UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUN - 1 1987

4APT/APB-ljf

Mr. Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: Kissimmee Utilities (Osceola County)

Dear Mr. Fancy:

This is in regard to your letter of April 10, 1987, forwarding the above company's request to increase the allowable nitrogen oxides emissions from their 49.9 MW combined cycle gas turbine. They have requested to increase their allowable emissions concentration limit from 79 ppm to 130 ppm using the fuel bound nitrogen credit as provided for in the New Source Performance Standards, Subpart GG.

We have reviewed the company's request to use the nitrogen content of their natural gas supply in calculating the emissions rate from equations contained in Subpart GG, New Source Performance Standards. During our review, we contacted the Office of Air Quality Planning and Standards regarding the definition of fuel bound nitrogen and data regarding measured concentrations of fuel bound nitrogen in natural gas. Their response was that natural gas does not contain measurable amounts of fuel bound nitrogen and that the nitrogen content reported by the supplier is probably atmospheric nitrogen which is not credible as fuel bound nitrogen. Therefore, the company's analysis supporting their request to increase their nitrogen oxides emissions rate is not valid.

In summary, the company's request to increase nitrogen oxides emissions when burning natural gas should be denied on the basis that the reported nitrogen content of the natural gas is not fuel bound nitrogen. Unless the supplier is able to provide an analysis of their natural gas which determines fuel bound nitrogen only, with supporting documentation of test methods and procedures, credit cannot be given in the calculation of allowable nitrogen oxide emissions as provided under the New Source Performance Standards, Subpart GG.

If you have any questions regarding this determination, you may contact Michael Brandon of my staff at (404) 347-2864.

Sincerely,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides and Toxics
Management Division

Terry Heron
Bill Thomas

P7

John, CAPS may need this information to change the NO_x emission limit. I don't think it is appropriate for us to do that perhaps in opposition to CAPS determination. Tom. 4/28/87

ace Air Consulting and Engineering

April 27, 1987
151 87 01

Mr. John Turner
Florida Department of
Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Kissimmee Utilities Gas Turbine (AO 49-093754)

Dear John:

In response to your "Completeness" inquiry of March 27, 1987, please accept the following responses:

Item 1: Estimate of actual NO_x emissions at 130 and 79 ppm.

High Load Volumetric Flow $= \left(30.9\ MW\right)\left(1000\ KW/MW\right)\left(\frac{14735\ BTU}{KW}\right)\left(\frac{9180\ SCF}{10^6 BTU}\right)\left(\frac{20.9}{20.9-15.0}\right)$

$= 14{,}806{,}000\ SCFH = 246{,}770\ SCFMD$

NO_x lb/Hr $= ppm\ (1.194 \times 10^{-7})(14806000\ SCFH) =$
$= 229.8$ lb/Hr @ 130 ppm
$= 139.7$ lb/Hr @ 79 ppm

Note: These values are conservative as the 130 and 79 ppm values are corrected to ISO ambient conditions. Actual emissions will be as much as 20% less depending on atmospheric conditions (for example, they were 7.14% less during 2/25/87 compliance test).

Item 4: CO emissions at NO_x concentrations of 130 and 79 ppm.

The CO concentrations were about 23 ppm at high load with water injection to control $NO_x \leq 79$ ppm.

CO lb/Hr $= 23(7.266 \times 10^{-8})(14806000\ SCFH) = 24.74$

DER
APR 30 1987
BAQM

2106 N.W. 67th Place, Suite 4 • Gainesville, Florida 32606 • (904) 335-1889

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	
Bill Thomas	Initial
	Date
2. Bureau of Air Quality Manag.	Initial
	Date
3.	Initial
Barry A.	Date
4.	Initial
	Date

DER

APR 30 1987

BAQM

REMARKS:

Response to our previously forwarded incompleteness letter being handled by CAPS.

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

Tedda 5/11/87

FROM: John Turner

DATE 4/29/87

PHONE

SC 325-1403

More importantly, however, CO emissions at low loads were 76.75 lb/Hr because it still took a degree of water injection to keep NO_x below 79 ppm at that load. It is expected that reduction of water injection rates to a level necessary to keep NO_x ≤130 ppm would reduce CO emissions to near zero at all loads.

Items 3 and 4: Are addressed by KUC (attached).

Please contact me if I can be further assistance.

Respectfully,

AIR CONSULTING AND ENGINEERING

Stephen L. Neck

Stephen L. Neck, P.E.

SLN:ctg

cc: Mr. Jeff Ling, KUA

File Copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

April 10, 1987

Mr. Bruce Miller
Chief, Air Facilities Branch
Air & Waste Management Division
USEPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Miller:

Re: PSD-FL-087
Kissimmee Utilities (Osceola County)

Attached, for your information, is a copy of Kissimmee Utilities' request to increase NOx emission concentrations from their 49.9 MW-Combined Cycle Gas Turbine.

The construction permits for this unit, PSD-FL-087 and AC 49-46521, were originally issued on February 19, 1982, and November 25, 1981, respectively.

In 1983, the Company failed to apply for an operating permit within the time allowed by the construction permit. Therefore, we requested a submission of a new application. The application was reviewed and a new state permit was issued on March 30, 1984.

On April 1, 1984, we received the above mentioned request. Currently, we are in the process of modifying the BACT determination and specific conditions for state permits AC 49-74856 and AO 49-093754.

If you have any questions, please call Teresa Heron (Review Engineer) or Barry Andrews (BACT Coordinator) at (904)488-1344.

Sincerely,

Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/TH/s
Attachments: sent 4/13/87 RBM
cc: John Turner, DER Orlando

W. MAX ALDERMAN, MANAGER
GENERATION & TRANSMISSION

KUA
KISSIMMEE
UTILITY
AUTHORITY

P. O. BOX 2148 - KISSIMMEE, FLORIDA 32742-2148
305/847-8011

April 6, 1987

Mr. Stephen L. Neck, P.E.
Air Consulting & Engineering
2106 N. W. 67th Place, Suite 4
Gainesville, FL 32606-1608

RE: NO_x Emission Change Order

Dear Steve:

The following information is in reference to our recent telephone conversations in connection with the application for a change of NO_x emission limit.

ITEM 2 - Asks for the source of the figure of 14,735 BTU/kWh. Please see attached worksheet from our last heat rate test for an output of 30 MW from the G.T.

ITEM 3 - The effect water injection has on efficiency and maintenance with an airflow of 353 lb/sec at full load, each 1% of water injection will result in an increase of the heat rate by 1.3% (efficiency decrease).

Water injection increases the occurances of cracking in the combustor baskets due to localised cooling, particularly in the dome area around the burner nozzle. This results in shorter basket life as well as increased maintenance and down time costs.

Up to the present time, we have had costs of approximately $16,000 for basket repairs and $36,000 for a standby set of burner nozzles.

Mr. Stephen L. Neck, P.E.
RE: NO_x Emission Change Order
April 6, 1987

Downtime has cost us anywhere up to $5,000 per day, according to the situatin on system external to KUA. Up to the present time no work has been carried out on the turbine section of our machine, other than visual inspection.

This has however, revealed deposits building up on the blades and vanes, in excess of what would normally be expected with the hours that the machine has run.

It is felt that the majority of the deposit buildup is due to the use of water injection at the rate required to comply with the present emission rates. We therefore expect that we will have to decrease the period between major turbine inspections, to take into account the increased fouling rate found in the turbine.

As both Westinghouse and KUA have only a short operating experience using water injection, it is not possible to draw on any further data than that noted above.

Regards,

KISSIMMEE UTILITY AUTHORITY

Jeff Ling
Power Plant Superintendent

JL/rk

cc - Max Alderman

BEST AVAILABLE COPY

SUNDAY DATE: OCT 06 1986

DAILY HEAT RATE & FUEL COST CALCULATION SHEET

1300 To 1400 Load @ 30 M.W.

UNIT	GAS METER DIFF. A	FT³-GAS A X 1,000 B	BTU-GAS B X 1024 C	THERMS. C ÷ 100,000 D	GAS COST D X GAS COST/THERM. E	FUEL OIL METER DIFF. F	BTU-OIL F X 137,028 G	OIL COST F X OIL COST/GALLON H	TOTAL BTU C + G I	TOTAL COST E + H J	KWH METER DIFF. X MULTI. K	BTU-KWH I ÷ K L	$/MWH J ÷ MWH M
GT	423	423000	433152000	4332	896.62	——	——	——	433152000		30000	14438	29.88
2&23												14735	30.50
OTAL													

Corrected figure for Btu Content & Cost per therm

	METER DIFF. X 100 A	A X 7.94321 B	B X 1024 C	C ÷ 100,000 D	D X GAS COST/THERM. E	METER DIFF. F	F X 137,028 G	F X OIL COST/GALLON H	C + G I	E + H J	METER DIFF. X MULTI. K	I ÷ K L	J ÷ MWH M	L/O Added
ENG.														
ENG.														
ENG.														
ENG.														
ENG.														
ENG.														
ENG.														
ENG.														
ENG.														
TAL														
CC														
ESELS														
ANT	XXXX													

Mon 1023 (1045)

(1020 − 1026)

(.190)

FT³ GAS= 1024 BTU GAL. OIL = 137,028 BTU GAS COST 0.207 /THERM. FUEL OIL COST _____/GAL. THERM.= 100,000 BTU

SECTION XXIV - 123.2

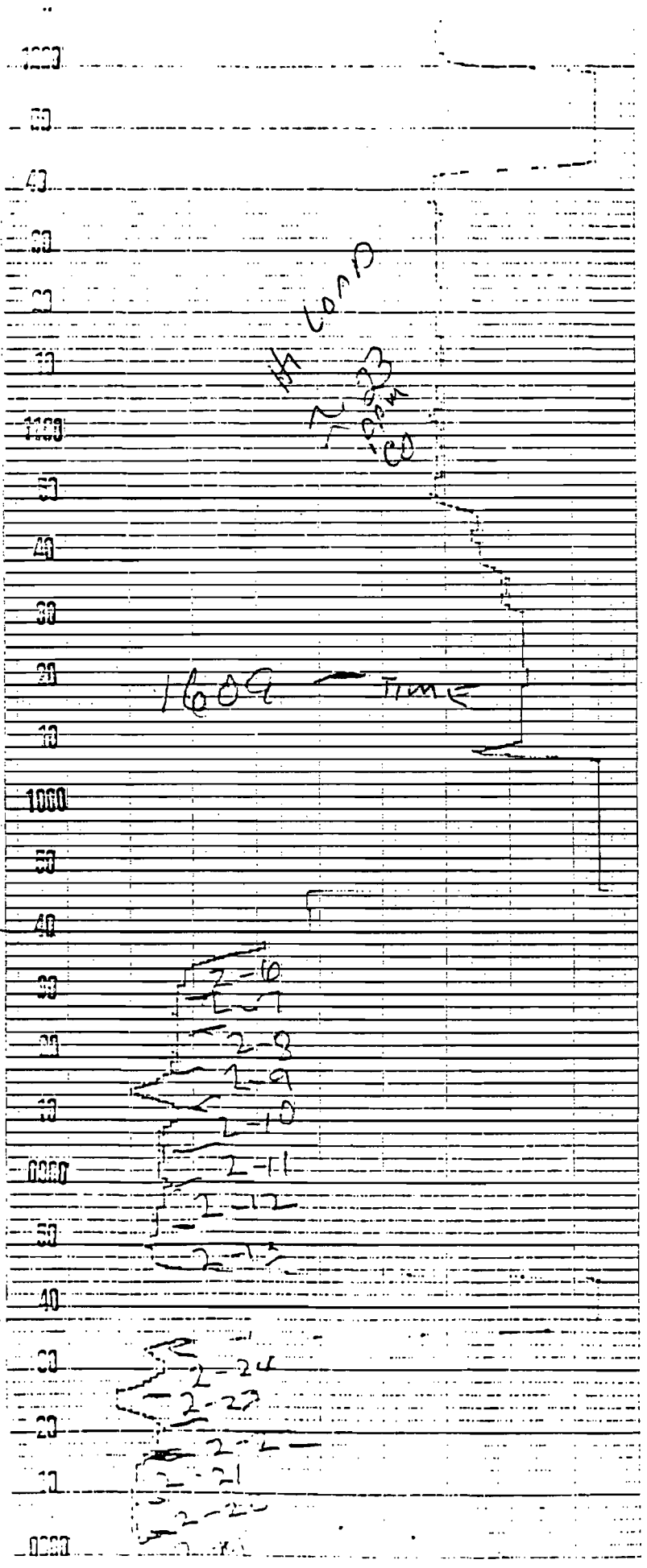
8/31/84

Table 1 CO, NO_x Emission Summary
Kissimmee Utilities Authority
February 25, 1987

Load Average MW	NO_x ppm dry	O_2 %	NO_x ppm dry 15% O_2	DB °C	Relative Humidity %	Specific Humidity	Barometric Pressure "Hg	Temperature Correction Factor	Humidity Correction Factor	Pressure Correction Factor	NO_x* ppm	CO ppm
18	41	17.0	62	24.7	68	0.0134	30.08	0.950	1.144	0.997	67	64
23	42	16.4	55	20.4	83	0.0127	30.08	0.972	1.129	0.997	60	--
28	52	15.6	58	21.9	73	0.0122	30.08	0.964	1.118	0.997	62	--
32	63	15.2	65	24.6	68	0.0134	30.08	0.951	1.144	0.997	70	--

*Permitted Rate = 79 ppm

CO Emission Rate = $(64)(2.595 \times 10^{-9})(28)(275080)(60) = 76.75$ lb/Hr



STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

CENTRAL FLORIDA DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

March 27, 1987

COMPLETENESS SUMMARY AIR POLLUTION SOURCES

SOURCE NAME: Kissimmee Utilities
Combined Cycle Gas Turbine
(AO49-093754)

DATE RECEIVED: 3/2/87

DATE REVIEWED: 3/25/87

APPLICANT NAME: Stephen L. Neck, P.E.

REVIEWED BY: John Turner

Air Consulting & Engineering
APPLICANT ADDRESS: 2106 N. W. 67th Place, Suite 4
Gainesville, Florida 32606

Your application for a permit to construct/operate this referenced project has been received, and reviewed for completeness. The following checked items are needed to complete your application.

( ) Application fee of $_____. Make check payable to the Department of Environmental Regulation.

( ) Letter authorizing applicant to represent owner.

( ) 8-1/2" x 11" diagram of flow process.

( ) 8-1/2" x 11" location map.

( ) 8-1/2" x 11" plant layout sketch showing emission points.

( ) Test results showing compliance with emission limitations of the department. (see next page)

( ) Air diffusion modeling results showing compliance with ambient air standards and PSD increment.

( ) Engineer's report pursuant to Florida Administrative Code Rule 17-4.21(1)(c).

( ) See comments on application attached.

(X) Other: (Any section of the application which is incomplete or lacks sufficient information to be evaluated).

1) Submit estimates of actual NO_x emissions for NO_x concentrations of 130 ppm and 79 ppm.

2) Explain the source of the 14,735 BTU/KwH in Attachment - 6.0.

DER Form 17-1.202(2), Effective Date November 30, 1982

3) Provide data and further information supporting the statements that the water injection rates used to maintain emissions of NO_x at or below 79 ppm results in decreased efficiency, and considerable combuster and turbine damage, and provide an economic analysis concerning the increased operating and maintenance costs.

4) Provide estimates of the CO emissions for NO_x concentrations of 130 ppm and 79 ppm.

5) Please provide a copy of your February 25, 1987 letter which bears your P.E. seal.

Pursuant to Section 120.60(2) Florida Statutes, the department may deny an application if the applicant, after receiving timely notice fails to correct errors, omissions or supply additional information within a reasonable period of time.

Your request has been forwarded to Central Air Permitting for further processing. Please direct future correspondence on this matter to Mr. Bill Thomas, and send a copy to our Central Florida District Office.

Sincerely,

A. T. Sawicki

A. T. Sawicki, P.E., Supervisor
Air Engineering

ATS/jte

cc: James D. Welsh, Utilities Director
Bill Thomas, BAQM

Natural Gas : A combustible, gaseous mixture of low-molecular-weight paraffin hydrocarbons, generated below the surface of the earth; contains mostly methane and ethane with small amounts of propane, butane, and higher hydrocarbons, and sometimes nitrogen, carbon dioxide, hydrogen sulfide, and helium

CH_3

Bound Water : Water that is portion of a system such as tissues or soil and does not form ice crystals until the material's temperature is lowered to about -20°C

$Ca(SO_4) \cdot 2H_2O$ bound water

$pb + H_2O$ — water not bound

Air Consulting and Engineering

February 25, 1987
151 87 01

DER
APR 1 1987
BAQM

Mr. A.T. Sawicki
Florida Department of
Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Kissimmee Utilities Commission Gas Turbine Allowable NO_x Emissions As Specified In Permit Number AO-49-093754

Dear Mr. Sawicki:

On behalf of Kissimmee Utilities Commission (KUC), Air Consulting and Engineering (ACE) has investigated the current maximum allowable emissions specified in the referenced operating permit. It would appear from the information and calculations included in this submittal, that KUC should be allowed a maximum NO_x emission of 130 ppm corrected to standard conditions versus the current limit of 79 ppm. This adjustment is necessary in accordance with Subpart GG NSPS standards which allows credit for fuel bound nitrogen. It is my belief that the fuel bound nitrogen content of natural gas was either never investigated during the original permitting effort or that the fuel analysis has changed since that time period.

Please review the enclosed data. If you agree with my assessment, I wish to ask for a permit change to reflect the higher allowable emission. I would also like to point out that the high water injection rates that are now necessary to ensure a maximum emission of 79 ppm results in greater fuel usage (decreased efficiency) and considerable combuster and turbine damage (increased maintenance cost). The high water rates also result in higher than necessary carbon monoxide emissions at all loads.

Please contact Mr. Jeff Ling of KUC or me if you have any questions regarding this request.

Respectfully,

AIR CONSULTING AND ENGINEERING

Stephen L. Neck

Stephen L. Neck, P.E.

SLN:ctg

attachments

cc: Mr. Jeff Ling (KUC)

2106 N.W. 67th Place, Suite 4 • Gainesville, Florida 32606 • (904) 335-1889

TABLE 1
ALLOWABLE EMISSION LIMITS
49.9 MW Combined Cycle Combustion Turbine

Pollutant	Standard	Gas Turbine[a]	Boiler	Basis
NO_x[a]	$0.0075 \frac{(14.4)}{Y} + F$	79 PPM (gas) and 129 (oil) at 15 percent oxygen on a dry basis		NSPS, BACT
SO_2	0.8 percent S by weight 0.015 percent by volume at 15 percent oxygen on a dry basis	0.5 percent S by weight and 255 lb/hr	0.5 percent S by weight	NSPS, BACT
PM[b]	20% opacity	20% opacity or 22 lb/hr	20% opacity	BACT
VOC	-	19 lb/hr		BACT
CO	-	80 lb/hr		BACT
Mercury (Hg)	-	0.0004 lb/hr		Estimated by Applicant
Beryllium (Be)	-	0.00004 lb/hr		EPA 600/57-81-003b

(a) The allowable NO_x emission rate for the gas turbine was determined by the following formula:
STD $= 0.0075\frac{(14.4)}{Y} + F$ where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour. The efficiency factor must be based on the gas turbine efficiency itself, not the overall efficiency of the gas turbine combined with other equipment.

NO_x = 79 PPM when burning natural gas

NO_x = 129 PPM when burning fuel oil No. 2

F = NO_x emission allowance for fuel-bound nitrogen as follows:

Fuel-bound nitrogen (Percent by weight)	F (NO_x percent by volume)
N<0.015	0
0.015<N<0.1	0.04(N)
0.1<N<0.25	0.04+0.0067(N-0.1)
N>0.25	0.005

where: N = the nitrogen content of the fuel (percent by weight)

N>0.25 is proposed by the applicant

(b) Visible emissions: Not to exceed 20% opacity; 40% opacity is permitted for not more than two-minutes in any one hour.

ATTACHMENT

1.0 Amount of H_2O in combustion gases

Basis: N atoms of H produce n/2 moles of H_2O.

Methane (CH_4)	4 atoms of H produces 2 moles H_2O
Ethane (C_2H_6)	6 atoms of H produces 3 moles H_2O
Propane (C_3H_8)	8 atoms of H produces 4 moles H_2O
Butane (C_4H_{10})	10 atoms of H produces 4 moles H_2O
Pentane (C_5H_{12})	12 atoms of H produces 6 moles H_2O
Hexane (C_6H_{14})	14 atoms of H produces 7 moles H_2O

Therefore, moles of H_2O produced per mole of gas is equal to:

$$0.96222(2) + 0.02214(3) + 0.0022(4) + (0.00006 + 0.00005)(5) + (0.00004 + 0.00002)(6) + 0.00022(7) = 2.00187$$

2.0 Molecular Weight Of Gas

Nitrogen (as N)	(MW=14)	14 (.00432) +	
Carbon Dioxide	(MW=44)	44 (.00873) +	
Methane	(MW=16)	16 (.96222) +	
Ethane	(MW=30)	30 (.02214) +	
Propane	(MW=44)	44 (.0022) +	
Butane	(MW=58)	58 (.00011) +	
Pentane	(MW=72)	72 (.00006) +	
Hexane	(MW=86)	86 (.00022)	= 16.631

3.0 Weight Of Water Per Dry Ft^3 At 60°F And 14.7 PSIA

$$2.00187 \frac{\text{moles } H_2O}{\text{mole gas}} \times \frac{18 \text{ lb gas}}{1 \text{ mole } H_2O} \times \frac{1 \text{ mole gas}}{16.631 \text{ lb gas}} \times \frac{0.0765 \times .5779 \text{ lb gas}}{Ft^3 \text{ gas}}$$

$$= 0.096 \frac{\text{lb } H_2O}{Ft^3 \text{ gas}}$$

4.0 Lower Heating Value Of Gas

$$LHV = HHV - \frac{\text{lb } H_2O}{Ft^3 \text{ gas}} \times \frac{1023 \text{ Btu}}{\text{lb } H_2O}$$

$$= 1005 - [(.096)(1023)] = 907.0 \frac{\text{Btu}}{Ft^3}$$

5.0 Percent Nitrogen In Fuel

$$\left(0.00432 \frac{\text{moles N}}{\text{mole gas}}\right)\left(\frac{14 \text{ lb N}}{\text{lb mole}}\right)\left(\frac{1 \text{ mole gas}}{16.631 \text{ lb gas}}\right) = 0.00364$$

OR 0.364% N

6.0 Calculation Of Y Using Lower Heating Value

$$Y = \left(\frac{907}{1045}\right)\left(14{,}735 \frac{\text{Btu}}{\text{KwH}}\right) = 12{,}789 \frac{\text{Btu}}{\text{KwH}}$$

Convert To KJ/WH,

$$\left(12{,}789 \frac{\text{Btu}}{\text{KwH}}\right)\left(3600 \frac{\text{KJ}}{\text{Btu}}\right)\left(\frac{1 \text{ Kw}}{1000 \text{ W}}\right) = 13.49 \frac{\text{KJ}}{\text{WH}}$$

KUC ALLOWABLE EMISSION RATE:

$$STD = 0.0075\left(\frac{14.4}{Y}\right) + .005$$

Where: F = NO_x percent by volume
Y = heat rate (Kj/WH)

$$STD_{KUC} = 0.0075\left(\frac{14.4}{13.5}\right) + .005$$

= .0080 + .0050 = 0.013% by volume

= 130 ppm_v corrected to 15% O_2 ISO ambient conditions

W. MAX ALDERMAN, MANAGER
GENERATION & TRANSMISSION

KUA
KISSIMMEE
UTILITY
AUTHORITY

P. O. BOX 2148 - KISSIMMEE, FLORIDA 32742-2148
305/847-8011

February 16, 1987

Mr. Stephen L. Neck, P.E.
Air Consulting and Engineering
2106 N. W. 67th Place, Suite 4
Gainesville, FL 32606

Dear Steve:

Enclosed is a copy of the gas analysis supplied to me by Florida Gas Transmission. I trust that this is to your requirements.

Sincerely,

KISSIMMEE UTILITY AUTHORITY

Jeff Ling
Power Plant Superintendent

JL/rk

Enclosure

12/05/86

FLORIDA GAS TRANSMISSION CO.
TECHNICAL OPERATIONS DEPT.
P. O. BOX 44
WINTER PARK FL 32790-0044

FGT - MARKET SERVICES
MR. JIM DOWDEN
P. O. BOX 44
WINTER PARK FL 32790

GAS ANALYSIS ID NUMBER 86 0780 MEAS. DIST. 07

METER STATION NAME FLA HYDROCARBON - OUTLET STATION NO.

FIELD DATA TAKEN BY B S DATE TAKEN 11-
PRESSURE 634 TEMPERATURE 0 SPEC GRAV 0.5800
BTU 1016 WATER 0.0000 H2S 0.7 /
DATA ANALYZED BY M P. C DATE ANAL. 12-03-86

COMPONENT	MOLE %	B.T.U.	GPM	SPEC GRAV
OXYGEN	0.0000	0.0000	0.0000	0.0000
NITROGEN	0.4320	0.0000	0.0000	0.0042
CARBON DIOXIDE	0.8730	0.0000	0.0000	0.0133
METHANE	96.2220	956.9300	0.0000	0.5331
ETHANE	2.2140	38.5700	0.0000	0.0230
PROPANE	0.2200	5.4500	0.0606	0.0033
I BUTANE	0.0050	0.1600	0.0016	0.0001
N BUTANE	0.0060	0.1900	0.0019	0.0001
I PENTANE	0.0040	0.1600	0.0015	0.0001
N PENTANE	0.0020	0.0800	0.0007	0.0000
HEXANE PLUS	0.0220	1.1300	0.0097	0.0007
TOTALS	100.0000	1002.6700	0.0760	0.5779

BTU/CU FT AT 14.73 PSIA 60 DEG F CORRECTED FOR Z

CALCULATED SATURATED 1005 DRY 1023 0.0000 LB/MMCF 1023
CALORIMETER SATURATED 1003 DRY 1021
SPECIFIC GRAVITY - AIR = 1.0000 CALC 0.5779 RANAREX 0.5780

COMPRESSIBILITY FACTOR - Z = 0.9979
SUPERCOMPRESSIBILITY FACTOR CALC AT 0.5780 SP GR 600 PSIG 90 DEG
BY TEST WITH BURNETT APPARATUS 1.0340
CALC AGA-NX-19 NO DILUENTS 1.0366
CALC AGA-NX-19 ADJUSTED FOR DILUENTS 1.0353

NOTES PHYSICAL CONSTANTS FROM AGA 3
GPM FROM NGPA PUB NO 2145-84
HEXANE PLUS DERIVED FROM PHILLIPS REF STANDARD

REMARKS 3000
P

B A
AGA-NX-19
(0.126).

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

May 30, 1986

Kissimmee Utilities
Post Office Box 1608
Kissimmee, Florida 32741

Attention: James D. Welsh Utilities Director

Osceola County - AP
Kissimmee Utilities
Combined Cycle Gas Turbine
Change of Conditions
Permit No. AO49-093754

Dear Mr. Welsh:

We are in receipt of a request for a change of the permit conditions. The conditions are changed as follows:

Condition	From	To
Permit Page No. 6, Specific Condition No. 9.	This source must be tested yearly from the date of July 9, 1984.....	This source must be tested yearly from the date of November 22, 1985.....

This letter must be attached to your permit and becomes a part of that permit.

Sincerely,

A. Alexander, P.E.
District Manager

AA:ATS:jty

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices
And/Or To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

Reply Optional [ ] Reply Required [ ] Info. Only [ ]
Date Due: _____ Date Due: _____

ST. JOHNS RIVER DISTRICT

DER
SEP 09 1983
BAQM

TO: Bill Thomas

THROUGH: A. Senkevich JH for AS.

THROUGH: T. Hunnicutt JH.

FROM: C. Collins cmc

DATE: September 7, 1983

SUBJECT: Osceola County - AP
Kissimmee Utilities - Combustion Turbine

A request for a construction permit regarding Kissimmee Utilities Combustion Turbine was sent to you under separate cover on September 7, 1983. Their original permit has expired and our attorney's inform us that they must reapply.

CMC:es

MEMORANDUM

DATE: July 31, 1983

TO: James C. Welsh, Electric Utilities Director

FROM: O. Sam Ackley, City Manager

SUBJECT: Signature Authorization

COPY:

The purpose of this memorandum is to authorize you to act in my behalf in requesting operation permits for the generating units at the Kissimmee Power Plant. Your signature on permit applications will be binding with the City management.

O. Sam Ackley
City Manager

/pf

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

APR 28 1983

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MAY 02 1983
BAQM

Ms. Teresa M. Heron
Department of Environmental Regulation
State of Florida
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Ms. Heron:

As you requested in our phone conversation of April 26, 1983, I am sending you this letter to confirm the correct ISO adjustment equation for the new source performance standard for stationary gas turbines. The equation as it appears in the Federal Register of September 10, 1979, (44 FR 52800) is incorrect. The correct equation is as follows:

$$NO_x = (NO_{x_{OBS}}) \left(\frac{Pref.}{P_{OBS}}\right)^{0.5} e^{19(H_{OBS} - 0.00633)} \left(\frac{288°K}{Tamb.}\right)^{1.53}$$

Also, as we discussed, the allowance for fuel NO_x in the standard must be based on the amount of bound nitrogen actually present in the fuel being burned in the gas turbine. There is no bound nitrogen in natural gas (the primary fuel for the Kissimee Utility gas turbine) and only a negligible amount in most #2 distillate (the emergency fuel). Thus, for most (if not all) of this gas turbine operating time, a fuel NO_x allowance will be inappropriate and allowable NO_x emissions will be 79 ppmv. However, the permit does require the fuel nitrogen to be measured (p.4 of 5), so the allowance for it can be applied when appropriate. It should be noted that the plant must file a report whenever the plant burns fuel with a nitrogen level giving a higher fuel NO_x allowance than that provided during compliance tests.

You commented that the proposed standards allowed only the gas turbine heat rate to be used in determining allowable NO_x emissions, but that this limitation does not appear in the promulgated standards (Part 60, Subpart GG). The limitation is defined in Part 60, Subpart GG as follows:

1. The standard is defined by the formula in 60.332(a)(1), when y = manufacturer heat rate ... for the affected facility.

2. The affected facility is, per 60.330, all stationary gas turbines.

3. And, in 30.331(a), "Stationary gas turbine" means any ... gas turbine portion of a combined cycle steam/electric generating system .... portability.

If you have any further questions, please contact me at (919) 541-5596, or call Doug Bell at (919) 541-5578.

Sincerely yours,

Eric A. Noble
Industrial Studies Branch
Emission Standards and
Engineering Division

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

Permittee:
James C. Welsh,
Utilities Director
Kissimmee Utilities
Post Office Box 1608
Kissimmee, Florida 32741

I. D. Number:
Permit/Certification
Number: AO49-093754
Date of Issue:
Expiration Date: 10-11-89
County: Osceola
Latitude/Longitude:
28°17'20"N/81°24'20"W
UTM: 17-460.1 East
UTM: 3129.3 North
Project: 49.9 MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

The permittee can operate the 49.9 MW Combined Combustion Turbine and two (2) 9.5 MW steam turbines, which utilize superheated steam produced by recovering waste heat from the combustion turbine exhaust gases. NO_x emissions are controlled by using low nitrogen content fuels and water injection.

This source is located at 112 Ruby Street Kissimmee, Florida.

General Conditions 1 through 15 are attached to be distributed to the permittee only.

PERMITTEE:
James C. Welsh
Utilities Director

I. D. Number:
Permit/Certification Number:
AO49-093754
Date of Issue:
Expiration Date: 10-11-89

SPECIFIC CONDITIONS:

1. No objectionable odors will be allowed, as per Rule 17-2.620(2), F.A.C.

2. There shall be no discharges of liquid effluents or contaminated runoff from the plant site without approval from this office.

3. All unconfined emissions of particulate matter generated at this site shall be adequately controlled. (Rule 17-2.610(3), F.A.C.)
Area must be watered down should unconfined emissions occur.

4. This permit does not preclude compliance with any applicable local permitting requirements and regulations.

5. The maximum emission rates for the 49.9 MW combined cycle gas turbine shall not exceed the emission limits listed in Table 1.
Allowable Emission Limits: (see attached)

TABLE 1
ALLOWABLE EMISSION LIMITS
49.9 MW Combined Cycle Combustion Turbine

Pollutant	Standard	Gas Turbine[a]	Boiler	Basis
NO_x[a]	$0.0075 \frac{(14.4)}{Y} + F$	79 PPM (gas) and 129 (oil) at 15 percent oxygen on a dry basis		NSPS, BACT
SO_2	0.8 percent S by weight 0.015 percent by volume at 15 percent oxygen on a dry basis	0.5 percent S by weight and 255 lb/hr	0.5 percent S by weight	NSPS, BACT
PM[b]	20% opacity	20% opacity or 22 lb/hr	20% opacity	BACT
VOC	-	19 lb/hr		BACT
CO	-	80 lb/hr		BACT
Mercury (Hg)	-	0.0004 lb/hr		Estimated by Applicant
Beryllium (Be)	-	0.00004 lb/hr		EPA 600/57-81-003b

(a) The allowable NO_x emission rate for the gas turbine was determined by the following formula:
$STD = 0.0075\frac{(14.4)}{Y} + F$ where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour. The efficiency factor must be based on the gas turbine efficiency itself, not the overall efficiency of the gas turbine combined with other equipment.

NO_x = 79 PPM when burning natural gas

NO_x = 129 PPM when burning fuel oil No. 2

F = NO_x emission allowance for fuel-bound nitrogen as follows:

Fuel-bound nitrogen (Percent by weight)	F (NO_x percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	$0.04(N)$
$0.1 < N \leq 0.25$	$0.04 + 0.0067(N-0.1)$
$N > 0.25$	0.005

where: N = the nitrogen content of the fuel (percent by weight)

$N > 0.25$ is proposed by the applicant

(b) Visible emissions: Not to exceed 20% opacity; 40% opacity is permitted for not more than two-minutes in any one hour.

PERMITTEE:
James C. Welsh
Utilities Director

I. D. Number:
Permit/Certification Number:
AO49-093754
Date of Issue:
Expiration Date: 10-11-89

SPECIFIC CONDITIONS:

6. The plant shall be allowed to operate continuously (8760 hours per year).

7. The source shall be allowed to use either natural gas or No. 2 fuel oil.

8. Maximum sulfur (S) content in the oil shall not exceed 0.5 percent S by weight.

9. This source must be tested yearly from the date of July 9, 1984 for particulate matter, sulfur dioxide, visible emissions (VE), carbon monoxide and nitrogen oxides.

a. Compliance with Particulate Matter Standard must be demonstrated using Reference Method 5.

A visible emission test using Method 9 will be acceptable and stack testing for particulate matter is waived if the opacity is less than 10%.

b. Compliance with the sulfur dioxide emission limits will be determined by reference Method 20 or by calculations based on fuel analysis (ASTM D2880-77 and 010720-70) for sulfur content.

c. Compliance with carbon monoxide emission limits will be determined by reference Method 10.

d. Compliance with volatile organic compound emission limits will be assumed provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

e. Compliance with the allowable emission limits for nitrogen oxides shall be conducted using EPA reference Method 20 Subpart GG Section 60.335. The sampling site shall be located between the gas turbine and the boiler.

PERMITTEE:
James C. Welsh
Utilities Director

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SPECIFIC CONDITIONS:

During performance tests to determine compliance with the proposed standard, measured NO_x emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_x)_{obs} \left(\frac{Pref.}{P_{obs}}\right)^{0.5} e^{19(H_{obs} - 0.00633)} \left(\frac{288°K}{T_{amb}}\right)^{1.53}$$

where:

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x_{obs}}$ = Measured NO_x emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere ambient pressure).

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{amb} = Temperature of ambient air at test.

Test results will be the average of 3 valid runs. The Department will be notified 30 days in advance of the compliance test. The test will be conducted at permitted capacity $\pm$10%.

10. A continuous monitoring system shall properly monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine.

PERMITTEE:
James C. Welsh
Utilities Director

I. D. Number:
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AO49-093754
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Expiration Date: 10-11-89

SPECIFIC CONDITIONS:

11. Sulfur and nitrogen content of the fuel being fired in the gas turbine shall be determined and recorded as specified in the NSPS for Gas Turbines 40 CFR 60, Subpart GG, Section 60.334.

Fuel oil usage records shall be kept by the company, and shall be available for regulatory agency's inspection for a two year period.

12. The applicant shall comply with all requirements of 40 CFR 60, Subpart GG., Standards of Performance for stationary gas turbines.

13. This office (Florida Department of Environmental Regulation, Air Permitting, Orlando) shall be notified at least ten (10) days in advance of the compliance tests so that we can witness them.

14. This plant is required to operate within 10 percent of permitted capacity during the compliance tests.

15. The maximum permitted capacity for this combined cycle power generating facility is 49.9 MW and the maximum permitted capacity for the combustion turbine is 30.9 MW.

16. Supplemental fuel firing may be used only if there is a deficiency in the superheated steam production meant for operating the two (2) 9.5 MW steam turbines.

17. A performance test report for this facility should be submitted to this office within 10 days after the actual changeover from Natural Gas to #2 fuel oil. The report should include the actual fuel rate and analysis; the operating capacity and efficiency of the combustion turbine; the actual and allowable emission rates for all the pollutants; and the net power output during the performance test.

18. Submit for this facility, each calendar year, on or before March 1, an Annual Operations Report for the preceding calendar year as per Rule 17-4.14, F.A.C.

19. Stack sampling facilities will include the eyebolt and angle described in Rule 17-2.700(4)(c), Florida Administrative Code.

PERMITTEE:
James C. Welsh
Utilities Director

I. D. Number:
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Expiration Date: 10-11-89

SPECIFIC CONDITIONS:

20. The stack test platform for this facility should meet all the applicable requirements of Rule 17-2.700(4)(c)2. F.A.C. Since yearly testing is required to determine the compliance status of this facility the referenced test platforms should be permanently installed.

21. You must apply for an operation permit renewal 60 days prior to the expiration date of this permit.

Issued this 16 day of Oct
1984.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

cm

DISTRICT MANAGER
A. Alexander, P.E.

Teresa Heron

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

January 11, 1982

Mr. Kent Williams, Chief
New Source Review Section
Air Facilities Branch
U.S. Environmental Protection
Agency, Region IV
345 Courtland Street
Atlanta, Georgia 30365

Dear Mr. Williams:

RE: PSD Permit Application - Kissimmee Utilities - PSD-FL-087

Enclosed please find a copy of the proof of publication of the public notice, the public comments and the Department's response to the public comments and Final Determination for the subject project. We recommend that the applicant be granted Authority to Construct, subject to the conditions in the Final Determination.

Sincerely,

C. H. Fancy, P.E.
Central Air Permitting

CHF:caa

SENTINEL STAR
Published Daily
Kissimmee, Osceola County, Florida

ADVERTISING CHARGE $22.13

State of Florida } SS.
COUNTY OF ORANGE }

Before the undersigned authority personally appeared

Betty M. Kinney, who on oath says that she is the Legal Advertising Representative of the Sentinel Star, a Daily newspaper published at Kissimmee, in Osceola County, Florida; that the attached copy of advertisement, being a Public Notice in the matter of

A Modification to an existing air pollution source, etc.

in the Court, was published in said newspaper in the issues of

October 28, 1981

Affiant further says that the said Sentinel Star is a newspaper published at Kissimmee, in said Osceola County, Florida, and that the said newspaper has heretofore been continuously published in said Osceola County, Florida, each Week Day and has been entered as second-class mail matter at the post office in Kissimmee in said Osceola County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Betty M. Kinney

Sworn to and subscribed before me this 30th day of December A.D., 1981

Naomi C. Parks
Notary Public

Seal

Notary Public, State of Florida at Large
My Commission Expires Jan. 21, 1984

PUBLIC NOTICE

A modification to an existing air pollution source is being proposed by Kissimmee Utilities located in the City of Kissimmee, Osceola County, Florida. The proposed modification is the construction of a 49.9 MW combined cycle gas turbine. The modification will increase emissions of air pollutants, in tons per year, by the following amounts:

PM	SO_2	NO_x	CO	VOC
69	1700	1095	227	82

The proposed modification has been reviewed by the Florida Department of Environmental Regulation (FDER) under Chapter 403, Florida Statutes, and Federal regulation 40 CFR 52.21, Prevention of Significant Deterioration (PSD) The Department has made a preliminary determination that the construction can be approved provided certain conditions are met. A summary of the basis for the determination and the application for State and Federal permits submitted by Kissimmee Utilities are available for public review at the following offices:

Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

South Florida Subdistrict
Dept. of Environmental Regulation
2745 S. E. Morningside Blvd.
Port St. Lucie, Florida 33452

Kissimmee Public Library
305 E. Broadway
Kissimmee, Florida 32741

The maximum percentages of allowable PSD increments consumed by the proposed modification will be as follows:

	Annual	24-Hour	3-Hour
PM	Negligible	Negligible	NA
SO_2	5	11	9

Any person may submit written comments to FDER regarding the proposed modification. All comments, postmarked not later than 30 days from the date of notice, will be considered by FDER in making a final determination regarding approval for construction of this source. Those comments will be made available for public review on request. Furthermore, a public hearing can be requested by any person. Such request should be submitted within 14 days of the date of this notice. Letters should be addressed to:

Mr. C. H. Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

OS-37 Oct. 28, 1981

Response to Public Comment

Kissimmee Utilities

PSD-FL-087

Comments were received from Michael H. Dybevick, Environmental Science and Engineering, Inc. (ESE) and Mr. Tommie Gibbs of U.S. Environmental Protection Agency.

Mr. Dybevick questioned the Department's specific conditions in the Preliminary Determination.

The areas of question and DER's responses are as follows:

Comment

ESE request that condition No. 9 be modified to more nearly reflect the requirements of 40 CFR, Part 60, Subpart GG, Section 60.334 on which it is based. Specifically, they request 1) the requirement for determining the fuel heating value be deleted, 2) the option for developing a custom sampling schedule based on substantiating data be included, and 3) the provision for sampling only on each occasion that fuel is transferred to bulk storage be included.

Response

The Department considered the comments indicated above and modified specific condition No. 9 as follows:

> Sulfur and nitrogen content of the fuel being fired in the gas turbine shall be determined and recorded as specified in the NSPS for Gas Turbines 40 CFR 60, Subpart GG, Section 60.334. The records of fuel oil usage will be kept by the company, available for regulatory agency's inspection, for a two year period.

This does not require analysis for fuel heating value. Regarding comment No. 2 and 3, the waiver of compliance test requirements may be accomplished in accordance with section 60.334(b)(1) and (2). Therefore, this option is available to the applicant and no change to the specific conditions is required.

Mr. Gibbs commented on the specific condition 3, plant operation time, and specific condition 7, compliance test.

Comment

Continuous operation is 8,760 hours per year.

Response

The specific condition states the plant will be allowed to operate continuously (8,736 hours per year). We believe the statement "operate continuously" expresses the Department's intent that there is no time limitation on the operation of the generator and have not changed the condition in the final determination.

Comment

EPA asked if the required VE test should be a VOC test.

Response

The Department's intent was to require a VE test and thus the specific condition was not changed. The condition stated under what circumstances a VOC test will be requested.

Conclusion

The comments received were considered as indicated above in the development of the Department's Final Determination for the proposed construction of a 49.9 MW Combined Cycle Gas Turbine by Kissimmee Utilities.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

CERTIFIED MAIL

October 27, 1981

Mr. Jack T. Danforth
Utilities Director
Kissimmee Utilities
P. O. Box 1608
Kissimmee, Florida

RE: Preliminary Determination - Kissimmee Utilities
Proposed Construction of a New 50 MW Combustion
Turbine Generator (AC 49-46521, PSD-FL-087)

Dear Mr. Danforth:

Please find enclosed two copies of the Preliminary Determination for both State and Federal air construction permit applications as referenced.

A public notice will appear in a local newspaper, the Orlando Sentinel-Star, in the near future. A copy of the Preliminary Determination and your application will be open to public review and comment for a period of 30 days. The public can also request a public hearing to review and discuss specific issues. At the end of this period, the Department will evaluate the comments received and make a final determination regarding the proposed construction.

Should you have any questions regarding this information, please contact Mr. Bill Thomas at (904) 488-1344.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

cc: David Buff, ESE Consultants
Chuck Collins, FDER, St. Johns River District

CHF/TP/bjm

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

October 23, 1981

Mrs. Elenor Gentry
Kissimmee Public Library
305 E. Broadway
Kissimmee, Florida 32741

RE: Preliminary Determination - Kissimmee Utilities
Proposed Construction of a New 50 MW Combustion
Turbine Generator

As was discussed over the phone, we need to make the enclosed information available for public inspection, pursuant to Federal Prevention of Significant Deterioration Regulations (40 CFR 52.21, Paragraph (q)). A notice directing people to the library will be published in the Orlando Sentinel-Star on October 28, 1981.

The information must be available upon request for a period of at least 30 days from the notice date. At the end of the period, we will forward to you a Final Determination on the permit application which must be available for an additional 30 days.

We appreciate your help in providing this valuable public service. Should you have any questions, please call Tim Powell at (904) 488-1344.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

CF/bjm

AC 49- 46521

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

October 22, 1981

Mr. T. Michael Taimi, Chief
Consolidated Permits Branch
EPA Region IV
345 Courtland Street N.E.
Atlanta, Georgia 30308

RE: Preliminary Determination - Kissimmee Utilities
Proposed 50 MW Combustion Turbine Generator

Dear Mr. Taimi:

Enclosed for your review and comment are the Public Notice and Preliminary Determination for Kissimmee Utilities proposed construction of a 50 MW combustion turbine generator in Kissimmee, Osceola County, Florida. The Public Notice will appear in the Orlando Sentinel-Star on October 28, 1981.

Please inform my office if you have comments or questions regarding this determination, at (904) 488-1344.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CF/bjm

Attachment

Technical Evaluation

and

Preliminary Determination

Kissimmee Utilities

49.9 MW Combined Cycle Combustion Gas Turbine

Osceola County, Florida

Permit Numbers:

State	AC 49-46521
Federal	PSD-FL-087

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

October 25, 1981

Table of Contents

PUBLIC NOTICE

A modification to an existing air pollution source is being proposed by Kissimmee Utilities located in the City of Kissimmee, Osceola County, Florida. The proposed modification is the construction of a 49.9 MW combined cycle gas turbine. The modification will increase emissions of air pollutants, in tons per year, by the following amounts:

PM	SO_2	NO_x	CO	VOC
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The proposed modification has been reviewed by the Florida Department of Environmental Regulation (FDER) under Chapter 403, Florida Statutes, and Federal regulation 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The Department has made a preliminary determination that the construction can be approved provided certain conditions are met. A summary of the basis for the determination and the application for State and Federal permits submitted by Kissimmee Utilities are available for public review at the following offices:

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Dept. of Environmental Regulation
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Port St. Lucie, Florida 33452

Kissimmee Public Library
305 E. Broadway
Kissimmee, Florida 32741

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Any person may submit written comments to FDER regarding the proposed modification. All comments, postmarked not later than 30 days from the date of notice, will be considered by FDER in making a final determination regarding approval for construction of this source. Those comments will be made available for public review on request. Furthermore, a public hearing

can be requested by any person. Such request should be submitted within 14 days of the date of this notice. Letters should be addressed to:

Mr. C. H. Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

I. SYNOPSIS OF APPLICATION

A. Name and Address of Applicant

Kissimmee Utilities
P. O. Box 1608
Kissimmee, Florida 32741

B. Source Location

The proposed source is located at 112 Ruby Street in the City of Kissimmee, in Osceola County, Florida. The UTM coordinates are: Zone 17-460.1 Km East and 3,129.3 Km North.

C. Project Description

The applicant proposes to install and operate a combined cycle combustion gas turbine, with a total net generating capacity of 46.5 megawatts (MW) and a gross generating capacity of 49.9 MW. The turbine will be fired with natural gas. No. 2 fuel oil, having a maximum sulfur content of 0.8 percent, will be used as a standby fuel. The maximum heat input will be 441.7 MMBTU/hr (LHV).

Kissimmee Utilities (KU) currently operates 12 diesel generating units with a total output rated at 26.8 MW at this site.

II. APPLICABILITY

A. Federal Regulations

The proposed project is subject to preconstruction review under federal Prevention of Significant Deterioration (PSD) regulations, Section 52.21 of Title 40 of the Code of Federal Regulations as amended in the Federal Register of August 7, 1980 (45 CFR 52.21). Specifically, Kissimmee Utilities' combined cycle combustion gas turbine is a major stationary source (40 CFR 52.21(b)(1)) located in an area currently designated as attainment in accordance with 40 CFR 81.310 for all criteria pollutants regulated under the Clean Air Act (CAA).

The proposed source will be a major modification (40 CFR 52.21(b)(2)) for particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), Beryllium (Be), volatile organic compounds (VOC), and carbon monoxide (CO). Emissions of PM, SO_2, NO_x, Be, VOC and CO will increase above the significant criteria set in the PSD regulations. Therefore, the proposed project is subject to PSD review for these pollutants.

This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, an analysis of the air quality impact of the increased emissions. No air quality impact analysis is required for ozone, even though there will be a significant increase in VOC emissions, because this increase is less than 100 tons per year. The review also includes an analysis of the project's impacts on soils, vegetation and visibility along with air quality impacts resulting from associated commercial, residential and industrial growth.

The proposed project is also subject to the provisions of the federal New Source Performance Standard (NSPS) for gas turbines, 40 CFR 60, Subpart GG.

B. State Regulations

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code. Specifically, the proposed source is a major emitting facility for NO_x and SO_2 as defined in Chapter 17-2 because the potential emissions of each pollutant exceed 250 tons per year. The source is located in the area of influence of the Orange County ozone nonattainment area.

