+00	0.00E+00	2.82E-03	3.02E+02	6.00E+02
4.16E+00	0.00E+00	2.67E-03	3.02E+02	6.00E+02
4.57E+00	0.00E+00	2.51E-03	3.02E+02	6.00E+02
5.05E+00	0.00E+00	2.35E-03	3.02E+02	6.00E+02
5.60E+00	0.00E+00	2.18E-03	3.02E+02	6.00E+02
6.24E+00	0.00E+00	2.00E-03	3.03E+02	6.00E+02
6.99E+00	0.00E+00	1.83E-03	3.03E+02	6.00E+02
7.85E+00	0.00E+00	1.66E-03	3.03E+02	6.00E+02
8.86E+00	0.00E+00	1.49E-03	3.04E+02	6.00E+02
1.00E+01	0.00E+00	1.32E-03	3.04E+02	6.00E+02
1.14E+01	0.00E+00	1.16E-03	3.05E+02	6.00E+02
1.29E+01	0.00E+00	1.01E-03	3.05E+02	6.00E+02
1.48E+01	0.00E+00	8.71E-04	3.06E+02	6.00E+02
1.69E+01	0.00E+00	7.42E-04	3.07E+02	6.00E+02
1.93E+01	0.00E+00	6.26E-04	3.08E+02	6.00E+02
2.22E+01	0.00E+00	5.23E-04	3.09E+02	6.00E+02
2.54E+01	0.00E+00	4.32E-04	3.11E+02	6.00E+02
2.93E+01	0.00E+00	3.54E-04	3.12E+02	6.00E+02

3.37E+01	0.00E+00	2.88E-04	3.14E+02	6.00E+02
3.88E+01	0.00E+00	2.32E-04	3.16E+02	6.00E+02
4.48E+01	0.00E+00	1.85E-04	3.19E+02	6.00E+02
5.17E+01	0.00E+00	1.47E-04	3.21E+02	6.00E+02
5.98E+01	0.00E+00	1.16E-04	3.25E+02	6.00E+02
6.91E+01	0.00E+00	9.15E-05	3.29E+02	6.00E+02
7.99E+01	0.00E+00	7.16E-05	3.33E+02	6.00E+02
9.25E+01	0.00E+00	5.58E-05	3.38E+02	6.00E+02
1.07E+02	0.00E+00	4.33E-05	3.44E+02	6.00E+02
1.24E+02	0.00E+00	3.35E-05	3.51E+02	6.00E+02
1.44E+02	0.00E+00	2.59E-05	3.59E+02	6.00E+02
1.66E+02	0.00E+00	1.99E-05	3.69E+02	6.00E+02
1.93E+02	0.00E+00	1.53E-05	3.80E+02	6.00E+02
2.23E+02	0.00E+00	1.18E-05	3.92E+02	6.00E+02
2.59E+02	0.00E+00	9.01E-06	4.07E+02	6.00E+02
3.00E+02	0.00E+00	6.90E-06	4.24E+02	6.00E+02