This project is subject to the provisions of Subsection 17-2.04(6), Prevention of Significant Deterioration (PSD) review, which requires the use of Best Available Control Technology (BACT). The source is also subject to the provisions of the federal New Source Performance Standards (NSPS) for gas turbines, 40 CFR 60, Subpart GG. This NSPS has been adopted by reference in Section 17-2.21.

The proposed source is exempt from the provisions of Section 17-2.17, New Source Review for Nonattainment Areas, by Section 17-2.17(1)(c)2.a.

III. SOURCE IMPACT ANALYSIS

A. Emissions Limitations

The operation of the proposed combined cycle gas turbine, will produce emissions of particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), beryllium (Be), Mercury (Hg), carbon monoxide (CO) and volatile organic compounds (VOC) to the atmosphere.

Table 1 summarizes potential to emit of all pollutants regulated under the Act which are affected by the proposed source.

Best Available Control Technology (BACT) has been determined for NO_x, SO_2, PM, VOC, Be and CO. The emission limiting standards selected as BACT and made a condition of the permit are listed in Table 2. Justification for the standards selected is included in Technical Appendix A.

The permitted emissions, including those determined as BACT, are in compliance with New Source Performance Standard (NSPS) requirements of 40 CFR 60, Subpart GG.

B. Air Quality Impacts

An air quality impacts analysis has been performed to evaluate the impact of the proposed project on ambient concentrations of NO_x, SO_2, PM, CO and Be. Dispersion modeling was used to evaluate the impacts.

Results of the analysis provide reasonable assurance that the project, as described in this permit and subject to the conditions herein, will not lead to any violation of National Ambient Air Quality Standards or PSD increments. Details of the analysis are discussed in the Technical Appendix B.

Table 1

SUMMARY OF EMISSIONS

(tons per year)

Pollutant	Potential Emissions[a]				Significant Level[e]
	Fuel Oil No. 2 - Fired		Natural Gas - Fired		
	(Before Control)	(After Control)	(Before Control)	(After Control)	
NO_x[b]	2,580	1,340	2,480	1,290	40
SO_2[c]	1,700	1,700	21	21	40
PM	69	69	30	30	25
VOC	74	74	82	82	40
CO	207	207	227	227	100
Mercury[d]	0.002	0.002	0.02	0.02	0.1
Beryllium[d]	0.0006	0.0006	-		0.0004

(a) Potential emissions in accordance with state and federal definitions as estimated by the applicant.

(b) A 48 percent emission reduction is expected with the proposed water injection technique.

(c) Assumed natural gas has 0.01 percent sulfur content. Fuel oil calculations based on total conversion of 0.8 percent sulfur in fuel oil to sulfur dioxide.

(d) Emissions calculated based on emissions factors from Stationary Conventional Combustion Processes, EPA, -450/2-80-074.

(e) 40 CFR 52.21(b)(23).

Table 2

ALLOWABLE EMISSION LIMITS

49.9 MW Combined Cycle Combustion Turbine

Pollutant	Standard	Gas Turbine[a]	Gas Turbine and Boiler[b]	Basis
NO_x [a]	$0.0075 (\frac{14.4}{Y}) + F$	129 PPM at 15 percent oxygen on a dry basis	250 lb/hr	NSPS, BACT
SO_2	0.8 percent S by weight 0.015 percent by volume at 15 percent oxygen on a dry basis	0.8 percent S by weight	388 lb/hr	NSPS, BACT
PM	20% Opacity	-	16 lb/hr	BACT, Chapter 17-2
VOC	-	-	19 lb/hr	BACT
CO	-	-	52 lb/hr	BACT
Mercury (Hg)	-	-	0.0004 lb/hr	Estimated by Applicant
Beryllium (Be)	-	-	0.000145 lb/hr	BACT

(a) The allowable NO_x emission rate for the gas turbine was determined by the following formula:

$STD = 0.0075 (\frac{14.4}{Y}) + F$ where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour. The efficiency factor must be based on the gas turbine efficiency itself, not the overall efficiency of the gas turbine combined with other equipment.

F = NO_x emission allowance for fuel-bound nitrogen as follows:

Fuel-bound nitrogen (Percent by weight)	F (NO_x percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	0.04+0.0067(N-0.1)
$N > 0.25$	0.005

where: N = the nitrogen content of the fuel (percent by weight)

(b) Emission rates based on continuous firing of 100 percent fuel oil No. 2 as estimated by the applicant.

C. Additional Impact Analysis

An additional impacts analysis has been performed to assess (1) the impact of the proposed project on soils, vegetation, and visibility and (2) any air quality impacts resulting from associated commercial, residential, or industrial growth. No adverse impacts are expected; details of the analysis are discussed in Technical Appendix C.

IV. CONCLUSIONS

Based on review of the data submitted by Kissimmee Utilities for the installation and operation of a 49.9 MW combined cycle gas turbine, the FDER concludes that compliance with all applicable federal and state air quality regulations will be achieved provided certain specific conditions are met. The NSPS emission limits for NO_x, SO_2, and the permitted emissions limits of 0.0004 lb/hr for Hg, 0.000145 lb/hr, for Be, 16 lb/hr for PM, 19 lb/hr for VOC and 52 lb/hr for CO have been determined to be Best Available Control Technology (BACT) for this source. The impact of the emissions from the 49.9 MW combined cycle gas turbine will not cause or contribute to a violation of any ambient air quality standard or PSD increment. Appendix D includes the proposed general and specific conditions in the draft state permit (AC 49-46521) and federal permit (PSD-FL-087).

TECHNICAL APPENDIX A

FEDERAL BACT ANALYSIS

The applicant is required, under the provisions of 40 CFR 52.21, as revised August 7, 1980 (45 FR 52676), to apply BACT to all criteria and noncriteria pollutants emitted in significant levels. BACT is determined for each pollutant on a case-by-case review taking into account energy, environmental and economic impacts.

The applicant has proposed BACT for each applicable pollutant and has presented justification for the standards selected. The Department of Environmental Regulation (DER) has reviewed and accepted the technology and emission limits proposed as BACT. The federal PSD permit shall include these limits or any more stringent emission standards that are imposed by the State of Florida. These limits are summarized in Table 2. A discussion of the BACT for each pollutant follows:

PM Control

The BACT limitation proposed for particulate matter (PM), 16 lb/hr, is based upon emission for Stationary Gas Turbines AP-42.

Particulate emissions from stationary gas turbines depend on the ash content of the fuel which are minimal for the proposed fuels. The applicant has reported an ash percentage of less than 0.1 in the fuel oil analysis. Therefore, FDER feels that the applicant proposed 0.0362 lb/MMBTU (16 lb/hr) emission limit for PM is reasonable as BACT.

Carbon Monoxide and Hydrocarbon Control

The applicant proposes emissions levels for carbon monoxide (CO) and volatile organic compounds (VOC) based on emission estimates from Stationary Gas Turbines AP-42.

CO and HC emissions are function of combustion efficiency. The higher the percentage of peak load at which a turbine operates, the more efficient the combustion of the fuel.

HC and CO emissions from stationary gas turbines operating at peak load are relatively low. Gas turbines normally operate at 80 to 100 percent of peak load with HC emission averaging less than 50 ppm and CO emission averaging less than 500 ppm concentration at 15 percent oxygen.

Based on the above facts, FDER agrees that emission limits of 0.1177 lb/MMBTU (52 lb/hr) for CO and 0.043 lb/MMBTU (19 lb/hr) for VOC constitute BACT for the proposed source.

SO_2 Control

The applicant proposes an emission limit of 388 lb SO_2/hr and 0.8 percent sulfur content in the fuel oil. The basis of this proposed emission limit is found in the AP-42 emission factors for Stationary Gas Turbines and NSPS for Gas Turbines.

SO_2 emissions from stationary gas turbines depend on the sulfur content of the fuel since nearly 100 percent of the sulfur is converted to SO_2 during the combustion process. Due to the high volumes of exhaust gases, the cost of flue gas desulfurization (FGD) is considered unreasonable. Therefore, FDER concurs with the applicant NSPS selection of low sulfur oil (0.8%S), and of 0.015 percent SO_2 by volume at 15 percent O_2, on a dry basis as BACT for the proposed source.

NO_x Control

The applicant proposes to control NO_x with a wet control technique (water injection) and limiting the maximum fuel-bound nitrogen content to 0.25 percent.

Total NO_x emissions from any combustion source, including stationary gas turbines, are a function of both thermal NO_x and organic NO_x formation. Thermal NO_x is formed by a high temperature reaction between nitrogen and oxygen from the combustion air. Organic NO_x, however, is formed by the oxidation of fuel-bound nitrogen during combustion.

NO_x formation within a turbine generally increases exponentially with increased pressure and temperature. High efficiency turbines, therefore, generally discharge gases with higher NO_x concentrations than low efficiency turbines. Since the

relative fuel consumption of gas turbines varies linearly with efficiency, an adjustment factor was selected (NSPS) that permitted increased NO_x emissions for the efficient turbines.

Gas turbines with waste heat recovery (combined cycle gas turbine) have a higher overall efficiency than the gas turbine alone. The application of the efficiency adjustment factor to the entire system would permit greater NO_x emission. The efficiency adjustment factor in the selected NSPS must be based on the gas turbine efficiency itself, not the overall efficiency of a gas turbine combined with other equipment. This consideration is discussed at length in the preamble to the selected NSPS for stationary gas turbines.

Based on the above facts, the KU gas turbine would actually be allowed an emission rate of 129 PPM due to the efficiency adjustment factor, which is an increase of the nominal 75 PPM NO_x emission by 5.64%. Therefore, FDER determines that the selected NSPS emission limit of 129 PPM or 0.0075 $\frac{(14)}{Y}$ + F at 15% oxygen on a dry basis (see formula, Table 2) is BACT for this source when using No. 2 fuel oil containing 0.25 percent nitrogen.

Beryllium Control

The applicant proposes an emission limit of 0.00015 lb/hr for beryllium based on the emission factor from Stationary Combustion Processes (EPA 450/2-80-074).

Since beryllium emissions from gas turbines were not selected for control by standards of performance and there is not an applicable National Emission Standards for Hazardous Air Pollutants (NESHAP) for beryllium emission from gas turbines, FDER accepts the applicant's proposed 3.4×10^{-7} lb/MMBTU as BACT for this source.

Best Available Control Technology (BACT) Determination

Kissimmee Utilities

Osceola County

Kissimmee Utilities, Kissimmee, Florida, plans to increase their existing electric generating capability by an additional 49.9 gross megawatts. The proposed supplementary-fired combined cycle gas turbine system is composed of one 400 million Btu/hr heat input gas turbine (30.9 megawatt gross output) from which the exhaust gases discharge into a waste heat boiler. The steam produced will operate two steam turbines each producing 9.5 megawatt gross output. The boiler has a 41.7 million Btu per hour supplemental heat source to generate additional steam.

The system will fire natural gas with No. 2 oil as stand-by fuel. Hourly fuel consumption at maximum firing will be 0.491 million cubic feet or gas or 78 barrels of oil. The system is scheduled to operate 8,760 hours per year.

BACT Determination Requested by the Applicant:

Pollutant	Emission Limit
NO_x	NSPS % by volume = 0.0075 (14.4/Y) + F Y = heat rate at peak load (kJ/watt-hr) F = fuel-bound nitrogen allowance
SO_2	0.8% maximum fuel sulfur content

Date of Receipt of a BACT Application:

August 13, 1981

Date of Publication in the Florida Administrative Weekly:

September 4, 1981

Review Group Members:

There have been no significant technology improvements since the promulgation of the applicable NSPS to justify a formal review group. Comments were obtained from the New Source Review Section and the Air Modeling Section.

BACT Determination by DER:

Pollutant	Emission Limit
NO_x	NSPS Subpart GG, subsection 60.332(a)(1).
SO_2	No. 2 fuel oil with sulfur content not to exceed 0.8%.
Visible Emissions	Maximum 20% opacity.

Justification of DER Determination:

Nitric oxides produced by the combustion of fuel in the gas turbine are formed by the combination of nitrogen and oxygen in the combustion air. NO_x is also formed from the reaction of the nitrogen in the fuel with the oxygen in the combustion air. Formation of the latter NO_x will be minimized by the applicant's use of natural gas or distillate oil as fuel, both of which have low nitrogen content.

NO_x formation is extremely sensitive to flame temperature, therefore injecting water or steam into the gas turbine reaction zone will reduce production of NO_x. The use of the wet control technique to reduce NO_x emissions to or below the NSPS limits is determined to be BACT.

The SO_2 emissions from the gas turbine are strictly a function of the fuel sulfur content. Flue gas desulfurization systems are economically unattractive compared to the cost of low sulfur fuels. The firing of natural gas or No. 2 oil containing a maximum of 0.8% sulfur is determined as BACT.

The reduction of NO_x emissions results in an increase in CO emissions. CO emissions are considered to be a local problem since CO readily reacts to form CO_2. NO_x emissions, however, are linked to the formation of photochemical oxidants and are subject to long range transport. As a result of this trade-off, no emission limit for CO is specified in this determination.

Test methods for NO_x emissions are per NSPS, Subpart GG. Oil analysis by the applicant's fuel supplier or natural gas consumption records can be used to determine compliance with SO_2 emission limit. Compliance with the opacity limitation will be determined in accordance with 40 CFR 60, Appendix A; Method 9.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended By:

Steve Smallwood, Chief, BAQM

Date:

10/2/81

Approved:

Victoria Tschinkel, Secretary

Date:

10/5/81

SS:caa

APPENDIX B

AIR QUALITY IMPACT ANALYSIS

A. Summary

The State PSD review for PM and SO_2 requires an air quality impact analysis which includes a PSD increment analysis and a Florida Ambient Air Quality Standards (FAAQS) analysis. The State PSD increment and FAAQS analyses depend on air quality modeling carried out in accordance with FDER-approved methods.

The air quality impact analysis required under federal PSD review for PM, SO_2, CO, NO_x, and Beryllium (Be) includes:

- An analysis of existing air quality;
- A PSD increment analysis (for PM and SO_2 only);
- A National Ambient Air Quality Standards (NAAQS) analysis; and,
- An analysis of impact on soils, vegetation and visibility and growth-related air quality impacts.

The analysis of existing air quality may require preconstruction monitoring; the PSD and NAAQS analyses depend on air quality modeling carried out in accordance with EPA-approved methods. Federal PSD review also requires a good engineering practice (GEP) stack height evaluation.

Based on these required State and federal air quality impact analyses, FDER has reasonable assurance that the KU modification, as described in this permit and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any State or federal PSD increment or ambient air quality standard. A discussion of the required analyses follows.

B. Discussion

1. Modeling Methodology

Two FDER and EPA-approved dispersion models were used in the State and federal air quality impact analyses. These were the Single-Source (CRSTER) and Industrial Source Complex (ISC) models.

These models were used to determine the maximum predicted annual concentrations and to identify the absolute worst-case short-term meteorological conditions which would affect emissions from KU after the proposed modification is completed. They were also used to identify days on which meteorological conditions produced worst-case short-term KU impacts in the vicinity of the facility with interacting sources located directly upwind.

The maximum short-term impacts due to emissions from KU and all major interacting sources were analyzed using a refined grid spacing of 0.1 to 0.2 kilometers between receptors and only the days on which worst-case meteorological conditions occurred.

Since worst-case impacts for each pollutant subject to analysis occur under different fuel burning conditions, modeling and analysis for each of these pollutants was performed using the worst-case fuel.

The surface meteorological data used in the models were National Weather Service data collected at Orlando, Florida during the period 1974-78. Upper air meteorological data used in the models were collected during the same time period at Tampa, Florida.

Final stack parameters and emission rates used in evaluating the proposed KU modification are contained in Tables B-1 and B-2.

Table B-1

Stack Parameters for Kissimmee Utilities - Baseline Case

Emissions Unit	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (K)	Emission Rate (g/sec) SO_2	PM
Unit #7	13.11	.61	16.30	466.50	.87	.52
Units #8,#9	16.15	.85	17.60	477.60	3.36	2.01
Units #10,#11	7.01	.76	9.60	466.50	2.28	1.36
Units #14-#18	13.41	.80	8.70	505.40	5.37	3.21
Units #19,#20	8.69	.90	17.20	505.40	2.89	1.73

Table B-2

Stack Parameters for Kissimmee Utilities - Projected Case

Emissions Unit	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (K)	Emission Rate (g/sec) SO_2	PM	NO_x	CO
Unit #7	13.11	.61	16.30	466.50	.87	.52	4.46	.79
Units #8,#9	16.15	.85	17.60	477.60	3.36	2.01	17.10	3.16
Units #10,#11	7.01	.76	9.60	466.50	2.28	1.36	10.58	2.12
Units #14-#18	13.41	.80	8.70	505.40	5.37	3.21	11.34	5.45
Units #19,#20	8.69	.90	17.20	505.40	2.89	1.73	14.66	2.64
Combustion Turbine	9.14	2.44	38.03	422.00	48.9	1.98	30.70	6.53

2. Analysis of Existing Air Quality

In order to evaluate existing air quality in the area of a proposed project, FDER may require a period of continuous preconstruction monitoring for any pollutant subject to PSD review. An exemption from this requirement may be obtained if the net emissions increase of the pollutant from the modification would cause an air quality impact less than a certain de minimus level as defined in 40 CFR 52.21(i)(8). Based on the modeling results shown in the following table, this exemption is applicable to the proposed modification for all of the pollutants subject to PSD review. Therefore, no preconstruction monitoring has been required.

Projected Air Quality Impacts From Combustion Turbine

Pollutant	Averaging Time	Projected Impact (ug/m^3)	De Minimus Level (ug/m^3)
SO_2	24-hour	10	13
TSP	24-hour	< 1	10
NO_x	24-hour	6	14
CO	8-hour	< 6	575
Be	24-hour	< 0.0005	.0005

There are no FDER or EPA-approved TSP, SO_2, NO_x, or CO monitors within 25 kilometers of the KU facility. Since the KU facility is located in a remote area with respect to non-specified sources, FDER has assumed the following pollutant background values: 0 ug/m^3 for CO, 20 ug/m^3 for SO_2 and NO_x, 40 ug/m^3 for TSP. These background values are used for all

averaging times and are consistent with EPA monitoring guidelines. FDER assumed no background value for the non-criteria pollutant, Be.

3. PSD Increment Analysis

Both the State and federal PSD increment analyses pertain to PM and SO_2 for which maximum allowable increases (increments) are defined. The proposed KU modification will be located in an area where the Class II increments apply. The nearest Class I area is more than 100 kilometers away from the proposed site.

The predicted maximum TSP and SO_2 increment consumption is the same in both the State and federal PSD increment analyses. Increment consumption at KU is affected by the construction of the combustion turbine alone.

As shown in the following table, modeling results predict that the maximum TSP and SO_2 increment consumption will not exceed allowable increments. The highest, second-highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the modeling.

Maximum Increment Consumption

(ug/m^3)

State and Federal

	Averaging Time		
Pollutant	3-hour	24-hour	Annual
SO_2: Maximum KU Impact	44	10	< 1
SO_2: Allowable Class II Increment	512	91	20
PM: Maximum KU Impact	NA	< 1	< 1
PM: Allowable Class II Increment	NA	37	19

There are other increment consuming sources within the vicinity of KU. Even though these sources consume increment in the area around KU, this consumption is very small. The combined impacts of these sources and KU in the interacting directions are less than the maximum increment consumed by KU only.

The nearest Class I area is Chassahowitza National Wilderness Area which is 125 kilometers away from KU. At this distance, it can be assumed that no Class I increment will be consumed as a result of emissions from KU.

4. Ambient Air Quality Standards Analysis

Both State and federal PSD regulations require the permit applicant to demonstrate that, given existing air quality in an area, a proposed emissions increase subject to PSD review will not cause or contribute to any violation of ambient air quality standards. For the proposed project at KU, an ambient air quality standards analysis is required for PM, SO_2, CO, NO_x, and Be.

As shown in the following table, modeling results predict that maximum ground-level concentrations for each of these pollutants will be below both the FAAQS and NAAQS. The highest, second-highest short-term predicted values are given in this table since five years of meteorological data were used in the modeling.

Pollutant	Averaging Time	Projected Air Quality* (ug/m^3)	NAAQS (ug/m^3)	FAAQS (ug/m^3)
SO_2	annual	40 OK OV	80	60
	24-hour	155	365	260
	3-hour	392	1300	1300
TSP	annual	52	75	60
	24-hour	121	150	150
NO_2	annual	89	100	100
CO	8-hour	< 500	10,000	10,000
	1-hour	< 1000	40,000	40,000
Be	24-hour	< 0.0005**	N/A	N/A

*Includes background concentrations of 40 ug/m^3 for annual and 24-hour TSP, 20 ug/m^3 for SO_2 for all averaging times, and 20 ug/m^3 for NO_2.

** Air quality impact calculated for the proposed modification only.

Modeling was also performed to evaluate the impacts of interactions of emissions from other sources with those from KU. Maximum contributions from surrounding sources are very small compared to maximum ground-level concentrations from KU and they occur in non-critical directions. Therefore, no violations are predicted to occur due to interacting sources.

5. Good Engineering Practice Stack Height Evaluation

The stack height proposed for the KU combustion turbine is less than the Good Engineering Practice (GEP) stack height of 65 meters for stacks uninfluenced by structures or terrain. A building downwash analysis was not performed since the new stack will not be within the area of influence of any structure with the potential to cause downwash conditions.

APPENDIX C

ANALYSIS OF IMPACT ON SOILS, VEGETATION AND VISIBILITY AND GROWTH-RELATED AIR QUALITY IMPACTS

The maximum impact of the proposed modification, as demonstrated through the air quality analysis, will be below the national secondary air quality standards for PM and SO_2. These standards were established to protect public welfare related values. Also, the maximum impact of the proposed modification on NO_2, CO, and Be concentrations will be insignificant. Therefore, no adverse effects on soils, vegetation and visibility is expected.

There will be no increase in the number of employees at this site due to the project. Therefore no secondary residential, commercial or industrial growth which will adversely affect air quality in the area is expected.

APPENDIX D

SPECIFIC CONDITIONS

FDER proposes a preliminary determination of approval with conditions for the project (construction of a 49.9 MW combined cycle gas turbine) requested by Kissimmee Utilities in the complete permit applications submitted on August 13, 1981 (federal application) and August 31, 1981 (state application).

Special conditions listed in the draft State permit AC 49-46521, are adopted as special conditions for the draft federal permit, PSD-FL-087, for this source.

The attached General Conditions (federal) are also made a part of the proposed federal permit PSD-FL-087.

PERMIT NO.: PSD-FL-087
APPLICANT: Kissimmee Utilities

SPECIFIC CONDITIONS:

1. The new source shall be constructed in accordance with the capacities and specifications stated in the application.

2. The maximum emission rates for the 49.9 MW combined cycle gas turbine shall not exceed the emission limits listed in Table 2 of the preliminary determination.

3. The plant shall be allowed to operate continuously (8736 hours per year).

4. The source shall be allowed to use either natural gas or No. 2 fuel oil.

5. Maximum sulfur (S) content in the oil shall not exceed 0.8 percent S by weight.

6. Maximum No. 2 fuel oil consumption shall be 78 barrels/hr.

7. Before this construction permit expires, the 49.9 MW combined cycle gas turbine will be tested for particulate matter, sulfur dioxide, VE, carbon monoxide and nitrogen oxides. Except as provided under 40 CFR 60.8(b), the performance tests shall be in accordance with the provisions of the following reference methods in Appendix A of 40 CFR 60.

   a. Method 1. Sample and Velocity Traverses

   b. Method 2. Volumetric Flow Rate

   c. Method 3. Gas Analysis

   d. Reference method 5 must be used to determine the initial compliance status of the unit with respect to the PM standard. Thereafter visible emissions may be used unless 10% opacity is exceeded. In that case compliance must be demonstrated by method 5. Compliance with the opacity limitation will be determined by reference method 9.

   e. Compliance with the sulfur dioxide emission limits will be determined by reference method 20 or by calculations based on fuel analysis (ASTM D2880-77 and 01072-70) for sulfur content.

   f. Compliance with carbon monoxide emission limits will be determined by reference method 10.

   g. Compliance with volatile organic compound emission limits will be assumed provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

h. Compliance with the allowable emissions limits for nitrogen oxides shall be conducted using EPA reference method 20 subpart GG Section 60.335.

During performance tests to determine compliance with the proposed standard, measured NO_x emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_{x\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)} \left(\frac{TAMB}{288^{\circ}K}\right)^{1.53}$$

where:

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x_{obs}}$ = Measured NO_x emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718)

T_{AMB} = Temperature of ambient air at test.

Test results will be the average of 3 valid runs. The Department will be notified 30 days in advance of the compliance test. The test will be conducted at permitted capacity $\pm$10%.

8. A continuous monitoring system shall be installed to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine.

9. Sulfur and nitrogen content of the fuel being fired in the gas turbine shall be determined and recorded as specified in the NSPS for Gas Turbines 40 CFR 60, Subpart GG, Section 60.334. The records of fuel oil usage will be kept by the company, available for regulatory agency's inspection, for a two year period.

PERMIT NO.: PSD-FL-087
APPLICANT: Kissimmee Utilities

10. The applicant shall comply with all requirements of 40 CFR 60, Subpart GG, Standards of Performance for stationary gas turbines.

11. Reasonable precautions to prevent fugitive particulate emissions during construction such as coating or spraying roads and construction sites used by contractors will be taken by the applicant.

12. The applicant shall report any delays in construction and completion of this unit to the Department's South Florida Subdistrict Office.

13. The applicant will demonstrate compliance with the conditions of the construction permit, and submit a complete application for an operating permit to the Department's South Florida Subdistrict Office prior to 90 days of the expiration date of the construction permit. The applicant may continue to operate in compliance with all terms of the construction permit until its expiration date or issuance of an operating permit.

14. Upon obtaining an operating permit, the applicant will be required to submit periodic test reports on the actual operation and emissions of the facility. These reports will give the data specified in 40 CFR 60.334.

15. The source shall comply with the provisions and requirements of the attached general conditions.

16. Stack sampling facilities will include the eyebolt and angle described in Chapter 17-2.23, FAC.

11.2 MW/hr
48 MM/BTU

GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.

2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.

3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitation contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.

4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specifed in the specific conditions of this permit for a minimum of two (2) years from the date of recording.

5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:

   (a) description of noncomplying emission(s),

   (b) cause of noncompliance,

   (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,

   (d) steps taken by the permittee to reduce and eliminate the noncomplying emission,

   and

   (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violationof the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increases emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.

8. The permittee shall allow representatives of the State environmental control agency or representatives of the Environmental Protection Agency, upon the presentation of credentials:

   (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;

   (b) to have access to any copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;

   (c) to inspect at reasonable times any monitoring equipment or monitoring methods required in this permit;

   (d) to sample at reasonable times any emission of pollutants;

   and

   (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.

9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to:

   Chief, Air Facilities Branch
   Air and Hazardous Materials Division
   U. S. Environmental Protection Agency
   Region IV
   345 Courtland Street
   Atlanta, Georgia 30308

10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalud, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit constitute a violation of the terms and conditions of this permit.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

Reply Optional [ ] Reply Required [ ] Info. Only [ ]
Date Due: _____ Date Due: _____

TO: Permit File AC 49-46521

THRU: Clair Fancy
Bill Thomas
Larry George

FROM: Cleve Holladay, Teresa M. Heron TMH

SUBJ: Preliminary Rule Applicability Kissimmee Utilities, Osceola County

DATE: September 4, 1981

An application for permit to construct was submitted to the Central Air Permitting Section on August 31, 1981, by Kissimmee Utilities (KPP). The application is being reviewed for completeness; day 30 will be September 30, 1981.

The proposed project is a combined cycle combustion turbine/steam generator, with a total net generating capacity of 46.5 MW and a gross generating capacity of 49.9 MW. The turbine will be fired with natural gas; No. 2 fuel oil will be used as a standby fuel.

The Kissimmee Power Plant (KPP) is located in an area designated in Section 17-2.04 F.A.C. as attainment for all criteria pollutant. It is 125 km from the nearest Class I area, the Chassahowitka National Wildlife Refuge, and within the area of influence of Orange County nonattainment area for ozone.

The source is a major emitting facility for sulfur dioxide (SO_2) and nitrogen oxides (NO_x) as defined in Chapter 17-2 F.A.C. because the potential emissions exceeds 250 tons per year. The potential and projected emissions are listed below:

Potential	Potential Emission Rate (tons per year)	Applicant's Projected Emission Rate (tons per year)
Particulate Matter (PM)	69	21
SO_2	1,700	30
NO_2	2,580	1,290
HC^x	82	82
CO	227	227

The proposed project is subject to the provision of Subsection (17-2.04(6)FAC) prevention of significant deterioration (PSD) review, which requires the use of best available control technology (BACT) for all pollutants emitted, and an air quality impact analysis of the increased emissions.

The source is also subject to the provisions of the federal New Source Performance Standard (NSPS) for Gas Turbines 40 CFR Subpart GG. This NSPS has been adopted by reference in Section 17-2.21 F.A.C.

TH:caa

KISSIMMEE UTILITIES PERMIT APPLICATION AND PSD REPORT

Prepared for:

KISSIMMEE UTILITIES
Kissimmee, Florida

Prepared by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida 32602

ESE No. 81-613-101

July 1981

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SECTION I AIR CONSTRUCTION PERMIT APPLICATION

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LIST OF TABLES IN PSD REPORT

AIR CONSTRUCTION PERMIT APPLICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED
AUG 13 1981
Dept. of Environmental Reg.
Port St. Lucie

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine [x] New[1] [ ] Existing[1]

APPLICATION TYPE: [x] Construction [ ] Operation [ ] Modification

COMPANY NAME: Kissimmee Utilities COUNTY: Osceola

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Combined Cycle Unit #1

SOURCE LOCATION: Street 112 Ruby Street City Kissimmee

UTM: East 17-460.1 North 3129.3

Latitude 28 ° 17 ' 20 "N Longitude 81 ° 24 ' 20 "W

APPLICANT NAME AND TITLE: Jack T. Danforth, Utilities Director

APPLICANT ADDRESS: Post Office Box 1608, Kissimmee, Florida 32741

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Kissimmee Utilities

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Jack T Danforth

Jack T. Danforth, Utilities Director
Name and Title (Please Type)

Date: 7/31/81 Telephone No. (305) 847-2821

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: David A. Buff

David A. Buff
Name (Please Type)

(Affix Seal)

ESE, Inc.
Company Name (Please Type)

P.O. Box ESE, Gainesville, Fl 32602
Mailing Address (Please Type)

Florida Registration No. 19011 Date: 8-4-81 Telephone No. (904) 372-3318

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

MEMORANDUM

DATE: July 31, 1981

TO: Jack T. Danforth, Utilities Director

FROM: Kenneth R. Hammons, City Manager

SUBJECT: SIGNATURE AUTHORIZATION

COPY:

The purpose of this memorandum is to authorize you to act in my behalf in requesting operation permits for the generating units at the Kissimmee Power Plant. Your signature on permit applications will be binding with the City management.

Kenneth R. Hammons
City Manager

/pw

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

New 30.9 MW combustion turbine fired with natural gas or No. 2 fuel oil. NO_x control by water injection. Waste heat used to produce steam to drive two 9.5 MW steam turbines for total net generation of 46.5 MW and a gross generation capacity of 49.9 MW. Supplemental firing of natural gas or No. 2 oil in waste heat boiler to meet steam requirements. (See Attachment A.)

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction September 1981 Completion of Construction July 1982

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Additional capital cost of water injection system is $60,000.

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Not Applicable—New Source

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr 8,760 ;

if seasonal, describe: ____

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? ____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? ____

   c. If yes, list non-attainment pollutants. ____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes

3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. Yes

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable: NA

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1) NA

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: See Attachment B

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO_2	388 ✓	21 ✓	NA	NA	388	1,700	Attach. A
PM	16 22	30 28	NA	NA	16 16	69 96	
NO_x	306 235	1,290 1004	NA	NA	589 446	2,580 1954	
HC (as CH_4)	19	82 83	NA	NA	19	82	83
CO	52 80	227 231	NA	NA	52 80	227	349

D. Control Devices: (See Section V, Item 4) See Attachment C

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, Item 5)
Water Injection	NO_x	48%	NA	Attach. C

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E (1), F.A.C. — 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard

[4] Emission, if source operated without control (See Section V, Item 3)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 2 Fuel Oil	78 ✓	78 ✓	441.7 ✓
Natural Gas	0.491 ✓	0.491 ✓	441.7

*Units: Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis: Fuel Oil

Percent Sulfur: 0.8 maximum ✓ Percent Ash: <.01 ✓

Density: 7.4 ✓ lbs/gal Typical Percent Nitrogen: <.01 ~~.25~~

Heat Capacity: 19,350 ✓ BTU/lb 143,200 ✓ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating. Annual Average NA Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Boiler blowdown will be directed to city waste water treatment facility

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 30 ~~60/33.1~~ ft. Stack Diameter: 8 ~~12.0/ 18.9 X 10.25~~ ft.

Gas Flow Rate: 377,000 ~~377K/ 680K~~ ACFM Gas Exit Temperature: 300 ~~300/450-500~~ °F.

Water Vapor Content: 5 to 8 ~~by~~ vol. % Velocity: 125 ~~56/59~~ FPS

SECTION IV: INCINERATOR INFORMATION NA

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ days/week _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner [ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. Attachment B

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. Attachments B and C

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Attachment B

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.). Attachment C

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency). Attachment C

6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. Attachment A

7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). Attachment A

8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. Attachment A

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[X] Yes [ ] No

Contaminant	Rate or Concentration
Nitrogen Oxides	% by vol = 0.0075 (14.4/Y) + F
	Y = heat rate at peak load (kJ/watt-hr)
	F = fuel-bound nitrogen allowance
Sulfur Dioxide	150 ppm or less than 0.8% sulfur fuel

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [X] Yes [ ] No

Contaminant	Rate or Concentration
Nitrogen Oxides	See Attachment D
Sulfur Dioxide	See Attachment D

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Nitrogen Oxides	NSPS: % by volume = 0.0075 (14.4/Y) + F
Sulfur Dioxide	0.8% max fuel sulfur content

D. Describe the existing control and treatment technology (if any). Nitrogen Oxides (see Item E)

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

Nitrogen Oxides

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Water injection

b. Operating Principles: Lower combustion temperature

c. Efficiency*: 48% d. Capital Cost: $60,000.

e. Useful Life: 30 years f. Operating Cost: Additional fuel for 18.1 x 10^6 Btu/hr

g. Energy**: Increases heat rate by 140 Btu/KWH h. Maintenance Cost: No additional maintenance costs.

i. Availability of construction materials and process chemicals:
Can be purchased as package with turbine unit.

j. Applicability to manufacturing processes: Specifically designed for package unit.

k. Ability to construct with control device, install in available space, and operate within proposed levels:
Available as package from turbine manufacturer.
Ability to meet emission levels documented in Attachment C.

2.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

*Explain method of determining efficiency: See Attachment C.

**Energy to be reported in units of electrical power — KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Water injection (see Item E).
2. Efficiency*:
3. Capital Cost:
4. Life:
5. Operating Cost:
6. Energy:
7. Maintenance Cost:
8. Manufacturer:
9. Other locations where employed on similar processes: See Attachment D.

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant:	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

Add-on NO_x controls are currently in the experimental phase. The proposed water injection rate will reduce NO_x emissions by 48 percent and will meet NSPS without significantly reducing thermal efficiency. Impacts from the new source are predicted to be insignificant, less than 1 ug/m^3 on an annual average. Therefore, further reduction in NO_x emissions is not justified.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

10. Stack Parameters

a. Height: ft b. Diameter: ft

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Wet scrubber

b. Operating Principles: SO_2 is absorbed by alkaline solution. Sludge is separated and treated for disposal.

c. Efficiency*: 90% + d. Capital Cost: $4 million

e. Useful Life: 5 to 10 years f. Operating Cost: Annualized cost approx.

g. Energy**: 2,500 kW h. Maintenance Cost: $2.5 million

i. Availability of construction materials and process chemicals: Assumed available.

j. Applicability to manufacturing processes: Has not been applied to combustion turbines.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Assumed adequate.

2.

a. Control Device: Low sulfur fuel

b. Operating Principles: Lower sulfur fuel replaces higher sulfur fuel

c. Efficiency*: Variable d. Capital Cost: NA

e. Useful Life: NA f. Operating Cost: Price differential over high sulfur fuel approx. $6-8/bbl

g. Energy**: NA h. Maintenance Costs: NA

i. Availability of construction materials and process chemicals: Currently available at cost premium.

j. Applicability to manufacturing processes: Widely applied.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Adequate.

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above. Published literature.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: Maximum sulfur content of fuel oil = 0.8%

1. Control Device: Low sulfur fuel
2. Efficiency*: Variable
3. Capital Cost: NA
4. Life: NA
5. Operating Cost: Price differential between low and high sulfur fuel approx. $6-8/bbl
6. Energy: NA
7. Maintenance Cost: NA
8. Manufacturer: NA
9. Other locations where employed on similar processes: See Attachment D.

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

The primary fuel will be natural gas and actual emissions are expected to be approximately 21 tons/year. When fuel oil is burned, ground level impacts are expected to be below de minimis levels. The additional capital and operating costs for an add-on scrubber system are not justified from the standpoint of improving air quality or reducing emissions on a long-term basis.

The BACT chosen for this facility is low-sulfur fuel. Lower sulfur fuel is not justified since fuel oil burned will be minimized and environmental impacts at 0.8% sulfur fuel are not significant. Economic penalty would also be incurred with burning of lower sulfur fuel.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

PM, HC, CO, Hg, Be

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

The impacts of TSP, HC, CO, Hg, and Be are all predicted to be below air quality de minimis levels (Table 5 of PSD report) and impacts of TSP, Hg, and Be are below air quality significance levels.
The cost of add-on particulate control equipment is not justified by any reduction in environmental impacts.

There are no demonstrated add-on control methods for HC, CO, Hg, or Be emissions from combustion turbines.

BACT proposed for HC and CO is proper combustion technique.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data: NA

1. _____ no. sites _____ TSP _____ ( ) SO_2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded No monitoring data available in vicinity of site.

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory: NA

a) Was instrumentation EPA referenced or its equivalent? _____ Yes _____ No

b) Was instrumentation calibrated in accordance with Department procedures? _____ Yes _____ No _____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 01 / 01 / 74 to 12 / 31 / 78
month day year month day year

2. Surface data obtained from (location) Orlando

3. Upper air (mixing height) data obtained from (location) Tampa

4. Stability wind rose (STAR) data obtained from (location) Orlando

C. Computer Models Used

1. CRSTER Modified? If yes, attach description.

2. ISCST Modified? If yes, attach description.

3. ISCLT Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	1.98 grams/sec
SO_2	48.9 grams/sec

E. Emission Data Used in Modeling: Attached PSD analysis.

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review. Attached PSD analysis.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Proposed project will provide more reliable electrical power to the Kissimmee Utilities service area. Dependence on purchased power will be reduced, possibly offsetting fuel oil consumption at other generating stations owned by Orlando Utilities Commission. The city has projected savings to consumers in excess of $10 million through 1985.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology. Attachment C

PERMIT ATTACHMENT A

SOURCE DESCRIPTION

Best Available Copy

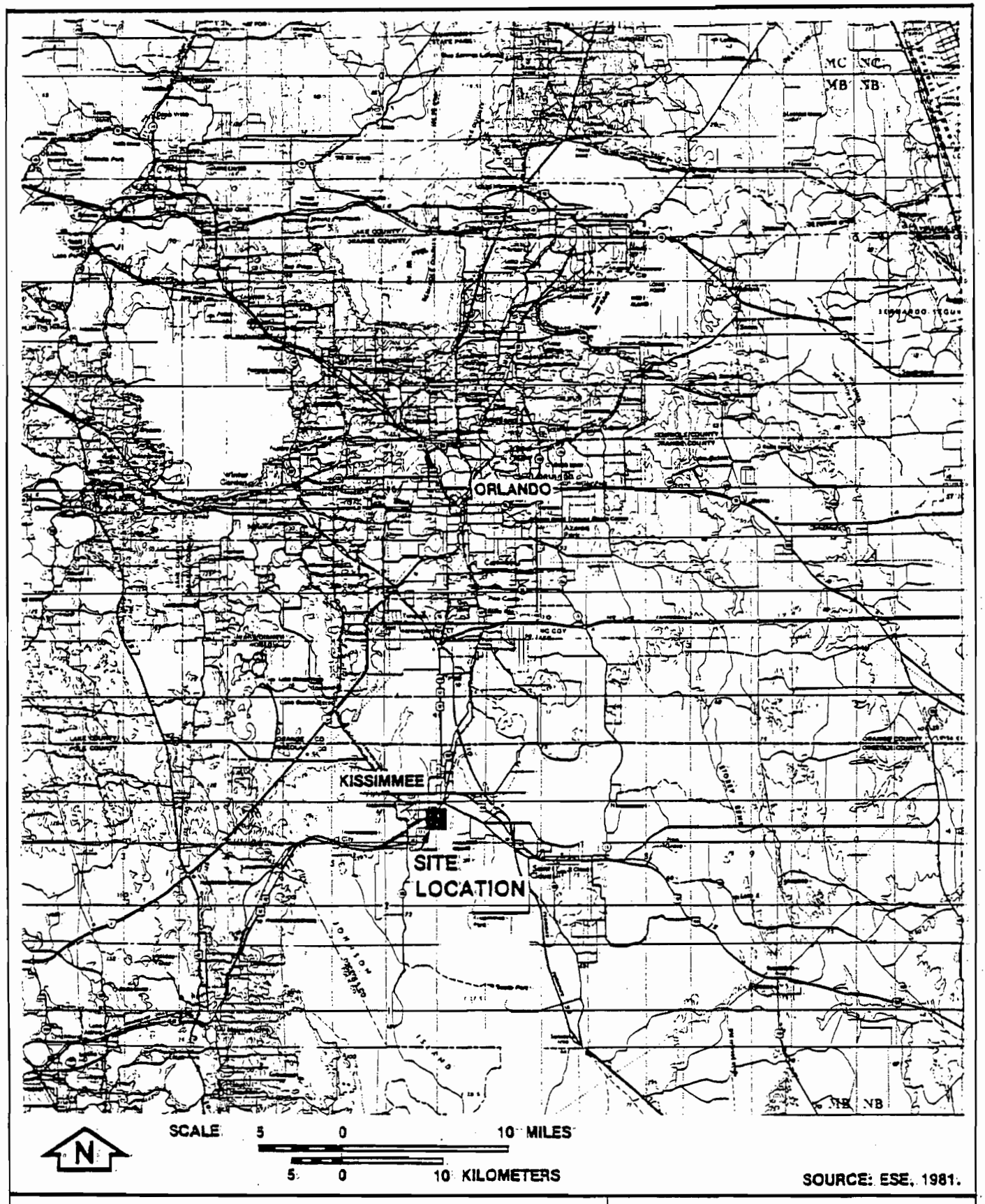


Figure A-1
CITY OF KISSIMMEE AND SURROUNDING AREA

Prepared for:
CITY OF KISSIMMEE

Best Available Copy

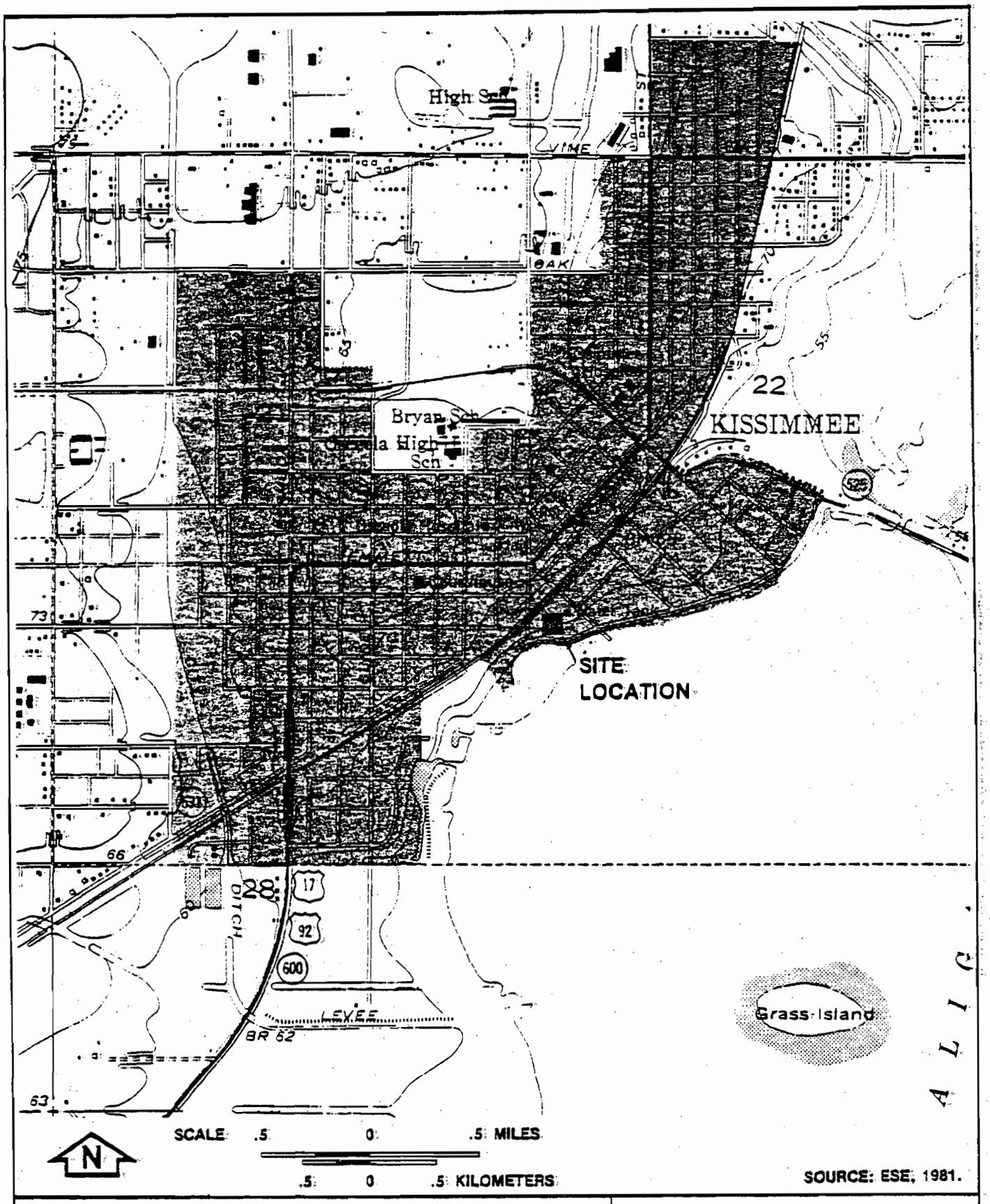


Figure A-2
LOCATION OF KISSIMMEE UTILITIES GENERATING STATION

Prepared for:
CITY OF KISSIMMEE

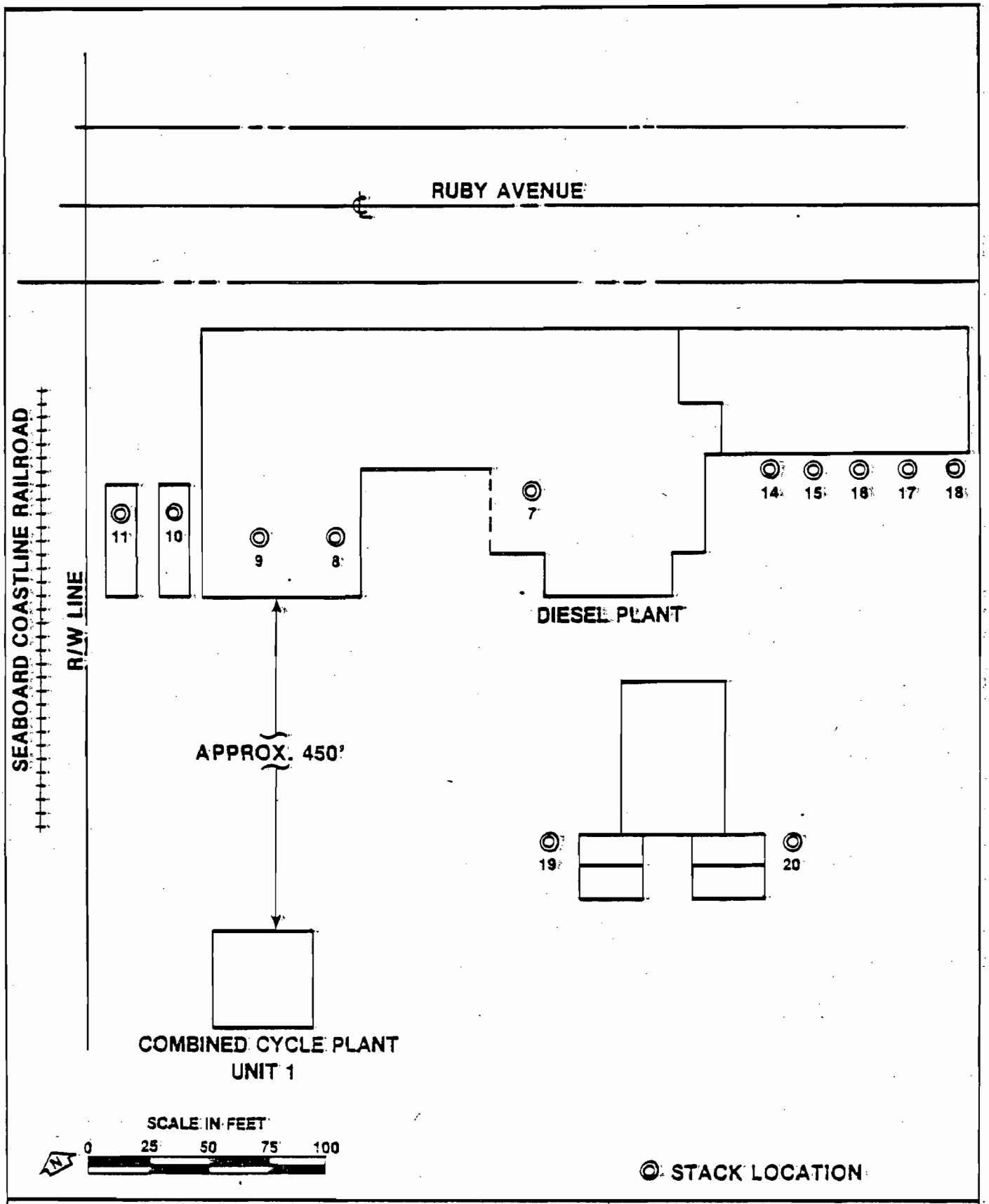
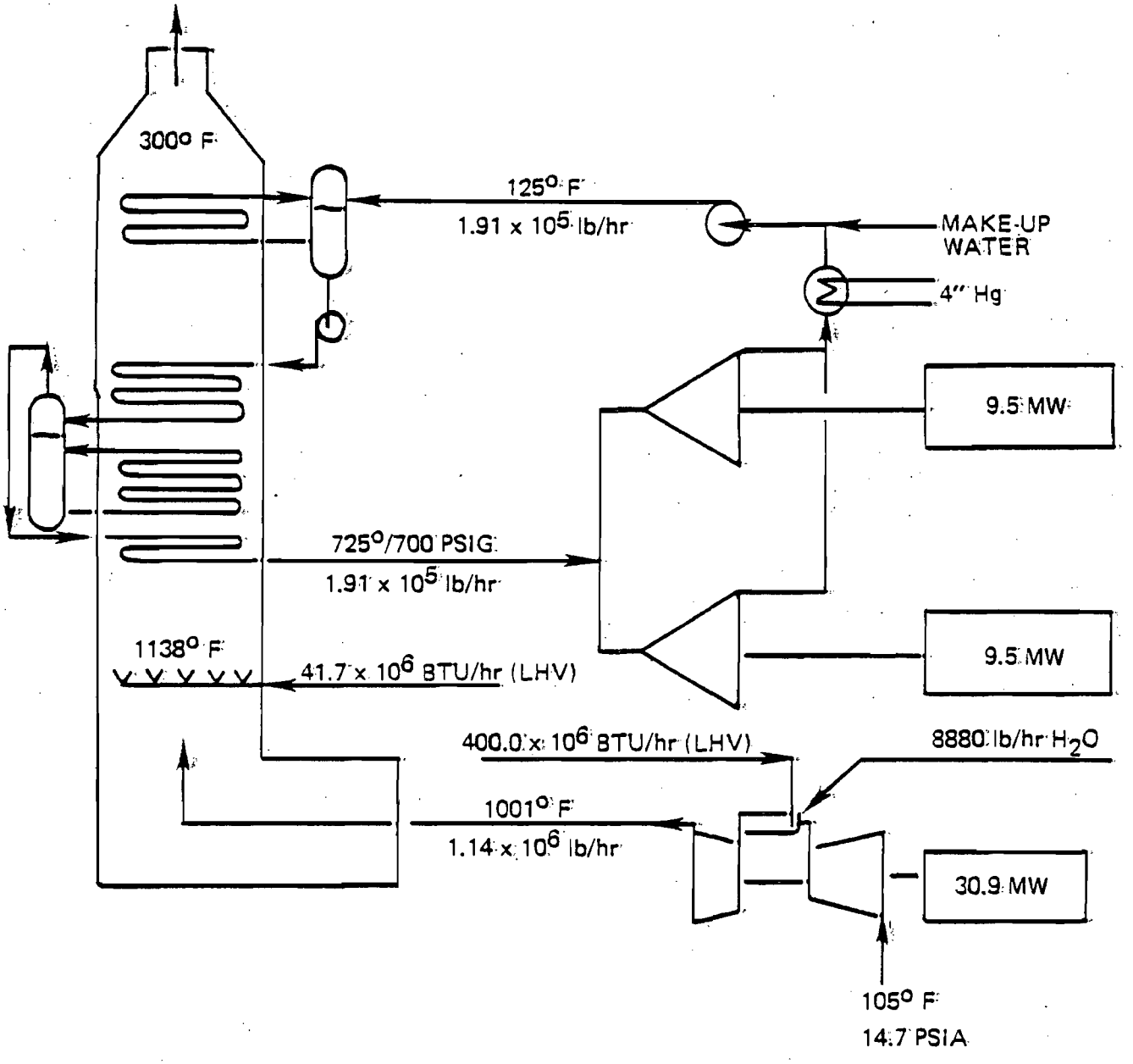


Figure A-3.

PLOT PLAN FOR ROY HANSEL GENERATING STATION

SOURCE: KISSIMMEE UTILITIES, 1981.

Prepared For:
CITY OF KISSIMMEE



$$\text{HEAT RATE (LHV)} = \frac{(41.7 + 400.0)10^6}{(49.9)10^3} = 8852 \text{ BTU/KW-HR (GROSS)}$$

Figure A-4.

SCHEMATIC FLOW DIAGRAM OF COMBINED CYCLE WITH WATER INJECTION

SOURCE: KISSIMMEE UTILITIES, 1981.

Prepared For:
CITY OF KISSIMMEE

PERMIT ATTACHMENT B

EMISSION CALCULATIONS

SYSTEM CONSTANTS (See Figure A-4)

Heat Input to Turbine	400 x 10^6 Btu/hr (LHV)
Heat Input to Supplemental Heat	41.7 x 10^6 Btu/hr (LHV)
Heat Rate =	8,852 Btu/KW-hr
Water Injected into Turbine	8,880 lb/hr
Total Mass Flow at Turbine Exit	1.14 x 10^6 lb/hr

ASSUMED FUEL CHARACTERISTICS

NATURAL GAS	0.049 lb/SCF
Density	1,000 Btu/SCF (HHV)
Heating Value	900 Btu/SCF (LHV)
Water Produced by Combustion at Theoretical Air	1.92 lb H_2O/lb fuel
Theoretical Air	14.7 lb/lb fuel
Excess Air for Supplemental Heating	15%
NO. 2 FUEL OIL	
API Gravity at 60°F	28°
Density	7.4 lb/gal
Heating Value	19,350 Btu/lb (HHV)
	18,200 Btu/lb (LHV)
Theoretical Air	14.2 lb/lb fuel
Excess Air for Supplemental Heating	25%
Water Producted by Combustion at Theoretical Air	1.09 lb H_2O/lb fuel
Molecular Weight of Combustion Products	29 lb/lb-mole

NSPS EMISSION LIMITATIONS

SULFUR DIOXIDE: 0.015% by volume or $\leq$0.8% fuel sulfur content

NITROGEN OXIDES: $0.0075 \frac{14.4}{Y} + F$ [% by volume]

Y = Manufacturer's rated heat rate at rated load: 9.34 kW/Watt-hr

F = Allowance for fuel-bound nitrogen: 0.005 (assume N$\geq$0.25% by weight for worst-case emissions)

$$0.0075 \frac{14.4}{9.34} + 0.005 = 0.0166\% = \underline{166 \text{ ppm}}$$

FUEL USAGE AND COMBUSTION GAS RATES--NATURAL GAS

Fuel for Supplemental Heat:

(41.7×10^6) (1 SCF/900 Btu) = 46,300 SCFH
(46,300 SCF/hr)(0.049 lb/SCF) = 2,270 lb/hr

Air for Supplemental Heat @ 115% Theoretical:

(2,269) (14.7) (1.15) = 38,360 lb/hr

Water from Combustion:

(2,270) (1.92) = 4,360 lb/hr

Fuel for turbine:

(400×10^6) (1 SCF/900 Btu) = 444,400 SCFH
(444,400 SCF/hr) (0.049 lb/SCF) = 21,780 lb/hr

Water from Combustion:

(21,700) (1.92) = 41,800 lb/hr

Air Supply for Primary Combustion is Determined by System Requirement of 1.14×10^6 lb/hr Mass Flow Rate Through Turbine.

Total Mass of Combustion Products = 1.14×10^6
+ 2,270 supplemental fuel
+ 38,360 supplemental air

1,181,000 lb/hr
(40,700 lb-mole/hr)

Total Mass of Water in Combustion Gases = 4,360 supplemental
41,800 turbine
8,880 injection

55,040 lb/hr
(3,060 lb-mole/hr)

Volumetric Flow Rate, $V = \frac{nRT}{P}$

Total Flow at Stack Exit = $\frac{(40,700)\ (1,545.3)\ (760)}{(14.7 \times 144)\ (60)}$ = 376,300 ACFM

Dry Flow at Standard Conditions = $\frac{(40,700 - 3,060)\ (1,545.3)\ (520)}{(14.7 \times 144)\ (60)}$ = 238,000 DSCFM

FUEL USAGE AND COMBUSTION GAS RATES--FUEL OIL

Fuel for Supplemental Heat:

(41.7×10^6) (1 lb/18,200 Btu) = 2,290 lb/hr

Air for Supplemental Heat at 125% Theoretical:

(2,290) (14.2) (1.25) = 40,650 lb/hr

Water from Combustion:

(2,290) (1.09) = 2,500 lb/hr

Fuel for Turbine:

(400×10^6) (1 lb/18,200 Btu) = 22,000 lb/hr

Water from Combustion:

(22,000) (1.09) = 24,000 lb/hr

Air Supply for Primary Combustion is determined by System Requirement of 1.14×10^6 lb/hr Mass Flow Rate Through Turbine.

Total Mass of Combustion Products = 1.14×10^6
+ 2,290 supplemental fuel
+ 40,650 supplemental air

1,183,000 lb/hr
(40,800 lb-mole/hr)

Total Mass of Water in Combustion Gases = 2,500 supplemental
24,000 turbine
8,880 injection

35,400 lb/hr
(1,970 lb-mole/hr)

Volumetric Flow Rate, $V = \frac{nRT}{P}$

Total Flow at Stack Exit = $\frac{(40,800)\ (1,545.3)\ (760)}{(14.7 \times 144)\ (60)}$ = 377,000 ACFM

Dry Flow at Standard Conditions = $\frac{(40,800 - 1,970)\ (1,545.3)\ (520)}{(14.7 \times 144)\ (60)}$ = 246,000 DSCFM

BASIS FOR POTENTIAL EMISSIONS

TURBINE: AP-42 Table 3.3.1-2

	Organics (CH_4)	Carbon Monoxide	Particulate	Sulfur Oxides
Gas Fired ($lb/10^6$ ft^3 gas)	42	115	14	940 S*
Oil Fired ($lb/10^3$ gal oil)	5.57	15.4	5.0	140 S*

SUPPLEMENTAL HEATER: AP-42 Table 1.3-1 and 1.4-1

Natural Gas ($lb/10^6$ ft^3)	3	17	5 to 15	0.6
Fuel Oil ($lb/10^3$ gal oil)	1	5	2	142 S*

NONCRITERIA POLLUTANTS: Ackerman et al., 1980. Health Impacts, Emissions, and Emission Factors for Noncriteria Pollutants Subject to de minimis Guidelines and Emitted from Stationary Conventional Combustion Processes (see Table 4-4), EPA-450/2-80-074.

	Mercury	Beryllium
Natural Gas ($lb/10^{12}$ Btu)	11.42	Nil
Distillate Oil ($lb/10^{12}$ Btu)	0.91	0.33

* S = Percent sulfur.

ANNUAL EMISSIONS (TPY)

	Gas-Fired	Fuel Oil-Fired	Significant Emission Rate*
Potential NO_x	2,480	2,580	—
Actual NO_x†	1,290	1,340	40
Hydrocarbon (as CH_4)	82	74	40
Carbon Monoxide	227	207	100
Particulate	30	69	25
Sulfur Dioxide**	21	1,700	40
Mercury	0.02	0.002	0.01
Beryllium	—	0.0006	0.0004

* Federal Register, Vol. 45, No. 154, 1980.

† (DSCFM) (166 ppm) (2,000 ug/m^3-ppm) (0.0283 m^3/ft^3) (10^{-6} g/ug) (60 min/hr) (8,760 hr/yr) (1 lb/454 g) (1 ton/2,000 lb).

** Assumed natural gas has 0.01 percent sulfur content. Fuel oil calculation based on total conversion of 0.8 percent sulfur oil.

NOTE: Emission rates assume continuous firing of 100 percent gas or 100 percent fuel oil.

Potential and maximum emissions in Section IIIC are reported as the greater of the two fuels. Actual emissions are based on gas combustion.

PERMIT ATTACHMENT C

CONTROL TECHNOLOGY

3.3 OFF-HIGHWAY STATIONARY SOURCES

In general, engines included in this category are internal combustion engines used in applications similar to those associated with external combustion sources (see Chapter 1). The major engines within this category are gas turbines and large, heavy-duty, general utility reciprocating engines. Emission data currently available for these engines are limited to gas turbines and natural-gas-fired, heavy-duty, general utility engines. Most stationary internal combustion engines are used to generate electric power, to pump gas or other fluids, or to compress air for pneumatic machinery.

3.3.1 Stationary Gas Turbines for Electric Utility Power Plants

3.3.1.1 General.—Stationary gas turbines find application in electric power generators, in gas pipeline pump and compressor drives, and in various process industries. The majority of these engines are used in electrical generation for continuous, peaking, or standby power.[1] The primary fuels used are natural gas and No. 2 (distillate) fuel oil, although residual oil is used in a few applications.

3.3.1.2 Emissions.—Data on gas turbines were gathered and summarized under an EPA contract.[2] The contractor found that several investigators had reported data on emissions from gas turbines used in electrical generation but that little agreement existed among the investigators regarding the terms in which the emissions were expressed. The efforts represented by this section include acquisition of the data and their conversion to uniform terms. Because many sets of measurements reported by the contractor were not complete, this conversion often involved assumptions on engine air flow or fuel flow rates (based on manufacturers' data). Another shortcoming of the available information was that relatively few data were obtained at loads below maximum rated (or base) load.

Available data on the population and usage of gas turbines in electric utility power plants are fairly extensive, and information from the various sources appears to be in substantial agreement. The source providing the most complete information is the Federal Power Commission, which requires major utilities (electric revenues of $1 million or more) to submit operating and financial data on an annual basis. Sawyer and Farmer[3] employed these data to develop statistics on the use of gas turbines for electric generation in 1971. Although their report involved only the major, publicly owned utilities (not the private or investor-owned companies), the statistics do appear to include about 87 percent of the gas turbine power used for electric generation in 1971.

Of the 253 generating stations listed by Sawyer and Farmer, 137 have more than one turbine-generator unit. From the available data, it is not possible to know how many hours *each* turbine was operated during 1971 for these multiple-turbine plants. The remaining 116 (single-turbine) units, however, were operated an average of 1196 hours during 1971 (or 13.7 percent of the time), and their average load factor (percent of rated load) during operation was 86.8 percent. This information alone is not adequate for determining a representative operating pattern for electric utility turbines, but it should help prevent serious errors.

Using 1196 hours of operation per year and 250 starts per year as normal, the resulting average operating day is about 4.8 hours long. One hour of no-load time per day would represent about 21 percent of operating time, which is considered somewhat excessive. For economy considerations, turbines are not run at off-design conditions any longer than necessary, so time spent at intermediate power points is probably minimal. The bulk of turbine operation must be at base or peak load to achieve the high load factor already mentioned.

If it is assumed that time spent at off-design conditions includes 15 percent at zero load and 2 percent each at 25 percent, 50 percent, and 75 percent load, then the percentages of operating time at rated load (100 percent) and peak load (assumed to be 125 percent of rated) can be calculated to produce an 86.8 percent load factor. These percentages turn out to be 19 percent at peak load and 60 percent at rated load; the postulated cycle based on this line of reasoning is summarized in Table 3.3.1-1.

Table 3.3.1-1. TYPICAL OPERATING CYCLE FOR ELECTRIC UTILITY TURBINES

Condition, % of rated power	Percent operating time spent at condition	Time at condition based on 4.8-hr day		Contribution to load factor at condition
		hours	minutes	
0	15	0.72	43	0.00 x 0.15 = 0.0
25	2	0.10	6	0.25 x 0.02 = 0.005
50	2	0.10	6	0.50 x 0.02 = 0.010
75	2	0.10	6	0.75 x 0.02 = 0.015
100 (base)	60	2.88	173	1.0 x 0.60 = 0.60
125 (peak)	19	0.91	55	1.25 x 0.19 = 0.238
		4.81	289	Load factor = 0.868

The operating cycle in Table 3.3.1-1 is used to compute emission factors, although it is only an estimate of actual operating patterns.

The operating cycle in Table 3.3.1-1 is used to compute emission factors, although it is only an estimate of actual operating patterns. Table 3.3.1-2 is the resultant composite emission factors based on the operating cycle of Table 3.3.1-1 and the 1971 population of electric utility turbines.

Different values for time at base and peak loads are obtained by changing the total time at lower loads (0 through 75 percent) or by changing the distribution of time spent at lower loads. The cycle given in Table 3.3.1-1 seems reasonable, however, considering the fixed load factor and the economies of turbine operation. Note that the cycle determines *only* the importance of each load condition in computing composite emission factors for each type of turbine, *not* overall operating hours.

The top portion of Table 3.3.1-2 gives separate factors for gas-fired and oil-fired units, and the bottom portion gives fuel-based factors that can be used to estimate emission rates when overall fuel consumption data are available. Fuel-based emission factors on a mode basis would also be useful, but present fuel consumption data are not adequate for this purpose.

3.3.1.3 Nitrogen Oxide Control[4-5] —Nitrogen oxide emissions from gas turbines are reduced by injecting water or steam into the primary flame zone of the combustion system. Moisture is added to the fuel or combustion air, or is injected directly into the combustion chamber. The addition of water limits the combustion temperature and thereby controls the formation of nitrogen oxide.

Water and steam injection rates, commonly expressed as a water-to-fuel ratio (by weight), have an effect on turbine efficiency. Injection of water and fuel with a ratio of 1 *reduces* gas-turbine efficiency by approximately 1 percent. Injection of steam at the same ratio *increases* efficiency by 1 percent. For a combined-cycle turbine using steam from the waste-heat boiler, there is an overall reduction in efficiency of 1 percent at a steam/fuel injection ratio of 1. The incremental effectiveness of injecting either steam or water is sharply reduced at water/fuel ratios above 1. Table 3.3.1-3 gives average percentages of nitrogen oxide emission reduction for various water-to-fuel ratios.

Another possible means of controlling nitrogen oxide emissions is the modification of operations and system designs to include catalysts in the combustion and catalytic cleaning in the exhaust stream. These improvements, still in the experimental stage, would be used in addition to the water-injection methods.

Table 3.3.1-2. COMPOSITE EMISSION FACTORS FOR 1971 POPULATION OF ELECTRIC UTILITY TURBINES
EMISSION FACTOR RATING: B

Time basis	Nitrogen oxides	Organics (CH^4)	Carbon Monoxide	Particulate	Sulfur oxides
Entire population					
lb/hr rated load[a]	8.84	0.79	2.18	0.52	0.33
kg/hr rated load	4.01	0.36	0.99	0.24	0.15
Gas-fired only					
lb/hr rated load	7.81	0.79	2.18	0.27	0.098
kg/hr rated load	3.54	0.36	0.99	0.12	0.044
Oil-fired only					
lb/hr rated load	9.60	0.79	2.18	0.71	0.50
kg/hr rated load	4.35	0.36	0.99	0.32	0.23
Fuel basis					
Gas-fired only					
lb/10^6 ft^3 gas	113.	42.	115.	14.	940S[b]
kg/10^6 m^3 gas	6615.	673.	1842.	224.	15,000S
Oil-fired only					
lb/10^3 gal oil	67.8	5.57	15.4	5.0	140S
kg/10^3 liter oil	8.13	0.668	1.85	0.60	16.8S

[a] Rated load expressed in megawatts.

[b] S is the percentage sulfur. Example: If the factor is 940 and the sulfur content is 0.01 percent, the sulfur oxides emitted would be 940 times 0.01, or 9.4 lb/10^6 ft^3 gas.

Table 3.3.1-3. PERCENT REDUCTION OF NO_x EMISSIONS FROM WATER OR STEAM INJECTION[a]

EMISSION FACTOR RATING: B

Water-to-fuel ratio	Percent reduction of NO_x emissions
0.2	28
0.4	48
0.6	63
0.8	73
1.0	79
1.2	84
1.4	88
1.6	90
1.8	92
2.0	92

[a] Not corrected for efficiency variations.

References for Section 3.3.1

1. O'Keefe, W. and R. G. Schwieger. Prime Movers. *115*:522-531. November 1971.

2. Hare, C. T. and K. J. Springer. Exhaust Emissions from Uncontrolled Vehicles and Related Equipment Using Internal Combustion Engines. Final Report. Part 6: Gas Turbine Electric Utility Power Plants. Southwest Research Institute, San Antonio, Tx. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, N.C., under Contract No. EHS 70-108. February 1974.

3. Sawyer, V. W. and R. C. Farmer. Gas Turbines in U.S. Electric Utilities. Gas Turbine International. January-April 1973.

4. Durkee, K. R., E. A. Noble, and R. Jenkins. An Investigation of the Best Systems of Emission Reduction for Stationary Gas Turbines — Standards Support and Environmental Impact Statement. U.S. Environmental Protection Agency, Research Triangle Park, N.C. Publication No. EPA-450/2-77-017a. 1977.

5. Control Techniques for Nitrogen Oxide Emissions from Stationary Sources. Acurex Corporation, Aerotherm Division. Prepared for U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. Contract No. 68-02-2611. Publication No. EPA-450/1-78-001. January 1978.

PERMIT ATTACHMENT D

PREVIOUS EPA BACT DETERMINATIONS

BACT/LAER CLEARINGHOUSE REPORT

(3.0)

SOURCE TYPE/SIZE: Pipeline Pump Station/13,500 hp

NAME/ADDRESS: Alaska Pipeline Service Company, Anckorage, Alaska

DETERMINATION DATA: CONDITIONAL/(FINAL)/PENDING for BACT/LAER on (NEW)/MODIFIED SOURCE
KEY DATES: Application-Recd. _____, Completed _____; Determination-Proposed _____, Final 9/18/79

BY: (Agency) EPA Region X Person Paul Boys Phone _____

AFFECTED FACILITIES	THROUGHPUT CAPACITY	EMISSION RATE* -UNCONTROLLED	EMISSION LIMITS (Basis)**	CONTROL STRATEGY DESCRIPTION Equipment type, etc.	Eff. %
Pump Turbines (2)	13,500 hp each	NOx	0.0150 $(\frac{14.4}{Y})+F^{@}$ (B) % by volume	Dry controls	

SOURCE OPERATION: BATCH/CONTINUOUS: _____ hrs/yr; % by Season _____ _____ _____ _____
W Sp Su F

NOTES: Y = manufactures rated heat rate @ peak load -(see subpart GG of NSPS)
F = emission allowance for fuel bound nitrogen

* Specify pollutant (PM, SO_2, NO_x, HC, CO or other) and mass emission rate

** Basis symbols: Use B = BACT, N = NSPS, S = SIP, A = Achieved-in-Practice (AIP)

BACT/LAER CLEARINGHOUSE REPORT

(3.0)

SOURCE TYPE/SIZE: Power production

NAME/ADDRESS: Puget Power Ferndale, WA.

DETERMINATION DATA: CONDITIONAL/(FINAL)/PENDING for BACT/LAER on NEW/(MODIFIED) SOURCE
KEY DATES: Application-Recd. _____, Completed _____; Determination-Proposed _____, Final 9/7/79
BY: (Agency) EPA Region X Person Paul Boys Phone _____

AFFECTED FACILITIES	THROUGHPUT CAPACITY	EMISSION RATE, -UNCONTROLLED*	EMISSION LIMITS (Basis)**	CONTROL STRATEGY DESCRIPTION Equipment type, etc.	Eff. %
Gasturbines	2 @74.8MM*	NOx	75 ppm (B)	waterinjection	
		SO_2	150 ppm @15% 02 (B)	0.8% S maxin fuel	
		PM	10% opacity (B)	limited fuel ash content	

SOURCE OPERATION: BATCH/CONTINUOUS: _____ hrs/yr; % by Season W _____ Sp _____ Sy _____ F _____

NOTES: * = baseload

* Specify pollutant (PM, SO_2, NO_x, HC, CO or other) and mass emission rate

** Basis symbols: Use B = BACT, N = NSPS, S = SIP, A = Achieved-in-Practice (AIP)

BACT/LAER CLEARINGHOUSE REPORT

(3.0)

SOURCE TYPE/SIZE: Gas turbine generators/179 MW total

NAME/ADDRESS: Puget Power Frederickson, WA

DETERMINATION DATA: CONDITIONAL/(FINAL)/PENDING for BACT/LAER on (NEW)/MODIFIED SOURCE
KEY DATES: Application-Recd. _____, Completed _____; Determination-Proposed _____, Final 6/24/80

BY: (Agency) EPA Region X Person Paul Boys Phone _____

AFFECTED FACILITIES	THROUGHPUT CAPACITY	EMISSION RATE* -UNCONTROLLED	EMISSION LIMITS (Basis)**	CONTROL STRATEGY DESCRIPTION Equipment type, etc.	Eff. %
Combustion	89.5 MW	NOx	75 ppm@15% O2 (B)	Water injection	
Turbines (2)	(each - peak)	SO_2	150 ppm@15% O2 (N)	Low S fuel	

SOURCE OPERATION: BATCH/CONTINUOUS: _____ hrs/yr; % by Season _____ (W) _____ (Sp) _____ (Su) _____ (F)

NOTES: _____

* Specify pollutant (PM, SO_2, NO_x, HC, CO or other) and mass emission rate

** Basis symbols: Use B = BACT, N = NSPS, S = SIP, A = Achieved-in-Practice (AIP)

(BACT)/LAER CLEARINGHOUSE REPORT

SOURCE TYPE/SIZE: Approximately 513 MW Combined Cycle Electric Generation Facility

NAME/ADDRESS: Stony Brook Energy Center, Mass Municipal Wholesale Electric Co., Ludlow, Massachusetts

DETERMINATION IS: CONDITIONAL/(FINAL)/~~PENDING~~ ISSUED on _____ (date), BASIS* of BACT[1]/LAER/(BAC

for NEW/MODIFIED SOURCE

BY U.S. EPA - Region I (Agency) Linda Murphy (Person) FTS 223-4448 (Phon

PERMIT PARAMETERS: AFFECTED FACILITIES	THROUGHPUT CAPACITY (Weight Rate)	POLLUTANT(s) EMITTED	EMISSION LIMIT(s) and (basis for)**	CONTROL STRATEGY DESCRIPT Equipment Type, Etc.	Ef
Gas Turbines	2 simple cycles @	SO_2		- 0.30% S #2 fuel oil * B	
	85 MW each	Particulates	- 0.040 lbs/MM Btu * S		
	3 combined cycle	NO_x	- 0.0075% by volume @15% O		
	@ 85 MW each		on a dry basis * N		
Steam Turbine	approx. 100 MW				

NOTES:

* Circle one. BACT[1] means a determination made under pre-1977 amendments; BACT[2] means post-1977 amendments to CAA.

** Basis symbols: Use B=BACT, N=NSPS, S=SIP, L=LAER

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REPORT
FOR THE PROPOSED COMBUSTION TURBINE
AT KISSIMMEE UTILITIES, OSCEOLA COUNTY, FLORIDA

1.0 INTRODUCTION

Kissimmee Utilities (KU) currently operates 12 diesel generating units with a total output rated at 26.8 megawatts (MW). The proposed plant is a combined cycle combustion turbine/steam generator, with a total net generating capacity of 46.5 MW and a gross generating capacity of 49.9 MW. The turbine will be fired with natural gas; No. 2 fuel oil will be used as a standby fuel. The proposed source will be a major modification for particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), hydrocarbons (HC), and carbon monoxide (CO) and as such, requires Prevention of Significant Deterioration (PSD) review.

Components of the federal PSD review are:

1. Control Technology Review,
2. Source Impact Analysis,
3. Air Quality Analysis,
4. Source Information, and
5. Additional Impact Analysis.

Components 1 and 4, the control technology review and source information, are contained in the accompanying construction permit application. No air quality analysis (preconstruction monitoring) is required since impacts of all pollutants are below federal de minimis levels, as documented in Section 2.3. Representative air quality data have not been collected in the vicinity of the site, so appropriate background concentrations were assumed as recommended in Ambient Monitoring Guidelines for Prevention of Significant Deterioration, EPA-450/2-78-019, May 1978. The remaining components are discussed in this PSD report.

2.0 SOURCE IMPACT ANALYSIS

2.1 EMISSIONS INVENTORY

Permitted point sources within 50 kilometers (km) of KU are listed in Table 1. The basis for this inventory was the 1980 edition of the Florida Air Permit Inventory System. SO_2 and PM emissions from Florida Power Corporation (FPC) Intercession City, St. Cloud Utilities, and the existing KU diesels were estimated from emission factors published in AP-42 (Tables 3.3.3-1, 3.3.2-1, and 3.3.1-2).

Short-term impacts were projected using listed emissions from all sources within 15 km and estimated emissions from the St. Cloud and FPC sources. Annual average impacts were projected using all sources within 15 km and all sources within 50 km with emissions greater than 40 tons per year of SO_2, 25 tons per year of PM, or 40 tons per year of NO_x.

2.2 DISPERSION MODELING AND METEOROLOGY

Critical meteorology and general location of highest, second-highest impacts were determined by 5-year CRSTER runs. Refined analyses including local source contribution and possible interactions were carried out with the ISCST model. Annual average concentrations were predicted with the ISCLT model.

Meteorological data input to the model consisted of hourly surface observations from Orlando International Airport combined with upper air observations from Tampa International Airport. Data collected during the 5-year period (1974-1978) were used.

The existing structure housing the diesels at KU is 38 feet high. The new stack will not be within the area of influence of this or any other structure with potential to cause downwash conditions.

Initial modeling showed that the critical meteorology and impact area were determined by existing diesel emissions. The 3-hour SO_2 impact was

less than 30 percent of the Ambient Air Quality Standard (AAQS) of 1,300 micrograms per cubic meter (ug/m^3), so no refinements were made for this averaging time. Since both SO_2 and PM emissions from the diesels were directly proportional to the fuel rate, refined modeling for these emissions was carried out at the same point; no separate 5-year total suspended particulate (TSP) run was made.

Estimated PM emissions from St. Cloud Utilities and FPC Intercession City were less than SO_2 emissions from the same sources. Since the SO_2 interaction analysis indicated the maximum SO_2 contribution from these sources in the area of influence of KU was only 4 ug/m^3 and occurred in a noncritical direction, no TSP interaction modeling was performed.

CO, beryllium (Be), and mercury (Hg) impacts of the new source were estimated by comparing emission rates (Table 2) and adjusting SO_2 concentrations by the appropriate ratios.

Long-term NO_x concentrations were determined by assuming that the existing diesels are fired continuously with fuel oil and are in operation 5,260 hours per year.

2.3 AIR QUALITY IMPACTS

Table 2 shows the predicted highest, second-highest short-term and annual impacts that will result from KU and surrounding source emissions. Table 3 shows the effects of plume interaction with nearby major sources.

No violations of state or federal AAQS (Table 4) are predicted. Impacts due to the new source alone are below federal de minimis levels for all pollutants (Table 5), thus exempting the source from preconstruction monitoring.

Impacts for all pollutants except SO_2 are below significance levels; when burning natural gas, SO_2 impacts will also be below significance

levels. No TSP or SO_2 nonattainment areas are located within 100 km; no impacts on nonattainment areas are predicted.

2.4 INCREMENTAL IMPACTS

Table 2. shows that all impacts due to the new source alone are below federal Class II increments (Table 6). The only other permitted increment-consuming sources in the vicinity are Stokely Van Camp and C.W. Bailey. Since no emissions were listed for these sources and the new source impacts are less than 20 percent of the allowable increment, no further incremental analysis was performed.

The KU site is 125 km from the nearest Class I area, the Chassahowitzka National Wildlife Refuge; no impact on this area is predicted.

3.0 ADDITIONAL IMPACTS ON SOILS, VEGETATION, AND VISIBILITY

3.1 IMPACTS ON SOILS AND VEGETATION

Vegetation in the Kissimmee area is comprised of slash pine, saw palmetto, and wire grass. Improved pasture with bahia and carpet grass are also found. Soils are generally of the Leon-Plummer-Rutledge classification--thick acid sands, poorly drained due to a prevalent organic hardpan.

The projected highest, second-highest 3-hour SO_2 concentration of 392 ug/m^3 and annual mean concentration of 40 ug/m^3 (see Table 2) are below levels generally reported for damage to sensitive plant species. European studies by Heck and Brandt (1977) have found 1/2-hour levels of 3,406 ug/m^3 and long-term means of 393 ug/m^3 to approximate threshold levels for several species. According to studies by Heck and Brandt (1977), alfalfa, commonly thought to be one of the most SO_2-sensitive species, has a 2-hour threshold level of at least 2,620 ug/m^2 and an 8-hour threshold of 655 ug/m^2.

According to Jacobson & Hill (1970), PM is generally considered to have a relatively unimportant effect on vegetation. TSP impacts from the new source are predicted to be less than 1 ug/m^3, 24-hour average.

Plant species classified as "sensitive" to NO_2, such as pinto bean, cucumber, lettuce, and tomato, displayed injury when exposed to NO_2 levels of 3,760 to 4,960 ug/m^3 for a 2-hour period. Extremely resistant species, such as heath, were unaffected by an exposure of 1,900,000 ug/m^3 for 1 hour. Blue grass, orange tree plants, and rye are all classified as "intermediate" in resistance to NO_2 injury.

Jacobson and Hill (1970) found that NO_x concentration is more important to plant injury than the duration of exposure. NO_x impacts of the new source are predicted to be below 1 ug/m^3, annual average.

Based on these experimental results, the effects of SO_2, NO_2, and PM emissions upon soils and vegetation are expected to be negligible.

3.2 VISIBILITY IMPACTS

The proposed source is not expected to have any significant impact on visibility in the immediate area. A Level I visibility screening analysis confirmed that no visibility impairment should occur in any Class I area. The absolute values of the three Level I contrast parameters (C1--plume contrast against the sky; C2--plume contrast against terrain; and C3--change in the sky/terrain contrast caused by primary and secondary aerosol) were well below 0.1, indicating that it is highly unlikely that the emissions source would cause adverse visibility impacts in Class I areas. Further analysis of potential visibility impacts was therefore unnecessary (EPA, 1980).

Table 1. Permitted Point Sources by County

Plant	Points	Plant Name	UTM Coordinates E	UTM Coordinates N	Total Plant Emissions (tons per year) PM	SO_2	NO_x
		Osceola County					
01	04-08, 11-15	City of Kissimmee	460.1	3129.3	--	--	--
02	02, 04-08	City of St. Cloud	471.8	3124.9	--	--	--
03	01	Concrete Materials	473.7	3124.9	--	--	--
04	01	Concrete Materials	460.6	3129.8	--	--	--
05	01	Florida Dept. of Agriculture	458.7	3133.4	--	--	--
06	01	Kissimmee Community Hospital	459.9	3130.3	--	--	--
07	01	Stokely Van Camp	451.1	3125.8	--	--	--
08	01	Castcrete Corp.	460.1	3133.8	--	--	--
09	01	Rinker Materials	459.9	3130.1	--	--	--
10	02-03	St. Cloud Hospital	470.3	3124.1	--	--	--
11	01	C. W. Bailey	470.8	3133.8	--	--	--
14	01-10	Florida Power Corp.	446.3	3126.0	--	--	--
26	01	Transgulf Pipeline	462.0	3135.0	--	--	--
		Orange County					
02	01	Basic Asphalt	455.9	3166.8	23	--	3
03	01-02	Bordens Dairy	460.6	3155.8	2	--	--
04	01	Buchanan	462.4	3155.1	6	--	--
06	01-04	Coca Cola	445.9	3173.6	10	13	1
08	01	V.A.	462.8	3155.6	--	--	--
09	01	Goodyear Recap	462.4	3154.4	--	--	--
10	01	Jensen's Furniture	464.0	3157.3	--	--	--
11	01-04	Florida Minerals & Materials	462.0	3149.0	44	--	--

Table 1. Permitted Point Sources by County (Continued, Page 2 of 6)

Plant	Points	Plant Name	UTM Coordinates E	UTM Coordinates N	Total Plant Emissions (tons per year) PM	SO_2	NO_x
		Orange County (Continued)					
12	01, 02	Florida Minerals & Materials	444.5	3160	32	--	--
13	01, 02	Florida Minerals & Materials	470.7	3163.8	22	--	--
14	01	Florida Power Corp.	475.2	3156.8	1	31	9
15	01	University of Central Florida	480.5	3163.4	1	--	--
16	01	Kane Furniture	456.2	3158.2	1	--	--
17	01	Winter Park Memorial	467.9	3163.3	6	--	1
18	01	B. R. Tire Company	462.8	3154.3	--	--	--
19	01, 02	Houdaille	461.9	3141.9	1	--	--
20	01	Inland Materials	459.9	3160.9	26	--	--
21	01	Orlando Paving	453.8	3160.7	36	--	8
22	01	Quality Vaults	446.9	3158.8	1	--	--
23	01	Kissimmee Rock Industry	461.3	3157.9	43	--	--
24	01-03	Florida Rock Industry	459.2	3174.2	129	--	--
25	01, 02	Rinker Materials	458.3	3165	90	--	--
26	02-04	Martin Marietta	454.9	3146.5	2	--	7
27	01, 02	Lone Star	462.6	3154.2	44	--	--
28	01	Mercy Hospital	457.8	3159.7	1	--	12
29	01-06	GE Lamp	444.8	3174	1	--	1
30	01	Orlando Humane Society	457.5	3158.3	1	--	--
31	01	Orlando Paving Company	465.3	3145.9	42	10	8
32	01, 02	Owens Illinois	460.7	3142	52	--	--

Table 1. Permitted Point Sources by County (Continued, Page 3 of 6)

Plant	Points	Plant Name	UTM Coordinates E	UTM Coordinates N	Total Plant Emissions (tons per year) PM	SO_2	NO_x
		Orange County (Continued)					
33	01-06	Orlando Utilities	463.3	3159	187	5,196	151
36	01	Rinker Materials	470.7	3163.9	40	--	--
37	01, 02	Rinker Materials	462.5	3154.3	92	--	--
38	02-06	Rinker Materials	450.6	3145.5	209	--	62
39	01, 03-04	Southern Fruit	462.9	3153.3	61	32	--
40	01-04	Southern Gold	458.7	3161.3	50	2	16
41	01	Dixie Asphalt	463.2	3143.0	50	9	20
42	01	Plymouth Citrus	455.2	3174.0	1	3	1
43	01-04	Aircraft Service	469	3146.2	--	--	--
44	01, 02	Boise Cascade Can Co.	460.7	3142.4	--	--	4
45	01-14	Martin Marietta Corp.	454.5	3146.2	15	1	--
46	01-08, 10-13, 16-18, 20-21	Martin Marietta Corp.	454.5	3146.2	51	--	--
47	01, 02	Martin Marietta Aerospace	455.2	3146.2	--	--	--
50	01-05	Carns Concrete Pipe	454.6	3167.8	69	--	--
53	01-03, 06, 08-14	Winter Garden Citrus	443.8	3159.6	303	39	68
54	01	City Chemicals Company	470.7	3163.9	1	--	--
56	01-06	Gould Battery	460.4	3142.3	14	--	--
58	01-03	Al Block Company	462.5	3155.0	141	--	1
59	01, 02	Medusa Cement Company	462.6	3154.7	69	--	--
60	01-08	Ashland Chemical Co.	460.4	3147.9	--	--	--
61	01-08	City of Orlando	456.3	3152.7	64	8	112
63	01, 02	Florida Hospital	463.8	3160.7	23	--	49

Table 1. Permitted Point Sources by County (Continued, Page 4 of 6)

Plant	Points	Plant Name	UTM Coordinates E	UTM Coordinates N	Total Plant Emissions (tons per year) PM	SO_2	NO_x
		Orange County (Continued)					
65	01	Lucerne General Hospital	463.1	3153	--	--	--
66	01	West Orange Hospital	443.1	3160.0	3	1	1
67	01	Orlando Regional	463.1	3155.3	4	--	7
69	01-07, 11-13	Central Florida Pipeline	463.8	3143.8	--	--	--
70	01	Aaron Scrap Metals	454.8	3167.1	1	--	--
71	01-05	Florida Rock Industry	463.0	3145.5	119	--	4
74	01-03, 05	Citrus Central Metals	445.6	3173.8	9	--	--
77	01	Macasphalt Corporation	450.6	3145.4	4	1	--
78	01, 02	Frito Lay	459.1	3161	14	--	6
79	01-06	Naval Training Center	467.8	3160	10	--	6
80	01	Harry L. Hanes	463.8	3162.4	1	--	--
		Polk County					
01	05	Alcoma Packing	451.6	3085.5	65	--	--
07	01-03	Owens Illinois	423.4	3102.8	93	--	--
14	01-04	Standard Sand Silica	441.5	3118.2	125	240	--
17	01-05	Swift Agrichem	427.9	3097.4	114	--	--
22	01, 02	Owens Illinois	423.4	3102.8	11	--	3
23	01-03	Coca Cola	421.3	3103.6	123	--	72
29	01	Hunt Brothers	445.3	3083	--	2	1

Table 1. Permitted Point Sources by County (Continued, Page 5 of 6)

Plant	Points	Plant Name	UTM Coordinates E	UTM Coordinates N	Total Plant Emissions (tons per year) PM	SO_2	NO_x
		Polk County (Continued)					
33	01, 02	Bordo Citrus	438	3109	100	--	--
37	01	Adams Packing	421.7	3104.2	34	--	--
61	01-05	Holly Hill Fruit	441	3115.4	77	--	--
71	01-03	Uranium Recovery	465	3080	6	--	--
76	01	International Paper	421.7	3104.3	--	--	--
82	01	Macasphalt	423.1	3101.5	49	--	--
88	01	Morris Canning	428.1	3103.4	--	--	--
90	03	Florida Distillers	428	3108.1	--	--	--
96	01, 02	Jacquin Florida Dist.	421.4	3102.9	--	--	--
103	01	Kandors Thriftway	428.1	3100.6	--	--	--
105	01	Dundee Citrus	438.8	3099.9	--	--	--
108	01, 02	Concrete Materials	439.4	3109.4	--	--	--
113	02, 03	Gall Silica Mining	450.2	3085.4	--	--	--
115	01	Phoenix Industry	428	3096	--	--	--
122	01	Monier Resources	423.5	3104.6	--	--	--
124	01	Duncan Browning	422.8	3104.7	--	--	--
		Seminole County					
01	01	Sunrise Materials	469.8	3177.8	4	--	--
02	01-04	Central Florida Drum	474.7	3173.4	13	4	3
04	01, 02	Inland Materials	466	3172.1	33	--	--
05	01	Kissam Concrete	465.1	3170.4	38	--	--

Table 1. Permitted Point Sources by County (Continued, Page 6 of 6)

Plant	Points	Plant Name	UTM Coordinates E	UTM Coordinates N	Total Plant Emissions (tons per year) PM	SO_2	NO_x
		Seminole County (Continued)					
06	01-03	Coca Cola	459.4	3170.5	52	4	26
07	01	L.D Plante Inc.	474.5	3176.2	4	34	12
08	01	Lone Star	465.8	3172	18	--	--
19	01	Macasphalt Corp.	470.2	3175.8	8	13	3
		Lake County					
11	01-03	Clermont Builders	424.4	3159	33	--	--
13	01	S. Lake Memorial Hospital	424.9	3158.6	--	--	--
31	01	Tower Chemical Co.	433	3158.2	1	--	--

NOTE: Blanks indicate no allowable or actual emissions listed in APIS 1980.

Source: ESE, 1981.
APIS, 1980.

Table 2. Air Quality Impacts (ug/m^3)*

	SO_2			TSP		NO_x	CO	Hg and Be
	24-hour	3-hour	Annual	24-hour	Annual	Annual	3-hour	24-hour
All Sources	135	372	20	81	12	69	—	—
Plus Background	20	20	20	40	40	20	—	—
	155	392	40	121	52	89	—	—
Day (period)/year	325/78	278(5)/77	—	—	—	—	—	—
Direction (degrees)/ distance (m)	180/500	240/300	—	—	—	—	—	—
New Source	10	44	<1	<1†	<1†	<1†	1.4	<0.0005
Day (period)/year	279/74	103(4)/78	—	—	—	—	—	—
Direction (degrees)/ distance (m)	180/4,000	360/2,000	—	—	—	—	—	—

* Highest, second-highest for 24-hour and 3-hour averaging times.
† Calculated as ratio from SO_2 runs.

Source: ESE, 1981.

Table 3. Source Interactions

Interacting Source	Direction (deg.)	Day/Year	SO_2 Concentration (ug/m^3)	
			KU Only	KU with Interaction
City of St. Cloud	290	113/78	72	76
FPC Intercession City	75	158/75	69	69

Source: ESE, 1981.

Table 4. National and State of Florida AAQS

Pollutant	Averaging Time	National Primary Standard	National Secondary Standard	Florida
Suspended PM	Annual Geometric Mean	75 ug/m^3	60 ug/m^3	60 ug/m^3
	24-Hour Maximum*	260 ug/m^3	150 ug/m^3	150 ug/m^3
SO_2	Annual Arithmetic Mean	80 ug/m^3	NA†	60 ug/m^3
	24-Hour Maximum*	365 ug/m^3	NA†	260 ug/m^3
	3-Hour Maximum*	NA†	1,300 ug/m^3	1,300 ug/m^3
CO	8-Hour Maximum*	10 mg/m^3	10 mg/m^3	10 mg/m^3
	1-Hour Maximum*	40 mg/m^3	40 mg/m^3	40 mg/m^3
HC	3-Hour Maximum* (6 to 9 A.M.)	160 ug/m^3	160 ug/m^3	160 ug/m^3
NO_2	Annual Arithmetic Mean	100 ug/m^3	100 ug/m^3	100 ug/m^3
Ozone	1-Hour Maximum*	235 ug/m^3	235 ug/m^3	160 ug/m^3
Lead	Calendar Quarter Arithmetic Mean	1.5 ug/m^3	1.5 ug/m^3	NA†

* Maximum concentration not to be exceeded more than once per year.
† No standard exists.

Sources: 40 CFR Part 50, 1980.
FAC Chapter 17-2.

Table 5. Significant Emission Rates and De Minimis Air Quality Impact Levels

Pollutant	De Minimis Emission Rate (Tons per year)	De Minimis Air Quality Impact Level (For Use In Determining Monitoring) (ug/m^3)
CO	100	575, 8-hour average
NO_2	40	14, annual
Total Suspended Particulates	25	10, 24-hour
SO_2	40	13, 24-hour
Ozone* (volatile organic compounds)	40	
Lead	0.6	0.1, 3-month
Hg	0.1	0.25, 24-hour
Be	0.0004	0.0005, 24-hour
Asbestos†	0.007	
Fluorides	3	0.25, 24-hour
Sulfuric Acid Mist†	7	
Vinyl Chloride	1	15, maximum value
Total Reduced Sulfur	10	10, 1-hour
Hydrogen Sulfide	10	0.04, 1-hour
Reduced Sulfur Compounds	10	10, 1-hour
Inorganic Arsenic†	0	
Radionuclides†	0	
Benzene†	0	
Ethylene Dichloride†	0	
Polyvinyl Chloride†	0	

* A de minimis air quality level is not given for ozone. However, a plant which is subject to PSD review and has a net increase of 100 tons per year of volatile organic compounds would be required to perform an ambient air quality analysis.

† No measurement method or de minimis air quality impact level has been established.

Source: Federal Register, Vol. 45, No. 154, 1980.

Table 6. Federal and State of Florida PSD Allowable Increments (ug/m^3)

Pollutant/Averaging Time	Class I	Class II	Class III
PM			
Annual Geometric Mean	5	19	37
24-Hour Maximum*	10	37	75
SO_2			
Annual Arithmetic Mean	2	20	40
24-Hour Maximum*	5	91	182
3-Hour Maximum*	25	512	700

* Maximum concentration not to be exceeded more than once per year.

Sources: Public Law 95-95, Clean Air Act Amendments of 1977.
Federal Register, Vol. 43, No. 118, June 19, 1978.

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Jacobson, J.L., and Hill, A.C. 1970. Recognition of Air Pollution Injury to Vegetation: A Pictorial Atlas. Air Pollution Control Association, Pittsburgh, Pennsylvania.

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. 1980. Workbook for Estimating Visibility Impairment. RTP No. 27711. July 1980.

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. 1978a. Ambient Air Guidelines for Prevention of Significant Deterioration. EPA-450/2-78-019.

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NEW SOURCE ONLY

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PLANT NAME: KISS. UTILITIES              POLLUTANT:   SO2      AIR QUALITY UNITS: GM/M**3
ORLANDO/TAMPA MET DATA
    E.R. 40.9 - H 9.14
                MET FILE       REQUESTED
               STN NO. YR    STN NO. YR
 SURFACE        12815  74     12815  74
 UPPER AIR      12842  74     12842  74
PLANT LOCATION: RURAL
ANEMOMETER HEIGHT IS  7.0 METERS
WIND PROFILE EXPONENTS ARE:   0.100,  0.150,  0.200,  0.250,  0.300,  0.300,
NO TAPE OUTPUT
MET DATA WILL NOT BE PRINTED

DAY-- 1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
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      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
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      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1


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      ALL TABLES, INCLUDING SOURCE CONTRIBUTION, THAT CONTAIN "ANNUAL" IN THE HEADING ARE BASED

      ONLY ON THOSE DAYS MARKED BY A "1" IN THE ABOVE TABLE
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RING DISTANCES(KM)= 0.50 1.00 1.50 2.00 2.50

STACK # 1--UNIT 1

STACK	MONTH	EMISSION RATE (GMS/SEC)	HEIGHT (METERS)	DIAMETER (METERS)	EXIT VELOCITY (M/SEC)	TEMP (DEG.K)	VOLUMETRIC FLOW (M**3/SEC)
1	ALL	48.9000	9.14	2.44	38.03	422.00	177.83

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 5.0967E-07 DIRECTION= 23 DISTANCE= 2.5 KM
YEAR= 74

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	2.84368E-09	1.59018E-07	3.34371E-07	4.11159E-07	4.26982E-07
2	3.57846E-09	1.59577E-07	2.97251E-07	3.51085E-07	3.55914E-07
3	2.91020E-09	1.29261E-07	2.32907E-07	2.78502E-07	2.87267E-07
4	3.15005E-09	1.35838E-07	2.41694E-07	2.90414E-07	3.03120E-07
5	5.19749E-09	1.67443E-07	2.85680E-07	3.31487E-07	3.39523E-07
6	4.85075E-09	1.64990E-07	2.76924E-07	3.26314E-07	3.42714E-07
7	3.74400E-09	1.62117E-07	2.68555E-07	3.13953E-07	3.24947E-07
8	3.38412E-09	1.52095E-07	2.42468E-07	2.80831E-07	2.89958E-07
9	4.03271E-09	1.24413E-07	2.04427E-07	2.49376E-07	2.69610E-07
10	5.29352E-09	1.17983E-07	2.01997E-07	2.44560E-07	2.60090E-07
11	7.99045E-09	1.42110E-07	2.38511E-07	2.84362E-07	3.01671E-07
12	8.50632E-09	1.67345E-07	2.73448E-07	3.23243E-07	3.40971E-07
13	5.84270E-09	1.57472E-07	2.60073E-07	3.06026E-07	3.20914E-07
14	3.57574E-09	1.42851E-07	2.79010E-07	3.42252E-07	3.60709E-07
15	1.96719E-09	1.06861E-07	2.12402E-07	2.63141E-07	2.82016E-07
16	1.03693E-09	1.07574E-07	2.19102E-07	2.67825E-07	2.82798E-07
17	6.41573E-10	1.28754E-07	2.63316E-07	3.28600E-07	3.58005E-07
18	8.29210E-10	1.50305E-07	3.25922E-07	4.36041E-07	5.05749E-07
19	1.39868E-09	1.29113E-07	2.42314E-07	2.93480E-07	3.16358E-07
20	3.15491E-09	1.38188E-07	2.72681E-07	3.55303E-07	4.04619E-07
21	3.81801E-09	1.58984E-07	3.06348E-07	3.77960E-07	4.04288E-07
22	5.58387E-09	1.88254E-07	3.66772E-07	4.54620E-07	4.90625E-07
23	6.59359E-09	1.85838E-07	3.75974E-07	4.70937E-07	5.09667E-07
24	4.88433E-09	1.59589E-07	3.36766E-07	4.26898E-07	4.60844E-07
25	2.72423E-09	1.43175E-07	3.04689E-07	3.92122E-07	4.28806E-07
26	3.21332E-09	1.81785E-07	3.25213E-07	3.79937E-07	3.94146E-07
27	3.85841E-09	1.96229E-07	3.55181E-07	4.25147E-07	4.48371E-07
28	3.49072E-09	1.69745E-07	3.07955E-07	3.73941E-07	4.00112E-07
29	3.88591E-09	1.51870E-07	2.79463E-07	3.39694E-07	3.67138E-07
30	6.66249E-09	1.59146E-07	3.03675E-07	3.75904E-07	4.09983E-07
31	9.42705E-09	1.71373E-07	3.15951E-07	3.80096E-07	4.02877E-07
32	1.36237E-08	2.09573E-07	3.44330E-07	3.83174E-07	3.88192E-07
33	8.94711E-09	1.98916E-07	3.34102E-07	3.64340E-07	3.59516E-07
34	4.44734E-09	1.66778E-07	3.25190E-07	3.99348E-07	4.30064E-07
35	3.37589E-09	1.59378E-07	3.19772E-07	3.81541E-07	3.95132E-07
36	2.60382E-09	1.65070E-07	3.70406E-07	4.67142E-07	5.00561E-07

3

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3

MAXIMUM MEAN CONC= 6.5267E-07 DIRECTION= 18 DISTANCE= 5.0 KM

YEAR= 74

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	4.21042E-07	4.07019E-07	3.92594E-07	3.77320E-07	3.63597E-07
2	3.45199E-07	3.30619E-07	3.17818E-07	3.05875E-07	2.95956E-07
3	2.84463E-07	2.78447E-07	2.73168E-07	2.67200E-07	2.62197E-07
4	3.03053E-07	2.97760E-07	2.92506E-07	2.86956E-07	2.81171E-07
5	3.34724E-07	3.24506E-07	3.13952E-07	3.02597E-07	2.92136E-07
6	3.47592E-07	3.46870E-07	3.45009E-07	3.40376E-07	3.35691E-07
7	3.23464E-07	3.16771E-07	3.09275E-07	2.99956E-07	2.91291E-07
8	2.89921E-07	2.86450E-07	2.82949E-07	2.77766E-07	2.72985E-07
9	2.81017E-07	2.87534E-07	2.92084E-07	2.92540E-07	2.91871E-07
10	2.67392E-07	2.68087E-07	2.66941E-07	2.63216E-07	2.58910E-07
11	3.09200E-07	3.11532E-07	3.12085E-07	3.09003E-07	3.05502E-07
12	3.46341E-07	3.44963E-07	3.41712E-07	3.35787E-07	3.30065E-07
13	3.22978E-07	3.17843E-07	3.10309E-07	3.00364E-07	2.90461E-07
14	3.60780E-07	3.52491E-07	3.42102E-07	3.29604E-07	3.17325E-07
15	2.86542E-07	2.83706E-07	2.78317E-07	2.70570E-07	2.62580E-07
16	2.83703E-07	2.78397E-07	2.71693E-07	2.63458E-07	2.55971E-07
17	3.71481E-07	3.76206E-07	3.77617E-07	3.74242E-07	3.70112E-07
18	5.55378E-07	5.90540E-07	6.19288E-07	6.37523E-07	6.52673E-07
19	3.27601E-07	3.32362E-07	3.35344E-07	3.34930E-07	3.34284E-07
20	4.39828E-07	4.65446E-07	4.86998E-07	5.00538E-07	5.11847E-07
21	4.15324E-07	4.20035E-07	4.24371E-07	4.25493E-07	4.26890E-07
22	5.08244E-07	5.16978E-07	5.24104E-07	5.25849E-07	5.27215E-07
23	5.27429E-07	5.34722E-07	5.39666E-07	5.39411E-07	5.38748E-07
24	4.73316E-07	4.76098E-07	4.76925E-07	4.73982E-07	4.71435E-07
25	4.46122E-07	4.54659E-07	4.61344E-07	4.63675E-07	4.66035E-07
26	3.99257E-07	4.02593E-07	4.07712E-07	4.10341E-07	4.13807E-07
27	4.54257E-07	4.52151E-07	4.48536E-07	4.41909E-07	4.36065E-07
28	4.10041E-07	4.10976E-07	4.08939E-07	4.02797E-07	3.96176E-07
29	3.81479E-07	3.87103E-07	3.89123E-07	3.86237E-07	3.82246E-07
30	4.27554E-07	4.34790E-07	4.38458E-07	4.37803E-07	4.36863E-07
31	4.09763E-07	4.08980E-07	4.06456E-07	4.00488E-07	3.94600E-07
32	3.84742E-07	3.78754E-07	3.74134E-07	3.68223E-07	3.63620E-07
33	3.47647E-07	3.35187E-07	3.25439E-07	3.16122E-07	3.08719E-07
34	4.42670E-07	4.44574E-07	4.43660E-07	4.38786E-07	4.33559E-07
35	3.94349E-07	3.88223E-07	3.82304E-07	3.74665E-07	3.67990E-07
36	5.12572E-07	5.14903E-07	5.15330E-07	5.11651E-07	5.07774E-07

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 6.8753E-07 DIRECTION= 36 DISTANCE= 2.5 KM
YEAR= 75

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	6.46801E-09	2.47578E-07	4.59801E-07	5.33091E-07	5.33952E-07
2	6.46993E-09	2.00286E-07	3.76967E-07	4.42400E-07	4.44933E-07
3	5.94187E-09	1.65679E-07	3.14478E-07	3.67066E-07	3.65161E-07
4	5.19371E-09	1.82852E-07	3.34047E-07	3.91192E-07	3.97280E-07
5	5.40605E-09	2.10165E-07	3.63943E-07	4.28132E-07	4.42409E-07
6	4.66709E-09	1.67614E-07	2.81801E-07	3.29953E-07	3.42073E-07
7	7.47060E-09	1.58737E-07	2.78085E-07	3.29027E-07	3.44245E-07
8	1.08951E-08	1.24538E-07	2.33945E-07	2.84613E-07	2.98979E-07
9	8.09841E-09	9.72680E-08	1.90671E-07	2.46779E-07	2.74428E-07
10	4.17990E-09	1.13471E-07	2.14890E-07	2.57919E-07	2.67920E-07
11	3.17444E-09	1.62905E-07	3.14331E-07	3.79466E-07	4.00468E-07
12	3.87107E-09	1.89242E-07	3.61167E-07	4.41969E-07	4.66443E-07
13	4.12364E-09	1.88538E-07	3.60346E-07	4.43721E-07	4.70176E-07
14	3.12729E-09	1.68137E-07	3.23615E-07	3.90276E-07	4.05933E-07
15	2.34039E-09	1.21972E-07	2.27599E-07	2.75511E-07	2.92926E-07
16	1.83318E-09	1.10931E-07	2.26410E-07	2.91134E-07	3.22873E-07
17	1.64780E-09	1.16904E-07	2.29480E-07	2.85752E-07	3.13616E-07
18	1.39128E-09	1.12679E-07	2.37063E-07	3.19004E-07	3.77667E-07
19	1.19400E-09	8.51304E-08	1.80388E-07	2.37278E-07	2.69953E-07
20	1.34851E-09	8.98986E-08	2.08611E-07	2.83704E-07	3.27782E-07
21	1.74495E-09	1.21003E-07	2.73326E-07	3.58441E-07	3.97674E-07
22	2.60094E-09	1.54847E-07	3.28457E-07	4.15615E-07	4.54813E-07
23	3.33454E-09	1.93597E-07	4.24721E-07	5.46108E-07	6.00977E-07
24	3.76268E-09	2.05968E-07	4.20028E-07	5.10862E-07	5.39582E-07
25	3.47328E-09	1.62231E-07	3.05710E-07	3.72261E-07	4.03125E-07
26	3.81215E-09	1.46581E-07	2.80079E-07	3.49597E-07	3.73664E-07
27	4.28147E-09	1.92983E-07	3.84578E-07	4.90441E-07	5.40979E-07
28	3.43814E-09	1.93077E-07	3.67690E-07	4.36519E-07	4.52578E-07
29	2.42773E-09	1.71416E-07	3.33298E-07	3.93072E-07	4.03898E-07
30	2.22863E-09	1.80322E-07	3.68542E-07	4.58831E-07	5.00342E-07
31	2.94562E-09	1.75812E-07	3.29466E-07	3.88903E-07	4.00237E-07
32	3.89520E-09	1.74943E-07	3.10024E-07	3.67475E-07	3.88774E-07
33	6.24315E-09	2.31592E-07	4.11300E-07	4.82245E-07	4.99258E-07
34	8.31010E-09	2.62580E-07	4.87060E-07	5.79823E-07	6.00832E-07
35	6.87683E-09	2.40331E-07	4.22532E-07	4.91216E-07	5.06163E-07
36	5.72319E-09	2.73287E-07	5.30210E-07	6.40296E-07	6.87530E-07

PLANT NAME: KISS. UTILITIES POLLUTANT; SO2 AIR QUALITY UNITS; GM/M**3
MAXIMUM MEAN CONC= 6.9604E-07 DIRECTION= 36 DISTANCE= 3.0 KM
YEAR= 75

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	5.12308E-07	4.84915E-07	4.59952E-07	4.36619E-07	4.16706E-07
2	4.27819E-07	4.06330E-07	3.87422E-07	3.69528E-07	3.54491E-07
3	3.45695E-07	3.22127E-07	3.00557E-07	2.80912E-07	2.64303E-07
4	3.88067E-07	3.74310E-07	3.61398E-07	3.47928E-07	3.36038E-07
5	4.39552E-07	4.28969E-07	4.16031E-07	4.02227E-07	3.88002E-07
6	3.42231E-07	3.37636E-07	3.32524E-07	3.25121E-07	3.18178E-07
7	3.46532E-07	3.42806E-07	3.37900E-07	3.30152E-07	3.22646E-07
8	2.98748E-07	2.91891E-07	2.83617E-07	2.73800E-07	2.64406E-07
9	2.86831E-07	2.95663E-07	2.99572E-07	2.99038E-07	2.97642E-07
10	2.66389E-07	2.60095E-07	2.53449E-07	2.45706E-07	2.38718E-07
11	4.07040E-07	4.06077E-07	4.03780E-07	3.98409E-07	3.92940E-07
12	4.67884E-07	4.57409E-07	4.43873E-07	4.27732E-07	4.11957E-07
13	4.73282E-07	4.64852E-07	4.53322E-07	4.38270E-07	4.23340E-07
14	4.01127E-07	3.86446E-07	3.69400E-07	3.50723E-07	3.32869E-07
15	2.99191E-07	2.99129E-07	2.96632E-07	2.90577E-07	2.83838E-07
16	3.41687E-07	3.52824E-07	3.60273E-07	3.61494E-07	3.60838E-07
17	3.33280E-07	3.48406E-07	3.61727E-07	3.68730E-07	3.74118E-07
18	4.27246E-07	4.67443E-07	5.01246E-07	5.22754E-07	5.39546E-07
19	2.93464E-07	3.10765E-07	3.25097E-07	3.33219E-07	3.39437E-07
20	3.62380E-07	3.91933E-07	4.20525E-07	4.42690E-07	4.63171E-07
21	4.21540E-07	4.38539E-07	4.54385E-07	4.65024E-07	4.74931E-07
22	4.81819E-07	5.04683E-07	5.27296E-07	5.42203E-07	5.55429E-07
23	6.32755E-07	6.52922E-07	6.69994E-07	6.78833E-07	6.86279E-07
24	5.49220E-07	5.50599E-07	5.51263E-07	5.47815E-07	5.44660E-07
25	4.24443E-07	4.40418E-07	4.55046E-07	4.63460E-07	4.70347E-07
26	3.80981E-07	3.81860E-07	3.82429E-07	3.80365E-07	3.78693E-07
27	5.71030E-07	5.89336E-07	6.02808E-07	6.06978E-07	6.08256E-07
28	4.53311E-07	4.48277E-07	4.43065E-07	4.34981E-07	4.27487E-07
29	4.01985E-07	3.96580E-07	3.92006E-07	3.85123E-07	3.78947E-07
30	5.26289E-07	5.42593E-07	5.55324E-07	5.60153E-07	5.62798E-07
31	3.97954E-07	3.92036E-07	3.87348E-07	3.81173E-07	3.76560E-07
32	4.00601E-07	4.07810E-07	4.13688E-07	4.14135E-07	4.13816E-07
33	4.98293E-07	4.89639E-07	4.80545E-07	4.68461E-07	4.57005E-07
34	5.94795E-07	5.76763E-07	5.57362E-07	5.36409E-07	5.17495E-07
35	5.03119E-07	4.91458E-07	4.78772E-07	4.63799E-07	4.49482E-07
36	6.96041E-07	6.89124E-07	6.78750E-07	6.63046E-07	6.47244E-07

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 7.0338E-07 DIRECTION= 18 DISTANCE= 2.5 KM
YEAR= 76

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	3.70035E-09	2.17201E-07	3.96011E-07	4.52181E-07	4.55981E-07
2	3.51158E-09	1.79626E-07	3.44909E-07	4.07411E-07	4.20003E-07
3	4.60094E-09	1.66481E-07	3.14587E-07	3.64856E-07	3.65131E-07
4	3.87624E-09	1.55738E-07	2.84173E-07	3.31344E-07	3.41696E-07
5	5.04742E-09	1.89030E-07	3.48035E-07	4.15531E-07	4.34527E-07
6	5.46012E-09	1.80106E-07	3.30862E-07	3.88649E-07	4.00534E-07
7	4.72089E-09	1.34712E-07	2.45965E-07	2.86914E-07	2.95527E-07
8	6.00962E-09	1.20598E-07	2.35929E-07	2.91871E-07	3.10264E-07
9	7.81973E-09	1.52782E-07	2.98930E-07	3.82725E-07	4.24670E-07
10	2.93597E-09	1.09266E-07	2.15639E-07	2.75958E-07	3.08993E-07
11	1.70222E-09	9.84401E-08	1.94555E-07	2.50339E-07	2.82592E-07
12	3.36418E-09	1.35455E-07	2.65864E-07	3.40693E-07	3.79167E-07
13	5.27805E-09	1.63869E-07	3.11715E-07	3.97110E-07	4.33357E-07
14	5.67739E-09	1.63677E-07	3.04399E-07	3.92914E-07	4.30561E-07
15	4.40259E-09	1.36838E-07	2.40873E-07	3.12043E-07	3.45697E-07
16	3.34676E-09	1.11247E-07	2.03859E-07	2.81952E-07	3.37911E-07
17	2.93623E-09	1.20041E-07	2.39053E-07	3.31481E-07	3.99682E-07
18	2.94320E-09	1.62733E-07	3.81756E-07	5.64864E-07	7.03376E-07
19	5.91018E-09	1.56517E-07	3.18635E-07	4.30625E-07	4.98204E-07
20	1.29111E-08	1.97859E-07	3.69345E-07	4.85620E-07	5.49957E-07
21	9.06522E-09	1.70209E-07	2.83387E-07	3.63112E-07	4.07354E-07
22	1.26224E-08	1.89755E-07	3.03262E-07	3.71414E-07	4.08562E-07
23	7.69839E-09	1.80808E-07	3.22440E-07	3.99625E-07	4.45393E-07
24	2.40006E-09	1.59432E-07	3.18450E-07	4.04653E-07	4.49424E-07
25	3.46958E-09	1.57772E-07	2.99390E-07	3.59011E-07	3.75221E-07
26	5.13835E-09	1.62955E-07	2.84978E-07	3.39745E-07	3.59427E-07
27	5.02540E-09	1.77209E-07	3.24963E-07	3.96121E-07	4.27956E-07
28	4.46325E-09	1.80252E-07	3.30736E-07	3.84132E-07	3.90716E-07
29	4.04920E-09	1.76378E-07	3.24305E-07	3.87419E-07	4.11738E-07
30	5.13401E-09	1.79551E-07	3.30204E-07	4.09064E-07	4.52558E-07
31	8.48516E-09	1.76651E-07	3.25556E-07	3.95365E-07	4.24279E-07
32	9.78577E-09	1.91092E-07	3.43025E-07	4.02218E-07	4.19543E-07
33	6.34514E-09	1.71061E-07	2.99938E-07	3.55564E-07	3.75420E-07
34	5.76036E-09	2.02602E-07	3.54729E-07	4.20687E-07	4.42452E-07
35	5.82121E-09	2.08404E-07	3.38571E-07	3.83159E-07	3.92409E-07
36	5.61147E-09	2.45528E-07	4.52327E-07	5.49977E-07	5.93616E-07

PLANT NAME: KISS, UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 9.5880E-07 DIRECTION= 18 DISTANCE= 5.0 KM
YEAR= 76

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	4.46671E-07	4.33525E-07	4.21988E-07	4.09143E-07	3.97549E-07
2	4.16237E-07	4.05094E-07	3.92923E-07	3.79001E-07	3.65570E-07
3	3.49100E-07	3.28252E-07	3.08720E-07	2.90425E-07	2.74570E-07
4	3.41063E-07	3.35233E-07	3.28779E-07	3.20197E-07	3.11676E-07
5	4.35105E-07	4.26850E-07	4.16617E-07	4.03317E-07	3.90180E-07
6	3.97859E-07	3.89853E-07	3.81796E-07	3.71666E-07	3.62271E-07
7	2.94669E-07	2.90468E-07	2.86772E-07	2.81824E-07	2.77623E-07
8	3.10981E-07	3.02745E-07	2.92195E-07	2.79833E-07	2.67954E-07
9	4.45083E-07	4.51396E-07	4.52121E-07	4.46514E-07	4.39172E-07
10	3.29604E-07	3.41152E-07	3.48282E-07	3.48978E-07	3.47517E-07
11	3.05118E-07	3.19751E-07	3.30368E-07	3.34722E-07	3.36609E-07
12	4.01901E-07	4.13596E-07	4.19727E-07	4.18506E-07	4.14730E-07
13	4.45304E-07	4.42387E-07	4.33708E-07	4.20456E-07	4.06081E-07
14	4.41158E-07	4.35643E-07	4.23604E-07	4.06716E-07	3.88950E-07
15	3.58692E-07	3.58967E-07	3.54011E-07	3.44576E-07	3.34115E-07
16	3.79914E-07	4.08368E-07	4.20844E-07	4.39275E-07	4.45158E-07
17	4.52799E-07	4.89640E-07	5.15787E-07	5.27670E-07	5.33021E-07
18	8.07842E-07	8.76542E-07	9.23971E-07	9.47224E-07	9.58798E-07
19	5.37007E-07	5.51956E-07	5.56053E-07	5.51284E-07	5.42920E-07
20	5.85018E-07	5.99060E-07	6.04591E-07	6.01353E-07	5.95265E-07
21	4.32052E-07	4.42802E-07	4.48177E-07	4.47401E-07	4.44926E-07
22	4.31760E-07	4.43466E-07	4.50943E-07	4.52416E-07	4.52300E-07
23	4.80589E-07	5.06280E-07	5.27237E-07	5.38883E-07	5.46898E-07
24	4.78300E-07	4.96510E-07	5.10089E-07	5.15233E-07	5.17611E-07
25	3.78863E-07	3.78721E-07	3.79776E-07	3.79041E-07	3.79195E-07
26	3.67911E-07	3.71033E-07	3.73272E-07	3.72076E-07	3.70762E-07
27	4.51190E-07	4.69800E-07	4.87025E-07	4.97293E-07	5.05271E-07
28	3.84517E-07	3.73956E-07	3.64002E-07	3.52939E-07	3.42693E-07
29	4.21042E-07	4.20421E-07	4.16590E-07	4.09096E-07	4.00931E-07
30	4.80996E-07	4.98201E-07	5.10844E-07	5.15864E-07	5.18571E-07
31	4.38305E-07	4.43695E-07	4.46166E-07	4.42994E-07	4.38403E-07
32	4.23103E-07	4.19899E-07	4.15377E-07	4.07757E-07	4.00137E-07
33	3.80713E-07	3.77737E-07	3.72172E-07	3.63185E-07	3.54005E-07
34	4.48188E-07	4.46596E-07	4.44464E-07	4.39843E-07	4.35557E-07
35	3.92444E-07	3.89785E-07	3.88461E-07	3.84793E-07	3.81939E-07
36	6.19360E-07	6.34803E-07	6.47816E-07	6.53123E-07	6.56693E-07

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3

MAXIMUM MEAN CONC= 8.0513E-07 DIRECTION= 36 DISTANCE= 2.5 KM

YEAR= 77

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	6.09537E-09	2.42164E-07	4.48229E-07	5.03964E-07	4.97049E-07
2	3.15922E-09	1.66912E-07	2.92562E-07	3.32268E-07	3.38670E-07
3	2.97935E-09	1.63787E-07	2.77015E-07	3.04768E-07	2.97394E-07
4	4.12708E-09	1.94538E-07	3.33511E-07	3.76710E-07	3.80792E-07
5	5.43618E-09	2.07193E-07	3.47199E-07	4.07273E-07	4.28957E-07
6	7.49443E-09	2.12662E-07	3.29180E-07	3.74161E-07	3.88136E-07
7	9.00905E-09	1.96207E-07	2.85791E-07	3.08589E-07	3.07431E-07
8	5.46466E-09	1.48047E-07	2.41517E-07	2.82503E-07	2.97494E-07
9	3.77230E-09	1.49424E-07	2.94307E-07	3.78852E-07	4.28392E-07
10	3.23945E-09	1.36086E-07	2.63583E-07	3.21781E-07	3.40298E-07
11	4.32520E-09	1.57522E-07	2.94027E-07	3.54955E-07	3.73701E-07
12	6.24088E-09	1.89599E-07	3.58416E-07	4.29705E-07	4.47585E-07
13	5.26805E-09	1.69322E-07	3.29755E-07	3.99359E-07	4.17228E-07
14	5.66461E-09	1.49990E-07	2.95835E-07	3.61470E-07	3.81407E-07
15	4.65388E-09	1.40811E-07	2.84448E-07	3.46549E-07	3.61095E-07
16	3.40501E-09	1.31146E-07	2.53506E-07	3.10989E-07	3.33490E-07
17	4.50233E-09	1.44785E-07	2.84826E-07	3.64114E-07	4.02552E-07
18	4.52995E-09	1.41950E-07	2.84829E-07	4.09788E-07	5.11905E-07
19	3.64693E-09	1.06024E-07	1.71953E-07	2.28420E-07	2.67395E-07
20	3.30219E-09	9.55898E-08	1.63543E-07	2.29022E-07	2.77549E-07
21	2.88820E-09	8.67794E-08	1.65365E-07	2.34733E-07	2.87433E-07
22	3.00492E-09	1.07087E-07	2.09519E-07	2.75921E-07	3.16563E-07
23	4.68855E-09	1.74430E-07	3.58545E-07	4.62300E-07	5.17751E-07
24	5.29973E-09	1.79624E-07	3.67574E-07	4.75938E-07	5.31827E-07
25	4.80421E-09	1.84429E-07	3.47323E-07	4.20215E-07	4.50495E-07
26	4.95882E-09	2.07892E-07	3.89853E-07	4.57310E-07	4.75207E-07
27	5.54159E-09	2.44291E-07	5.21469E-07	6.69656E-07	7.41395E-07
28	6.50943E-09	2.05816E-07	3.84093E-07	4.55589E-07	4.72322E-07
29	7.30248E-09	2.12619E-07	3.49659E-07	3.94110E-07	3.98309E-07
30	9.63426E-09	2.86298E-07	4.88929E-07	5.74953E-07	6.04146E-07
31	9.65201E-09	2.60981E-07	4.08474E-07	4.60658E-07	4.71429E-07
32	4.51400E-09	1.73672E-07	2.93118E-07	3.52351E-07	3.73374E-07
33	2.42852E-09	1.47307E-07	2.62023E-07	3.14471E-07	3.30032E-07
34	2.28024E-09	1.38119E-07	2.67064E-07	3.34039E-07	3.61811E-07
35	4.05244E-09	1.69803E-07	3.36491E-07	4.09589E-07	4.32292E-07
36	8.08863E-09	2.88415E-07	6.05726E-07	7.50547E-07	8.05129E-07

PLANT NAME: KISS, UTILITIES POLLUTANT; SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 8.3639E-07 DIRECTION= 36 DISTANCE= 4.0 KM
YEAR= 77

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	4.73584E-07	4.46424E-07	4.22236E-07	3.99509E-07	3.79936E-07
2	3.36887E-07	3.31831E-07	3.27077E-07	3.20710E-07	3.14648E-07
3	2.82002E-07	2.65641E-07	2.51452E-07	2.38564E-07	2.27714E-07
4	3.76258E-07	3.68963E-07	3.62712E-07	3.55194E-07	3.48563E-07
5	4.38417E-07	4.41403E-07	4.43028E-07	4.40680E-07	4.38069E-07
6	3.93899E-07	3.95733E-07	3.97087E-07	3.95104E-07	3.93004E-07
7	3.00866E-07	2.92624E-07	2.85160E-07	2.76547E-07	2.68723E-07
8	3.02992E-07	3.03858E-07	3.03877E-07	3.00848E-07	2.97893E-07
9	4.61882E-07	4.82655E-07	4.96387E-07	4.99487E-07	4.98831E-07
10	3.42641E-07	3.36445E-07	3.27980E-07	3.16878E-07	3.05937E-07
11	3.76972E-07	3.72823E-07	3.67024E-07	3.57921E-07	3.48676E-07
12	4.45462E-07	4.34190E-07	4.21380E-07	4.06388E-07	3.92233E-07
13	4.13164E-07	3.97887E-07	3.80026E-07	3.60911E-07	3.42645E-07
14	3.82409E-07	3.73434E-07	3.61734E-07	3.47878E-07	3.34103E-07
15	3.57458E-07	3.46068E-07	3.33174E-07	3.18556E-07	3.04665E-07
16	3.43448E-07	3.47110E-07	3.48578E-07	3.45239E-07	3.41170E-07
17	4.21835E-07	4.29214E-07	4.31062E-07	4.25824E-07	4.18678E-07
18	5.95869E-07	6.58124E-07	7.05090E-07	7.30610E-07	7.46743E-07
19	2.94067E-07	3.10354E-07	3.21163E-07	3.25038E-07	3.26387E-07
20	3.12965E-07	3.36541E-07	3.53163E-07	3.60946E-07	3.65174E-07
21	3.29790E-07	3.62367E-07	3.89293E-07	4.06560E-07	4.19940E-07
22	3.47105E-07	3.71013E-07	3.92754E-07	4.08322E-07	4.22116E-07
23	5.56272E-07	5.84868E-07	6.10501E-07	6.27214E-07	6.41593E-07
24	5.65604E-07	5.85519E-07	6.00136E-07	6.06015E-07	6.09495E-07
25	4.67780E-07	4.78097E-07	4.86382E-07	4.88347E-07	4.88790E-07
26	4.78275E-07	4.74462E-07	4.70411E-07	4.64094E-07	4.58591E-07
27	7.79822E-07	7.96875E-07	8.05990E-07	8.04295E-07	7.99556E-07
28	4.70464E-07	4.60702E-07	4.50484E-07	4.38601E-07	4.27818E-07
29	3.89320E-07	3.75123E-07	3.61257E-07	3.46765E-07	3.33665E-07
30	6.10348E-07	6.03862E-07	5.94258E-07	5.80172E-07	5.66396E-07
31	4.68309E-07	4.59367E-07	4.50752E-07	4.40337E-07	4.30831E-07
32	3.79319E-07	3.78126E-07	3.75054E-07	3.68450E-07	3.61683E-07
33	3.34755E-07	3.35700E-07	3.36619E-07	3.34204E-07	3.31638E-07
34	3.75861E-07	3.83062E-07	3.88999E-07	3.90822E-07	3.92094E-07
35	4.30496E-07	4.37850E-07	4.36888E-07	4.32521E-07	4.28442E-07
36	8.27917E-07	8.34271E-07	8.36388E-07	8.29760E-07	8.21863E-07

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUN MEAN CONC= 8.5493E-07 DIRECTION= 27 DISTANCE= 2.5 KM
YEAR= 78

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.63725E-08	2.29036E-07	3.51837E-07	3.91592E-07	3.89887E-07
2	1.01263E-06	1.82969E-07	2.82261E-07	3.28025E-07	3.41073E-07
3	5.72110E-09	1.44085E-07	2.04561E-07	2.32440E-07	2.37803E-07
4	4.87596E-09	1.45141E-07	2.20311E-07	2.71475E-07	2.98632E-07
5	5.52708E-09	1.48059E-07	2.14693E-07	2.54210E-07	2.71305E-07
6	4.81171E-09	1.41779E-07	1.99479E-07	2.31745E-07	2.46332E-07
7	1.89282E-09	1.03274E-07	1.52993E-07	1.73930E-07	1.80231E-07
8	1.52259E-09	9.48876E-08	1.59826E-07	1.87637E-07	1.94681E-07
9	5.30938E-09	1.11987E-07	1.83722E-07	2.31551E-07	2.63024E-07
10	4.95246E-09	9.30500E-08	1.48528E-07	1.79550E-07	1.95178E-07
11	2.89684E-09	7.40053E-08	1.21257E-07	1.53344E-07	1.71945E-07
12	2.67631E-09	8.99821E-08	1.76770E-07	2.39351E-07	2.77010E-07
13	2.59544E-09	1.18940E-07	2.31608E-07	2.84404E-07	2.99943E-07
14	2.40481E-09	1.15774E-07	2.41624E-07	2.98383E-07	3.12379E-07
15	1.66399E-09	8.36738E-08	1.84346E-07	2.39331E-07	2.66807E-07
16	9.80732E-10	6.24842E-08	1.49470E-07	2.02065E-07	2.32723E-07
17	7.92228E-10	6.75138E-08	1.78722E-07	2.54142E-07	3.03269E-07
18	1.17462E-09	1.00488E-07	2.70828E-07	4.25234E-07	5.31744E-07
19	2.33473E-09	9.64134E-08	2.12972E-07	3.04906E-07	3.62862E-07
20	5.95724E-09	1.42470E-07	2.45643E-07	3.24565E-07	3.74179E-07
21	1.07560E-08	2.18349E-07	3.26073E-07	3.86965E-07	4.17048E-07
22	1.10577E-08	2.54763E-07	3.94153E-07	4.58218E-07	4.81822E-07
23	9.30913E-09	2.69042E-07	4.69616E-07	5.63219E-07	5.94852E-07
24	8.21622E-09	2.82112E-07	4.91614E-07	5.69856E-07	5.84495E-07
25	7.12554E-09	2.92030E-07	4.88748E-07	5.50605E-07	5.56044E-07
26	8.87363E-09	3.72434E-07	6.36477E-07	7.28170E-07	7.43786E-07
27	9.38575E-09	3.90055E-07	6.91617E-07	8.16816E-07	8.54931E-07
28	7.18697E-09	3.04988E-07	5.24377E-07	6.15255E-07	6.35845E-07
29	5.93978E-09	2.57933E-07	4.32949E-07	4.80202E-07	4.70669E-07
30	6.22605E-09	2.75067E-07	4.93765E-07	5.54840E-07	5.58118E-07
31	5.73622E-09	2.58240E-07	4.66747E-07	5.24329E-07	5.28386E-07
32	4.85232E-09	2.12071E-07	3.84165E-07	4.48613E-07	4.62775E-07
33	6.14310E-09	2.17893E-07	3.79971E-07	4.62224E-07	4.99238E-07
34	7.65758E-09	2.49557E-07	4.40078E-07	5.28691E-07	5.57241E-07
35	1.13973E-08	2.84243E-07	4.92206E-07	5.68717E-07	5.77492E-07
36	1.70111E-08	2.97813E-07	5.15429E-07	6.05154E-07	6.24095E-07

PLANT NAME: KISS. UTILITIES POLLUTANT; SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 8.6541E-07 DIRECTION= 27 DISTANCE= 3.0 KM
YEAR= 78

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	3.77054E-07	3.60941E-07	3.45654E-07	3.29985E-07	3.15727E-07
2	3.42505E-07	3.36225E-07	3.32660E-07	3.24094E-07	3.15209E-07
3	2.34279E-07	2.26415E-07	2.17953E-07	2.08798E-07	2.00180E-07
4	3.13420E-07	3.19848E-07	3.22906E-07	3.21449E-07	3.18744E-07
5	2.78280E-07	2.79549E-07	2.79267E-07	2.76095E-07	2.72407E-07
6	2.51922E-07	2.51718E-07	2.49770E-07	2.45358E-07	2.40565E-07
7	1.81521E-07	1.79917E-07	1.77743E-07	1.74203E-07	1.70491E-07
8	1.94378E-07	1.90502E-07	1.86129E-07	1.80657E-07	1.75370E-07
9	2.85085E-07	2.97834E-07	3.05644E-07	3.07378E-07	3.06374E-07
10	2.04667E-07	2.09900E-07	2.13375E-07	2.13554E-07	2.12653E-07
11	1.83404E-07	1.89594E-07	1.93496E-07	1.94244E-07	1.93990E-07
12	2.99447E-07	3.10169E-07	3.15189E-07	3.14196E-07	3.10736E-07
13	2.99880E-07	2.91691E-07	2.81242E-07	2.69268E-07	2.57491E-07
14	3.09533E-07	2.98897E-07	2.86461E-07	2.72961E-07	2.60129E-07
15	2.82386E-07	2.89903E-07	2.93389E-07	2.91736E-07	2.88400E-07
16	2.52795E-07	2.64731E-07	2.72424E-07	2.74868E-07	2.75515E-07
17	3.41031E-07	3.68650E-07	3.90783E-07	4.04505E-07	4.14526E-07
18	6.13617E-07	6.71631E-07	7.15042E-07	7.39414E-07	7.54889E-07
19	3.99186E-07	4.18151E-07	4.28112E-07	4.29036E-07	4.26092E-07
20	4.08698E-07	4.31667E-07	4.49343E-07	4.58721E-07	4.64929E-07
21	4.37640E-07	4.52042E-07	4.64852E-07	4.72312E-07	4.78192E-07
22	4.97171E-07	5.09330E-07	5.22081E-07	5.29903E-07	5.36789E-07
23	6.06286E-07	6.08154E-07	6.08251E-07	6.03112E-07	5.97853E-07
24	5.82514E-07	5.75139E-07	5.69237E-07	5.61476E-07	5.55480E-07
25	5.50347E-07	5.43547E-07	5.39924E-07	5.34033E-07	5.30034E-07
26	7.39201E-07	7.28317E-07	7.19503E-07	7.07625E-07	6.97554E-07
27	8.65411E-07	8.62809E-07	8.58411E-07	8.47370E-07	8.36071E-07
28	6.31850E-07	6.17574E-07	6.02252E-07	5.84028E-07	5.66956E-07
29	4.45928E-07	4.18415E-07	3.93799E-07	3.71180E-07	3.51824E-07
30	5.51309E-07	5.43278E-07	5.38344E-07	5.31794E-07	5.26861E-07
31	5.23767E-07	5.18287E-07	5.14675E-07	5.07680E-07	5.01315E-07
32	4.63454E-07	4.59989E-07	4.56788E-07	4.50226E-07	4.44090E-07
33	5.20519E-07	5.33505E-07	5.44122E-07	5.47561E-07	5.49218E-07
34	5.65621E-07	5.66044E-07	5.65943E-07	5.61185E-07	5.56684E-07
35	5.66209E-07	5.49103E-07	5.34353E-07	5.19576E-07	5.07708E-07
36	6.18325E-07	6.01883E-07	5.84338E-07	5.64903E-07	5.47115E-07

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.1245E-05 DIRECTION= 18 DISTANCE= 2.5 KM DAY=279
YEAR= 74

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.8873E-07 (80)	2.9136E-06 (152)	4.5807E-06 (152)	4.8538E-06 (152)	4.8881E-06 (354)
2	2.4344E-07 (80)	2.9518E-06 (124)	4.5410E-06 (152)	4.9208E-06 (50)	4.6545E-06 (50)
3	1.8782E-07 (188)	3.1963E-06 (97)	3.1221E-06 (125)	2.9348E-06 (212)	3.3562E-06 (98)
4	1.3573E-07 (174)	2.8664E-06 (146)	4.6813E-06 (153)	4.8734E-06 (153)	4.2076E-06 (125)
5	3.9434E-07 (176)	4.3971E-06 (146)	5.4167E-06 (174)	5.3071E-06 (174)	4.9610E-06 (162)
6	2.2662E-07 (206)	4.9329E-06 (176)	4.8973E-06 (90)	5.1563E-06 (88)	4.9214E-06 (176)
7	2.1278E-07 (192)	3.6788E-06 (169)	4.9871E-06 (192)	4.6705E-06 (89)	4.9974E-06 (203)
8	2.4462E-07 (145)	3.3643E-06 (123)	4.2629E-06 (193)	4.9875E-06 (132)	5.2053E-06 (168)
9	2.2367E-07 (123)	2.5960E-06 (89)	3.5861E-06 (193)	4.3965E-06 (193)	4.2640E-06 (193)
10	2.9796E-07 (89)	2.8147E-06 (150)	3.5405E-06 (89)	4.1114E-06 (89)	4.3292E-06 (89)
11	2.4384E-07 (173)	3.7143E-06 (99)	4.1290E-06 (163)	4.2338E-06 (76)	4.6449E-06 (76)
12	2.9050E-07 (151)	6.1701E-06 (145)	6.1436E-06 (191)	6.1167E-06 (191)	5.8445E-06 (335)
13	3.4372E-07 (211)	5.3627E-06 (145)	5.2230E-06 (114)	4.9714E-06 (114)	5.1189E-06 (337)
14	1.3212E-07 (207)	3.9809E-06 (121)	5.0245E-06 (145)	4.9872E-06 (167)	4.6335E-06 (291)
15	1.0183E-07 (163)	2.9971E-06 (211)	4.2885E-06 (163)	4.4251E-06 (41)	4.1880E-06 (163)
16	8.9207E-08 (163)	2.4398E-06 (107)	3.2168E-06 (120)	4.0519E-06 (76)	4.0452E-06 (76)
17	3.0316E-08 (100)	3.5594E-06 (120)	5.1547E-06 (107)	4.7862E-06 (57)	4.6524E-06 (107)
18	5.7613E-08 (211)	3.5681E-06 (128)	6.9953E-06 (297)	9.1534E-06 (279)	1.1245E-05 (279)
19	9.3871E-08 (181)	3.2551E-06 (128)	3.7493E-06 (279)	4.5530E-06 (51)	4.3851E-06 (108)
20	2.4975E-07 (211)	3.2649E-06 (276)	3.6427E-06 (109)	4.9118E-06 (274)	6.2539E-06 (296)
21	2.2169E-07 (211)	4.1854E-06 (108)	5.3576E-06 (100)	6.2511E-06 (109)	6.8764E-06 (330)
22	4.4733E-07 (225)	4.6739E-06 (100)	6.0489E-06 (109)	5.8733E-06 (171)	5.6312E-06 (283)
23	3.9615E-07 (225)	4.2341E-06 (225)	5.3999E-06 (195)	6.6310E-06 (195)	6.3656E-06 (195)
24	2.2687E-07 (238)	2.6777E-06 (171)	4.3558E-06 (195)	5.7239E-06 (195)	5.7544E-06 (195)
25	1.7681E-07 (67)	1.9451E-06 (227)	3.8468E-06 (235)	5.0067E-06 (340)	4.6276E-06 (262)
26	1.2499E-07 (238)	3.4369E-06 (140)	3.8681E-06 (225)	4.3227E-06 (300)	4.2025E-06 (300)
27	2.1425E-07 (156)	3.8087E-06 (140)	5.3404E-06 (111)	5.2970E-06 (111)	4.9911E-06 (111)
28	2.3729E-07 (165)	2.7327E-06 (141)	4.3702E-06 (215)	5.5036E-06 (215)	5.5343E-06 (219)
29	2.4620E-07 (165)	3.6971E-06 (165)	4.2839E-06 (246)	5.2523E-06 (243)	5.2081E-06 (243)
30	2.1200E-07 (169)	2.7914E-06 (62)	5.8327E-06 (139)	6.7094E-06 (139)	6.1166E-06 (62)
31	7.4165E-07 (135)	3.4653E-06 (220)	4.0035E-06 (65)	4.6444E-06 (62)	4.5690E-06 (62)
32	1.6086E-06 (135)	4.4120E-06 (158)	5.7574E-06 (159)	5.0734E-06 (159)	4.6681E-06 (134)
33	5.9718E-07 (220)	3.7591E-06 (131)	5.1607E-06 (227)	4.9314E-06 (131)	5.3067E-06 (250)
34	2.4524E-07 (207)	2.8243E-06 (94)	5.0664E-06 (94)	5.3100E-06 (132)	5.4847E-06 (94)
35	2.0621E-07 (221)	2.6287E-06 (94)	3.8246E-06 (213)	4.3289E-06 (213)	3.8737E-06 (213)
36	1.0100E-07 (221)	2.6904E-06 (152)	5.0947E-06 (91)	5.5383E-06 (91)	5.3925E-06 (135)

PLANT NAME: KISS, UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.2189E-05 DIRECTION= 10 DISTANCE= 3.5 KM DAY=279
YEAR= 74

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	5.0491E-06 (354)	4.9019E-06 (354)	4.6468E-06 (354)	4.3511E-06 (50)	3.9485E-06 (50)
2	4.1995E-06 (50)	3.7224E-06 (50)	3.2945E-06 (50)	2.9237E-06 (50)	2.6063E-06 (50)
3	3.2987E-06 (34)	3.2083E-06 (98)	2.9582E-06 (98)	2.8786E-06 (50)	2.8600E-06 (50)
4	3.6257E-06 (153)	3.4175E-06 (38)	3.6078E-06 (38)	4.0194E-06 (38)	4.1354E-06 (38)
5	4.5122E-06 (162)	3.9521E-06 (162)	4.0122E-06 (39)	4.1902E-06 (39)	4.2269E-06 (146)
6	4.3957E-06 (176)	3.9034E-06 (176)	3.8780E-06 (174)	3.9536E-06 (174)	4.0042E-06 (174)
7	4.2161E-06 (203)	4.4486E-06 (174)	4.5978E-06 (174)	4.6073E-06 (174)	4.5571E-06 (174)
8	4.9265E-06 (193)	5.9816E-06 (146)	6.0866E-06 (132)	5.8877E-06 (132)	5.6688E-06 (132)
9	3.8484E-06 (7)	3.8971E-06 (89)	4.1079E-06 (89)	4.1586E-06 (89)	4.1498E-06 (89)
10	4.3026E-06 (89)	4.1513E-06 (335)	4.1547E-06 (335)	4.1144E-06 (335)	4.0519E-06 (335)
11	5.0577E-06 (335)	5.3875E-06 (99)	5.0690E-06 (342)	5.5587E-06 (342)	5.8819E-06 (342)
12	5.5611E-06 (145)	5.0664E-06 (336)	5.8032E-06 (335)	5.5838E-06 (40)	5.8802E-06 (40)
13	4.8006E-06 (96)	5.0841E-06 (40)	5.7342E-06 (40)	5.9917E-06 (337)	5.8522E-06 (337)
14	4.6064E-06 (343)	5.1363E-06 (343)	5.4890E-06 (343)	5.6262E-06 (343)	5.6613E-06 (343)
15	4.1494E-06 (280)	4.7967E-06 (280)	5.1749E-06 (280)	5.3531E-06 (280)	5.3914E-06 (280)
16	3.7953E-06 (57)	3.7412E-06 (96)	4.0768E-06 (96)	4.2193E-06 (96)	4.2566E-06 (96)
17	4.0105E-06 (107)	4.2314E-06 (332)	4.4074E-06 (332)	4.5414E-06 (311)	4.8073E-06 (311)
18	1.2145E-05 (279)	1.2189E-05 (279)	1.1867E-05 (279)	1.1358E-05 (279)	1.0766E-05 (279)
19	4.9041E-06 (313)	5.4539E-06 (313)	5.7770E-06 (313)	5.9303E-06 (313)	5.9614E-06 (313)
20	6.9883E-06 (276)	6.3395E-06 (276)	5.7085E-06 (276)	5.1333E-06 (276)	4.8841E-06 (360)
21	7.0430E-06 (330)	6.7932E-06 (330)	6.4121E-06 (330)	6.4270E-06 (348)	6.2659E-06 (277)
22	6.0368E-06 (294)	6.2378E-06 (294)	6.2202E-06 (294)	6.0727E-06 (294)	5.8603E-06 (294)
23	5.9012E-06 (285)	6.2834E-06 (285)	6.4114E-06 (285)	6.3779E-06 (285)	6.2635E-06 (285)
24	5.2810E-06 (195)	4.6818E-06 (195)	4.4613E-06 (8)	4.3095E-06 (8)	4.6616E-06 (73)
25	4.6085E-06 (110)	4.4522E-06 (110)	4.2389E-06 (110)	4.0326E-06 (110)	4.1304E-06 (236)
26	3.8243E-06 (300)	3.5277E-06 (215)	3.5700E-06 (215)	3.5892E-06 (215)	3.4430E-06 (302)
27	4.4922E-06 (140)	4.2310E-06 (101)	4.0528E-06 (101)	3.8234E-06 (101)	3.5774E-06 (101)
28	5.1207E-06 (219)	4.6844E-06 (215)	4.3299E-06 (219)	4.0879E-06 (159)	4.0371E-06 (159)
29	4.7436E-06 (102)	5.0800E-06 (139)	4.7225E-06 (24)	5.0145E-06 (24)	5.1917E-06 (24)
30	5.3280E-06 (62)	4.6530E-06 (62)	4.5172E-06 (139)	4.6302E-06 (219)	4.6602E-06 (361)
31	4.3598E-06 (65)	4.5128E-06 (37)	4.9080E-06 (37)	5.1312E-06 (37)	5.1179E-06 (131)
32	4.5848E-06 (134)	4.6019E-06 (103)	4.7355E-06 (103)	4.7555E-06 (103)	4.7458E-06 (103)
33	4.5941E-06 (250)	4.2089E-06 (94)	4.1338E-06 (94)	4.0428E-06 (94)	3.9461E-06 (94)
34	5.3366E-06 (94)	5.2362E-06 (93)	5.1744E-06 (93)	5.0515E-06 (93)	4.9101E-06 (93)
35	3.7995E-06 (27)	3.8036E-06 (180)	4.1944E-06 (21)	4.4439E-06 (27)	4.3897E-06 (27)
36	5.0023E-06 (176)	5.1942E-06 (176)	5.2762E-06 (176)	5.2695E-06 (176)	5.1967E-06 (176)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 8.2554E-06 DIRECTION= 36 DISTANCE= 2.0 KM DAY=290
YEAR= 75

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.9505E-07 (207)	4.9164E-06 (167)	7.1687E-06 (167)	6.7936E-06 (167)	5.7740E-06 (167)
2	4.1772E-07 (207)	4.9857E-06 (119)	5.2473E-06 (215)	4.8105E-06 (151)	4.3281E-06 (151)
3	2.0006E-07 (215)	2.7332E-06 (215)	3.5732E-06 (260)	4.5092E-06 (202)	4.5411E-06 (202)
4	2.4828E-07 (215)	2.5368E-06 (203)	5.1119E-06 (188)	4.8410E-06 (82)	4.5550E-06 (82)
5	2.5922E-07 (219)	4.4266E-06 (203)	5.8531E-06 (186)	5.4227E-06 (186)	5.1354E-06 (89)
6	2.8498E-07 (203)	3.7239E-06 (186)	5.0757E-06 (110)	4.6756E-06 (110)	4.3768E-06 (100)
7	2.9667E-07 (158)	4.2713E-06 (158)	6.0374E-06 (110)	5.2433E-06 (158)	5.3179E-06 (158)
8	2.7906E-07 (157)	4.8503E-06 (225)	4.5077E-06 (40)	5.2268E-06 (40)	4.8103E-06 (40)
9	1.7406E-07 (157)	3.7339E-06 (225)	4.0513E-06 (124)	4.3329E-06 (78)	5.2975E-06 (325)
10	2.8108E-07 (138)	2.3836E-06 (129)	3.5504E-06 (129)	4.1575E-06 (186)	4.3529E-06 (124)
11	2.5092E-07 (156)	3.2103E-06 (128)	5.1298E-06 (128)	6.2014E-06 (93)	6.7545E-06 (93)
12	2.4628E-07 (156)	4.4548E-06 (180)	5.9998E-06 (163)	5.9430E-06 (59)	6.2617E-06 (59)
13	2.9261E-07 (105)	3.6828E-06 (180)	5.1324E-06 (163)	5.5345E-06 (67)	7.1412E-06 (67)
14	1.2973E-07 (105)	3.6616E-06 (231)	6.1418E-06 (231)	5.7478E-06 (231)	5.1819E-06 (355)
15	1.3835E-07 (156)	2.9255E-06 (156)	4.1812E-06 (97)	4.3059E-06 (164)	4.2397E-06 (164)
16	9.9510E-08 (155)	2.5707E-06 (102)	3.8138E-06 (96)	4.6111E-06 (95)	4.9031E-06 (95)
17	1.1721E-07 (155)	3.0302E-06 (230)	3.6469E-06 (230)	4.0608E-06 (97)	3.8696E-06 (97)
18	6.5337E-08 (85)	2.6912E-06 (106)	3.7966E-06 (155)	4.9423E-06 (85)	4.3180E-06 (303)
19	7.6665E-08 (106)	2.1316E-06 (244)	3.8042E-06 (106)	4.0382E-06 (131)	3.6656E-06 (131)
20	5.7468E-08 (141)	1.9876E-06 (244)	2.7841E-06 (141)	3.5481E-06 (131)	3.4032E-06 (131)
21	8.0053E-08 (141)	2.7295E-06 (141)	3.8935E-06 (141)	5.0790E-06 (277)	5.0624E-06 (277)
22	1.6676E-07 (182)	4.5241E-06 (182)	5.1703E-06 (145)	4.9064E-06 (182)	4.4136E-06 (283)
23	1.1145E-07 (145)	3.3318E-06 (45)	5.5179E-06 (145)	5.0288E-06 (284)	4.8790E-06 (182)
24	1.7738E-07 (146)	2.9495E-06 (172)	5.1141E-06 (174)	5.5348E-06 (284)	6.0752E-06 (182)
25	2.3852E-07 (146)	2.9716E-06 (103)	4.3317E-06 (144)	4.6251E-06 (144)	4.3466E-06 (144)
26	2.5578E-07 (232)	3.4949E-06 (234)	4.3080E-06 (234)	3.5867E-06 (234)	3.8771E-06 (287)
27	2.1984E-07 (112)	4.6285E-06 (234)	5.7496E-06 (234)	5.2495E-06 (234)	5.1006E-06 (340)
28	1.6331E-07 (234)	4.4068E-06 (205)	4.6750E-06 (114)	5.7241E-06 (288)	5.3114E-06 (205)
29	8.0646E-08 (234)	4.0324E-06 (205)	4.8503E-06 (214)	5.2181E-06 (214)	4.8717E-06 (288)
30	1.4426E-07 (225)	3.7396E-06 (113)	6.4710E-06 (113)	7.2144E-06 (113)	7.5412E-06 (87)
31	2.0153E-07 (120)	2.7505E-06 (227)	3.5907E-06 (234)	4.0355E-06 (234)	3.8034E-06 (117)
32	2.2183E-07 (227)	2.3294E-06 (227)	3.2522E-06 (246)	3.1027E-06 (265)	3.4182E-06 (10)
33	2.2820E-07 (204)	3.0036E-06 (210)	4.9645E-06 (123)	5.4808E-06 (10)	6.8434E-06 (10)
34	2.4288E-07 (109)	3.9204E-06 (115)	5.8969E-06 (151)	6.5528E-06 (151)	6.4191E-06 (261)
35	4.1923E-07 (83)	4.5134E-06 (147)	4.8723E-06 (223)	4.9933E-06 (223)	4.5564E-06 (72)
36	2.5271E-07 (83)	4.7194E-06 (115)	6.4964E-06 (115)	8.2554E-06 (290)	7.3952E-06 (109)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 8.6977E-06 DIRECTION= 18 DISTANCE= 5.0 KM DAY=303
YEAR= 75

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	5.0576E-06 (331)	5.3069E-06 (331)	5.2479E-06 (119)	4.5814E-06 (119)	4.5362E-06 (20)
2	4.3301E-06 (20)	4.6566E-06 (20)	4.7624E-06 (20)	4.7280E-06 (20)	4.6103E-06 (20)
3	4.2476E-06 (202)	3.8730E-06 (202)	3.5160E-06 (202)	3.1971E-06 (202)	3.1015E-06 (36)
4	4.1830E-06 (82)	4.1122E-06 (188)	3.7674E-06 (25)	3.7088E-06 (25)	3.6525E-06 (25)
5	4.9191E-06 (89)	5.3649E-06 (61)	4.8735E-06 (25)	4.3174E-06 (25)	4.3870E-06 (351)
6	3.9278E-06 (100)	3.0399E-06 (43)	3.8708E-06 (110)	3.9568E-06 (110)	4.0561E-06 (110)
7	5.0270E-06 (178)	5.1342E-06 (73)	5.1792E-06 (73)	5.1184E-06 (73)	5.0162E-06 (73)
8	4.3201E-06 (81)	4.2676E-06 (157)	4.1294E-06 (325)	4.1329E-06 (325)	4.0945E-06 (325)
9	6.0374E-06 (325)	6.5394E-06 (325)	6.8653E-06 (325)	6.9475E-06 (325)	6.9393E-06 (325)
10	4.6253E-06 (124)	4.6458E-06 (124)	4.5618E-06 (124)	4.4233E-06 (124)	4.2610E-06 (124)
11	6.8661E-06 (93)	6.7252E-06 (93)	6.4878E-06 (93)	6.1673E-06 (93)	5.8383E-06 (93)
12	5.9723E-06 (59)	6.0910E-06 (13)	6.1071E-06 (13)	5.7567E-06 (317)	5.3680E-06 (317)
13	7.9224E-06 (67)	7.9213E-06 (317)	7.4916E-06 (317)	7.0019E-06 (317)	6.5067E-06 (317)
14	5.5578E-06 (139)	4.7696E-06 (297)	5.3448E-06 (297)	5.6224E-06 (297)	5.7560E-06 (297)
15	3.8067E-06 (14)	4.0240E-06 (14)	4.5718E-06 (297)	4.5156E-06 (125)	4.3026E-06 (352)
16	5.2158E-06 (94)	5.4134E-06 (102)	5.1016E-06 (102)	4.8479E-06 (102)	4.6661E-06 (102)
17	5.3919E-06 (95)	5.7221E-06 (95)	5.9778E-06 (95)	6.0637E-06 (95)	6.0906E-06 (95)
18	5.9425E-06 (303)	7.1563E-06 (303)	8.0150E-06 (303)	8.4629E-06 (303)	8.6977E-06 (303)
19	3.5596E-06 (2)	3.8920E-06 (353)	4.3747E-06 (363)	4.6831E-06 (64)	4.4395E-06 (64)
20	3.4252E-06 (292)	3.8246E-06 (111)	4.3838E-06 (111)	4.4573E-06 (21)	4.1824E-06 (52)
21	4.6207E-06 (277)	4.3091E-06 (303)	4.3051E-06 (303)	4.2075E-06 (17)	4.3966E-06 (17)
22	4.5508E-06 (283)	4.5421E-06 (283)	4.4819E-06 (283)	4.5900E-06 (240)	4.8151E-06 (240)
23	5.3249E-06 (305)	6.0809E-06 (304)	6.2000E-06 (304)	6.1427E-06 (304)	6.0075E-06 (304)
24	6.1885E-06 (182)	5.9640E-06 (182)	5.6416E-06 (182)	5.2967E-06 (182)	4.9643E-06 (182)
25	3.9395E-06 (144)	3.9080E-06 (74)	3.8828E-06 (74)	4.1611E-06 (251)	4.2181E-06 (181)
26	4.0407E-06 (287)	3.9483E-06 (207)	3.5312E-06 (112)	3.4939E-06 (169)	3.3024E-06 (287)
27	4.9307E-06 (247)	4.8373E-06 (247)	4.6548E-06 (247)	4.4913E-06 (263)	4.6293E-06 (112)
28	5.1945E-06 (288)	4.8200E-06 (222)	4.5198E-06 (222)	4.5057E-06 (313)	4.6133E-06 (313)
29	4.3329E-06 (288)	4.2186E-06 (172)	3.9453E-06 (86)	3.7857E-06 (86)	3.8841E-06 (114)
30	7.0898E-06 (117)	6.5204E-06 (117)	6.0404E-06 (117)	6.4238E-06 (9)	6.7795E-06 (9)
31	3.5754E-06 (104)	3.5927E-06 (196)	3.9839E-06 (47)	4.2167E-06 (47)	4.3755E-06 (47)
32	4.4070E-06 (10)	5.3290E-06 (10)	6.2520E-06 (109)	6.8759E-06 (265)	7.1619E-06 (265)
33	7.3833E-06 (10)	7.3601E-06 (10)	7.1066E-06 (10)	6.7446E-06 (10)	6.3418E-06 (10)
34	6.2967E-06 (266)	6.1733E-06 (266)	5.9213E-06 (266)	5.6136E-06 (266)	5.2920E-06 (266)
35	5.0858E-06 (72)	5.2402E-06 (72)	5.2101E-06 (72)	5.0543E-06 (72)	4.8460E-06 (72)
36	6.4276E-06 (109)	6.3686E-06 (55)	6.2081E-06 (55)	5.9594E-06 (4)	6.0833E-06 (4)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 8.3351E-06 DIRECTION= 18 DISTANCE= 2.5 KM DAY=336
YEAR= 76

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.7533E-07 (152)	3.8319E-06 (32)	6.0482E-06 (32)	5.4960E-06 (152)	4.3747E-06 (215)
2	2.1490E-07 (186)	2.9183E-06 (199)	4.4026E-06 (186)	5.0156E-06 (186)	4.7684E-06 (186)
3	1.8587E-07 (226)	2.9649E-06 (49)	4.9775E-06 (211)	5.6711E-06 (186)	5.1960E-06 (214)
4	2.5039E-07 (226)	3.7306E-06 (116)	4.8155E-06 (95)	4.8280E-06 (95)	4.2120E-06 (116)
5	2.3820E-07 (69)	4.8803E-06 (117)	6.8558E-06 (76)	7.6230E-06 (76)	7.3857E-06 (76)
6	4.3400E-07 (116)	3.5624E-06 (81)	5.3661E-06 (76)	6.0230E-06 (194)	6.0904E-06 (194)
7	3.3263E-07 (116)	1.9797E-06 (116)	4.4151E-06 (133)	5.0355E-06 (133)	4.6119E-06 (133)
8	2.9258E-07 (139)	3.5768E-06 (198)	5.3587E-06 (145)	4.9718E-06 (198)	4.9165E-06 (195)
9	9.1731E-07 (145)	6.4979E-06 (139)	6.9578E-06 (139)	6.8454E-06 (197)	8.1343E-06 (197)
10	1.2464E-07 (204)	2.4667E-06 (17)	4.0986E-06 (198)	4.7565E-06 (198)	4.6757E-06 (198)
11	1.2464E-07 (204)	2.3595E-06 (213)	3.4016E-06 (103)	4.1560E-06 (198)	4.2861E-06 (275)
12	1.9363E-07 (221)	3.0494E-06 (93)	4.7384E-06 (235)	4.6041E-06 (235)	4.7939E-06 (39)
13	5.0480E-07 (200)	3.3694E-06 (235)	3.9790E-06 (323)	5.6821E-06 (362)	5.3334E-06 (361)
14	4.0398E-07 (200)	3.6852E-06 (208)	4.4813E-06 (96)	5.7735E-06 (295)	5.5835E-06 (295)
15	2.5060E-07 (207)	3.5713E-06 (208)	4.3483E-06 (96)	4.8294E-06 (67)	5.0917E-06 (100)
16	2.3278E-07 (247)	2.4530E-06 (220)	3.3555E-06 (124)	3.7390E-06 (356)	4.0302E-06 (306)
17	2.1637E-07 (219)	3.0474E-06 (157)	3.6137E-06 (114)	4.3705E-06 (114)	4.4206E-06 (255)
18	2.4067E-07 (157)	3.7681E-06 (157)	5.1369E-06 (118)	6.1092E-06 (336)	8.3351E-06 (336)
19	4.5461E-07 (184)	3.5167E-06 (191)	4.8110E-06 (287)	5.6430E-06 (318)	8.2844E-06 (318)
20	9.7342E-07 (184)	4.4339E-06 (157)	7.0750E-06 (140)	7.1188E-06 (286)	6.6581E-06 (292)
21	3.8174E-07 (199)	3.8880E-06 (164)	4.6437E-06 (51)	4.6003E-06 (51)	4.5778E-06 (98)
22	2.2305E-07 (245)	3.4827E-06 (199)	4.5446E-06 (243)	4.7450E-06 (165)	5.7973E-06 (232)
23	2.6252E-07 (245)	3.7188E-06 (101)	5.9395E-06 (240)	6.8488E-06 (240)	6.6987E-06 (240)
24	1.6004E-07 (226)	3.2077E-06 (101)	6.3041E-06 (242)	6.5907E-06 (242)	5.7637E-06 (242)
25	1.1759E-07 (245)	2.9178E-06 (225)	5.4862E-06 (243)	6.4403E-06 (243)	6.0708E-06 (225)
26	1.7296E-07 (114)	3.2371E-06 (226)	4.8495E-06 (268)	6.0591E-06 (278)	6.4314E-06 (278)
27	2.8852E-07 (114)	3.8160E-06 (114)	3.9444E-06 (268)	4.0198E-06 (268)	4.0189E-06 (80)
28	2.2835E-07 (114)	4.3290E-06 (63)	4.4272E-06 (204)	4.6750E-06 (120)	4.9427E-06 (269)
29	1.6303E-07 (229)	3.1413E-06 (204)	4.6568E-06 (108)	4.7376E-06 (298)	4.5147E-06 (127)
30	2.4982E-07 (245)	2.7922E-06 (120)	4.1879E-06 (268)	4.2485E-06 (107)	4.5380E-06 (64)
31	2.6888E-07 (135)	2.6281E-06 (154)	3.6525E-06 (126)	4.0308E-06 (135)	4.6855E-06 (135)
32	2.8622E-07 (192)	3.8511E-06 (192)	3.8932E-06 (189)	4.2387E-06 (152)	4.7038E-06 (135)
33	4.0934E-07 (192)	4.3187E-06 (156)	4.4349E-06 (189)	4.4879E-06 (153)	3.8095E-06 (24)
34	2.9283E-07 (192)	4.3427E-06 (228)	6.2019E-06 (185)	5.8975E-06 (228)	5.0970E-06 (144)
35	4.0887E-07 (144)	3.7209E-06 (156)	4.4602E-06 (185)	4.5967E-06 (228)	3.9935E-06 (27)
36	2.0346E-07 (222)	3.9879E-06 (223)	5.9017E-06 (215)	5.7880E-06 (182)	5.0898E-06 (188)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.0041E-05 DIRECTION= 18 DISTANCE= 4.0 KM DAY=336
YEAR= 76

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM		3.5 KM		4.0 KM		4.5 KM		5.0 KM	
1	4.0991E-06	(215)	3.9246E-06	(215)	3.8759E-06	(50)	3.7308E-06	(215)	3.8591E-06	(53)
2	4.8913E-06	(187)	4.2853E-06	(69)	4.2324E-06	(69)	4.1148E-06	(69)	3.9887E-06	(69)
3	4.6458E-06	(214)	4.5745E-06	(144)	4.5582E-06	(144)	4.2089E-06	(69)	3.8175E-06	(69)
4	4.0393E-06	(49)	4.3760E-06	(355)	4.6326E-06	(355)	4.7510E-06	(356)	4.7735E-06	(355)
5	6.7869E-06	(76)	6.1398E-06	(117)	5.9073E-06	(69)	5.3465E-06	(69)	5.2272E-06	(116)
6	5.7983E-06	(194)	5.4516E-06	(194)	5.1441E-06	(194)	4.8554E-06	(194)	4.6301E-06	(194)
7	3.9629E-06	(133)	4.4063E-06	(198)	4.2635E-06	(145)	3.7822E-06	(145)	3.3723E-06	(145)
8	4.8023E-06	(197)	4.5562E-06	(197)	4.2389E-06	(197)	4.1357E-06	(122)	4.0729E-06	(122)
9	8.7725E-06	(197)	8.1880E-06	(196)	7.5294E-06	(196)	7.4952E-06	(117)	7.5905E-06	(117)
10	4.5007E-06	(8)	4.6557E-06	(8)	5.2553E-06	(361)	5.6433E-06	(361)	5.4016E-06	(17)
11	4.5198E-06	(300)	5.1835E-06	(300)	5.6477E-06	(300)	5.8691E-06	(300)	5.9790E-06	(300)
12	5.4965E-06	(39)	5.9608E-06	(39)	6.2558E-06	(39)	6.3291E-06	(39)	6.3147E-06	(39)
13	5.6600E-06	(361)	5.6363E-06	(361)	5.4595E-06	(361)	5.2143E-06	(361)	4.9428E-06	(361)
14	5.1157E-06	(295)	5.0007E-06	(364)	5.0448E-06	(364)	5.2344E-06	(352)	5.3903E-06	(352)
15	5.2797E-06	(67)	5.8159E-06	(327)	5.9168E-06	(100)	5.7298E-06	(100)	5.4747E-06	(100)
16	5.0836E-06	(306)	5.4662E-06	(356)	5.5253E-06	(5)	5.7257E-06	(5)	5.8575E-06	(5)
17	4.5598E-06	(337)	5.1976E-06	(337)	5.2619E-06	(77)	5.0238E-06	(77)	5.2948E-06	(19)
18	9.6011E-06	(336)	1.0028E-05	(336)	1.0041E-05	(336)	9.8083E-06	(336)	9.4408E-06	(336)
19	9.0371E-06	(302)	8.6235E-06	(302)	8.7069E-06	(292)	8.7109E-06	(292)	8.6950E-06	(292)
20	7.7648E-06	(292)	7.6959E-06	(286)	7.1938E-06	(286)	6.6607E-06	(286)	6.4723E-06	(318)
21	5.3725E-06	(98)	5.7275E-06	(98)	5.7211E-06	(57)	5.5782E-06	(57)	5.3664E-06	(57)
22	5.2867E-06	(166)	4.6559E-06	(166)	4.1869E-06	(166)	4.0986E-06	(348)	3.9560E-06	(348)
23	6.2101E-06	(242)	5.7957E-06	(242)	5.5276E-06	(232)	5.6100E-06	(232)	5.5682E-06	(232)
24	5.9543E-06	(297)	5.5069E-06	(101)	5.2492E-06	(119)	5.0870E-06	(119)	4.9113E-06	(119)
25	5.2865E-06	(243)	4.7874E-06	(307)	4.6308E-06	(307)	4.4040E-06	(307)	4.1493E-06	(307)
26	6.2661E-06	(278)	5.8579E-06	(278)	5.3953E-06	(278)	4.9415E-06	(278)	4.5203E-06	(278)
27	3.9344E-06	(80)	4.2551E-06	(114)	4.5644E-06	(241)	4.4164E-06	(241)	4.5081E-06	(148)
28	4.4227E-06	(63)	4.1775E-06	(64)	4.2118E-06	(64)	4.1278E-06	(64)	3.9803E-06	(64)
29	4.7910E-06	(127)	4.7797E-06	(127)	4.6449E-06	(127)	4.4447E-06	(127)	4.2148E-06	(127)
30	4.4596E-06	(120)	4.4762E-06	(80)	5.1694E-06	(25)	5.7976E-06	(25)	5.7650E-06	(64)
31	5.0842E-06	(135)	5.1731E-06	(135)	5.1856E-06	(136)	5.7939E-06	(136)	6.1353E-06	(168)
32	4.7683E-06	(47)	4.8960E-06	(47)	4.9398E-06	(135)	4.8182E-06	(135)	4.6784E-06	(135)
33	3.4095E-06	(360)	3.7378E-06	(24)	3.5351E-06	(24)	3.3110E-06	(24)	3.0871E-06	(24)
34	4.3302E-06	(282)	4.5647E-06	(282)	4.3369E-06	(144)	4.2588E-06	(331)	4.2811E-06	(331)
35	4.2201E-06	(27)	4.2338E-06	(27)	4.1776E-06	(27)	4.0914E-06	(27)	3.9942E-06	(27)
36	5.1206E-06	(215)	5.1036E-06	(214)	5.8369E-06	(188)	5.7425E-06	(188)	5.8829E-06	(333)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 9.9046E-06 DIRECTION= 27 DISTANCE= 2.5 KM DAY=217
YEAR= 77

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	3.6663E-07 (87)	4.2350E-06 (236)	7.1904E-06 (207)	6.9633E-06 (207)	5.9877E-06 (207)
2	9.6178E-08 (248)	3.6783E-06 (145)	4.2830E-06 (145)	4.4797E-06 (285)	4.6758E-06 (230)
3	1.7283E-07 (180)	3.5084E-06 (189)	4.7071E-06 (251)	4.5161E-06 (145)	4.3627E-06 (285)
4	2.4149E-07 (229)	3.9927E-06 (252)	5.7584E-06 (252)	5.8560E-06 (145)	5.2338E-06 (157)
5	2.4178E-07 (180)	3.4581E-06 (171)	5.9971E-06 (172)	6.9729E-06 (177)	6.3732E-06 (177)
6	3.6864E-07 (190)	3.4813E-06 (158)	4.5398E-06 (208)	4.3120E-06 (77)	5.2114E-06 (172)
7	4.4506E-07 (190)	4.2072E-06 (114)	5.3379E-06 (114)	5.4490E-06 (3)	5.7692E-06 (3)
8	2.0511E-07 (169)	2.9863E-06 (167)	4.1748E-06 (174)	3.7927E-06 (300)	3.9619E-06 (3)
9	2.1908E-07 (134)	3.0205E-06 (174)	4.9918E-06 (128)	5.5619E-06 (176)	6.3600E-06 (81)
10	1.8321E-07 (134)	2.1584E-06 (176)	3.2975E-06 (174)	4.4799E-06 (275)	4.6330E-06 (10)
11	2.4822E-07 (187)	2.6709E-06 (178)	5.4880E-06 (127)	7.1187E-06 (127)	7.4256E-06 (127)
12	3.5990E-07 (187)	3.8173E-06 (161)	6.1959E-06 (178)	6.2042E-06 (164)	5.8884E-06 (164)
13	3.6909E-07 (187)	3.0066E-06 (187)	5.4697E-06 (19)	5.7257E-06 (330)	6.5407E-06 (330)
14	2.7212E-07 (187)	3.0101E-06 (172)	4.0924E-06 (173)	4.3887E-06 (340)	5.1476E-06 (340)
15	1.8141E-07 (267)	2.9387E-06 (164)	4.2712E-06 (134)	4.3156E-06 (32)	5.1403E-06 (32)
16	2.4438E-07 (267)	3.5677E-06 (164)	5.3363E-06 (315)	5.4023E-06 (203)	5.2360E-06 (96)
17	2.0153E-07 (184)	4.3937E-06 (163)	5.4140E-06 (163)	5.1284E-06 (98)	5.2627E-06 (341)
18	2.5578E-07 (184)	3.0958E-06 (163)	4.2336E-06 (163)	5.5422E-06 (143)	6.9881E-06 (38)
19	2.6609E-07 (257)	3.7398E-06 (186)	2.4826E-06 (29)	3.4085E-06 (99)	3.5259E-06 (99)
20	2.1081E-07 (186)	4.1124E-06 (187)	3.2201E-06 (30)	4.4361E-06 (30)	4.8030E-06 (30)
21	1.0594E-07 (156)	2.6710E-06 (187)	2.9809E-06 (105)	3.4988E-06 (205)	4.1595E-06 (39)
22	1.6310E-07 (99)	2.5546E-06 (142)	3.9447E-06 (133)	4.0217E-06 (142)	4.7991E-06 (276)
23	2.2000E-07 (101)	4.0608E-06 (142)	6.1862E-06 (133)	6.6562E-06 (293)	6.7498E-06 (293)
24	3.1219E-07 (255)	4.8435E-06 (101)	6.3789E-06 (278)	8.3932E-06 (278)	8.7908E-06 (278)
25	2.9194E-07 (101)	4.6243E-06 (101)	6.1394E-06 (101)	6.0075E-06 (101)	5.4752E-06 (101)
26	2.1303E-07 (244)	3.7219E-06 (244)	6.2352E-06 (243)	5.6050E-06 (243)	4.8102E-06 (243)
27	3.6458E-07 (242)	3.0511E-06 (243)	7.5373E-06 (217)	9.5342E-06 (217)	9.9046E-06 (217)
28	3.7404E-07 (214)	3.3268E-06 (136)	4.2749E-06 (138)	4.5990E-06 (221)	4.6631E-06 (221)
29	3.7404E-07 (214)	3.5412E-06 (227)	4.8406E-06 (258)	4.9691E-06 (86)	4.8750E-06 (258)
30	3.7512E-07 (136)	6.3627E-06 (136)	9.1001E-06 (136)	8.9139E-06 (136)	8.3590E-06 (62)
31	3.2834E-07 (111)	6.0624E-06 (112)	6.9807E-06 (209)	6.2750E-06 (121)	5.0235E-06 (112)
32	2.1384E-07 (209)	2.9116E-06 (209)	4.2801E-06 (229)	4.0581E-06 (237)	3.8181E-06 (199)
33	1.7118E-07 (181)	3.2394E-06 (188)	4.7240E-06 (202)	5.1155E-06 (202)	4.8703E-06 (202)
34	1.7040E-07 (193)	3.0255E-06 (229)	3.8457E-06 (206)	4.8748E-06 (87)	4.9893E-06 (92)
35	2.0724E-07 (265)	2.6364E-06 (189)	3.8415E-06 (207)	4.1057E-06 (206)	4.3298E-06 (88)
36	3.2492E-07 (236)	5.9965E-06 (214)	9.0212E-06 (207)	9.6529E-06 (207)	9.0176E-06 (207)

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PLANT NAME: KISS, UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.0442E-05 DIRECTION= 36 DISTANCE= 3.0 KM DAY= 65
YEAR= 77

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	5.0340E-06 (339)	4.9745E-06 (339)	4.7823E-06 (339)	4.5286E-06 (339)	4.3637E-06 (65)
2	4.0460E-06 (230)	3.9490E-06 (49)	4.0334E-06 (50)	4.2700E-06 (50)	4.3969E-06 (50)
3	4.1332E-06 (285)	3.7216E-06 (285)	3.4660E-06 (170)	3.2010E-06 (170)	3.1609E-06 (146)
4	5.4762E-06 (148)	4.8488E-06 (148)	4.5436E-06 (339)	4.2617E-06 (339)	3.9700E-06 (339)
5	5.7212E-06 (158)	6.2879E-06 (158)	5.7507E-06 (172)	5.1556E-06 (172)	5.1442E-06 (81)
6	4.8370E-06 (172)	4.4429E-06 (157)	4.5262E-06 (157)	4.5400E-06 (157)	4.5391E-06 (157)
7	5.7172E-06 (3)	5.4661E-06 (3)	5.1637E-06 (3)	4.8490E-06 (3)	4.6145E-06 (78)
8	3.9613E-06 (3)	4.2105E-06 (115)	4.8649E-06 (115)	5.2526E-06 (115)	5.3540E-06 (300)
9	7.2261E-06 (36)	7.5197E-06 (81)	7.5142E-06 (81)	7.3172E-06 (81)	7.0981E-06 (128)
10	5.1082E-06 (10)	5.3579E-06 (10)	5.4761E-06 (10)	5.4314E-06 (10)	5.3323E-06 (10)
11	7.1389E-06 (127)	6.6064E-06 (127)	6.0401E-06 (127)	5.5018E-06 (127)	5.0121E-06 (127)
12	5.5032E-06 (161)	4.8967E-06 (19)	4.5954E-06 (19)	4.3209E-06 (47)	4.0685E-06 (47)
13	6.7068E-06 (330)	6.4830E-06 (330)	6.1255E-06 (330)	5.7202E-06 (330)	5.3111E-06 (330)
14	5.3874E-06 (340)	5.2806E-06 (340)	5.0606E-06 (340)	5.0010E-06 (290)	4.9859E-06 (290)
15	5.0013E-06 (117)	4.6679E-06 (286)	4.6889E-06 (48)	4.7936E-06 (48)	4.8034E-06 (48)
16	6.3454E-06 (96)	7.0821E-06 (96)	7.2749E-06 (315)	7.0518E-06 (315)	6.9974E-06 (305)
17	5.5622E-06 (341)	5.5015E-06 (341)	5.3204E-06 (31)	5.5540E-06 (31)	5.6599E-06 (31)
18	8.1761E-06 (38)	9.0371E-06 (38)	9.6417E-06 (38)	9.8833E-06 (38)	9.9707E-06 (38)
19	3.9071E-06 (40)	4.1783E-06 (40)	4.2542E-06 (40)	4.2070E-06 (40)	4.0869E-06 (40)
20	4.9413E-06 (30)	5.0661E-06 (30)	5.3233E-06 (39)	5.8410E-06 (277)	6.1995E-06 (277)
21	4.8076E-06 (39)	5.2272E-06 (41)	5.5787E-06 (205)	5.8989E-06 (205)	6.3689E-06 (102)
22	5.0643E-06 (276)	4.9657E-06 (276)	4.8448E-06 (133)	4.6086E-06 (133)	4.9842E-06 (242)
23	6.6239E-06 (103)	7.2835E-06 (103)	7.4194E-06 (142)	7.0700E-06 (142)	6.7213E-06 (142)
24	8.6068E-06 (278)	8.2082E-06 (278)	8.3467E-06 (277)	8.4067E-06 (102)	7.7977E-06 (102)
25	4.8769E-06 (101)	4.6513E-06 (100)	4.4768E-06 (100)	4.2413E-06 (100)	4.0610E-06 (297)
26	4.5058E-06 (242)	4.3274E-06 (242)	4.0333E-06 (242)	3.7620E-06 (242)	3.7677E-06 (97)
27	9.5380E-06 (217)	8.8577E-06 (217)	8.4011E-06 (240)	8.2126E-06 (240)	7.9762E-06 (240)
28	4.5134E-06 (155)	4.3984E-06 (111)	4.5534E-06 (112)	4.4442E-06 (112)	4.2922E-06 (112)
29	4.7257E-06 (112)	4.4939E-06 (112)	4.2053E-06 (112)	3.9038E-06 (112)	3.7868E-06 (54)
30	8.5408E-06 (250)	8.0504E-06 (86)	8.9487E-06 (86)	8.8022E-06 (86)	8.5506E-06 (86)
31	4.7693E-06 (87)	5.0948E-06 (87)	5.2452E-06 (87)	5.2284E-06 (87)	5.0714E-06 (121)
32	4.5152E-06 (87)	5.2420E-06 (93)	5.4607E-06 (87)	5.5986E-06 (87)	5.6327E-06 (87)
33	4.5268E-06 (249)	4.2128E-06 (93)	4.0461E-06 (202)	4.0752E-06 (63)	3.9699E-06 (93)
34	5.1456E-06 (92)	4.7452E-06 (206)	4.6681E-06 (88)	4.6510E-06 (88)	4.5661E-06 (88)
35	4.7459E-06 (88)	4.7956E-06 (88)	4.6843E-06 (88)	4.4093E-06 (88)	4.3883E-06 (250)
36	1.0442E-05 (65)	1.0197E-05 (94)	9.7786E-06 (94)	9.6877E-06 (233)	1.0199E-05 (233)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 9.7511E-06 DIRECTION= 36 DISTANCE= 2.0 KM DAY=102
YEAR= 78

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	6.6684E-07 (212)	4.4711E-06 (186)	4.8122E-06 (184)	5.3957E-06 (247)	5.3214E-06 (44)
2	2.7929E-07 (183)	3.8027E-06 (119)	6.0879E-06 (25)	7.2907E-06 (25)	6.9143E-06 (184)
3	2.8993E-07 (187)	2.7579E-06 (136)	4.7117E-06 (136)	4.5588E-06 (136)	4.6369E-06 (119)
4	2.6206E-07 (145)	2.6508E-06 (184)	5.0109E-06 (135)	6.0498E-06 (119)	4.9566E-06 (119)
5	2.6216E-07 (175)	2.9127E-06 (119)	3.9711E-06 (69)	5.6045E-06 (135)	4.8465E-06 (135)
6	2.4570E-07 (116)	4.3671E-06 (116)	4.8664E-06 (116)	4.3259E-06 (135)	4.0070E-06 (134)
7	1.0976E-07 (135)	2.3528E-06 (111)	3.2937E-06 (116)	3.4260E-06 (121)	3.2238E-06 (121)
8	1.1671E-07 (116)	2.1805E-06 (111)	4.9358E-06 (111)	5.3251E-06 (111)	4.8992E-06 (111)
9	2.3241E-07 (156)	2.6727E-06 (134)	3.5541E-06 (52)	5.0793E-06 (26)	5.2763E-06 (20)
10	2.3241E-07 (156)	2.3801E-06 (248)	3.7014E-06 (9)	4.1203E-06 (116)	3.5446E-06 (20)
11	2.8265E-07 (182)	2.4583E-06 (160)	2.1291E-06 (248)	2.6204E-06 (53)	3.0450E-06 (53)
12	2.2480E-07 (160)	3.1444E-06 (249)	4.6982E-06 (279)	4.8076E-06 (279)	5.2567E-06 (28)
13	1.9089E-07 (249)	5.0520E-06 (117)	6.1675E-06 (249)	6.1264E-06 (279)	5.6115E-06 (255)
14	2.4378E-07 (250)	4.0838E-06 (231)	5.7819E-06 (117)	6.5938E-06 (279)	6.9950E-06 (76)
15	1.8446E-07 (249)	2.7343E-06 (231)	4.5583E-06 (254)	4.7761E-06 (250)	4.4100E-06 (250)
16	7.4735E-08 (249)	1.7918E-06 (254)	3.8538E-06 (308)	4.6337E-06 (307)	4.6806E-06 (81)
17	1.9948E-08 (250)	1.3448E-06 (125)	2.8794E-06 (308)	3.6948E-06 (11)	4.4867E-06 (41)
18	3.4222E-08 (175)	2.1561E-06 (125)	4.0649E-06 (324)	5.7855E-06 (11)	7.0285E-06 (304)
19	1.2399E-07 (161)	2.3285E-06 (144)	2.8584E-06 (145)	3.9183E-06 (40)	5.7720E-06 (304)
20	2.5828E-07 (161)	2.6182E-06 (144)	4.6537E-06 (145)	4.8205E-06 (125)	4.3532E-06 (316)
21	3.0411E-07 (161)	3.5276E-06 (145)	5.1552E-06 (316)	5.0304E-06 (145)	3.9409E-06 (77)
22	2.8612E-07 (182)	3.7556E-06 (161)	5.6565E-06 (217)	5.3393E-06 (269)	5.3902E-06 (269)
23	2.6895E-07 (186)	3.5607E-06 (251)	6.2772E-06 (269)	7.9810E-06 (269)	7.3548E-06 (237)
24	2.5833E-07 (89)	3.6387E-06 (130)	5.6445E-06 (106)	6.5815E-06 (262)	7.0210E-06 (114)
25	2.2237E-07 (245)	4.0337E-06 (179)	5.4992E-06 (162)	6.0255E-06 (147)	6.1638E-06 (363)
26	2.8523E-07 (245)	4.5824E-06 (195)	8.2899E-06 (149)	9.1331E-06 (149)	8.2397E-06 (163)
27	2.7790E-07 (202)	5.1089E-06 (202)	7.2683E-06 (140)	8.3179E-06 (204)	8.5151E-06 (204)
28	2.9976E-07 (93)	4.1501E-06 (176)	5.1672E-06 (93)	6.3061E-06 (93)	6.5364E-06 (93)
29	2.4717E-07 (190)	4.1021E-06 (144)	5.4130E-06 (205)	5.5318E-06 (203)	5.1918E-06 (113)
30	2.4370E-07 (150)	3.9551E-06 (216)	6.3684E-06 (216)	5.7662E-06 (78)	5.6932E-06 (78)
31	1.7041E-07 (150)	3.9866E-06 (216)	6.4316E-06 (107)	6.6430E-06 (222)	6.4818E-06 (78)
32	2.3428E-07 (108)	3.4295E-06 (108)	5.7646E-06 (201)	5.6351E-06 (201)	4.7128E-06 (201)
33	2.6778E-07 (207)	5.4547E-06 (190)	5.5908E-06 (100)	5.9121E-06 (100)	6.0250E-06 (19)
34	3.1242E-07 (180)	5.8058E-06 (207)	5.7767E-06 (207)	5.6915E-06 (199)	5.8013E-06 (154)
35	5.1600E-07 (180)	5.2485E-06 (129)	7.4507E-06 (120)	7.0323E-06 (120)	6.5825E-06 (102)
36	1.1166E-06 (187)	4.8125E-06 (102)	9.3820E-06 (102)	9.7511E-06 (102)	9.2162E-06 (338)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 9.9757E-06 DIRECTION= 27 DISTANCE= 4.0 KM DAY=169
YEAR= 78

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	4.6968E-06 (247)	4.4485E-06 (338)	4.6181E-06 (338)	4.6343E-06 (338)	4.5827E-06 (338)
2	6.5626E-06 (184)	6.1960E-06 (25)	5.5858E-06 (25)	5.8117E-06 (355)	5.9349E-06 (355)
3	3.6590E-06 (119)	2.9002E-06 (119)	2.7390E-06 (355)	2.8697E-06 (74)	3.0111E-06 (74)
4	5.3498E-06 (85)	5.5764E-06 (85)	5.5652E-06 (85)	5.4181E-06 (85)	5.1990E-06 (85)
5	5.3100E-06 (355)	5.4236E-06 (355)	5.3300E-06 (355)	5.1269E-06 (355)	5.0085E-06 (213)
6	4.1156E-06 (134)	4.0951E-06 (134)	4.0099E-06 (134)	3.8687E-06 (134)	3.7268E-06 (20)
7	2.9835E-06 (69)	3.1408E-06 (13)	3.4857E-06 (353)	3.4749E-06 (353)	3.5643E-06 (55)
8	4.3980E-06 (111)	3.9771E-06 (111)	3.7029E-06 (45)	3.8478E-06 (45)	3.9220E-06 (45)
9	6.6314E-06 (26)	6.6850E-06 (26)	6.6514E-06 (86)	6.8716E-06 (86)	6.9616E-06 (86)
10	4.3453E-06 (20)	4.7459E-06 (20)	4.9339E-06 (20)	4.9769E-06 (20)	4.9378E-06 (20)
11	3.1291E-06 (53)	3.0141E-06 (53)	2.8332E-06 (53)	2.9408E-06 (63)	3.0418E-06 (63)
12	6.1736E-06 (28)	6.6638E-06 (28)	6.9006E-06 (28)	6.8977E-06 (28)	6.7944E-06 (28)
13	5.0129E-06 (53)	4.8005E-06 (53)	4.4865E-06 (53)	4.1438E-06 (53)	3.8069E-06 (53)
14	7.1252E-06 (76)	6.8461E-06 (76)	6.4357E-06 (76)	5.9859E-06 (76)	5.5411E-06 (76)
15	3.9424E-06 (250)	4.3316E-06 (307)	4.9328E-06 (307)	5.2883E-06 (307)	5.4837E-06 (307)
16	4.1223E-06 (346)	4.5459E-06 (346)	4.7832E-06 (346)	5.0398E-06 (280)	5.1935E-06 (280)
17	5.2176E-06 (288)	5.6171E-06 (288)	5.8007E-06 (288)	6.0839E-06 (305)	6.4884E-06 (305)
18	7.7408E-06 (288)	8.4179E-06 (325)	8.8772E-06 (325)	9.0623E-06 (325)	9.0064E-06 (288)
19	6.1477E-06 (304)	6.1448E-06 (304)	6.2198E-06 (36)	6.5277E-06 (36)	6.6585E-06 (36)
20	4.5946E-06 (36)	5.1393E-06 (36)	5.3805E-06 (36)	5.4215E-06 (36)	5.5007E-06 (296)
21	4.3357E-06 (77)	4.3828E-06 (77)	4.1016E-06 (4)	4.0767E-06 (77)	3.9412E-06 (88)
22	5.3494E-06 (271)	5.3417E-06 (271)	5.2275E-06 (271)	5.0510E-06 (271)	4.9953E-06 (302)
23	6.6401E-06 (267)	6.1839E-06 (318)	6.9692E-06 (104)	7.2646E-06 (104)	7.3868E-06 (104)
24	6.0195E-06 (114)	5.1552E-06 (114)	4.8371E-06 (234)	4.9874E-06 (234)	5.0438E-06 (234)
25	6.8623E-06 (363)	7.0690E-06 (363)	7.0306E-06 (363)	6.8343E-06 (363)	6.5596E-06 (363)
26	7.9746E-06 (149)	7.2173E-06 (149)	7.0146E-06 (364)	7.0542E-06 (364)	6.9788E-06 (364)
27	8.9402E-06 (171)	9.5112E-06 (171)	9.9757E-06 (169)	9.7520E-06 (169)	9.4590E-06 (169)
28	6.1653E-06 (93)	6.4216E-06 (113)	6.7201E-06 (113)	6.8152E-06 (113)	6.7750E-06 (113)
29	5.3907E-06 (205)	4.7643E-06 (205)	4.2296E-06 (205)	3.8188E-06 (205)	3.6509E-06 (299)
30	5.1214E-06 (78)	4.6489E-06 (83)	4.7686E-06 (7)	4.9185E-06 (7)	4.6582E-06 (203)
31	5.8894E-06 (78)	5.1815E-06 (78)	4.7611E-06 (80)	4.5931E-06 (80)	4.3693E-06 (80)
32	4.4781E-06 (190)	4.5604E-06 (8)	4.8393E-06 (8)	4.9526E-06 (8)	4.9664E-06 (8)
33	6.2964E-06 (19)	6.4249E-06 (124)	6.6066E-06 (124)	6.5270E-06 (73)	6.4784E-06 (124)
34	5.7558E-06 (210)	5.8091E-06 (199)	5.6371E-06 (199)	5.4844E-06 (331)	5.6287E-06 (331)
35	6.2602E-06 (102)	5.8872E-06 (102)	5.4347E-06 (160)	5.3104E-06 (102)	5.2292E-06 (74)
36	9.7847E-06 (25)	9.0085E-06 (25)	8.2120E-06 (25)	7.4651E-06 (25)	6.7905E-06 (25)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.8763E-05 DIRECTION= 18 DISTANCE= 2.5 KM DAY=297 TIME PERIOD= 5

YEAR= 74

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.5099E-06 (80, 4)	1.9848E-05 (196, 4)	2.4802E-05 (196, 4)	3.0948E-05 (354, 5)	3.1182E-05 (50, 6)
2	1.9476E-06 (80, 4)	2.3125E-05 (152, 4)	2.9710E-05 (152, 4)	2.7555E-05 (78, 4)	2.7410E-05 (78, 4)
3	1.4989E-06 (188, 4)	2.5570E-05 (97, 5)	1.8597E-05 (97, 5)	1.8039E-05 (34, 5)	1.7833E-05 (34, 5)
4	1.0858E-06 (174, 5)	2.8096E-05 (125, 5)	2.9796E-05 (153, 4)	2.9441E-05 (125, 5)	2.7752E-05 (132, 4)
5	3.1547E-06 (176, 4)	2.8044E-05 (176, 4)	3.3743E-05 (146, 5)	3.2349E-05 (146, 5)	2.8729E-05 (146, 5)
6	1.8129E-06 (206, 4)	2.3331E-05 (168, 4)	3.0071E-05 (90, 5)	2.7611E-05 (230, 5)	2.3678E-05 (230, 5)
7	1.5735E-06 (188, 5)	2.0143E-05 (151, 4)	2.4743E-05 (151, 4)	2.4494E-05 (89, 5)	2.5754E-05 (203, 4)
8	1.9568E-06 (145, 5)	1.8081E-05 (169, 4)	2.2565E-05 (106, 4)	2.3106E-05 (106, 4)	1.9876E-05 (203, 4)
9	1.7889E-06 (123, 4)	2.0374E-05 (89, 5)	1.6379E-05 (223, 4)	1.7829E-05 (7, 4)	1.9967E-05 (7, 4)
10	2.3805E-06 (89, 5)	1.9228E-05 (163, 5)	2.1093E-05 (201, 4)	2.1769E-05 (99, 6)	2.1380E-05 (99, 6)
11	1.9501E-06 (173, 4)	2.5845E-05 (163, 5)	2.7697E-05 (150, 5)	2.8119E-05 (202, 4)	2.6316E-05 (167, 5)
12	2.3239E-06 (151, 5)	2.9089E-05 (150, 5)	2.9428E-05 (191, 4)	2.6038E-05 (201, 4)	2.3821E-05 (201, 4)
13	2.7497E-06 (211, 4)	2.5493E-05 (151, 5)	2.6858E-05 (114, 4)	2.6315E-05 (163, 4)	2.2586E-05 (196, 6)
14	1.0569E-06 (207, 6)	2.3591E-05 (196, 5)	2.5325E-05 (145, 5)	2.6074E-05 (291, 4)	2.4975E-05 (206, 6)
15	7.6402E-07 (196, 5)	2.3976E-05 (211, 4)	2.5572E-05 (69, 5)	2.1204E-05 (196, 5)	2.1484E-05 (163, 6)
16	7.0636E-07 (163, 5)	1.1897E-05 (196, 5)	1.9483E-05 (72, 4)	2.0325E-05 (107, 4)	1.8365E-05 (57, 5)
17	2.4251E-07 (100, 5)	2.3923E-05 (124, 4)	3.3177E-05 (124, 4)	2.9343E-05 (124, 4)	2.4881E-05 (124, 4)
18	4.5643E-07 (198, 4)	2.8545E-05 (128, 5)	3.1928E-05 (124, 4)	3.8717E-05 (297, 5)	3.8763E-05 (297, 5)
19	7.5096E-07 (181, 6)	2.6037E-05 (128, 5)	2.0604E-05 (319, 4)	2.0979E-05 (265, 4)	2.1383E-05 (265, 4)
20	1.9980E-06 (211, 5)	2.4304E-05 (108, 5)	2.0171E-05 (276, 5)	2.1047E-05 (296, 5)	2.1421E-05 (257, 4)
21	1.7735E-06 (211, 5)	2.0873E-05 (109, 5)	2.4546E-05 (115, 4)	2.8778E-05 (330, 4)	3.0947E-05 (277, 5)
22	3.5767E-06 (225, 5)	2.4457E-05 (117, 5)	3.2150E-05 (100, 4)	2.9077E-05 (100, 4)	2.3991E-05 (100, 4)
23	3.1686E-06 (225, 5)	2.2271E-05 (67, 6)	3.1931E-05 (171, 5)	3.7368E-05 (278, 5)	3.7233E-05 (278, 5)
24	1.8147E-06 (238, 4)	1.9453E-05 (111, 5)	2.1750E-05 (110, 4)	2.0803E-05 (180, 5)	2.1380E-05 (195, 3)
25	1.4145E-06 (67, 6)	1.5560E-05 (227, 5)	2.0796E-05 (262, 4)	2.4660E-05 (262, 4)	2.3090E-05 (262, 4)
26	9.9994E-07 (238, 4)	1.8438E-05 (140, 5)	2.4671E-05 (224, 5)	2.6178E-05 (140, 5)	2.2904E-05 (301, 5)
27	1.7140E-06 (156, 4)	2.7751E-05 (205, 4)	3.1104E-05 (140, 4)	2.8494E-05 (140, 4)	2.3742E-05 (287, 4)
28	1.7711E-06 (165, 4)	1.8692E-05 (246, 4)	2.7841E-05 (246, 4)	2.3735E-05 (133, 5)	1.8258E-05 (287, 4)
29	1.7711E-06 (165, 4)	1.8283E-05 (170, 4)	2.2617E-05 (321, 4)	2.8654E-05 (243, 5)	2.8762E-05 (243, 5)
30	1.6960E-06 (169, 4)	2.0019E-05 (211, 5)	2.4291E-05 (62, 5)	2.3915E-05 (62, 5)	2.3056E-05 (239, 6)
31	5.9332E-06 (135, 5)	2.0035E-05 (211, 5)	2.4557E-05 (164, 4)	2.1956E-05 (65, 4)	2.0468E-05 (65, 4)
32	1.2869E-05 (135, 5)	2.9983E-05 (103, 5)	3.2205E-05 (243, 4)	2.8441E-05 (159, 4)	2.3790E-05 (159, 4)
33	4.7516E-06 (220, 5)	2.2718E-05 (243, 4)	2.9226E-05 (227, 4)	2.7496E-05 (214, 4)	2.4793E-05 (94, 4)
34	1.9562E-06 (207, 4)	1.6689E-05 (207, 4)	2.2897E-05 (227, 4)	2.7763E-05 (132, 1)	3.1602E-05 (132, 1)
35	1.6489E-06 (221, 4)	2.0531E-05 (94, 5)	2.9208E-05 (152, 5)	2.6918E-05 (152, 5)	2.3303E-05 (158, 4)
36	8.0647E-07 (221, 4)	1.8225E-05 (176, 3)	2.4774E-05 (9, 5)	2.6433E-05 (9, 5)	2.3510E-05 (9, 5)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.5682E-05 DIRECTION= 18 DISTANCE= 3.0 KM DAY=279 TIME PERIOD= 6
YEAR= 74

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	3.0189E-05 (50, 6)	2.8020E-05 (50, 6)	2.5654E-05 (50, 6)	2.3366E-05 (50, 6)	2.1262E-05 (50, 6)
2	2.4643E-05 (78, 4)	2.4191E-05 (30, 4)	2.1714E-05 (50, 5)	1.9276E-05 (50, 5)	1.7201E-05 (50, 5)
3	1.6773E-05 (84, 4)	1.4612E-05 (84, 4)	1.4952E-05 (34, 5)	1.4041E-05 (34, 5)	1.3380E-05 (34, 4)
4	2.6129E-05 (153, 4)	2.2015E-05 (153, 4)	2.0619E-05 (143, 6)	2.1799E-05 (132, 4)	1.9987E-05 (132, 4)
5	2.5066E-05 (146, 5)	2.1771E-05 (146, 6)	1.9016E-05 (146, 5)	1.7657E-05 (349, 8)	1.8702E-05 (50, 7)
6	2.3463E-05 (88, 6)	2.3490E-05 (88, 6)	2.2748E-05 (88, 6)	2.1636E-05 (88, 6)	2.0378E-05 (88, 6)
7	2.0467E-05 (203, 4)	1.8451E-05 (174, 6)	1.8475E-05 (324, 6)	1.8983E-05 (88, 7)	1.9557E-05 (89, 5)
8	1.9022E-05 (106, 4)	1.6622E-05 (193, 5)	1.6303E-05 (146, 1)	1.9680E-05 (146, 1)	2.2512E-05 (146, 1)
9	1.9569E-05 (7, 4)	1.8065E-05 (7, 4)	1.9864E-05 (325, 7)	2.2510E-05 (89, 7)	2.3520E-05 (89, 7)
10	2.1151E-05 (113, 6)	2.1861E-05 (113, 6)	2.1986E-05 (99, 5)	1.8530E-05 (99, 5)	1.6634E-05 (336, 6)
11	2.2251E-05 (167, 5)	2.0089E-05 (351, 6)	2.0168E-05 (351, 6)	2.0454E-05 (335, 3)	2.0224E-05 (335, 3)
12	2.0561E-05 (201, 4)	1.8715E-05 (145, 4)	1.6105E-05 (336, 7)	1.7282E-05 (336, 7)	1.8192E-05 (316, 6)
13	2.1945E-05 (337, 4)	2.1568E-05 (196, 6)	1.9619E-05 (196, 6)	1.7586E-05 (196, 6)	1.8281E-05 (40, 7)
14	2.3282E-05 (325, 4)	2.2408E-05 (206, 6)	2.3451E-05 (325, 1)	2.3649E-05 (325, 1)	2.3489E-05 (325, 1)
15	2.0699E-05 (163, 6)	1.8430E-05 (69, 5)	1.7660E-05 (280, 4)	1.8097E-05 (280, 4)	1.8080E-05 (280, 4)
16	1.7576E-05 (57, 5)	1.5859E-05 (57, 5)	1.6178E-05 (275, 2)	1.7167E-05 (96, 2)	1.7864E-05 (96, 2)
17	2.1201E-05 (148, 4)	1.9033E-05 (51, 5)	1.8011E-05 (57, 4)	1.8466E-05 (311, 2)	1.9711E-05 (311, 2)
18	3.5682E-05 (279, 6)	3.1239E-05 (51, 5)	2.8118E-05 (297, 4)	2.7099E-05 (297, 4)	2.5884E-05 (297, 4)
19	2.0975E-05 (108, 3)	2.0829E-05 (51, 5)	1.9900E-05 (108, 3)	1.8693E-05 (108, 3)	1.7933E-05 (330, 7)
20	2.4200E-05 (296, 6)	2.5169E-05 (296, 5)	2.3907E-05 (296, 5)	2.3479E-05 (297, 1)	2.6232E-05 (297, 1)
21	2.9617E-05 (277, 5)	2.7303E-05 (277, 5)	2.4883E-05 (277, 5)	2.2591E-05 (277, 5)	2.0509E-05 (277, 5)
22	2.1744E-05 (267, 4)	2.1823E-05 (283, 5)	2.1778E-05 (258, 5)	2.1294E-05 (283, 5)	2.3669E-05 (148, 1)
23	3.4784E-05 (195, 4)	2.9446E-05 (195, 4)	2.4898E-05 (195, 4)	2.1172E-05 (195, 4)	1.9843E-05 (285, 5)
24	1.9943E-05 (195, 3)	1.8476E-05 (117, 6)	1.7580E-05 (117, 6)	1.6001E-05 (255, 6)	1.6013E-05 (18, 7)
25	2.0074E-05 (262, 4)	1.7074E-05 (262, 4)	1.6505E-05 (198, 4)	1.5665E-05 (198, 4)	1.6604E-05 (340, 7)
26	2.1933E-05 (301, 5)	2.0147E-05 (301, 5)	1.8264E-05 (301, 5)	1.6671E-05 (302, 6)	1.7538E-05 (194, 7)
27	2.0497E-05 (287, 4)	1.8331E-05 (184, 3)	1.6152E-05 (357, 4)	1.4318E-05 (101, 4)	1.3529E-05 (159, 7)
28	1.6564E-05 (321, 5)	1.6733E-05 (215, 6)	1.5581E-05 (357, 5)	1.6085E-05 (102, 3)	1.6567E-05 (102, 3)
29	2.5639E-05 (139, 5)	2.1327E-05 (139, 5)	2.0890E-05 (102, 7)	2.1541E-05 (24, 6)	2.1458E-05 (24, 6)
30	1.9912E-05 (65, 4)	1.8214E-05 (184, 4)	1.9168E-05 (184, 4)	1.9431E-05 (184, 4)	1.9248E-05 (184, 4)
31	1.8546E-05 (52, 4)	1.8390E-05 (207, 7)	1.7760E-05 (49, 5)	1.7712E-05 (207, 7)	1.6993E-05 (207, 7)
32	1.9402E-05 (159, 4)	1.8392E-05 (131, 3)	1.6192E-05 (24, 5)	1.6385E-05 (24, 5)	1.6316E-05 (131, 3)
33	2.3370E-05 (94, 4)	2.0089E-05 (63, 4)	1.9373E-05 (94, 4)	1.7531E-05 (94, 4)	1.6330E-05 (27, 1)
34	3.1721E-05 (186, 4)	2.9162E-05 (186, 4)	2.6119E-05 (186, 4)	2.3158E-05 (186, 4)	2.1057E-05 (177, 2)
35	1.9904E-05 (309, 5)	1.7516E-05 (21, 2)	2.1738E-05 (27, 4)	2.1397E-05 (27, 4)	2.0710E-05 (27, 4)
36	2.1379E-05 (28, 5)	2.1466E-05 (105, 5)	2.2300E-05 (209, 8)	2.2590E-05 (28, 5)	2.1915E-05 (28, 5)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.8864E-05 DIRECTION= 8 DISTANCE= 1.0 KM DAY=225 TIME PERIOD= 5
YEAR= 75

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.5604E-06 (207, 5)	2.5567E-05 (215, 5)	3.3629E-05 (167, 4)	3.2996E-05 (92, 4)	2.8828E-05 (92, 4)
2	3.3418E-06 (207, 5)	2.4622E-05 (207, 5)	2.6972E-05 (223, 5)	2.7132E-05 (207, 5)	2.3885E-05 (207, 5)
3	1.4112E-06 (126, 4)	1.7439E-05 (166, 5)	2.5647E-05 (166, 5)	2.6414E-05 (66, 5)	2.6209E-05 (66, 5)
4	1.9492E-06 (217, 4)	1.6353E-05 (217, 4)	2.9697E-05 (188, 4)	2.9812E-05 (188, 4)	2.5609E-05 (188, 4)
5	1.8616E-06 (219, 5)	3.0038E-05 (203, 4)	3.0161E-05 (186, 4)	3.2557E-05 (89, 5)	3.3670E-05 (89, 5)
6	2.0973E-06 (219, 5)	2.3964E-05 (191, 4)	3.1302E-05 (191, 4)	2.7216E-05 (191, 4)	2.8521E-05 (37, 6)
7	1.3941E-06 (203, 4)	2.9949E-05 (110, 4)	3.3761E-05 (186, 5)	2.9810E-05 (186, 5)	2.5823E-05 (110, 4)
8	1.4251E-06 (157, 4)	3.8864E-05 (225, 5)	3.5162E-05 (157, 5)	2.9854E-05 (157, 5)	2.5941E-05 (157, 4)
9	1.1818E-06 (124, 5)	1.8278E-05 (157, 5)	2.3571E-05 (124, 5)	2.6371E-05 (1, 5)	2.7117E-05 (1, 5)
10	2.2476E-06 (138, 5)	1.6169E-05 (145, 5)	2.4419E-05 (186, 6)	3.3259E-05 (186, 6)	2.7147E-05 (138, 5)
11	1.4869E-06 (163, 4)	2.4867E-05 (164, 5)	3.4312E-05 (128, 5)	3.2177E-05 (129, 4)	2.6623E-05 (93, 6)
12	1.9117E-06 (163, 5)	2.5992E-05 (180, 5)	2.7297E-05 (129, 4)	2.5833E-05 (55, 5)	2.7132E-05 (55, 5)
13	1.9996E-06 (156, 5)	2.3089E-05 (105, 4)	3.1856E-05 (128, 4)	3.2883E-05 (244, 5)	2.9202E-05 (244, 5)
14	8.6842E-07 (116, 4)	1.8175E-05 (225, 4)	2.6050E-05 (139, 4)	2.7242E-05 (139, 4)	2.4980E-05 (291, 5)
15	1.1016E-06 (156, 5)	1.6880E-05 (96, 5)	2.6262E-05 (231, 5)	2.6258E-05 (94, 4)	2.2920E-05 (361, 4)
16	5.4968E-07 (139, 4)	1.5787E-05 (230, 4)	2.0654E-05 (96, 5)	2.5256E-05 (102, 4)	2.6617E-05 (102, 4)
17	7.1371E-07 (155, 4)	1.8517E-05 (85, 5)	2.1042E-05 (155, 4)	1.9721E-05 (95, 4)	1.8192E-05 (95, 4)
18	5.2087E-07 (85, 5)	2.0587E-05 (106, 5)	2.4519E-05 (106, 5)	2.6937E-05 (85, 5)	2.1384E-05 (85, 5)
19	6.1240E-07 (106, 5)	1.7053E-05 (244, 4)	2.9420E-05 (106, 5)	3.0444E-05 (131, 4)	2.7304E-05 (131, 4)
20	4.5974E-07 (141, 4)	1.5901E-05 (244, 4)	1.5868E-05 (320, 4)	1.8898E-05 (21, 4)	1.8950E-05 (17, 4)
21	6.3983E-07 (141, 4)	1.7001E-05 (181, 5)	2.4744E-05 (141, 4)	2.5157E-05 (320, 4)	2.3686E-05 (184, 4)
22	1.1087E-06 (294, 4)	1.8466E-05 (182, 5)	2.2300E-05 (182, 5)	2.4694E-05 (294, 4)	2.4030E-05 (96, 4)
23	7.7208E-07 (145, 5)	1.7753E-05 (219, 6)	2.5068E-05 (45, 5)	2.9036E-05 (338, 4)	2.7129E-05 (338, 4)
24	1.4164E-06 (146, 4)	2.3288E-05 (170, 5)	3.0031E-05 (103, 5)	2.6288E-05 (300, 5)	2.6441E-05 (284, 5)
25	1.9081E-06 (146, 4)	2.2954E-05 (103, 5)	3.3222E-05 (144, 5)	3.2992E-05 (144, 5)	2.8342E-05 (144, 5)
26	1.7994E-06 (225, 5)	2.1520E-05 (146, 4)	2.5288E-05 (234, 5)	2.2016E-05 (234, 5)	2.0230E-05 (112, 4)
27	1.4310E-06 (232, 5)	2.5149E-05 (112, 5)	3.0172E-05 (112, 5)	2.8006E-05 (112, 5)	2.5549E-05 (112, 5)
28	1.2932E-06 (234, 4)	2.5638E-05 (214, 4)	2.9470E-05 (197, 5)	3.1158E-05 (197, 5)	2.8248E-05 (197, 5)
29	6.1982E-07 (234, 4)	1.8718E-05 (205, 5)	2.1389E-05 (86, 4)	2.3014E-05 (205, 6)	2.4148E-05 (196, 6)
30	1.0902E-06 (225, 4)	1.9595E-05 (117, 4)	2.7669E-05 (260, 5)	2.8019E-05 (117, 4)	2.3735E-05 (260, 5)
31	1.6122E-06 (120, 5)	1.7735E-05 (114, 5)	2.0204E-05 (117, 4)	1.9343E-05 (117, 5)	1.8923E-05 (19, 4)
32	1.7735E-06 (227, 4)	1.6358E-05 (120, 5)	1.8992E-05 (121, 5)	1.8564E-05 (53, 5)	1.8496E-05 (316, 4)
33	1.8193E-06 (204, 4)	2.1524E-05 (147, 4)	2.7208E-05 (123, 4)	2.5554E-05 (123, 4)	2.3235E-05 (210, 5)
34	1.9416E-06 (109, 4)	2.8178E-05 (147, 6)	2.8641E-05 (151, 4)	3.0214E-05 (359, 8)	2.9389E-05 (151, 4)
35	3.3536E-06 (83, 4)	3.0379E-05 (109, 4)	2.7655E-05 (120, 4)	2.4328E-05 (109, 4)	2.0657E-05 (55, 3)
36	2.0184E-06 (83, 4)	2.7472E-05 (190, 5)	3.2509E-05 (218, 5)	3.5338E-05 (190, 5)	2.8707E-05 (190, 5)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.2142E-05 DIRECTION= 5 DISTANCE= 3.0 KM DAY= 89 TIME PERIOD= 5
YEAR= 75

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	2.4094E-05 (167, 4)	2.0685E-05 (167, 4)	1.9178E-05 (191, 3)	1.7908E-05 (50, 2)	1.9270E-05 (331, 4)
2	2.1390E-05 (4, 5)	1.9954E-05 (4, 5)	1.9745E-05 (50, 4)	1.9798E-05 (119, 4)	2.0200E-05 (19, 7)
3	2.4354E-05 (66, 5)	2.1997E-05 (66, 5)	1.9741E-05 (66, 5)	1.7714E-05 (66, 5)	1.5935E-05 (66, 6)
4	2.1157E-05 (100, 4)	2.0783E-05 (50, 5)	1.9951E-05 (50, 5)	1.8846E-05 (50, 5)	1.7654E-05 (50, 5)
5	3.2142E-05 (89, 5)	2.8567E-05 (25, 5)	2.4990E-05 (61, 1)	2.5598E-05 (4, 6)	2.6885E-05 (61, 2)
6	2.4041E-05 (43, 6)	2.3425E-05 (43, 6)	2.2250E-05 (43, 6)	2.0863E-05 (43, 6)	1.9438E-05 (43, 6)
7	2.1459E-05 (101, 5)	2.0717E-05 (101, 5)	2.3535E-05 (66, 7)	2.5369E-05 (66, 7)	2.6265E-05 (73, 5)
8	2.3381E-05 (61, 4)	2.0072E-05 (81, 6)	2.1529E-05 (81, 6)	2.1483E-05 (81, 6)	2.1011E-05 (81, 6)
9	2.4868E-05 (1, 5)	2.1081E-05 (1, 5)	2.0688E-05 (139, 1)	2.2036E-05 (326, 7)	2.3324E-05 (325, 7)
10	2.2180E-05 (93, 5)	2.2699E-05 (124, 6)	2.2102E-05 (186, 6)	1.8971E-05 (186, 6)	1.7368E-05 (73, 7)
11	2.3639E-05 (78, 6)	2.6137E-05 (93, 6)	2.4686E-05 (93, 6)	2.2868E-05 (93, 6)	2.1158E-05 (93, 6)
12	2.6125E-05 (55, 5)	2.4146E-05 (55, 5)	2.2034E-05 (55, 5)	2.1758E-05 (6, 5)	2.1414E-05 (67, 7)
13	2.5073E-05 (244, 5)	2.4036E-05 (67, 5)	2.3565E-05 (67, 5)	2.2645E-05 (67, 5)	2.3741E-05 (1, 8)
14	2.5002E-05 (355, 3)	2.3988E-05 (231, 5)	2.0554E-05 (291, 5)	1.8652E-05 (291, 5)	1.7952E-05 (297, 8)
15	1.9573E-05 (61, 4)	1.8936E-05 (61, 4)	2.0049E-05 (361, 4)	1.8523E-05 (361, 4)	1.7083E-05 (361, 4)
16	2.5422E-05 (65, 3)	2.3221E-05 (15, 3)	2.3954E-05 (15, 3)	2.3985E-05 (15, 3)	2.3832E-05 (15, 3)
17	1.8199E-05 (94, 2)	2.2669E-05 (353, 8)	2.6533E-05 (94, 2)	2.8443E-05 (94, 2)	2.9578E-05 (94, 2)
18	1.6096E-05 (85, 5)	2.1058E-05 (112, 1)	2.5921E-05 (112, 1)	2.8922E-05 (112, 1)	3.0468E-05 (303, 7)
19	2.3666E-05 (303, 4)	2.0221E-05 (64, 4)	2.3133E-05 (303, 4)	2.2087E-05 (303, 4)	2.3596E-05 (363, 1)
20	2.0782E-05 (17, 4)	2.0873E-05 (17, 4)	2.0230E-05 (17, 4)	2.0695E-05 (52, 6)	2.1167E-05 (52, 6)
21	2.1316E-05 (184, 4)	1.8477E-05 (184, 4)	1.7950E-05 (270, 8)	1.8169E-05 (285, 4)	1.8055E-05 (21, 7)
22	2.2613E-05 (283, 5)	2.1542E-05 (283, 5)	2.0139E-05 (283, 5)	2.1632E-05 (319, 6)	2.2158E-05 (319, 6)
23	2.3565E-05 (338, 4)	2.1077E-05 (305, 5)	2.0463E-05 (305, 5)	2.0860E-05 (123, 2)	2.1317E-05 (100, 7)
24	2.4222E-05 (174, 4)	2.4260E-05 (174, 4)	2.3620E-05 (174, 4)	2.3823E-05 (213, 1)	2.2198E-05 (182, 6)
25	2.3423E-05 (144, 5)	1.9258E-05 (144, 5)	1.6930E-05 (239, 6)	1.7367E-05 (239, 6)	1.7365E-05 (239, 6)
26	1.7052E-05 (199, 5)	1.8451E-05 (210, 6)	1.9253E-05 (210, 6)	1.7987E-05 (287, 4)	1.6643E-05 (287, 4)
27	2.3380E-05 (112, 5)	2.1301E-05 (112, 5)	1.9809E-05 (203, 6)	1.8594E-05 (203, 6)	2.0047E-05 (287, 6)
28	2.4463E-05 (197, 5)	2.0920E-05 (197, 5)	1.8272E-05 (114, 4)	1.6512E-05 (205, 6)	1.5594E-05 (205, 6)
29	1.9730E-05 (196, 6)	1.9483E-05 (86, 5)	1.9922E-05 (114, 7)	2.0324E-05 (86, 5)	1.9988E-05 (86, 5)
30	2.2325E-05 (113, 5)	2.2032E-05 (9, 7)	2.6277E-05 (9, 7)	2.5962E-05 (107, 7)	2.7345E-05 (107, 7)
31	1.7556E-05 (104, 4)	1.6782E-05 (19, 4)	1.4897E-05 (19, 4)	1.3815E-05 (265, 8)	1.4232E-05 (167, 1)
32	1.6751E-05 (53, 5)	1.9637E-05 (109, 1)	2.3742E-05 (109, 1)	2.6152E-05 (109, 1)	2.7977E-05 (109, 2)
33	2.0995E-05 (359, 4)	2.1583E-05 (149, 4)	2.1066E-05 (149, 4)	1.9956E-05 (149, 4)	1.9612E-05 (217, 7)
34	2.9043E-05 (8, 4)	3.0276E-05 (8, 4)	3.0220E-05 (8, 4)	2.8441E-05 (359, 8)	2.6300E-05 (359, 8)
35	2.1002E-05 (120, 4)	2.0247E-05 (72, 6)	1.9947E-05 (72, 6)	1.9944E-05 (71, 5)	1.9758E-05 (71, 5)
36	2.4136E-05 (290, 5)	2.2915E-05 (290, 5)	2.1372E-05 (290, 5)	2.1732E-05 (13, 2)	2.1764E-05 (13, 2)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 4.2207E-05 DIRECTION= 9 DISTANCE= 1.5 KM DAY=196 TIME PERIOD= 5
YEAR= 76

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.1412E-06 (152, 6)	2.3389E-05 (152, 6)	2.9833E-05 (152, 6)	2.5186E-05 (152, 6)	2.1879E-05 (299, 4)
2	1.6131E-06 (186, 4)	1.8115E-05 (221, 5)	2.9426E-05 (187, 4)	2.8074E-05 (90, 5)	2.5545E-05 (187, 4)
3	1.4869E-06 (226, 4)	1.9805E-05 (213, 4)	2.5280E-05 (69, 4)	2.7480E-05 (187, 4)	2.5417E-05 (214, 3)
4	2.0031E-06 (226, 4)	2.5076E-05 (213, 4)	2.6215E-05 (95, 5)	2.5021E-05 (273, 4)	2.3361E-05 (273, 4)
5	1.8809E-06 (69, 5)	2.0780E-05 (117, 5)	3.0679E-05 (95, 5)	2.9097E-05 (95, 5)	2.5886E-05 (32, 6)
6	3.4720E-06 (116, 5)	2.1255E-05 (116, 5)	3.0784E-05 (76, 6)	3.1876E-05 (117, 5)	3.1972E-05 (76, 6)
7	2.6611E-06 (116, 5)	1.6862E-05 (145, 4)	2.3520E-05 (315, 5)	2.6784E-05 (133, 3)	2.5569E-05 (133, 3)
8	4.0418E-06 (145, 4)	2.2895E-05 (198, 4)	2.7204E-05 (145, 5)	2.6694E-05 (197, 3)	2.3858E-05 (198, 4)
9	6.7098E-06 (145, 4)	3.6026E-05 (196, 5)	4.2207E-05 (196, 5)	3.4060E-05 (139, 5)	2.7226E-05 (196, 5)
10	9.9714E-07 (204, 6)	1.6258E-05 (17, 5)	2.5923E-05 (207, 4)	2.6297E-05 (198, 3)	2.6526E-05 (198, 3)
11	9.9714E-07 (204, 6)	1.8422E-05 (213, 5)	2.4674E-05 (213, 5)	2.4747E-05 (275, 5)	2.5418E-05 (275, 5)
12	1.5490E-06 (221, 4)	2.1930E-05 (221, 4)	2.2921E-05 (213, 5)	2.3053E-05 (77, 6)	2.3881E-05 (323, 5)
13	2.0714E-06 (221, 4)	2.3989E-05 (221, 4)	2.7277E-05 (118, 5)	2.3191E-05 (323, 4)	2.1572E-05 (362, 1)
14	2.0306E-06 (200, 4)	2.0330E-05 (157, 5)	2.4701E-05 (295, 4)	2.5218E-05 (236, 4)	2.8644E-05 (295, 4)
15	2.0048E-06 (207, 4)	1.9744E-05 (124, 5)	2.4681E-05 (96, 5)	2.6498E-05 (208, 4)	2.0781E-05 (208, 4)
16	1.8622E-06 (247, 4)	1.7146E-05 (247, 4)	2.2459E-05 (301, 4)	2.5081E-05 (301, 4)	2.2844E-05 (301, 4)
17	1.7310E-06 (219, 4)	2.4303E-05 (157, 4)	1.8898E-05 (220, 5)	2.3407E-05 (255, 3)	1.9836E-05 (157, 4)
18	1.6851E-06 (157, 4)	2.7757E-05 (191, 4)	2.2993E-05 (308, 1)	2.7675E-05 (308, 1)	2.8677E-05 (302, 1)
19	2.7146E-06 (157, 5)	2.1292E-05 (125, 5)	2.4084E-05 (287, 4)	2.4790E-05 (287, 4)	2.6515E-05 (302, 3)
20	7.7873E-06 (184, 6)	3.0677E-05 (157, 5)	3.2678E-05 (140, 4)	3.1304E-05 (100, 5)	3.0833E-05 (100, 5)
21	3.0539E-06 (199, 6)	2.5032E-05 (204, 4)	2.1743E-05 (100, 4)	1.8165E-05 (109, 5)	1.9343E-05 (57, 5)
22	1.7844E-06 (245, 4)	2.7862E-05 (199, 6)	2.7138E-05 (263, 5)	2.4375E-05 (263, 5)	2.0756E-05 (164, 5)
23	2.0974E-06 (245, 4)	2.0378E-05 (264, 5)	3.0455E-05 (264, 5)	2.7474E-05 (242, 4)	2.2671E-05 (242, 4)
24	1.1198E-06 (226, 5)	1.9191E-05 (119, 5)	2.5074E-05 (230, 4)	2.4816E-05 (230, 4)	2.2007E-05 (344, 5)
25	9.1942E-07 (245, 4)	1.6194E-05 (245, 4)	2.6102E-05 (141, 4)	2.4656E-05 (43, 5)	2.2487E-05 (307, 5)
26	1.3363E-06 (114, 5)	1.7616E-05 (268, 5)	2.8632E-05 (268, 5)	3.0036E-05 (290, 4)	2.8783E-05 (290, 4)
27	2.0280E-06 (114, 5)	1.7475E-05 (252, 4)	2.1747E-05 (204, 5)	1.9685E-05 (106, 4)	1.8890E-05 (167, 6)
28	1.7755E-06 (248, 4)	2.0471E-05 (63, 6)	2.3665E-05 (251, 5)	2.4072E-05 (298, 5)	2.2510E-05 (204, 5)
29	1.3042E-06 (229, 4)	2.1833E-05 (251, 5)	2.7193E-05 (251, 5)	2.1425E-05 (251, 5)	1.9947E-05 (134, 6)
30	1.9986E-06 (245, 5)	1.9313E-05 (248, 5)	2.3865E-05 (218, 4)	2.2969E-05 (62, 4)	1.9947E-05 (64, 4)
31	2.1510E-06 (135, 5)	1.9282E-05 (135, 5)	2.4043E-05 (180, 5)	2.3863E-05 (86, 4)	2.4171E-05 (126, 4)
32	2.2667E-06 (192, 4)	2.0600E-05 (192, 4)	2.6935E-05 (189, 5)	3.0326E-05 (269, 4)	2.7840E-05 (168, 4)
33	3.2641E-06 (192, 4)	2.6538E-05 (156, 4)	2.4692E-05 (134, 5)	2.0237E-05 (24, 5)	2.0061E-05 (153, 4)
34	2.3407E-06 (192, 4)	2.6389E-05 (134, 5)	2.8042E-05 (228, 4)	2.3589E-05 (228, 4)	2.2075E-05 (61, 8)
35	3.2702E-06 (144, 4)	2.2391E-05 (223, 5)	2.6861E-05 (148, 5)	2.7339E-05 (148, 5)	2.3913E-05 (102, 4)
36	1.6277E-06 (222, 5)	2.7007E-05 (222, 5)	3.5686E-05 (222, 5)	3.2044E-05 (222, 5)	3.0277E-05 (216, 4)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.3049E-05 DIRECTION= 18 DISTANCE= 3.5 KM DAY=302 TIME PERIOD= 1

YEAR= 76

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	2.5649E-05 (32, 5)	2.2395E-05 (32, 5)	1.9633E-05 (32, 6)	2.0898E-05 (234, 7)	2.3528E-05 (234, 7)
2	2.1502E-05 (69, 4)	1.9295E-05 (69, 4)	1.9223E-05 (68, 5)	1.7356E-05 (363, 8)	1.6906E-05 (139, 2)
3	2.3175E-05 (214, 3)	2.0416E-05 (214, 3)	1.8706E-05 (97, 6)	1.7896E-05 (69, 4)	1.6033E-05 (69, 4)
4	2.2186E-05 (69, 5)	2.2187E-05 (355, 7)	2.2214E-05 (356, 7)	2.2644E-05 (49, 7)	2.2226E-05 (8, 4)
5	2.3703E-05 (145, 2)	2.3962E-05 (69, 5)	2.1028E-05 (116, 8)	2.2915E-05 (116, 8)	2.2876E-05 (145, 2)
6	2.9303E-05 (76, 6)	2.6401E-05 (76, 6)	2.3789E-05 (76, 6)	2.1394E-05 (76, 6)	1.9300E-05 (76, 6)
7	2.2457E-05 (53, 6)	2.1338E-05 (53, 6)	2.2767E-05 (198, 2)	2.3127E-05 (145, 4)	2.0853E-05 (145, 4)
8	2.3311E-05 (122, 6)	2.4904E-05 (122, 6)	2.3196E-05 (197, 3)	2.1049E-05 (197, 3)	1.9101E-05 (197, 3)
9	2.4419E-05 (196, 6)	2.4218E-05 (196, 6)	2.3351E-05 (196, 6)	2.5959E-05 (117, 8)	2.5197E-05 (117, 6)
10	2.5654E-05 (198, 3)	2.4236E-05 (361, 7)	2.6664E-05 (93, 7)	2.9492E-05 (93, 7)	3.1480E-05 (93, 7)
11	2.4262E-05 (275, 5)	2.3107E-05 (305, 4)	2.2662E-05 (305, 4)	2.4160E-05 (300, 7)	2.5682E-05 (300, 7)
12	2.2292E-05 (30, 4)	2.2027E-05 (30, 4)	2.3027E-05 (249, 4)	2.3864E-05 (249, 4)	2.5240E-05 (39, 2)
13	2.3499E-05 (362, 1)	2.2464E-05 (151, 4)	2.0383E-05 (161, 4)	2.0934E-05 (313, 1)	2.0591E-05 (362, 1)
14	2.5522E-05 (8, 8)	2.4443E-05 (8, 8)	2.2933E-05 (8, 8)	2.4518E-05 (362, 1)	2.6503E-05 (352, 1)
15	1.9995E-05 (54, 1)	1.9739E-05 (54, 1)	1.8913E-05 (64, 1)	1.8524E-05 (99, 8)	1.8303E-05 (99, 8)
16	2.4193E-05 (5, 3)	2.5125E-05 (5, 3)	2.5189E-05 (5, 3)	2.6099E-05 (306, 1)	2.7300E-05 (306, 1)
17	1.9180E-05 (114, 3)	1.8777E-05 (357, 1)	2.2336E-05 (357, 1)	2.4351E-05 (357, 1)	2.4926E-05 (255, 3)
18	3.2257E-05 (302, 1)	3.3049E-05 (302, 1)	3.1885E-05 (313, 4)	3.1409E-05 (302, 1)	3.3042E-05 (285, 7)
19	2.7020E-05 (302, 3)	2.6018E-05 (302, 3)	2.4526E-05 (302, 3)	2.3057E-05 (297, 2)	2.2284E-05 (58, 4)
20	2.9419E-05 (100, 5)	2.7347E-05 (100, 5)	2.5219E-05 (100, 5)	2.3600E-05 (82, 7)	2.2317E-05 (38, 6)
21	2.1667E-05 (57, 5)	2.1066E-05 (19, 6)	2.1212E-05 (19, 6)	2.0778E-05 (19, 6)	1.9942E-05 (57, 5)
22	2.1086E-05 (166, 4)	2.1058E-05 (348, 8)	2.1390E-05 (159, 7)	2.3313E-05 (159, 7)	2.4587E-05 (159, 7)
23	2.2200E-05 (55, 4)	2.1378E-05 (240, 4)	2.1677E-05 (232, 2)	2.2054E-05 (55, 4)	2.2466E-05 (232, 2)
24	2.3761E-05 (344, 5)	2.1841E-05 (165, 6)	2.2464E-05 (165, 6)	2.1594E-05 (344, 5)	2.0265E-05 (344, 5)
25	1.8713E-05 (141, 4)	1.7596E-05 (303, 5)	1.7573E-05 (303, 5)	1.7108E-05 (303, 5)	1.6409E-05 (303, 5)
26	2.5479E-05 (290, 4)	2.1972E-05 (290, 4)	2.0524E-05 (66, 6)	1.9998E-05 (252, 7)	2.0197E-05 (59, 4)
27	1.8456E-05 (167, 6)	1.8542E-05 (114, 7)	2.1117E-05 (121, 6)	2.1562E-05 (121, 6)	2.1555E-05 (121, 6)
28	1.8725E-05 (64, 6)	1.7705E-05 (84, 5)	1.7071E-05 (269, 6)	1.7225E-05 (269, 6)	1.6996E-05 (269, 6)
29	2.0383E-05 (168, 6)	2.0868E-05 (168, 6)	2.0555E-05 (168, 6)	1.9983E-05 (86, 6)	2.0623E-05 (345, 4)
30	2.0540E-05 (62, 4)	1.9385E-05 (126, 6)	2.0014E-05 (126, 6)	1.9906E-05 (126, 6)	1.9558E-05 (126, 6)
31	1.9788E-05 (126, 4)	1.8421E-05 (135, 4)	1.8476E-05 (135, 4)	1.9277E-05 (90, 7)	2.0255E-05 (90, 7)
32	2.3670E-05 (168, 4)	2.0412E-05 (2, 5)	1.8302E-05 (27, 1)	1.7793E-05 (26, 8)	1.8390E-05 (26, 8)
33	2.1561E-05 (360, 5)	2.1835E-05 (360, 5)	2.1314E-05 (360, 5)	2.0391E-05 (360, 5)	1.9292E-05 (360, 5)
34	2.3889E-05 (331, 5)	2.2076E-05 (281, 4)	1.9697E-05 (61, 8)	1.8234E-05 (61, 8)	1.8721E-05 (294, 2)
35	2.2467E-05 (172, 3)	2.1862E-05 (172, 3)	2.0683E-05 (172, 3)	1.9316E-05 (172, 3)	1.7945E-05 (172, 3)
36	2.8195E-05 (216, 4)	2.5363E-05 (216, 4)	2.4472E-05 (334, 3)	2.4462E-05 (49, 4)	2.4474E-05 (334, 3)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 4.3495E-05 DIRECTION= 30 DISTANCE= 1.5 KM DAY=136 TIME PERIOD= 4
YEAR= 77

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	2.5032E-06 (236, 6)	2.1689E-05 (87, 4)	2.5934E-05 (231, 4)	2.6690E-05 (230, 5)	2.6300E-05 (188, 6)
2	7.4448E-07 (229, 4)	2.4861E-05 (248, 5)	2.9308E-05 (248, 5)	2.2957E-05 (248, 5)	1.9666E-05 (230, 5)
3	1.3826E-06 (180, 4)	2.4415E-05 (184, 4)	3.2557E-05 (213, 4)	3.0440E-05 (251, 5)	2.8315E-05 (175, 6)
4	1.9319E-06 (229, 4)	3.1512E-05 (252, 4)	3.7875E-05 (145, 5)	3.3754E-05 (252, 4)	2.7112E-05 (145, 5)
5	1.9328E-06 (180, 4)	2.2806E-05 (176, 4)	2.7609E-05 (177, 4)	2.4704E-05 (144, 4)	2.1724E-05 (282, 5)
6	2.6912E-06 (114, 5)	1.8398E-05 (173, 4)	2.5339E-05 (127, 4)	2.5873E-05 (251, 6)	2.5763E-05 (78, 5)
7	3.5604E-06 (190, 5)	2.6316E-05 (190, 5)	2.5894E-05 (158, 4)	2.7503E-05 (127, 4)	2.8067E-05 (253, 6)
8	1.6407E-06 (169, 4)	2.1530E-05 (190, 5)	2.2537E-05 (176, 5)	2.3148E-05 (176, 5)	2.0341E-05 (176, 5)
9	1.7526E-06 (134, 5)	2.0865E-05 (300, 4)	2.8673E-05 (174, 5)	2.8482E-05 (176, 5)	2.4903E-05 (176, 5)
10	1.4657E-06 (134, 5)	1.3132E-05 (309, 4)	1.8374E-05 (161, 5)	2.3412E-05 (309, 4)	2.2356E-05 (36, 3)
11	1.9658E-06 (187, 4)	1.6982E-05 (256, 5)	2.2245E-05 (127, 6)	3.0477E-05 (127, 6)	3.2298E-05 (127, 6)
12	2.8792E-06 (187, 4)	2.7228E-05 (178, 5)	3.3764E-05 (178, 5)	3.0414E-05 (74, 5)	2.6179E-05 (74, 5)
13	2.9526E-06 (187, 4)	2.4051E-05 (187, 4)	2.7222E-05 (178, 5)	2.5902E-05 (175, 5)	2.4954E-05 (19, 3)
14	2.1753E-06 (187, 4)	2.3042E-05 (173, 5)	2.9669E-05 (117, 4)	2.8312E-05 (117, 4)	2.3678E-05 (117, 4)
15	1.4512E-06 (267, 4)	1.9022E-05 (163, 4)	2.3500E-05 (163, 4)	2.0657E-05 (32, 5)	2.0564E-05 (32, 5)
16	1.9550E-06 (267, 4)	2.4081E-05 (203, 5)	2.5998E-05 (203, 4)	2.3766E-05 (203, 5)	2.0677E-05 (29, 5)
17	1.6122E-06 (184, 5)	2.0561E-05 (203, 5)	2.6348E-05 (98, 5)	2.7491E-05 (315, 4)	2.5668E-05 (98, 5)
18	2.0462E-06 (184, 5)	2.3911E-05 (187, 5)	2.0931E-05 (341, 5)	2.5480E-05 (341, 5)	2.4157E-05 (341, 5)
19	2.1287E-06 (257, 5)	2.9640E-05 (168, 4)	1.4576E-05 (29, 4)	1.7582E-05 (220, 5)	1.6942E-05 (220, 5)
20	1.6865E-06 (186, 4)	2.3317E-05 (99, 5)	2.1602E-05 (154, 4)	2.6652E-05 (30, 4)	2.6329E-05 (30, 4)
21	8.4752E-07 (156, 4)	2.0911E-05 (168, 4)	2.3791E-05 (105, 4)	2.3762E-05 (205, 5)	2.1816E-05 (105, 4)
22	1.3017E-06 (99, 4)	1.9925E-05 (99, 4)	2.1517E-05 (99, 4)	2.1128E-05 (304, 5)	2.3425E-05 (276, 6)
23	1.7393E-06 (101, 5)	2.2109E-05 (142, 5)	3.2808E-05 (100, 4)	3.1060E-05 (133, 4)	2.7802E-05 (293, 5)
24	1.7282E-06 (255, 5)	2.6068E-05 (101, 5)	2.9875E-05 (278, 5)	3.6159E-05 (278, 5)	3.5799E-05 (278, 5)
25	1.6251E-06 (221, 5)	2.9676E-05 (101, 4)	3.7558E-05 (101, 4)	3.4462E-05 (101, 4)	3.2003E-05 (100, 6)
26	1.4261E-06 (221, 5)	2.0902E-05 (238, 5)	2.5196E-05 (243, 4)	2.5574E-05 (218, 4)	2.2925E-05 (218, 4)
27	2.9166E-06 (242, 5)	2.2188E-05 (243, 4)	3.7340E-05 (217, 4)	3.5419E-05 (198, 5)	3.1239E-05 (224, 4)
28	2.9923E-06 (214, 5)	2.1134E-05 (139, 5)	2.2654E-05 (136, 5)	2.0520E-05 (228, 4)	1.8981E-05 (228, 4)
29	2.4715E-06 (217, 5)	2.2405E-05 (140, 5)	2.2945E-05 (136, 4)	2.1518E-05 (121, 4)	2.2032E-05 (227, 5)
30	2.3875E-06 (216, 5)	3.9226E-05 (216, 5)	4.3495E-05 (136, 4)	4.2668E-05 (136, 4)	3.6836E-05 (136, 4)
31	2.6267E-06 (111, 5)	3.2075E-05 (111, 5)	3.9073E-05 (209, 5)	3.0565E-05 (209, 5)	2.7009E-05 (237, 5)
32	1.5917E-06 (209, 5)	2.1025E-05 (229, 4)	2.1509E-05 (313, 5)	2.5656E-05 (313, 5)	2.4424E-05 (313, 5)
33	1.3694E-06 (181, 4)	2.5916E-05 (188, 5)	2.7169E-05 (93, 5)	2.6597E-05 (210, 6)	2.4685E-05 (93, 5)
34	1.3632E-06 (193, 4)	1.9551E-05 (229, 5)	1.9937E-05 (92, 5)	2.5964E-05 (206, 6)	2.7409E-05 (206, 6)
35	1.6560E-06 (265, 4)	1.7833E-05 (265, 5)	2.2409E-05 (189, 5)	2.2099E-05 (215, 5)	1.9902E-05 (250, 4)
36	2.5032E-06 (236, 6)	2.5922E-05 (214, 4)	3.8436E-05 (262, 4)	3.9145E-05 (262, 4)	3.5545E-05 (65, 4)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.2751E-05 DIRECTION= 24 DISTANCE= 3.0 KM DAY=141 TIME PERIOD= 4
YEAR= 77

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	2.4036E-05 (188, 6)	2.1050E-05 (188, 6)	1.9295E-05 (65, 6)	1.9506E-05 (65, 6)	1.9293E-05 (65, 6)
2	1.8424E-05 (95, 3)	1.8450E-05 (72, 5)	1.7787E-05 (285, 5)	1.6093E-05 (50, 4)	1.6341E-05 (50, 4)
3	2.6663E-05 (175, 6)	2.3871E-05 (175, 6)	2.2035E-05 (212, 3)	2.0130E-05 (285, 4)	1.7725E-05 (285, 4)
4	2.3810E-05 (157, 6)	2.2286E-05 (157, 6)	2.3312E-05 (157, 8)	2.4462E-05 (148, 5)	2.1906E-05 (148, 5)
5	2.0312E-05 (172, 3)	1.9862E-05 (172, 3)	2.0258E-05 (80, 8)	2.2216E-05 (80, 8)	2.2834E-05 (282, 5)
6	2.4391E-05 (78, 5)	2.2530E-05 (78, 5)	2.0690E-05 (78, 5)	1.8983E-05 (77, 6)	1.7905E-05 (233, 5)
7	2.7707E-05 (3, 5)	2.7182E-05 (3, 5)	2.6263E-05 (3, 5)	2.5142E-05 (3, 5)	2.3934E-05 (3, 5)
8	2.1596E-05 (20, 5)	2.3340E-05 (115, 7)	2.5540E-05 (3, 6)	2.3618E-05 (3, 6)	2.1777E-05 (3, 6)
9	2.5400E-05 (352, 4)	2.5332E-05 (352, 4)	2.4427E-05 (352, 4)	2.5118E-05 (177, 8)	2.6761E-05 (292, 7)
10	2.6554E-05 (36, 3)	2.7127E-05 (20, 6)	2.5499E-05 (20, 6)	2.3721E-05 (20, 6)	2.1968E-05 (20, 6)
11	3.1285E-05 (127, 6)	2.9105E-05 (127, 6)	2.6717E-05 (127, 6)	2.4418E-05 (127, 6)	2.2309E-05 (127, 6)
12	2.4279E-05 (161, 4)	2.1765E-05 (25, 5)	2.0428E-05 (25, 5)	1.8967E-05 (25, 5)	1.7527E-05 (25, 5)
13	2.3495E-05 (352, 5)	2.2300E-05 (352, 5)	2.0768E-05 (352, 5)	1.9174E-05 (352, 5)	1.8372E-05 (66, 5)
14	1.9946E-05 (173, 5)	2.0202E-05 (330, 3)	1.9422E-05 (330, 3)	1.9347E-05 (79, 7)	2.0540E-05 (79, 7)
15	2.0418E-05 (1, 5)	1.9105E-05 (286, 2)	1.9738E-05 (1, 5)	1.9124E-05 (286, 2)	1.8686E-05 (362, 6)
16	1.9324E-05 (29, 5)	2.2883E-05 (305, 1)	2.4081E-05 (96, 1)	2.5976E-05 (96, 1)	2.7142E-05 (96, 1)
17	2.2142E-05 (98, 5)	2.1493E-05 (317, 4)	2.0465E-05 (317, 4)	1.9136E-05 (317, 4)	1.8434E-05 (17, 3)
18	2.2365E-05 (315, 3)	2.1511E-05 (363, 1)	2.3861E-05 (30, 2)	2.6633E-05 (30, 2)	2.8602E-05 (30, 2)
19	1.9495E-05 (41, 4)	2.0415E-05 (41, 4)	2.0434E-05 (41, 4)	1.9936E-05 (41, 4)	1.9408E-05 (8, 4)
20	2.4067E-05 (30, 4)	2.2708E-05 (277, 1)	2.7017E-05 (277, 1)	2.4561E-05 (99, 5)	2.2886E-05 (30, 8)
21	2.0841E-05 (337, 4)	1.9919E-05 (67, 4)	2.0063E-05 (304, 6)	2.2778E-05 (206, 1)	2.5002E-05 (206, 1)
22	2.3638E-05 (304, 5)	2.3698E-05 (276, 6)	2.2421E-05 (276, 6)	2.1014E-05 (242, 2)	2.2107E-05 (62, 1)
23	2.6742E-05 (304, 4)	2.6367E-05 (304, 4)	2.4361E-05 (100, 4)	2.1736E-05 (100, 4)	2.0044E-05 (322, 4)
24	3.2751E-05 (141, 4)	2.7188E-05 (141, 4)	2.2685E-05 (141, 4)	2.0903E-05 (277, 5)	2.0695E-05 (294, 7)
25	3.0299E-05 (219, 4)	2.5377E-05 (219, 4)	2.3473E-05 (219, 3)	2.1770E-05 (219, 3)	2.3921E-05 (69, 2)
26	1.9383E-05 (218, 4)	1.6912E-05 (243, 4)	1.8206E-05 (240, 7)	2.1087E-05 (240, 7)	2.2902E-05 (130, 5)
27	2.7761E-05 (224, 4)	2.8677E-05 (217, 6)	2.8860E-05 (217, 6)	2.8269E-05 (217, 6)	2.7253E-05 (217, 6)
28	1.7565E-05 (325, 5)	1.6800E-05 (120, 7)	1.9290E-05 (120, 7)	2.0494E-05 (120, 7)	2.1444E-05 (258, 7)
29	1.9953E-05 (86, 4)	1.9871E-05 (86, 4)	1.9171E-05 (86, 4)	1.8184E-05 (86, 4)	1.7099E-05 (53, 7)
30	3.0707E-05 (136, 4)	2.7585E-05 (86, 5)	2.6123E-05 (122, 6)	2.5639E-05 (122, 6)	2.4758E-05 (122, 6)
31	2.2546E-05 (237, 5)	1.9031E-05 (112, 4)	1.7458E-05 (121, 6)	1.7267E-05 (246, 3)	1.7178E-05 (246, 3)
32	2.1519E-05 (71, 5)	2.2513E-05 (71, 5)	2.2574E-05 (71, 5)	2.2565E-05 (87, 8)	2.3986E-05 (87, 8)
33	2.2644E-05 (55, 2)	2.1300E-05 (55, 2)	1.9705E-05 (55, 2)	1.7402E-05 (210, 6)	1.6591E-05 (55, 2)
34	2.5479E-05 (206, 6)	2.4733E-05 (113, 4)	2.3691E-05 (113, 4)	2.2357E-05 (113, 4)	2.0937E-05 (113, 4)
35	1.7825E-05 (250, 4)	1.6365E-05 (55, 3)	1.5404E-05 (55, 3)	1.6211E-05 (65, 2)	1.7798E-05 (65, 2)
36	3.0111E-05 (207, 6)	2.9126E-05 (339, 4)	2.7885E-05 (339, 4)	2.6580E-05 (354, 8)	2.8720E-05 (354, 8)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 3-HOUR CONC= 4.2854E-05 DIRECTION= 26 DISTANCE= 1.5 KM DAY=143 TIME PERIOD= 5

YEAR= 78

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	5.1648E-06 (212, 5)	2.2497E-05 (187, 5)	2.9093E-05 (136, 5)	3.1851E-05 (212, 5)	2.6918E-05 (212, 5)
2	2.2343E-06 (183, 5)	1.9313E-05 (180, 4)	2.7489E-05 (155, 4)	2.9819E-05 (184, 5)	2.9119E-05 (25, 6)
3	2.3189E-06 (187, 5)	1.7707E-05 (98, 4)	2.4374E-05 (119, 4)	2.2907E-05 (119, 4)	1.8728E-05 (136, 4)
4	2.0964E-06 (145, 4)	1.9724E-05 (229, 4)	2.4305E-05 (121, 5)	2.6312E-05 (211, 6)	2.6682E-05 (122, 5)
5	2.0973E-06 (175, 5)	2.0565E-05 (184, 4)	2.6922E-05 (184, 4)	3.1325E-05 (133, 4)	2.7445E-05 (353, 4)
6	1.7755E-06 (97, 5)	2.0722E-05 (134, 5)	2.2095E-05 (135, 5)	2.1677E-05 (56, 5)	2.2009E-05 (69, 6)
7	7.5641E-07 (135, 4)	1.7402E-05 (248, 5)	2.3750E-05 (121, 6)	2.5695E-05 (116, 5)	2.3586E-05 (116, 5)
8	4.6412E-07 (116, 4)	1.7227E-05 (176, 4)	2.1312E-05 (26, 6)	2.5603E-05 (110, 5)	2.2929E-05 (111, 6)
9	3.8900E-06 (116, 5)	2.0905E-05 (116, 5)	2.2886E-05 (134, 5)	2.0817E-05 (86, 4)	1.9404E-05 (52, 7)
10	3.0179E-06 (116, 5)	1.7218E-05 (248, 4)	1.8795E-05 (57, 4)	2.0554E-05 (57, 4)	1.8395E-05 (57, 4)
11	2.2612E-06 (182, 4)	1.9667E-05 (160, 5)	1.5297E-05 (274, 4)	1.5436E-05 (134, 4)	1.4135E-05 (134, 4)
12	1.7984E-06 (160, 5)	2.1732E-05 (99, 4)	2.0519E-05 (280, 5)	2.1714E-05 (279, 4)	2.0702E-05 (53, 1)
13	1.5000E-06 (249, 4)	2.5355E-05 (117, 5)	3.5554E-05 (249, 4)	2.9334E-05 (249, 4)	2.6470E-05 (359, 5)
14	1.9498E-06 (250, 4)	2.3572E-05 (110, 4)	2.8934E-05 (231, 5)	2.6974E-05 (76, 2)	2.9053E-05 (279, 5)
15	1.4571E-06 (249, 4)	1.8464E-05 (254, 4)	2.8911E-05 (110, 4)	2.2474E-05 (81, 4)	1.9305E-05 (58, 5)
16	5.9398E-07 (249, 4)	1.3514E-05 (164, 4)	2.1288E-05 (308, 5)	2.6295E-05 (308, 5)	2.4994E-05 (308, 5)
17	1.5958E-07 (250, 4)	1.0728E-05 (125, 5)	1.7254E-05 (322, 5)	2.1734E-05 (322, 5)	2.1522E-05 (322, 5)
18	2.7378E-07 (175, 4)	1.6499E-05 (125, 5)	2.6581E-05 (324, 4)	3.0915E-05 (324, 4)	2.8884E-05 (281, 4)
19	9.9195E-07 (161, 5)	1.3524E-05 (115, 4)	1.5743E-05 (316, 5)	2.1211E-05 (145, 4)	2.2831E-05 (278, 5)
20	2.0662E-06 (161, 5)	1.6937E-05 (252, 5)	2.2462E-05 (125, 4)	2.4940E-05 (125, 4)	2.3092E-05 (125, 4)
21	2.4329E-06 (161, 5)	2.5966E-05 (145, 5)	3.3499E-05 (258, 4)	3.3805E-05 (258, 4)	2.7931E-05 (145, 5)
22	2.2889E-06 (182, 5)	2.7112E-05 (161, 5)	2.9580E-05 (217, 5)	2.6948E-05 (252, 5)	2.4609E-05 (64, 4)
23	2.1516E-06 (186, 5)	2.3249E-05 (179, 4)	2.7037E-05 (281, 5)	3.0788E-05 (244, 5)	2.9509E-05 (244, 5)
24	2.0280E-06 (99, 5)	2.8478E-05 (130, 5)	2.9906E-05 (106, 5)	2.8157E-05 (240, 6)	2.6527E-05 (77, 5)
25	1.7762E-06 (245, 5)	2.2607E-05 (106, 5)	3.0543E-05 (131, 5)	2.7975E-05 (164, 5)	2.6502E-05 (131, 5)
26	2.2543E-06 (245, 5)	3.1751E-05 (169, 5)	4.2854E-05 (143, 5)	3.8947E-05 (169, 5)	3.4328E-05 (169, 5)
27	2.2177E-06 (202, 5)	2.8420E-05 (93, 5)	3.2305E-05 (140, 5)	3.2711E-05 (131, 4)	2.8332E-05 (131, 4)
28	2.2764E-06 (148, 5)	2.9495E-05 (146, 5)	3.4534E-05 (146, 5)	3.0501E-05 (94, 5)	2.7129E-05 (24, 5)
29	1.9770E-06 (190, 5)	2.2503E-05 (205, 5)	2.6773E-05 (189, 4)	2.8686E-05 (176, 5)	2.4160E-05 (72, 4)
30	1.9495E-06 (150, 4)	2.1339E-05 (218, 4)	2.9943E-05 (189, 4)	2.9983E-05 (226, 6)	2.7987E-05 (218, 4)
31	1.3633E-06 (150, 4)	2.0001E-05 (151, 5)	3.3026E-05 (216, 4)	3.0726E-05 (203, 5)	2.6365E-05 (203, 5)
32	1.8742E-06 (108, 4)	2.4159E-05 (222, 4)	3.1436E-05 (201, 4)	3.2208E-05 (173, 5)	2.6908E-05 (241, 4)
33	2.1394E-06 (207, 5)	3.2360E-05 (108, 4)	3.6622E-05 (207, 5)	3.1504E-05 (100, 5)	3.0092E-05 (100, 5)
34	2.1287E-06 (205, 4)	3.2791E-05 (190, 4)	3.2743E-05 (154, 4)	3.6251E-05 (154, 4)	3.3534E-05 (154, 4)
35	2.6580E-06 (103, 4)	2.9581E-05 (101, 4)	3.9594E-05 (160, 4)	3.8127E-05 (129, 4)	3.1705E-05 (129, 4)
36	8.2591E-06 (103, 4)	2.9682E-05 (103, 5)	3.8400E-05 (25, 7)	4.2462E-05 (103, 4)	3.5821E-05 (103, 4)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.2959E-05 DIRECTION= 36 DISTANCE= 4.5 KM DAY= 73 TIME PERIOD= 8
YEAR= 78

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	2.3982E-05 (44, 5)	2.0592E-05 (136, 5)	1.7298E-05 (136, 5)	1.5066E-05 (25, 6)	1.5807E-05 (354, 8)
2	2.7044E-05 (25, 6)	2.4455E-05 (25, 6)	2.2817E-05 (354, 7)	2.1301E-05 (75, 5)	1.9675E-05 (75, 5)
3	1.7658E-05 (97, 4)	1.7062E-05 (133, 7)	1.7941E-05 (133, 7)	1.7808E-05 (73, 6)	1.6806E-05 (73, 6)
4	2.2230E-05 (122, 5)	2.1907E-05 (211, 6)	2.1309E-05 (85, 6)	2.0589E-05 (85, 6)	1.9574E-05 (85, 6)
5	2.4727E-05 (353, 4)	2.1624E-05 (353, 4)	2.0420E-05 (213, 8)	2.1021E-05 (69, 2)	2.1460E-05 (69, 2)
6	2.3454E-05 (134, 5)	2.1266E-05 (134, 5)	1.9253E-05 (134, 5)	1.7883E-05 (110, 6)	1.7734E-05 (110, 6)
7	2.2418E-05 (121, 6)	1.9399E-05 (121, 6)	1.7747E-05 (199, 6)	1.7261E-05 (199, 6)	1.6556E-05 (199, 6)
8	1.9800E-05 (111, 6)	1.6747E-05 (111, 6)	1.4458E-05 (26, 5)	1.3490E-05 (118, 7)	1.4397E-05 (118, 7)
9	1.8664E-05 (13, 8)	1.8027E-05 (86, 4)	1.9417E-05 (86, 2)	2.1359E-05 (86, 2)	2.2680E-05 (86, 2)
10	1.8316E-05 (75, 6)	1.8895E-05 (75, 6)	1.8870E-05 (75, 6)	2.1424E-05 (21, 1)	2.3405E-05 (21, 1)
11	1.3605E-05 (328, 4)	1.4047E-05 (15, 6)	1.5563E-05 (15, 6)	1.6262E-05 (15, 6)	1.6351E-05 (37, 6)
12	1.9720E-05 (280, 5)	2.0777E-05 (14, 8)	2.1511E-05 (14, 8)	2.1561E-05 (14, 8)	2.0772E-05 (53, 1)
13	2.4757E-05 (359, 5)	2.2060E-05 (359, 5)	1.9320E-05 (359, 5)	1.7695E-05 (15, 2)	1.6479E-05 (117, 5)
14	2.4463E-05 (117, 1)	2.7034E-05 (117, 1)	2.5928E-05 (76, 2)	2.3872E-05 (76, 2)	2.1912E-05 (76, 2)
15	1.8211E-05 (359, 4)	1.8180E-05 (306, 8)	2.0319E-05 (305, 8)	2.2507E-05 (305, 8)	2.3892E-05 (306, 8)
16	2.1472E-05 (81, 4)	1.9377E-05 (307, 5)	1.9135E-05 (307, 5)	1.9727E-05 (307, 7)	2.0466E-05 (304, 2)
17	1.9499E-05 (322, 5)	1.9867E-05 (346, 4)	1.7909E-05 (351, 7)	1.9462E-05 (346, 4)	2.0531E-05 (305, 2)
18	2.5507E-05 (324, 4)	2.4083E-05 (304, 6)	2.6519E-05 (3, 8)	2.9294E-05 (3, 8)	2.9696E-05 (4, 2)
19	2.4010E-05 (304, 4)	2.4857E-05 (290, 7)	2.7964E-05 (290, 7)	2.8074E-05 (305, 5)	2.6907E-05 (305, 5)
20	2.0496E-05 (315, 5)	2.0072E-05 (315, 5)	2.1827E-05 (64, 2)	2.0464E-05 (35, 5)	2.1547E-05 (292, 7)
21	2.3179E-05 (243, 5)	2.1826E-05 (243, 5)	2.1539E-05 (362, 5)	2.0767E-05 (305, 6)	2.1596E-05 (305, 6)
22	2.1866E-05 (253, 5)	2.0319E-05 (253, 5)	2.0413E-05 (336, 7)	2.3220E-05 (316, 7)	2.4393E-05 (316, 7)
23	2.5981E-05 (244, 5)	2.2280E-05 (244, 5)	2.4488E-05 (318, 6)	2.6055E-05 (267, 4)	2.3940E-05 (318, 8)
24	2.3880E-05 (262, 3)	2.2362E-05 (240, 6)	1.9948E-05 (295, 4)	1.8819E-05 (262, 3)	1.9933E-05 (60, 8)
25	2.2232E-05 (363, 5)	2.1406E-05 (363, 5)	2.0231E-05 (363, 5)	1.8960E-05 (141, 3)	1.9872E-05 (141, 3)
26	3.0587E-05 (163, 6)	2.6501E-05 (169, 5)	2.9137E-05 (163, 6)	2.7549E-05 (163, 6)	2.5835E-05 (163, 6)
27	3.0051E-05 (171, 6)	2.7463E-05 (169, 6)	2.6918E-05 (171, 6)	2.4419E-05 (171, 6)	2.6418E-05 (169, 6)
28	2.4771E-05 (94, 5)	2.1061E-05 (94, 5)	1.8630E-05 (93, 4)	1.7091E-05 (82, 5)	1.6861E-05 (202, 6)
29	2.0704E-05 (72, 4)	2.1248E-05 (113, 4)	1.9559E-05 (239, 6)	1.6885E-05 (239, 6)	1.4890E-05 (203, 6)
30	2.4241E-05 (158, 6)	2.1224E-05 (158, 6)	1.9370E-05 (83, 6)	1.9072E-05 (83, 6)	1.8869E-05 (7, 7)
31	2.1872E-05 (203, 5)	2.1713E-05 (107, 7)	2.3062E-05 (107, 4)	2.4020E-05 (337, 7)	2.5542E-05 (337, 7)
32	2.3866E-05 (241, 4)	2.2087E-05 (173, 5)	1.8836E-05 (173, 5)	2.0505E-05 (24, 8)	2.0474E-05 (66, 5)
33	2.9254E-05 (19, 4)	2.7821E-05 (19, 4)	2.5983E-05 (19, 4)	2.4066E-05 (19, 4)	2.3982E-05 (124, 6)
34	2.9141E-05 (154, 4)	2.5431E-05 (199, 4)	2.3737E-05 (213, 1)	2.7284E-05 (67, 4)	2.7493E-05 (198, 8)
35	2.9690E-05 (183, 3)	3.0010E-05 (183, 3)	2.5973E-05 (160, 4)	2.2085E-05 (160, 4)	2.0789E-05 (44, 4)
36	3.0738E-05 (103, 4)	2.6631E-05 (103, 4)	3.0475E-05 (73, 8)	3.2959E-05 (73, 8)	3.2505E-05 (25, 7)

COMPOSITE ANNUAL CONCENTRATION TABLE,UG/CU.M

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	0.	0.	0.	1.	1.
2	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.
18	0.	0.	0.	1.	1.
19	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	1.
21	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.
23	0.	0.	0.	1.	1.
24	0.	0.	0.	1.	1.
25	0.	0.	0.	1.	1.
26	0.	0.	1.	1.	1.
27	0.	0.	1.	1.	1.
28	0.	0.	1.	1.	1.
29	0.	0.	0.	0.	0.
30	0.	0.	0.	1.	1.
31	0.	0.	0.	1.	1.
32	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.
34	0.	0.	0.	1.	1.
35	0.	0.	0.	1.	1.
36	0.	0.	1.	1.	1.

COMPOSITE ANNUAL CONCENTRATION TABLE,UG/CU.M

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	1.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.
17	0.	0.	1.	1.	1.
18	1.	1.	1.	1.	1.
19	1.	1.	1.	1.	1.
20	1.	1.	1.	1.	1.
21	0.	0.	0.	0.	0.
22	1.	1.	1.	1.	1.
23	1.	1.	1.	1.	1.
24	1.	1.	1.	1.	1.
25	1.	1.	1.	1.	1.
26	1.	1.	1.	1.	1.
27	1.	1.	1.	1.	1.
28	1.	1.	1.	1.	1.
29	0.	0.	0.	0.	0.
30	1.	1.	1.	1.	1.
31	1.	1.	1.	1.	1.
32	0.	0.	0.	0.	0.
33	1.	1.	1.	1.	1.
34	1.	1.	1.	1.	1.
35	1.	1.	1.	1.	1.
36	1.	1.	1.	1.	1.

COMPOSITE HIGHEST,SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE,UG/CU.M

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1	1.	5.	7.	7.	6.
2	0.	5.	6.	7.	7.
3	0.	4.	5.	6.	5.
4	0.	4.	6.	6.	5.
5	0.	5.	7.	8.	7.
6	0.	5.	5.	6.	6.
7	0.	4.	6.	5.	6.
8	0.	5.	5.	5.	5.
9	1.	6.	7.	7.	8.
10	0.	3.	4.	5.	5.
11	0.	4.	5.	7.	7.
12	0.	6.	6.	6.	6.
13	1.	5.	6.	6.	7.
14	0.	4.	6.	7.	7.
15	0.	4.	5.	5.	5.
16	0.	4.	5.	5.	5.
17	0.	4.	5.	5.	5.
18	0.	4.	7.	9.	11.
19	0.	4.	5.	6.	8.
20	1.	4.	7.	7.	7.
21	0.	4.	5.	6.	7.
22	0.	5.	6.	6.	6.
23	0.	4.	6.	8.	7.
24	0.	5.	6.	8.	9.
25	0.	5.	6.	6.	6.
26	0.	5.	8.	9.	8.
27	0.	5.	8.	10.	10.
28	0.	4.	5.	6.	7.
29	0.	4.	5.	6.	5.
30	0.	6.	9.	9.	8.
31	1.	6.	7.	7.	6.
32	2.	4.	6.	6.	5.
33	1.	5.	6.	6.	7.
34	0.	6.	6.	7.	6.
35	1.	5.	7.	7.	7.
36	1.	6.	9.	10.	9.

COMPOSITE HIGHEST,SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE,UG/CU.M

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1	5.	5.	5.	5.	5.
2	7.	6.	6.	6.	6.
3	5.	5.	5.	4.	4.
4	5.	6.	6.	5.	5.
5	7.	6.	6.	5.	5.
6	6.	5.	5.	5.	5.
7	6.	5.	5.	5.	5.
8	5.	6.	6.	6.	6.
9	9.	9.	8.	7.	8.
10	5.	5.	5.	6.	5.
11	7.	7.	6.	6.	6.
12	6.	7.	7.	7.	7.
13	8.	8.	7.	7.	7.
14	7.	7.	6.	6.	6.
15	5.	6.	6.	6.	5.
16	6.	7.	7.	7.	7.
17	6.	6.	6.	6.	6.
18	12.	12.	12.	11.	11.
19	9.	9.	9.	9.	9.
20	8.	8.	7.	7.	6.
21	7.	7.	6.	6.	6.
22	6.	6.	6.	6.	6.
23	7.	7.	7.	7.	7.
24	9.	8.	8.	8.	8.
25	7.	7.	7.	7.	7.
26	8.	7.	7.	7.	7.
27	10.	10.	10.	10.	9.
28	6.	6.	7.	7.	7.
29	5.	5.	5.	5.	5.
30	9.	9.	9.	9.	9.
31	6.	5.	5.	6.	6.
32	5.	5.	6.	7.	7.
33	7.	7.	7.	7.	6.
34	6.	6.	6.	6.	6.
35	6.	6.	5.	5.	5.
36	10.	10.	10.	10.	10.

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DAY 279/1974

The following ISCST run refines this area and accounts for the momentum term in the plume rise equation.

COMPOSITE HIGHEST, SECOND-HIGHEST 3-HOUR CONCENTRATION TABLE,UG/CU.M

DIR	RANGE	SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR 0.5 KM	1.0 KM	1.5 KM	2.0 KM	2.5 KM
1		5.	26.	34.	33.	31.
2		3.	25.	30.	30.	29.
3		2.	26.	33.	30.	28.
4		2.	32.	38.	34.	28.
5		3.	30.	34.	33.	34.
6		3.	24.	31.	32.	32.
7		4.	30.	34.	30.	28.
8		4.	39.	35.	30.	26.
9		7.	36.	42.	34.	27.
10		3.	19.	26.	33.	27.
11		2.	26.	34.	32.	32.
12		3.	29.	34.	30.	27.
13		3.	25.	36.	33.	29.
14		2.	24.	30.	28.	29.
15		2.	24.	29.	26.	23.
16		2.	24.	26.	26.	27.
17		2.	24.	33.	29.	26.
18		2.	29.	32.	39.	39.
19		3.	30.	29.	30.	27.
20		8.	31.	33.	31.	31.
21		3.	26.	33.	34.	31.
22		4.	28.	32.	29.	25.
23		3.	23.	33.	37.	37.
24		2.	28.	30.	36.	36.
25		2.	30.	38.	34.	32.
26		2.	32.	43.	39.	34.
27		3.	28.	37.	35.	31.
28		3.	25.	35.	31.	28.
29		2.	23.	27.	29.	29.
30		2.	39.	43.	43.	37.
31		6.	32.	39.	31.	27.
32		13.	30.	32.	32.	28.
33		5.	32.	37.	32.	30.
34		2.	33.	33.	36.	34.
35		3.	30.	40.	38.	32.
36		8.	30.	38.	42.	36.

COMPOSITE HIGHEST, SECOND-HIGHEST 3-HOUR CONCENTRATION TABLE,UG/CU.M

DIR	RANGE	SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR				
		3.0 KM	3.5 KM	4.0 KM	4.5 KM	5.0 KM
1		30.	28.	26.	23.	24.
2		27.	24.	23.	21.	20.
3		27.	24.	22.	20.	18.
4		26.	22.	23.	24.	22.
5		32.	29.	25.	26.	26.
6		29.	26.	24.	22.	20.
7		28.	27.	26.	25.	26.
8		23.	25.	26.	24.	23.
9		25.	25.	24.	26.	27.
10		27.	27.	27.	29.	31.
11		31.	29.	27.	24.	26.
12		26.	24.	23.	24.	25.
13		26.	24.	24.	23.	24.
14		26.	27.	26.	25.	27.
15		21.	20.	20.	23.	24.
16		25.	25.	25.	26.	27.
17		22.	23.	27.	28.	30.
18		36.	33.	32.	31.	33.
19		27.	26.	28.	28.	27.
20		29.	27.	27.	25.	26.
21		30.	27.	25.	23.	25.
22		24.	24.	22.	23.	25.
23		35.	29.	25.	26.	24.
24		33.	27.	24.	24.	22.
25		30.	25.	23.	22.	24.
26		31.	27.	29.	28.	26.
27		30.	29.	29.	28.	27.
28		25.	21.	19.	20.	21.
29		26.	21.	21.	22.	21.
30		31.	28.	26.	26.	27.
31		23.	22.	23.	24.	26.
32		24.	23.	24.	26.	28.
33		29.	28.	26.	24.	24.
34		32.	30.	30.	28.	27.
35		30.	30.	26.	22.	21.
36		31.	29.	30.	33.	33.

```
CALCULATE (CONCENTRATION=1,DEPOSITION=2)                                ISW(1) =   1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)                 ISW(2) =   4
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)                        ISW(3) =   1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)                                ISW(4) =   0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)                           ISW(5) =   0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)                        ISW(6) =   1

COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)
WITH THE FOLLOWING TIME PERIODS:
 HOURLY (YES=1,NO=0)                                                    ISW(7) =   0
 2-HOUR (YES=1,NO=0)                                                    ISW(8) =   0
 3-HOUR (YES=1,NO=0)                                                    ISW(9) =   0
 4-HOUR (YES=1,NO=0)                                                   ISW(10) =   0
 6-HOUR (YES=1,NO=0)                                                   ISW(11) =   0
 8-HOUR (YES=1,NO=0)                                                   ISW(12) =   0
 12-HOUR (YES=1,NO=0)                                                  ISW(13) =   0
 24-HOUR (YES=1,NO=0)                                                  ISW(14) =   1
PRINT *N*-DAY TABLE(S) (YES=1,NO=0)                                    ISW(15) =   0

PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE
SPECIFIED BY ISW(7) THROUGH ISW(14):
 DAILY TABLES (YES=1,NO=0)                                             ISW(16) =   1
 HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)                          ISW(17) =   0
 MAXIMUM 50 TABLES (YES=1,NO=0)                                        ISW(18) =   0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)               ISW(19) =   1
RURAL-URBAN OPTION (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)              ISW(20) =   0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)               ISW(21) =   1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)        ISW(22) =   1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)                       ISW(23) =   0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)                   ISW(24) =   1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)             ISW(25) =   1

NUMBER OF INPUT SOURCES                                                 NSOURC =   1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)                                NGROUP =   0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)                    IPERD =   0
NUMBER OF X (RANGE) GRID VALUES                                         NXPNTS =  11
NUMBER OF Y (THETA) GRID VALUES                                         NYPNTS =   3
NUMBER OF DISCRETE RECEPTORS                                            NXWYPT =   0
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                                 TK =.1000DE+07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                          BETA1 =0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                            BETA2 =0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED     ZR =   7.00  METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                               IMET =   9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION DECAY =0.000000E+00
SURFACE STATION NO.                                                       ISS = 12815
YEAR OF SURFACE DATA                                                      ISY = 74
UPPER AIR STATION NO.                                                     IUS = 12842
YEAR OF UPPER AIR DATA                                                    IUY = 74
ALLOCATED DATA STORAGE                                                  LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                              MINIT = 700 WORDS
```

*** KISSIMMEE DAY 279/1974 ***

*** METEOROLOGICAL DAYS TO BE PROCESSED ***
(IF=1)

0000000000	0000000000	0000000000	0000000000	0000000000
0000000000	0000000000	0000000000	0000000000	0000000000
0000000000	0000000000	0000000000	0000000000	0000000000
0000000000	0000000000	0000000000	0000000000	0000000000
0000000000	0000000000	0000000000	0000000000	0000000000
0000000000	0000000000	0000000010	0000000000	0000000000
0000000000	0000000000	0000000000	0000000000	0000000000
0000000000	000000			

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

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*** KISSIMMEE DAY 279/1974 ***

*** RANGES OF POLAR GRID SYSTEM ***
(METERS)

3900., 4000., 4100., 4200., 4300., 4400., 4500., 4600., 4700., 4800.,
4900.,

*** RADIAL ANGLES OF POLAR GRID SYSTEM ***

(DEGREES)

180., 182., 184.,

F

*** KISSIMMEE DAY 279/1974 ***

SOURCE # 1---UNIT 1

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	48.900	0.	0.	0.0	9.14	422.0	38.03	2.44	0.00	0.00	0.00

DAILY: 279
24-HR/PD 1
SGROUP# 1
YEAR 1974
*** KISSIMMEE DAY 279/1974 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 279 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 10.3 AND OCCURRED AT (4000.0, 182.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 3900.0	4000.0	4100.0	4200.0	4300.0	4400.0	4500.0	4600.0	4700.0
184.0 /	9.2	9.2	9.2	9.2	9.2	9.2	9.1	9.1	9.0
182.0 /	10.3	10.3	10.3	10.3	10.3	10.3	10.2	10.2	10.1
180.0 /	9.6	9.6	9.6	9.6	9.6	9.5	9.5	9.5	9.4

DAILY: 279
24-HR/PD 1
SGROUP# 1
YEAR 1974
*** KISSIMMEE DAY 279/1974 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 279 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 10.3 AND OCCURRED AT (4000.0, 182.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 4000.0	4900.0
184.0 /	9.0	8.9
182.0 /	10.1	10.0
180.0 /	9.4	9.3

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EXISTING AND SURROUNDING SOURCES

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
TAMPA/ORLANDO 1974-1978

	MET FILE STN NO.	YR	REQUESTED STN NO.	YR
SURFACE	12815	74	12815	74
UPPER AIR	12842	74	12842	74

PLANT LOCATION: RURAL
ANEMOMETER HEIGHT IS 7.0 METERS
WIND PROFILE EXPONENTS ARE: 0.100, 0.150, 0.200, 0.250, 0.300, 0.300,
NO TAPE OUTPUT
MET DATA WILL NOT BE PRINTED

```
DAY-- 1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1
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ALL TABLES, INCLUDING SOURCE CONTRIBUTION, THAT CONTAIN "ANNUAL" IN THE HEADING ARE BASED ONLY ON THOSE DAYS MARKED BY A "1" IN THE ABOVE TABLE

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RING DISTANCES(KM)= 0.10 0.30 0.50 0.70 0.90

STACK # 1--COMBUSTION TURBINE
STACK # 2--KISS. UTIL, UNIT#7
STACK # 3--KISS. UTIL. UNITS#8,#9
STACK # 4--KISS. UTIL. UNITS#10,#11
STACK # 5--KISS. UTIL. UNITS#14-#18
STACK # 6--KISS. UTIL. UNITS#19-#20

STACK	MONTH	EMISSION RATE (GMS/SEC)	HEIGHT (METERS)	DIAMETER (METERS)	EXIT VELOCITY (M/SEC)	TEMP (DEG.K)	VOLUMETRIC FLOW (M**3/SEC)
1	ALL	48.9000	9.14	2.44	38.03	422.00	177.83
2	ALL	0.8700	13.11	0.61	16.30	466.50	4.76
3	ALL	3.3600	16.15	0.85	17.60	477.60	9.99
4	ALL	2.2800	7.01	0.76	9.60	466.50	4.35
5	ALL	5.3700	13.41	0.80	8.70	505.40	4.37
6	ALL	2.8900	8.69	0.90	17.20	505.40	10.94

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 8.0673E-06 DIRECTION= 18 DISTANCE= 0.5 KM
YEAR= 74

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	3.94047E-07	5.90615E-06	5.73657E-06	4.63632E-06	3.80970E-06
2	3.38612E-07	4.95829E-06	4.99106E-06	4.16915E-06	3.50125E-06
3	2.79438E-07	4.22725E-06	4.32418E-06	3.63989E-06	3.08068E-06
4	3.06107E-07	4.54864E-06	4.58201E-06	3.78769E-06	3.15872E-06
5	3.84323E-07	4.92985E-06	4.86695E-06	4.00239E-06	3.32256E-06
6	3.89023E-07	5.02919E-06	5.05781E-06	4.21517E-06	3.54859E-06
7	3.55545E-07	4.48994E-06	4.35552E-06	3.58128E-06	3.00576E-06
8	3.08707E-07	4.03610E-06	3.94399E-06	3.26037E-06	2.75356E-06
9	2.72489E-07	3.93654E-06	4.00897E-06	3.40032E-06	2.91940E-06
10	2.97951E-07	4.10936E-06	4.16097E-06	3.45498E-06	2.86373E-06
11	3.64990E-07	4.23194E-06	4.13559E-06	3.47492E-06	2.97118E-06
12	4.11647E-07	4.83857E-06	4.86383E-06	4.10994E-06	3.49013E-06
13	3.93164E-07	4.74315E-06	4.68946E-06	3.86901E-06	3.20739E-06
14	3.55423E-07	4.99078E-06	4.99852E-06	4.06316E-06	3.30028E-06
15	2.72299E-07	4.27752E-06	4.45873E-06	3.68416E-06	3.02744E-06
16	2.43630E-07	4.10549E-06	4.14792E-06	3.38093E-06	2.81088E-06
17	2.55312E-07	5.15862E-06	5.44946E-06	4.54596E-06	3.84218E-06
18	2.85053E-07	6.98533E-06	8.06734E-06	7.09297E-06	6.22043E-06
19	2.60797E-07	4.95345E-06	5.43467E-06	4.62669E-06	3.92461E-06
20	2.92621E-07	5.60787E-06	6.39449E-06	5.70653E-06	5.06800E-06
21	3.61073E-07	5.80845E-06	6.15098E-06	5.29959E-06	4.59709E-06
22	4.46503E-07	6.82548E-06	7.17073E-06	6.15646E-06	5.32364E-06
23	4.64749E-07	7.15947E-06	7.37299E-06	6.17726E-06	5.24012E-06
24	4.17053E-07	6.56124E-06	6.74057E-06	5.64486E-06	4.77370E-06
25	3.91513E-07	6.31567E-06	6.76913E-06	5.83319E-06	5.01782E-06
26	4.61743E-07	5.87744E-06	5.94848E-06	4.99577E-06	4.26962E-06
27	4.96765E-07	6.54674E-06	6.81704E-06	5.79479E-06	4.93912E-06
28	4.42227E-07	6.09763E-06	6.29617E-06	5.29121E-06	4.44138E-06
29	4.10104E-07	5.70008E-06	5.85031E-06	4.88917E-06	4.09869E-06
30	4.53198E-07	6.17898E-06	6.45246E-06	5.44689E-06	4.60866E-06
31	5.07914E-07	5.88214E-06	5.90846E-06	4.90066E-06	4.10818E-06
32	5.76243E-07	5.57241E-06	5.51611E-06	4.61172E-06	3.92398E-06
33	5.39704E-07	5.19750E-06	5.01557E-06	4.11082E-06	3.44359E-06
34	4.56214E-07	6.17757E-06	6.32132E-06	5.26540E-06	4.40060E-06
35	4.34996E-07	5.87890E-06	5.87907E-06	4.84566E-06	4.03635E-06
36	4.35477E-07	7.10329E-06	7.43535E-06	6.26296E-06	5.28663E-06

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 8.5968E-06 DIRECTION= 36 DISTANCE= 0.3 KM
YEAR= 75

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	6.79781E-07	7.30675E-06	6.93115E-06	5.51287E-06	4.47713E-06
2	5.63330E-07	6.05201E-06	5.68735E-06	4.55215E-06	3.72380E-06
3	4.62249E-07	4.97501E-06	4.54043E-06	3.59293E-06	2.91864E-06
4	4.49751E-07	5.27746E-06	4.92884E-06	3.95071E-06	3.24983E-06
5	4.55838E-07	5.80844E-06	5.77183E-06	4.79758E-06	4.00116E-06
6	3.99793E-07	4.64941E-06	4.42197E-06	3.59037E-06	2.98893E-06
7	4.01773E-07	4.65934E-06	4.63452E-06	3.85046E-06	3.23751E-06
8	3.52545E-07	4.15923E-06	4.11450E-06	3.35938E-06	2.76783E-06
9	2.86703E-07	3.78406E-06	3.82871E-06	3.20844E-06	2.72926E-06
10	3.07055E-07	3.80642E-06	3.56930E-06	2.83341E-06	2.31878E-06
11	3.97484E-07	5.45477E-06	5.34787E-06	4.38798E-06	3.67494E-06
12	4.77234E-07	6.54095E-06	6.35248E-06	5.13585E-06	4.19772E-06
13	4.96219E-07	6.49938E-06	6.19431E-06	4.98541E-06	4.08682E-06
14	4.44896E-07	5.70798E-06	5.39789E-06	4.26718E-06	3.41814E-06
15	3.44101E-07	4.55705E-06	4.49113E-06	3.66688E-06	3.02479E-06
16	3.18752E-07	4.59380E-06	4.66620E-06	3.90191E-06	3.31504E-06
17	3.19213E-07	4.54505E-06	4.70357E-06	3.99041E-06	3.45945E-06
18	2.97257E-07	5.26420E-06	5.99157E-06	5.33953E-06	4.75003E-06
19	2.43949E-07	4.23069E-06	4.49190E-06	3.80108E-06	3.25010E-06
20	2.60127E-07	5.03683E-06	5.83248E-06	5.26915E-06	4.72391E-06
21	3.38294E-07	5.78597E-06	6.29619E-06	5.47628E-06	4.76250E-06
22	4.34734E-07	6.71577E-06	7.22377E-06	6.30344E-06	5.53587E-06
23	5.34040E-07	8.37973E-06	8.82740E-06	7.59106E-06	6.57341E-06
24	5.37835E-07	7.62604E-06	7.79013E-06	6.58113E-06	5.61766E-06
25	4.27105E-07	6.03848E-06	6.35483E-06	5.48192E-06	4.76325E-06
26	3.94558E-07	5.70239E-06	5.80044E-06	4.84078E-06	4.06799E-06
27	4.80302E-07	7.62871E-06	8.14420E-06	6.97058E-06	5.94764E-06
28	4.79091E-07	6.51153E-06	6.35890E-06	5.15938E-06	4.26611E-06
29	4.31423E-07	5.73424E-06	5.56579E-06	4.55208E-06	3.81537E-06
30	4.44142E-07	6.98012E-06	7.26513E-06	6.10799E-06	5.18262E-06
31	4.40314E-07	5.66177E-06	5.61453E-06	4.67047E-06	3.96274E-06
32	4.65428E-07	5.45786E-06	5.35275E-06	4.46425E-06	3.82610E-06
33	5.90483E-07	6.84287E-06	6.36894E-06	5.04228E-06	4.13260E-06
34	6.76601E-07	7.86456E-06	7.45682E-06	6.01608E-06	4.97327E-06
35	6.65022E-07	7.41602E-06	7.09775E-06	5.71449E-06	4.67814E-06
36	7.20536E-07	8.99684E-06	8.85797E-06	7.24184E-06	6.01854E-06

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 1.1954E-05 DIRECTION= 18 DISTANCE= 0.5 KM
YEAR= 76

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	5.36371E-07	6.56214E-06	6.30856E-06	5.09575E-06	4.20890E-06
2	4.66657E-07	5.85672E-06	5.61985E-06	4.50522E-06	3.66570E-06
3	4.35504E-07	4.97493E-06	4.61135E-06	3.66280E-06	2.98261E-06
4	4.16393E-07	4.89415E-06	4.79399E-06	3.91313E-06	3.23694E-06
5	4.60784E-07	5.63178E-06	5.58671E-06	4.59986E-06	3.82943E-06
6	4.37325E-07	5.20889E-06	5.21423E-06	4.34565E-06	3.66637E-06
7	3.36657E-07	4.12823E-06	4.14762E-06	3.44177E-06	2.88984E-06
8	3.24119E-07	4.27021E-06	4.16824E-06	3.32471E-06	2.68014E-06
9	3.64283E-07	5.47009E-06	5.63241E-06	4.67297E-06	3.89797E-06
10	2.66304E-07	4.18429E-06	4.32362E-06	3.62184E-06	3.06638E-06
11	2.38980E-07	4.11635E-06	4.32125E-06	3.64134E-06	3.09536E-06
12	3.20131E-07	5.21439E-06	5.35892E-06	4.46081E-06	3.73309E-06
13	3.80321E-07	6.21767E-06	6.21571E-06	5.00547E-06	4.02968E-06
14	3.68463E-07	6.02888E-06	5.97353E-06	4.83614E-06	3.92478E-06
15	2.91657E-07	5.20589E-06	5.40381E-06	4.48510E-06	3.68666E-06
16	2.39751E-07	5.47122E-06	6.17927E-06	5.35192E-06	4.54270E-06
17	2.68591E-07	6.47820E-06	7.27771E-06	6.25526E-06	5.28901E-06
18	3.51324E-07	1.02792E-05	1.19544E-05	1.04091E-05	8.85606E-06
19	3.68616E-07	7.94089E-06	8.47033E-06	6.98957E-06	5.70349E-06
20	4.41940E-07	7.65187E-06	8.02398E-06	6.70053E-06	5.58237E-06
21	3.98341E-07	6.02229E-06	6.24517E-06	5.31621E-06	4.52079E-06
22	4.37697E-07	6.04053E-06	6.31557E-06	5.39134E-06	4.58747E-06
23	4.46902E-07	6.74641E-06	7.40011E-06	6.47703E-06	5.61754E-06
24	4.21440E-07	6.52155E-06	6.94613E-06	5.95070E-06	5.09737E-06
25	4.21004E-07	5.58363E-06	5.92600E-06	5.12327E-06	4.40913E-06
26	4.36309E-07	5.38983E-06	5.57527E-06	4.74763E-06	4.05029E-06
27	4.62217E-07	6.38667E-06	6.80548E-06	5.86914E-06	5.04956E-06
28	4.58110E-07	5.78438E-06	5.62179E-06	4.55584E-06	3.73020E-06
29	4.44299E-07	6.13521E-06	6.24864E-06	5.17429E-06	4.29438E-06
30	4.47567E-07	6.56674E-06	7.07169E-06	6.14912E-06	5.33549E-06
31	4.60708E-07	6.27882E-06	6.36618E-06	5.24594E-06	4.36714E-06
32	4.90309E-07	6.10071E-06	6.15216E-06	5.07705E-06	4.22159E-06
33	4.54720E-07	5.65983E-06	5.62785E-06	4.59413E-06	3.78104E-06
34	4.87422E-07	6.50987E-06	6.93433E-06	5.89637E-06	4.96645E-06
35	5.13822E-07	5.87155E-06	5.79156E-06	4.78473E-06	4.04295E-06
36	5.86232E-07	8.24868E-06	8.70565E-06	7.39448E-06	6.31519E-06

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 1.0971E-05 DIRECTION= 36 DISTANCE= 0.5 KM
YEAR= 77

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	6.60364E-07	7.03036E-06	6.47816E-06	5.11062E-06	4.15508E-06
2	4.73056E-07	5.07373E-06	4.94959E-06	4.06614E-06	3.38356E-06
3	4.37215E-07	4.51641E-06	4.25743E-06	3.44315E-06	2.83129E-06
4	4.81250E-07	5.42896E-06	5.27230E-06	4.30400E-06	3.70935E-06
5	5.05303E-07	6.01202E-06	5.94890E-06	4.97407E-06	4.22093E-06
6	5.12505E-07	5.52898E-06	5.49630E-06	4.62879E-06	3.94662E-06
7	4.70529E-07	4.41269E-06	4.25452E-06	3.57204E-06	3.02717E-06
8	3.84555E-07	4.12960E-06	3.92202E-06	3.24059E-06	2.75247E-06
9	3.83214E-07	5.52867E-06	5.64633E-06	4.79159E-06	4.11994E-06
10	3.50218E-07	4.71376E-06	4.50775E-06	3.63022E-06	2.97131E-06
11	3.82204E-07	4.96780E-06	4.70104E-06	3.77159E-06	3.10126E-06
12	4.64455E-07	5.94434E-06	5.78478E-06	4.74561E-06	3.94780E-06
13	4.46692E-07	6.01550E-06	5.82303E-06	4.64213E-06	3.71795E-06
14	4.13753E-07	5.72261E-06	5.76125E-06	4.72454E-06	3.85261E-06
15	3.95630E-07	5.00382E-06	4.70458E-06	3.72577E-06	3.00733E-06
16	3.74050E-07	4.78557E-06	4.61766E-06	3.75089E-06	3.12771E-06
17	3.96302E-07	5.76607E-06	5.84809E-06	4.85830E-06	4.06551E-06
18	3.56653E-07	7.22065E-06	8.19676E-06	7.26041E-06	6.35357E-06
19	2.41538E-07	4.29411E-06	4.59971E-06	3.95247E-06	3.36286E-06
20	2.06474E-07	4.02662E-06	4.52321E-06	4.00548E-06	3.48628E-06
21	2.19971E-07	4.35343E-06	5.10863E-06	4.62095E-06	4.10769E-06
22	2.99022E-07	4.87792E-06	5.44573E-06	4.79461E-06	4.21996E-06
23	4.49116E-07	7.21923E-06	8.02291E-06	7.07358E-06	6.22776E-06
24	4.86376E-07	7.57223E-06	8.18276E-06	7.13464E-06	6.20200E-06
25	4.99085E-07	6.45579E-06	6.63611E-06	5.61236E-06	4.78715E-06
26	5.55523E-07	6.95489E-06	7.00001E-06	5.81558E-06	4.87802E-06
27	6.27273E-07	1.00613E-05	1.06180E-05	8.96957E-06	7.56837E-06
28	5.45054E-07	6.87047E-06	6.77354E-06	5.56011E-06	4.61417E-06
29	5.49674E-07	5.77196E-06	5.49056E-06	4.47087E-06	3.70103E-06
30	6.88761E-07	7.84890E-06	7.72202E-06	6.39144E-06	5.37303E-06
31	6.16712E-07	6.76732E-06	6.59604E-06	5.40611E-06	4.50896E-06
32	4.17553E-07	5.41535E-06	5.40314E-06	4.51515E-06	3.81075E-06
33	3.35306E-07	4.02981E-06	4.78464E-06	3.97480E-06	3.36141E-06
34	3.47662E-07	5.27373E-06	5.41844E-06	4.61709E-06	3.97760E-06
35	4.75889E-07	6.46543E-06	6.46916E-06	5.35214E-06	4.48964E-06
36	7.34840E-07	1.05314E-05	1.09713E-05	9.28678E-06	7.89376E-06

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
MAXIMUM MEAN CONC= 1.1860E-05 DIRECTION= 27 DISTANCE= 0.3 KM
YEAR= 78

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	5.75149E-07	5.74012E-06	5.37812E-06	4.33423E-06	3.54104E-06
2	4.20699E-07	4.65051E-06	4.40428E-06	3.56444E-06	2.94248E-06
3	3.05409E-07	3.60221E-06	3.40152E-06	2.71728E-06	2.20196E-06
4	2.90489E-07	4.24350E-06	4.40856E-06	3.73804E-06	3.16963E-06
5	2.96538E-07	3.99395E-06	4.06533E-06	3.39168E-06	2.83979E-06
6	2.68659E-07	3.49504E-06	3.49099E-06	2.90325E-06	2.43976E-06
7	1.89820E-07	2.71519E-06	2.68826E-06	2.20138E-06	1.82962E-06
8	1.76940E-07	2.71340E-06	2.61451E-06	2.09708E-06	1.72456E-06
9	2.19363E-07	3.87437E-06	4.19140E-06	3.58536E-06	3.03242E-06
10	1.90819E-07	2.96344E-06	3.16233E-06	2.72441E-06	2.31173E-06
11	1.66316E-07	2.89604E-06	3.13199E-06	2.70198E-06	2.29522E-06
12	2.17629E-07	4.08162E-06	4.27372E-06	3.56134E-06	2.94613E-06
13	2.93916E-07	4.43099E-06	4.38829E-06	3.53303E-06	2.83211E-06
14	3.05918E-07	4.52295E-06	4.45822E-06	3.60200E-06	2.90330E-06
15	2.38992E-07	3.88239E-06	3.99471E-06	3.34921E-06	2.81090E-06
16	1.86407E-07	3.58090E-06	3.92579E-06	3.38218E-06	2.88329E-06
17	1.95432E-07	5.10021E-06	5.97147E-06	5.25145E-06	4.50984E-06
18	2.51123E-07	7.73245E-06	9.19358E-06	8.15119E-06	7.04351E-06
19	2.38700E-07	5.80943E-06	6.34082E-06	5.35988E-06	4.45434E-06
20	3.02429E-07	5.83921E-06	6.28508E-06	5.38318E-06	4.57835E-06
21	4.30742E-07	6.65252E-06	7.03454E-06	6.03577E-06	5.14510E-06
22	5.46370E-07	7.67164E-06	8.10424E-06	6.99715E-06	6.00374E-06
23	6.62207E-07	8.73261E-06	8.70833E-06	7.26831E-06	6.12575E-06
24	7.35318E-07	8.42796E-06	8.13212E-06	6.69650E-06	5.64740E-06
25	7.66580E-07	8.02565E-06	7.60447E-06	6.26247E-06	5.34557E-06
26	9.18440E-07	1.05117E-05	1.01474E-05	8.29143E-06	6.95512E-06
27	9.41646E-07	1.18603E-05	1.15737E-05	9.39321E-06	7.79052E-06
28	7.38468E-07	9.11261E-06	8.76443E-06	7.07938E-06	5.83881E-06
29	6.33076E-07	7.02109E-06	6.45164E-06	5.04734E-06	4.06846E-06
30	6.84272E-07	7.91788E-06	7.89087E-06	6.63374E-06	5.68149E-06
31	6.51723E-07	7.41030E-06	7.28847E-06	6.05604E-06	5.14354E-06
32	5.47414E-07	6.64134E-06	6.68308E-06	5.63047E-06	4.78546E-06
33	5.35542E-07	7.30011E-06	7.60975E-06	6.50360E-06	5.57677E-06
34	6.10588E-07	7.87486E-06	7.95378E-06	6.68306E-06	5.66959E-06
35	7.15434E-07	8.05862E-06	7.63032E-06	6.19825E-06	5.15498E-06
36	7.36866E-07	8.44743E-06	8.20678E-06	6.70484E-06	5.53099E-06

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.2979E-04 DIRECTION= 18 DISTANCE= 0.5 KM DAY=279
YEAR= 74

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM		0.3 KM		0.5 KM		0.7 KM		0.9 KM	
1	7.1035E-06	(135)	5.3770E-05	(152)	5.3207E-05	(104)	4.2548E-05	(104)	3.3900E-05	(104)
2	6.0889E-06	(228)	4.6043E-05	(38)	3.5015E-05	(143)	3.7239E-05	(38)	3.2257E-05	(230)
3	4.7438E-06	(124)	4.0233E-05	(175)	5.6460E-05	(34)	5.0492E-05	(34)	4.2920E-05	(34)
4	7.0954E-06	(146)	4.6545E-05	(39)	5.0477E-05	(147)	5.2265E-05	(147)	4.9030E-05	(147)
5	8.0534E-06	(125)	5.7316E-05	(39)	5.4513E-05	(80)	4.5176E-05	(147)	3.5765E-05	(174)
6	8.6051E-06	(168)	6.4371E-05	(90)	5.4928E-05	(90)	4.3014E-05	(90)	3.5997E-05	(90)
7	9.3383E-06	(192)	5.5212E-05	(90)	4.6156E-05	(90)	3.6606E-05	(90)	3.1046E-05	(90)
8	7.1279E-06	(192)	6.1500E-05	(168)	4.5374E-05	(168)	4.2132E-05	(146)	3.6382E-05	(132)
9	5.2566E-06	(167)	5.1948E-05	(7)	5.1816E-05	(7)	4.4024E-05	(87)	3.5938E-05	(87)
10	8.1535E-06	(150)	5.3031E-05	(335)	6.1873E-05	(39)	5.6972E-05	(39)	4.7427E-05	(39)
11	1.1018E-05	(99)	6.3351E-05	(351)	7.5019E-05	(99)	5.4954E-05	(99)	4.3048E-05	(99)
12	1.7757E-05	(145)	6.4103E-05	(150)	6.4109E-05	(145)	4.8025E-05	(145)	3.9099E-05	(145)
13	1.4407E-05	(150)	5.5382E-05	(145)	5.3145E-05	(55)	5.1892E-05	(355)	4.6817E-05	(355)
14	1.0220E-05	(163)	5.8565E-05	(280)	6.9610E-05	(280)	5.7405E-05	(280)	4.5068E-05	(350)
15	9.3773E-06	(163)	5.2867E-05	(41)	5.5981E-05	(96)	4.9333E-05	(96)	4.0205E-05	(96)
16	6.0677E-06	(107)	5.7397E-05	(107)	4.6532E-05	(107)	3.9137E-05	(96)	3.2199E-05	(96)
17	5.3872E-06	(72)	6.7367E-05	(107)	7.8474E-05	(311)	6.6288E-05	(57)	5.4184E-05	(332)
18	5.9252E-06	(100)	1.2426E-04	(279)	1.2979E-04	(279)	1.0211E-04	(279)	8.1981E-05	(313)
19	6.1060E-06	(198)	8.0391E-05	(313)	8.8984E-05	(279)	6.9568E-05	(279)	5.6063E-05	(312)
20	5.6821E-06	(100)	6.5231E-05	(276)	6.8451E-05	(348)	6.6955E-05	(348)	5.9085E-05	(348)
21	7.9970E-06	(225)	7.3747E-05	(330)	8.1175E-05	(277)	6.2957E-05	(277)	4.8548E-05	(277)
22	1.2095E-05	(225)	7.2105E-05	(100)	7.6398E-05	(277)	6.1005E-05	(277)	4.9997E-05	(267)
23	1.0799E-05	(67)	7.4726E-05	(171)	8.2070E-05	(295)	6.9224E-05	(295)	5.6662E-05	(295)
24	8.4130E-06	(171)	6.8350E-05	(195)	7.3190E-05	(194)	5.5245E-05	(194)	4.2143E-05	(194)
25	4.7846E-06	(235)	5.3921E-05	(340)	5.8653E-05	(110)	4.4418E-05	(110)	3.4757E-05	(248)
26	6.8101E-06	(172)	5.0880E-05	(300)	4.8680E-05	(365)	4.3101E-05	(302)	3.7964E-05	(302)
27	9.5567E-06	(111)	5.6424E-05	(140)	5.0492E-05	(101)	4.4880E-05	(361)	4.2987E-05	(361)
28	6.9537E-06	(111)	6.1111E-05	(215)	6.4359E-05	(102)	5.4580E-05	(102)	4.3499E-05	(102)
29	8.4741E-06	(139)	5.0361E-05	(102)	6.0495E-05	(139)	5.2385E-05	(102)	4.5760E-05	(102)
30	1.0990E-05	(211)	7.2133E-05	(139)	5.6463E-05	(361)	4.3718E-05	(62)	3.5701E-05	(219)
31	1.0503E-05	(220)	5.8486E-05	(65)	5.2206E-05	(70)	4.2093E-05	(37)	3.7454E-05	(37)
32	1.1591E-05	(135)	6.7081E-05	(134)	6.1750E-05	(248)	5.4750E-05	(248)	4.6846E-05	(216)
33	9.1306E-06	(135)	6.6015E-05	(250)	6.7026E-05	(94)	5.4789E-05	(63)	4.1685E-05	(63)
34	7.3048E-06	(94)	6.3727E-05	(93)	6.5129E-05	(93)	5.1415E-05	(334)	4.0031E-05	(334)
35	7.5730E-06	(180)	4.6493E-05	(94)	5.2099E-05	(175)	4.9719E-05	(176)	4.4708E-05	(95)
36	8.1476E-06	(135)	6.8347E-05	(176)	8.4361E-05	(176)	7.3085E-05	(176)	5.9775E-05	(176)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 8.5687E-05 DIRECTION= 18 DISTANCE= 0.5 KM DAY=293
YEAR= 75

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	1.4183E-05 (167)	7.0473E-05 (167)	6.9188E-05 (331)	5.0975E-05 (119)	4.0120E-05 (20)
2	1.4399E-05 (215)	5.8855E-05 (20)	6.2430E-05 (119)	4.3490E-05 (119)	3.3497E-05 (119)
3	8.3953E-06 (89)	4.4796E-05 (89)	3.9038E-05 (89)	3.1468E-05 (9)	2.5255E-05 (267)
4	7.2991E-06 (203)	4.8354E-05 (82)	4.1090E-05 (50)	3.1337E-05 (66)	2.5871E-05 (66)
5	9.8454E-06 (203)	4.0854E-05 (160)	4.4695E-05 (351)	4.0575E-05 (351)	3.4659E-05 (351)
6	8.9305E-06 (157)	4.9191E-05 (188)	4.0163E-05 (100)	3.1997E-05 (192)	2.6763E-05 (192)
7	1.0128E-05 (110)	6.8747E-05 (158)	6.0451E-05 (178)	4.7989E-05 (325)	4.1427E-05 (325)
8	1.3696E-05 (225)	5.9094E-05 (81)	6.5228E-05 (157)	4.8505E-05 (157)	4.0182E-05 (157)
9	1.0719E-05 (225)	4.6972E-05 (78)	4.8423E-05 (78)	3.9679E-05 (78)	3.4009E-05 (325)
10	8.2741E-06 (129)	5.3053E-05 (78)	5.3294E-05 (124)	4.2219E-05 (124)	3.3418E-05 (124)
11	8.5707E-06 (128)	6.3519E-05 (13)	7.2578E-05 (13)	5.9575E-05 (13)	4.6717E-05 (13)
12	1.2501E-05 (180)	7.4376E-05 (13)	8.2202E-05 (13)	6.8310E-05 (297)	5.8107E-05 (354)
13	1.0391E-05 (180)	7.4819E-05 (67)	8.1376E-05 (317)	6.1636E-05 (317)	4.8373E-05 (298)
14	8.8382E-06 (231)	6.7204E-05 (139)	6.3434E-05 (291)	5.0296E-05 (291)	3.9623E-05 (291)
15	7.9549E-06 (155)	5.9117E-05 (14)	6.4653E-05 (125)	5.3211E-05 (352)	4.2111E-05 (352)
16	8.2176E-06 (102)	5.3496E-05 (95)	6.3405E-05 (353)	5.3451E-05 (353)	4.2269E-05 (353)
17	8.5630E-06 (230)	5.1685E-05 (353)	6.6450E-05 (353)	6.1317E-05 (353)	5.5659E-05 (353)
18	8.5751E-06 (155)	8.0293E-05 (268)	8.5687E-05 (293)	7.1867E-05 (293)	6.2354E-05 (293)
19	4.4800E-06 (163)	5.1181E-05 (353)	6.2998E-05 (353)	5.4066E-05 (64)	4.7143E-05 (5)
20	5.5061E-06 (181)	5.1968E-05 (52)	6.8683E-05 (292)	6.4912E-05 (5)	6.1051E-05 (257)
21	7.5929E-06 (141)	5.7803E-05 (111)	6.0797E-05 (111)	5.4122E-05 (273)	4.4294E-05 (273)
22	9.6530E-06 (182)	5.2749E-05 (285)	5.6453E-05 (2)	4.6748E-05 (5)	4.3022E-05 (5)
23	9.5466E-06 (103)	6.1859E-05 (182)	6.3954E-05 (174)	5.1374E-05 (309)	4.8653E-05 (52)
24	1.0706E-05 (170)	7.4791E-05 (182)	6.9122E-05 (182)	5.1573E-05 (305)	4.2293E-05 (305)
25	9.3623E-06 (103)	5.3601E-05 (144)	5.9679E-05 (323)	4.3793E-05 (181)	3.5076E-05 (251)
26	1.1117E-05 (234)	4.7772E-05 (287)	4.5250E-05 (112)	3.4296E-05 (173)	2.6816E-05 (287)
27	1.2363E-05 (112)	6.1201E-05 (247)	6.5029E-05 (247)	5.2364E-05 (247)	4.3227E-05 (77)
28	8.6324E-06 (214)	7.0737E-05 (288)	6.0239E-05 (288)	4.4025E-05 (222)	3.4999E-05 (222)
29	5.8329E-06 (263)	5.8574E-05 (205)	4.5467E-05 (214)	3.4760E-05 (363)	3.0580E-05 (313)
30	8.0642E-06 (113)	8.3998E-05 (87)	8.0012E-05 (117)	5.9437E-05 (117)	4.6712E-05 (117)
31	6.5571E-06 (114)	4.6869E-05 (117)	5.0669E-05 (104)	4.2991E-05 (104)	3.5485E-05 (104)
32	5.8479E-06 (259)	4.0249E-05 (88)	4.3514E-05 (196)	3.6295E-05 (10)	3.2943E-05 (10)
33	8.5792E-06 (210)	7.9172E-05 (10)	8.0166E-05 (10)	6.8323E-05 (364)	5.5422E-05 (364)
34	8.4170E-06 (210)	7.2261E-05 (194)	7.1572E-05 (266)	5.7204E-05 (266)	4.4844E-05 (48)
35	1.0446E-05 (210)	5.7955E-05 (194)	6.2846E-05 (55)	5.2983E-05 (194)	4.3983E-05 (194)
36	1.1964E-05 (167)	7.1976E-05 (109)	6.5642E-05 (89)	5.9521E-05 (89)	4.9008E-05 (89)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.3271E-04 DIRECTION= 18 DISTANCE= 0.5 KM DAY=340
YEAR= 76

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM		0.3 KM		0.5 KM		0.7 KM		0.9 KM	
1	8.3098E-06	(102)	5.0949E-05	(215)	4.8132E-05	(50)	4.1850E-05	(50)	3.4077E-05	(299)
2	7.3163E-06	(187)	6.3095E-05	(187)	5.5306E-05	(363)	4.4913E-05	(363)	3.6071E-05	(363)
3	8.0708E-06	(213)	5.8282E-05	(214)	5.4448E-05	(91)	4.4914E-05	(144)	3.4338E-05	(144)
4	9.6371E-06	(213)	5.5424E-05	(355)	6.8027E-05	(299)	5.8326E-05	(299)	4.6413E-05	(299)
5	8.7906E-06	(95)	6.4796E-05	(117)	6.4606E-05	(145)	5.1845E-05	(145)	4.1983E-05	(69)
6	9.6870E-06	(81)	5.5919E-05	(145)	5.4244E-05	(194)	4.2769E-05	(194)	3.5831E-05	(194)
7	6.1083E-06	(81)	5.2062E-05	(145)	4.4949E-05	(132)	3.7826E-05	(132)	3.6136E-05	(342)
8	8.9896E-06	(198)	5.6925E-05	(195)	5.1139E-05	(122)	3.7831E-05	(197)	3.2137E-05	(198)
9	1.3807E-05	(139)	9.5890E-05	(196)	7.0661E-05	(196)	6.4104E-05	(361)	5.3661E-05	(361)
10	5.0725E-06	(198)	5.9965E-05	(17)	5.4478E-05	(17)	4.4336E-05	(16)	3.8432E-05	(16)
11	4.9108E-06	(93)	5.3945E-05	(198)	6.0822E-05	(326)	5.5393E-05	(326)	4.7006E-05	(326)
12	6.9281E-06	(235)	5.7511E-05	(343)	7.3104E-05	(343)	6.3488E-05	(343)	5.1844E-05	(343)
13	8.5807E-06	(157)	6.3413E-05	(18)	7.5721E-05	(310)	6.8037E-05	(310)	5.6114E-05	(362)
14	9.4328E-06	(157)	7.3565E-05	(295)	6.9076E-05	(295)	5.3461E-05	(295)	4.1555E-05	(295)
15	8.9328E-06	(96)	6.4433E-05	(67)	6.9248E-05	(327)	5.5387E-05	(100)	4.4650E-05	(99)
16	6.3737E-06	(220)	6.2719E-05	(335)	8.3422E-05	(335)	7.2803E-05	(335)	5.8692E-05	(335)
17	4.0767E-06	(124)	6.9647E-05	(77)	7.4648E-05	(336)	6.4756E-05	(19)	5.6626E-05	(19)
18	5.9648E-06	(131)	1.1545E-04	(336)	1.3271E-04	(340)	1.1640E-04	(302)	8.9292E-05	(302)
19	7.7339E-06	(157)	9.7964E-05	(302)	1.0305E-04	(292)	8.5959E-05	(292)	6.9518E-05	(292)
20	1.1644E-05	(140)	8.5134E-05	(318)	9.6916E-05	(318)	7.8382E-05	(318)	6.2376E-05	(292)
21	1.0440E-05	(164)	6.6070E-05	(57)	7.3699E-05	(57)	5.9461E-05	(57)	4.6261E-05	(166)
22	9.2402E-06	(199)	7.0934E-05	(166)	5.6909E-05	(166)	4.8831E-05	(5)	4.1390E-05	(5)
23	9.4675E-06	(242)	7.0092E-05	(130)	8.2172E-05	(130)	6.9835E-05	(231)	5.8310E-05	(231)
24	1.0029E-05	(101)	6.5025E-05	(165)	6.9343E-05	(165)	5.7915E-05	(165)	4.8668E-05	(161)
25	7.9979E-06	(245)	6.5064E-05	(243)	5.2750E-05	(307)	4.4659E-05	(290)	3.6736E-05	(290)
26	7.4226E-06	(126)	7.4210E-05	(278)	6.7715E-05	(278)	5.0703E-05	(278)	3.8484E-05	(278)
27	7.6108E-06	(126)	4.9869E-05	(126)	5.0000E-05	(84)	4.3717E-05	(84)	3.8375E-05	(241)
28	6.2566E-06	(251)	5.4099E-05	(269)	5.0675E-05	(269)	3.9870E-05	(64)	3.0963E-05	(269)
29	7.0738E-06	(108)	6.2186E-05	(127)	5.6129E-05	(72)	4.9917E-05	(345)	4.1384E-05	(346)
30	7.7512E-06	(245)	5.1226E-05	(64)	4.7917E-05	(120)	4.6691E-05	(64)	4.1035E-05	(262)
31	7.3859E-06	(154)	7.1406E-05	(135)	7.3737E-05	(135)	5.9113E-05	(135)	4.8818E-05	(168)
32	8.8453E-06	(192)	5.6184E-05	(168)	5.1765E-05	(168)	4.2531E-05	(169)	3.4515E-05	(169)
33	1.0762E-05	(189)	5.1710E-05	(228)	5.6940E-05	(282)	5.3031E-05	(282)	4.4910E-05	(282)
34	1.0779E-05	(134)	5.9205E-05	(228)	6.6066E-05	(144)	5.8176E-05	(144)	4.9036E-05	(144)
35	9.1676E-06	(134)	5.4291E-05	(228)	6.0637E-05	(172)	4.9932E-05	(48)	4.1176E-05	(137)
36	9.5159E-06	(228)	6.2494E-05	(215)	7.3371E-05	(363)	6.3640E-05	(363)	5.2036E-05	(363)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.2595E-04 DIRECTION= 18 DISTANCE= 0.5 KM DAY=344
YEAR= 77

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	1.1054E-05 (236)	7.5769E-05 (207)	6.3959E-05 (339)	4.9802E-05 (339)	3.8267E-05 (65)
2	9.9343E-06 (145)	5.2809E-05 (285)	4.3609E-05 (230)	3.4910E-05 (339)	2.9819E-05 (28)
3	1.0053E-05 (248)	4.9650E-05 (285)	6.2548E-05 (234)	5.8855E-05 (251)	4.7589E-05 (251)
4	1.0073E-05 (252)	6.3370E-05 (145)	5.2598E-05 (148)	3.7887E-05 (148)	3.0592E-05 (157)
5	7.4923E-06 (177)	7.4527E-05 (177)	7.4175E-05 (172)	6.0772E-05 (172)	5.0891E-05 (172)
6	7.8030E-06 (114)	6.0200E-05 (77)	6.4513E-05 (78)	5.6816E-05 (78)	4.8760E-05 (157)
7	9.1548E-06 (114)	5.4247E-05 (3)	5.3964E-05 (3)	4.4033E-05 (299)	4.2266E-05 (299)
8	7.3511E-06 (176)	4.8765E-05 (176)	4.0520E-05 (129)	3.2880E-05 (20)	3.0604E-05 (284)
9	8.3460E-06 (174)	7.2032E-05 (81)	7.6940E-05 (81)	6.6888E-05 (36)	5.4511E-05 (36)
10	5.3014E-06 (174)	4.6928E-05 (7)	6.0303E-05 (7)	5.2646E-05 (7)	4.2749E-05 (7)
11	5.9579E-06 (114)	7.2358E-05 (51)	6.8248E-05 (51)	5.2403E-05 (127)	4.0196E-05 (51)
12	8.5788E-06 (161)	6.3729E-05 (161)	5.3156E-05 (164)	4.2521E-05 (59)	3.6621E-05 (59)
13	8.9486E-06 (178)	6.8777E-05 (330)	6.6750E-05 (330)	5.0629E-05 (330)	3.9082E-05 (21)
14	7.1696E-06 (172)	6.6033E-05 (360)	6.0788E-05 (254)	5.0695E-05 (254)	4.0245E-05 (254)
15	8.7687E-06 (163)	5.4212E-05 (117)	5.6585E-05 (1)	5.0781E-05 (59)	4.0504E-05 (59)
16	1.2818E-05 (163)	6.7232E-05 (96)	7.2463E-05 (341)	6.8868E-05 (305)	5.7491E-05 (315)
17	1.3731E-05 (203)	7.2391E-05 (341)	7.1879E-05 (315)	6.1307E-05 (305)	5.1977E-05 (305)
18	7.2994E-06 (98)	1.0531E-04 (344)	1.2595E-04 (344)	1.0553E-04 (344)	8.3771E-05 (344)
19	4.0865E-06 (104)	5.8040E-05 (40)	6.5032E-05 (40)	5.2231E-05 (40)	4.0120E-05 (40)
20	4.8231E-06 (223)	6.9092E-05 (39)	8.2633E-05 (39)	6.8496E-05 (39)	5.3588E-05 (39)
21	6.2782E-06 (105)	6.4446E-05 (39)	6.8882E-05 (39)	5.6130E-05 (33)	4.6752E-05 (66)
22	6.8668E-06 (142)	5.6580E-05 (304)	6.1737E-05 (304)	5.0229E-05 (304)	3.9727E-05 (304)
23	9.0884E-06 (142)	7.6242E-05 (103)	8.1925E-05 (131)	7.4374E-05 (103)	5.9886E-05 (103)
24	1.1382E-05 (101)	9.0274E-05 (278)	8.7970E-05 (131)	7.6923E-05 (131)	5.9956E-05 (102)
25	1.1183E-05 (101)	6.2250E-05 (255)	6.0185E-05 (132)	4.7493E-05 (218)	3.8421E-05 (218)
26	9.7022E-06 (255)	5.7662E-05 (255)	5.7327E-05 (130)	4.9657E-05 (130)	4.0459E-05 (130)
27	7.8458E-06 (243)	1.0760E-04 (217)	9.3387E-05 (217)	8.2705E-05 (242)	6.8182E-05 (242)
28	8.2594E-06 (109)	5.6668E-05 (222)	6.3928E-05 (222)	5.5094E-05 (222)	4.5535E-05 (222)
29	9.4369E-06 (140)	6.1454E-05 (86)	5.7764E-05 (123)	4.7366E-05 (123)	3.7883E-05 (123)
30	1.4359E-05 (136)	9.7978E-05 (258)	8.1840E-05 (86)	6.7745E-05 (86)	5.6369E-05 (86)
31	1.3583E-05 (112)	5.2512E-05 (229)	5.8176E-05 (192)	4.9666E-05 (192)	4.2094E-05 (246)
32	7.3255E-06 (112)	5.2602E-05 (229)	5.4485E-05 (249)	4.7747E-05 (274)	4.0058E-05 (274)
33	5.6644E-06 (202)	5.2560E-05 (210)	5.4055E-05 (63)	4.7211E-05 (63)	3.9110E-05 (63)
34	5.5291E-06 (207)	5.8548E-05 (206)	5.4472E-05 (92)	4.8572E-05 (153)	4.5890E-05 (153)
35	8.7585E-06 (189)	5.9817E-05 (206)	5.4739E-05 (64)	5.1474E-05 (235)	4.6341E-05 (235)
36	1.4476E-05 (207)	1.0507E-04 (207)	1.1176E-04 (335)	9.7557E-05 (335)	8.4235E-05 (233)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 24-HOUR CONC= 1.4110E-04 DIRECTION= 18 DISTANCE= 0.5 KM DAY=325
YEAR= 78

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM		0.3 KM		0.5 KM		0.7 KM		0.9 KM	
1	1.2993E-05	(187)	5.8147E-05	(184)	4.9428E-05	(247)	4.1446E-05	(75)	3.5919E-05	(75)
2	1.0949E-05	(119)	7.5965E-05	(355)	7.1603E-05	(160)	6.2573E-05	(160)	5.2102E-05	(160)
3	8.4984E-06	(104)	5.0939E-05	(119)	5.0461E-05	(355)	4.2616E-05	(355)	3.5428E-05	(74)
4	8.2345E-06	(104)	6.6618E-05	(334)	7.3615E-05	(334)	5.8467E-05	(135)	4.5030E-05	(135)
5	8.9812E-06	(119)	6.0005E-05	(355)	6.5277E-05	(355)	5.2536E-05	(355)	4.0761E-05	(355)
6	9.6007E-06	(116)	4.7277E-05	(20)	5.5775E-05	(20)	4.6498E-05	(287)	4.1229E-05	(69)
7	5.6379E-06	(250)	4.4962E-05	(111)	5.2546E-05	(353)	4.4998E-05	(50)	3.9784E-05	(13)
8	5.5594E-06	(110)	4.9941E-05	(111)	3.6067E-05	(14)	2.9225E-05	(14)	2.4313E-05	(214)
9	5.6995E-06	(134)	8.0940E-05	(26)	8.7982E-05	(20)	7.6173E-05	(20)	6.9784E-05	(51)
10	5.1915E-06	(103)	4.7406E-05	(9)	5.3282E-05	(14)	4.4347E-05	(14)	3.5211E-05	(14)
11	3.8496E-06	(183)	5.2013E-05	(14)	6.0028E-05	(14)	5.3533E-05	(15)	4.4251E-05	(15)
12	5.5476E-06	(279)	5.5438E-05	(15)	7.3890E-05	(50)	6.7356E-05	(50)	5.6132E-05	(50)
13	1.1504E-05	(249)	6.7990E-05	(279)	6.2434E-05	(10)	6.0701E-05	(313)	5.5523E-05	(313)
14	1.0182E-05	(249)	7.1705E-05	(279)	6.5058E-05	(29)	5.3592E-05	(29)	4.3783E-05	(313)
15	7.6131E-06	(231)	6.4425E-05	(307)	8.0681E-05	(27)	6.2075E-05	(27)	4.7049E-05	(27)
16	5.1758E-06	(81)	4.9366E-05	(81)	5.4143E-05	(346)	4.5988E-05	(346)	3.8196E-05	(346)
17	3.4203E-06	(141)	6.9603E-05	(344)	8.6420E-05	(41)	7.4660E-05	(291)	6.3063E-05	(292)
18	4.3752E-06	(141)	1.1376E-04	(325)	1.4110E-04	(325)	1.2120E-04	(325)	9.8128E-05	(325)
19	3.9972E-06	(81)	7.8723E-05	(35)	9.3993E-05	(36)	8.1120E-05	(36)	6.5894E-05	(36)
20	6.4747E-06	(145)	7.2125E-05	(36)	9.2467E-05	(35)	7.1976E-05	(36)	5.6110E-05	(36)
21	8.2303E-06	(145)	5.8121E-05	(23)	6.2467E-05	(362)	5.2045E-05	(362)	4.9124E-05	(283)
22	9.2035E-06	(186)	7.2541E-05	(235)	6.4087E-05	(363)	6.0492E-05	(271)	5.0095E-05	(277)
23	8.9640E-06	(106)	7.8206E-05	(237)	7.1599E-05	(267)	6.3036E-05	(32)	5.5893E-05	(32)
24	1.0517E-05	(89)	6.7950E-05	(114)	6.3230E-05	(234)	5.3181E-05	(234)	4.2502E-05	(234)
25	9.2131E-06	(143)	7.6352E-05	(363)	8.1398E-05	(147)	6.5083E-05	(147)	5.2589E-05	(147)
26	1.1877E-05	(195)	9.8870E-05	(143)	8.5785E-05	(167)	6.6809E-05	(149)	5.2763E-05	(166)
27	1.1590E-05	(202)	9.2326E-05	(168)	1.0705E-04	(168)	8.7521E-05	(169)	6.8298E-05	(168)
28	1.0322E-05	(146)	8.6194E-05	(24)	8.8332E-05	(24)	6.9104E-05	(24)	5.4108E-05	(202)
29	8.7888E-06	(176)	7.2042E-05	(113)	6.0886E-05	(170)	5.3410E-05	(170)	4.3679E-05	(170)
30	9.8319E-06	(216)	6.6388E-05	(78)	6.2801E-05	(68)	5.2923E-05	(203)	4.0352E-05	(123)
31	9.6997E-06	(151)	7.1070E-05	(123)	7.8301E-05	(84)	6.6451E-05	(84)	5.3222E-05	(84)
32	8.1935E-06	(108)	6.4048E-05	(222)	6.2519E-05	(173)	5.3950E-05	(8)	4.5964E-05	(159)
33	1.0823E-05	(158)	7.7349E-05	(124)	9.5728E-05	(124)	8.3036E-05	(124)	6.7571E-05	(124)
34	9.9005E-06	(191)	7.0326E-05	(128)	7.3235E-05	(210)	6.6957E-05	(210)	6.1150E-05	(198)
35	1.1788E-05	(120)	8.3384E-05	(102)	6.5942E-05	(160)	4.7493E-05	(59)	4.0953E-05	(59)
36	1.2108E-05	(102)	7.5986E-05	(338)	7.5231E-05	(338)	6.0688E-05	(338)	5.0097E-05	(339)

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PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.4050E-04 DIRECTION= 18 DISTANCE= 0.3 KM DAY=298 TIME PERIOD= 4
YEAR= 74

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	5.1734E-05 (196, 4)	2.9919E-04 (135, 4)	2.5985E-04 (334, 8)	2.2872E-04 (334, 8)	1.8501E-04 (334, 8)
2	4.4742E-05 (80, 4)	2.2041E-04 (38, 4)	2.0200E-04 (78, 4)	1.7006E-04 (38, 4)	1.3549E-04 (82, 5)
3	3.1773E-05 (125, 5)	2.1044E-04 (84, 4)	2.2646E-04 (126, 3)	2.1724E-04 (126, 3)	1.8543E-04 (126, 3)
4	4.7737E-05 (146, 5)	2.4805E-04 (143, 6)	3.1528E-04 (39, 2)	2.9924E-04 (143, 6)	2.4398E-04 (143, 6)
5	6.4528E-05 (174, 5)	2.9217E-04 (146, 5)	2.7443E-04 (39, 3)	2.5358E-04 (39, 3)	2.1085E-04 (39, 3)
6	6.3878E-05 (168, 4)	2.5200E-04 (230, 5)	2.4321E-04 (90, 6)	2.0033E-04 (144, 3)	1.7327E-04 (350, 1)
7	5.8700E-05 (151, 4)	2.2093E-04 (90, 5)	2.2125E-04 (163, 3)	1.7903E-04 (163, 3)	1.4615E-04 (168, 3)
8	3.9633E-05 (87, 5)	2.1899E-04 (203, 4)	2.0215E-04 (193, 5)	1.5750E-04 (193, 5)	1.4762E-04 (44, 6)
9	4.1070E-05 (167, 4)	2.1527E-04 (7, 4)	2.1518E-04 (192, 3)	1.7592E-04 (53, 6)	1.4925E-04 (335, 2)
10	5.6486E-05 (163, 5)	2.9686E-04 (113, 6)	2.5972E-04 (99, 5)	1.9484E-04 (39, 6)	1.6355E-04 (39, 6)
11	6.8260E-05 (163, 5)	2.6906E-04 (202, 4)	2.5459E-04 (351, 6)	2.0463E-04 (351, 6)	1.5844E-04 (351, 6)
12	9.7313E-05 (145, 4)	2.5033E-04 (201, 4)	2.1192E-04 (161, 8)	1.9272E-04 (326, 5)	1.5422E-04 (269, 6)
13	6.0249E-05 (163, 4)	2.4118E-04 (96, 5)	2.2168E-04 (196, 6)	1.6676E-04 (40, 2)	1.4661E-04 (281, 2)
14	5.9060E-05 (163, 4)	2.5894E-04 (325, 4)	2.7697E-04 (206, 6)	2.2341E-04 (325, 4)	1.8031E-04 (40, 4)
15	4.5662E-05 (163, 5)	2.3372E-04 (69, 5)	2.3293E-04 (69, 5)	1.7677E-04 (290, 2)	1.5581E-04 (280, 4)
16	4.3561E-05 (196, 5)	2.2007E-04 (72, 4)	1.9904E-04 (352, 4)	1.5845E-04 (338, 5)	1.2178E-04 (352, 4)
17	3.6860E-05 (107, 5)	2.3679E-04 (107, 4)	2.4320E-04 (57, 4)	2.0373E-04 (13, 2)	1.8057E-04 (13, 2)
18	3.5176E-05 (198, 4)	3.4050E-04 (298, 4)	3.2028E-04 (298, 4)	2.5386E-04 (297, 3)	2.0761E-04 (297, 4)
19	3.2185E-05 (100, 5)	2.4144E-04 (108, 3)	2.0350E-04 (313, 6)	1.8330E-04 (72, 7)	1.5316E-04 (108, 3)
20	3.0702E-05 (128, 5)	2.3210E-04 (257, 4)	2.4662E-04 (296, 5)	2.2989E-04 (320, 1)	2.1880E-04 (320, 1)
21	4.6424E-05 (225, 5)	2.6124E-04 (238, 5)	2.3354E-04 (348, 3)	2.0415E-04 (330, 4)	1.6169E-04 (348, 6)
22	6.8516E-05 (100, 4)	2.9249E-04 (100, 4)	2.5107E-04 (258, 5)	1.8917E-04 (277, 7)	1.6384E-04 (252, 3)
23	6.8344E-05 (225, 5)	2.6518E-04 (278, 5)	2.7963E-04 (195, 4)	2.3820E-04 (320, 6)	2.0670E-04 (320, 6)
24	4.1429E-05 (111, 5)	2.2094E-04 (195, 3)	2.1294E-04 (117, 4)	1.8698E-04 (286, 5)	1.6578E-04 (73, 8)
25	2.9893E-05 (235, 5)	2.3950E-04 (235, 5)	2.1343E-04 (235, 5)	1.7065E-04 (73, 6)	1.6520E-04 (18, 6)
26	4.1830E-05 (140, 5)	2.7421E-04 (301, 5)	2.2584E-04 (224, 5)	1.8612E-04 (333, 6)	1.5740E-04 (73, 5)
27	6.1452E-05 (140, 4)	2.5795E-04 (111, 4)	2.0056E-04 (243, 6)	1.9928E-04 (184, 6)	1.8409E-04 (361, 7)
28	4.3714E-05 (246, 4)	2.1793E-04 (133, 5)	2.1577E-04 (264, 6)	1.8782E-04 (149, 6)	1.5587E-04 (149, 6)
29	4.6117E-05 (241, 5)	2.7069E-04 (243, 5)	2.1982E-04 (52, 6)	2.0598E-04 (142, 7)	1.7945E-04 (142, 7)
30	6.5872E-05 (241, 5)	2.5249E-04 (241, 5)	2.3214E-04 (361, 5)	2.1012E-04 (240, 6)	1.7573E-04 (240, 6)
31	6.2600E-05 (220, 4)	2.3929E-04 (52, 4)	2.4165E-04 (70, 6)	2.1398E-04 (137, 4)	1.8140E-04 (137, 4)
32	8.4972E-05 (243, 4)	2.4828E-04 (159, 4)	2.1077E-04 (131, 3)	1.7723E-04 (24, 5)	1.5972E-04 (75, 1)
33	6.8607E-05 (243, 4)	2.5524E-04 (94, 4)	2.1348E-04 (67, 5)	1.5440E-04 (94, 4)	1.4010E-04 (349, 4)
34	3.6102E-05 (94, 5)	2.9445E-04 (94, 5)	2.8544E-04 (132, 1)	2.1375E-04 (186, 4)	1.6379E-04 (53, 1)
35	4.6253E-05 (94, 5)	2.3730E-04 (152, 5)	2.0699E-04 (353, 5)	1.8786E-04 (342, 2)	1.6410E-04 (176, 8)
36	5.3121E-05 (152, 5)	2.5306E-04 (9, 5)	2.8641E-04 (176, 1)	2.4351E-04 (176, 1)	1.9379E-04 (176, 1)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.2295E-04 DIRECTION= 25 DISTANCE= 0.3 KM DAY=144 TIME PERIOD= 5
YEAR= 75

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	7.3279E-05 (215, 5)	2.8351E-04 (119, 5)	2.4981E-04 (119, 6)	1.9505E-04 (119, 6)	1.5003E-04 (119, 6)
2	6.8592E-05 (119, 5)	2.3649E-04 (207, 5)	2.2354E-04 (20, 2)	1.7905E-04 (20, 2)	1.4276E-04 (119, 4)
3	4.6346E-06 (166, 5)	2.5017E-04 (66, 5)	2.6432E-04 (186, 3)	2.3475E-04 (89, 4)	1.8613E-04 (89, 4)
4	4.5547E-05 (203, 4)	2.6689E-04 (188, 4)	2.0325E-04 (83, 6)	1.5771E-04 (93, 2)	1.4227E-04 (311, 3)
5	5.0154E-05 (186, 5)	2.6752E-04 (89, 5)	2.3389E-04 (93, 3)	1.7631E-04 (351, 5)	1.5736E-04 (256, 6)
6	5.9748E-05 (110, 4)	2.3529E-04 (110, 4)	1.9654E-04 (37, 6)	1.5817E-04 (43, 6)	1.2308E-04 (138, 3)
7	7.3350E-05 (110, 4)	2.9616E-04 (73, 5)	2.7373E-04 (150, 4)	2.2376E-04 (73, 5)	1.7253E-04 (73, 5)
8	1.0956E-04 (225, 5)	2.9532E-04 (133, 4)	2.7298E-04 (81, 6)	2.2370E-04 (81, 6)	1.7415E-04 (81, 6)
9	6.3243E-05 (157, 4)	2.5659E-04 (267, 4)	2.1039E-04 (1, 5)	2.0109E-04 (325, 5)	1.5789E-04 (325, 5)
10	5.0991E-05 (129, 4)	2.5753E-04 (138, 5)	2.4583E-04 (124, 6)	1.7635E-04 (186, 6)	1.2871E-04 (123, 7)
11	6.1075E-05 (164, 5)	2.6005E-04 (93, 6)	2.2798E-04 (317, 7)	1.8825E-04 (298, 2)	1.6485E-04 (6, 6)
12	6.8649E-05 (180, 5)	2.6226E-04 (317, 5)	2.8427E-04 (356, 5)	2.4720E-04 (356, 5)	1.9874E-04 (356, 5)
13	5.7386E-05 (128, 4)	3.1935E-04 (317, 4)	2.7755E-04 (105, 6)	2.2954E-04 (317, 4)	1.7479E-04 (317, 4)
14	4.6224E-05 (155, 5)	2.8170E-04 (355, 3)	2.4246E-04 (231, 5)	1.6941E-04 (110, 6)	1.5774E-04 (110, 6)
15	5.2458E-05 (155, 5)	2.4552E-04 (231, 5)	2.2074E-04 (268, 5)	1.9279E-04 (268, 5)	1.5608E-04 (268, 5)
16	4.6098E-05 (96, 5)	2.6226E-04 (102, 4)	2.4942E-04 (94, 3)	2.1535E-04 (94, 3)	1.7075E-04 (353, 1)
17	5.4020E-05 (85, 5)	1.9845E-04 (95, 4)	2.1904E-04 (353, 2)	1.8497E-04 (353, 2)	1.5983E-04 (352, 8)
18	5.9246E-05 (106, 5)	2.3446E-04 (131, 4)	2.3083E-04 (303, 8)	2.4209E-04 (23, 2)	2.4270E-04 (268, 7)
19	3.3953E-05 (163, 5)	2.7844E-04 (303, 4)	2.5805E-04 (5, 3)	2.2198E-04 (303, 4)	1.6843E-04 (303, 4)
20	3.4457E-05 (181, 5)	2.2683E-04 (17, 4)	2.5517E-04 (292, 7)	2.3936E-04 (5, 5)	2.2437E-04 (257, 6)
21	4.6995E-05 (181, 5)	2.7191E-04 (320, 4)	2.3423E-04 (273, 5)	2.1383E-04 (273, 5)	1.7659E-04 (273, 5)
22	4.1374E-05 (145, 5)	2.4930E-04 (285, 5)	2.2316E-04 (321, 4)	1.9542E-04 (305, 8)	1.6782E-04 (17, 7)
23	4.9020E-05 (236, 5)	2.5766E-04 (338, 4)	2.3910E-04 (306, 6)	2.1755E-04 (22, 8)	1.9625E-04 (131, 6)
24	7.6428E-05 (103, 5)	2.9309E-04 (300, 5)	2.7079E-04 (307, 5)	2.1643E-04 (182, 6)	1.7457E-04 (305, 6)
25	6.8530E-05 (103, 5)	3.2295E-04 (144, 5)	2.2921E-04 (239, 6)	1.9414E-04 (181, 6)	1.5925E-04 (359, 1)
26	5.1551E-05 (112, 4)	2.2646E-04 (112, 4)	2.2954E-04 (287, 4)	1.7480E-04 (247, 5)	1.4420E-04 (173, 5)
27	6.0657E-05 (112, 5)	2.8053E-04 (114, 4)	2.2771E-04 (347, 4)	2.1501E-04 (287, 6)	2.0120E-04 (287, 6)
28	5.5050E-05 (143, 5)	2.9326E-04 (197, 5)	2.3466E-04 (126, 6)	1.9714E-04 (98, 7)	1.8047E-04 (126, 6)
29	3.9440E-05 (249, 4)	2.4715E-04 (205, 6)	2.3962E-04 (86, 5)	1.9852E-04 (86, 5)	1.5668E-04 (246, 4)
30	4.3349E-05 (198, 5)	2.7447E-04 (117, 5)	2.7147E-04 (103, 6)	2.1525E-04 (87, 5)	1.6531E-04 (87, 5)
31	4.6286E-05 (144, 4)	1.9932E-04 (340, 4)	2.0649E-04 (19, 4)	1.8318E-04 (19, 4)	1.6001E-04 (19, 4)
32	4.3995E-05 (260, 4)	2.0159E-04 (53, 5)	2.1401E-04 (108, 8)	1.7641E-04 (108, 8)	1.3774E-04 (108, 8)
33	5.3802E-05 (123, 4)	2.4958E-04 (121, 5)	2.5536E-04 (359, 6)	2.1115E-04 (359, 6)	1.6979E-04 (364, 8)
34	5.4048E-05 (210, 5)	2.9866E-04 (8, 4)	2.9094E-04 (194, 3)	2.2764E-04 (83, 3)	1.8323E-04 (83, 3)
35	5.1757E-05 (147, 5)	2.6156E-04 (120, 4)	2.1686E-04 (11, 3)	2.0377E-04 (194, 1)	1.6297E-04 (71, 5)
36	7.0137E-05 (119, 5)	3.1209E-04 (218, 5)	3.0611E-04 (13, 2)	2.3639E-04 (290, 4)	1.8024E-04 (290, 4)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.2270E-04 DIRECTION= 36 DISTANCE= 0.3 KM DAY=216 TIME PERIOD= 4
YEAR= 76

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	5.0311E-05 (152, 6)	2.2286E-04 (187, 3)	2.0950E-04 (53, 3)	1.7687E-04 (53, 3)	1.4374E-04 (17, 1)
2	3.9693E-05 (182, 4)	2.6630E-04 (187, 4)	2.1336E-04 (68, 5)	1.8064E-04 (363, 8)	1.3839E-04 (363, 8)
3	4.6111E-05 (147, 4)	2.5035E-04 (214, 3)	2.1860E-04 (299, 8)	1.9022E-04 (299, 8)	1.5251E-04 (299, 8)
4	5.8273E-05 (95, 5)	2.3709E-04 (273, 4)	2.3308E-04 (355, 7)	2.1080E-04 (182, 5)	1.7488E-04 (182, 5)
5	5.5637E-05 (117, 5)	2.6061E-04 (145, 2)	2.7885E-04 (258, 4)	2.2642E-04 (145, 2)	1.7681E-04 (198, 8)
6	4.9706E-05 (116, 5)	2.6522E-04 (315, 5)	2.5989E-04 (139, 4)	2.1647E-04 (145, 3)	1.7428E-04 (139, 4)
7	4.2356E-05 (198, 4)	2.4760E-04 (133, 3)	2.4240E-04 (350, 5)	2.0364E-04 (350, 5)	1.6068E-04 (73, 6)
8	5.6627E-05 (198, 4)	2.6299E-04 (122, 6)	2.6207E-04 (197, 3)	1.9435E-04 (132, 7)	1.7740E-04 (132, 7)
9	7.6406E-05 (196, 5)	2.5802E-04 (196, 5)	2.7842E-04 (361, 4)	2.1972E-04 (117, 6)	1.8183E-04 (70, 1)
10	3.9481E-05 (139, 5)	2.5215E-04 (213, 6)	2.4265E-04 (366, 6)	2.1774E-04 (366, 6)	1.7559E-04 (16, 6)
11	3.5093E-05 (221, 4)	2.7210E-04 (275, 5)	2.3409E-04 (275, 5)	2.0096E-04 (366, 8)	1.7224E-04 (17, 6)
12	4.2884E-05 (122, 5)	2.3825E-04 (323, 5)	2.4721E-04 (249, 4)	2.0783E-04 (77, 6)	1.5979E-04 (320, 8)
13	6.4034E-05 (118, 5)	2.4219E-04 (151, 4)	2.4888E-04 (362, 1)	1.9636E-04 (1, 5)	1.5847E-04 (1, 5)
14	5.2409E-05 (118, 5)	2.8594E-04 (309, 5)	2.3724E-04 (18, 2)	1.9510E-04 (18, 2)	1.5186E-04 (18, 2)
15	4.8774E-05 (96, 5)	2.7884E-04 (67, 5)	2.5035E-04 (124, 6)	2.0383E-04 (124, 6)	1.5976E-04 (124, 6)
16	4.3020E-05 (124, 5)	2.5296E-04 (356, 3)	2.5824E-04 (356, 3)	2.3048E-04 (311, 3)	1.9895E-04 (311, 3)
17	3.2155E-05 (225, 4)	2.0894E-04 (114, 3)	2.4611E-04 (19, 8)	2.1758E-04 (19, 8)	1.7632E-04 (19, 8)
18	3.7467E-05 (203, 4)	3.0539E-04 (313, 4)	3.1544E-04 (335, 6)	2.7513E-04 (340, 5)	2.2754E-04 (335, 6)
19	4.4835E-05 (125, 5)	2.4537E-04 (302, 3)	2.4488E-04 (286, 7)	2.1102E-04 (286, 7)	1.7520E-04 (5, 8)
20	6.4119E-05 (140, 4)	3.1162E-04 (100, 5)	3.0738E-04 (286, 5)	2.3743E-04 (321, 7)	1.8655E-04 (321, 7)
21	4.2706E-05 (164, 5)	2.3874E-04 (19, 6)	2.2319E-04 (51, 5)	2.0126E-04 (255, 7)	1.6282E-04 (60, 2)
22	6.7704E-05 (166, 4)	2.5489E-04 (166, 4)	2.3800E-04 (57, 4)	1.9940E-04 (57, 4)	1.6844E-04 (308, 3)
23	4.9937E-05 (199, 6)	2.6069E-04 (118, 6)	3.1444E-04 (232, 2)	2.8652E-04 (344, 6)	2.3655E-04 (344, 6)
24	4.0294E-05 (101, 4)	2.4861E-04 (165, 6)	2.7580E-04 (257, 1)	2.4266E-04 (165, 6)	1.9012E-04 (165, 6)
25	4.8973E-05 (245, 4)	2.2576E-04 (141, 4)	2.0097E-04 (303, 5)	1.8878E-04 (341, 3)	1.5723E-04 (162, 4)
26	4.5616E-05 (268, 5)	2.6987E-04 (290, 4)	2.3610E-04 (240, 6)	2.0482E-04 (240, 6)	1.6171E-04 (59, 4)
27	4.5760E-05 (126, 5)	2.4146E-04 (80, 5)	2.2759E-04 (241, 5)	2.0818E-04 (68, 3)	2.1047E-04 (68, 3)
28	4.5503E-05 (204, 5)	2.3157E-04 (298, 5)	2.2134E-04 (64, 6)	1.8123E-04 (269, 6)	1.4234E-04 (269, 6)
29	4.4903E-05 (245, 5)	2.5609E-04 (279, 4)	2.5184E-04 (279, 4)	1.9728E-04 (345, 4)	1.7564E-04 (290, 8)
30	4.9993E-05 (253, 5)	2.2363E-04 (248, 5)	2.3416E-04 (64, 4)	2.0936E-04 (126, 6)	1.6650E-04 (143, 3)
31	4.6571E-05 (148, 4)	2.4878E-04 (126, 4)	2.4984E-04 (136, 7)	2.4164E-04 (136, 7)	2.0721E-04 (136, 7)
32	5.5543E-05 (148, 4)	2.6254E-04 (168, 4)	2.5515E-04 (169, 4)	2.2378E-04 (169, 4)	1.8060E-04 (169, 4)
33	7.2896E-05 (134, 5)	2.3186E-04 (153, 4)	2.3354E-04 (360, 5)	2.1338E-04 (320, 2)	1.7725E-04 (24, 5)
34	6.4536E-05 (192, 4)	2.2521E-04 (228, 4)	2.4691E-04 (149, 4)	1.9866E-04 (149, 4)	1.7702E-04 (331, 7)
35	5.0343E-05 (102, 4)	2.5150E-04 (102, 4)	2.3660E-04 (48, 6)	2.0171E-04 (48, 6)	1.6047E-04 (48, 6)
36	5.8243E-05 (152, 5)	3.2270E-04 (216, 4)	3.0778E-04 (75, 4)	2.6462E-04 (363, 4)	2.1222E-04 (75, 4)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.7183E-04 DIRECTION= 24 DISTANCE= 0.3 KM DAY=278 TIME PERIOD= 5
YEAR= 77

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	5.6116E-05 (145, 4)	2.7902E-04 (180, 6)	2.2841E-04 (58, 4)	1.8481E-04 (79, 3)	1.5993E-04 (79, 3)
2	6.7441E-05 (248, 5)	2.3121E-04 (285, 5)	2.1347E-04 (72, 5)	1.8719E-04 (43, 8)	1.6300E-04 (43, 8)
3	6.9240E-05 (248, 5)	2.9955E-04 (175, 6)	2.4634E-04 (175, 6)	1.9286E-04 (285, 4)	1.5215E-04 (25, 1)
4	7.1918E-05 (145, 5)	3.2235E-04 (145, 5)	2.6249E-04 (145, 5)	2.0935E-04 (140, 5)	1.7246E-04 (145, 5)
5	5.6177E-05 (180, 4)	2.4806E-04 (231, 5)	2.1150E-04 (231, 5)	1.8999E-04 (115, 1)	1.6757E-04 (282, 5)
6	4.6180E-05 (127, 4)	2.6223E-04 (251, 6)	2.4328E-04 (78, 5)	1.9168E-04 (188, 3)	1.6069E-04 (188, 3)
7	5.5228E-05 (174, 4)	2.8327E-04 (127, 4)	2.9385E-04 (3, 5)	2.3790E-04 (3, 5)	1.8967E-04 (3, 5)
8	4.0051E-05 (174, 5)	2.2685E-04 (176, 5)	2.1862E-04 (3, 6)	1.7951E-04 (146, 4)	1.4851E-04 (146, 4)
9	4.6695E-05 (174, 5)	2.8575E-04 (176, 5)	2.7154E-04 (81, 6)	2.1675E-04 (128, 6)	1.6936E-04 (306, 2)
10	2.9529E-05 (115, 5)	2.4772E-04 (20, 6)	2.3632E-04 (36, 6)	1.9148E-04 (36, 6)	1.4795E-04 (36, 6)
11	4.4251E-05 (178, 5)	3.0659E-04 (51, 5)	2.9967E-04 (128, 3)	2.2785E-04 (127, 6)	1.8115E-04 (76, 1)
12	6.0346E-05 (100, 5)	2.5321E-04 (178, 5)	2.2593E-04 (115, 3)	2.0026E-04 (271, 6)	1.7304E-04 (271, 6)
13	6.9196E-05 (178, 5)	2.5470E-04 (115, 4)	2.2704E-04 (47, 4)	1.9363E-04 (96, 6)	1.6123E-04 (96, 6)
14	5.0011E-05 (173, 5)	2.3271E-04 (117, 4)	2.7231E-04 (360, 1)	2.3250E-04 (360, 1)	1.8498E-04 (360, 1)
15	4.7142E-05 (172, 4)	2.2433E-04 (163, 4)	2.1790E-04 (74, 4)	1.8056E-04 (286, 2)	1.4850E-04 (362, 6)
16	5.9988E-05 (203, 5)	2.2682E-04 (315, 1)	2.4326E-04 (305, 4)	2.0871E-04 (341, 2)	1.6340E-04 (341, 2)
17	5.5319E-05 (203, 4)	2.4912E-04 (98, 5)	2.2015E-04 (66, 6)	1.9024E-04 (66, 6)	1.5641E-04 (2, 1)
18	4.2331E-05 (97, 4)	2.3907E-04 (345, 4)	2.7232E-04 (39, 1)	2.3481E-04 (290, 3)	1.9304E-04 (336, 7)
19	2.8184E-05 (186, 4)	2.0693E-04 (41, 4)	2.2542E-04 (41, 4)	2.1336E-04 (322, 8)	1.7123E-04 (11, 4)
20	3.8585E-05 (223, 5)	2.4713E-04 (154, 4)	2.6183E-04 (12, 6)	2.0139E-04 (99, 5)	1.5920E-04 (99, 5)
21	4.9846E-05 (105, 4)	2.1445E-04 (39, 7)	2.3067E-04 (39, 7)	1.8185E-04 (39, 7)	1.3043E-04 (39, 7)
22	4.4682E-05 (98, 4)	2.4563E-04 (224, 5)	2.3554E-04 (103, 4)	1.7944E-04 (276, 6)	1.4318E-04 (304, 3)
23	4.6003E-05 (142, 5)	2.9914E-04 (100, 4)	2.6208E-04 (303, 6)	2.2083E-04 (322, 4)	1.8448E-04 (261, 6)
24	5.5613E-05 (255, 5)	3.7183E-04 (278, 5)	2.7845E-04 (293, 6)	2.2915E-04 (278, 5)	1.7342E-04 (278, 5)
25	6.7507E-05 (101, 4)	3.1506E-04 (100, 6)	2.6177E-04 (279, 5)	2.2022E-04 (257, 6)	1.9129E-04 (100, 6)
26	4.7322E-05 (255, 5)	2.4256E-04 (222, 5)	2.6660E-04 (245, 5)	2.2838E-04 (245, 5)	1.8198E-04 (245, 5)
27	5.3275E-05 (243, 4)	3.2375E-04 (217, 4)	3.3379E-04 (239, 6)	2.6870E-04 (239, 6)	2.2371E-04 (130, 3)
28	5.6858E-05 (136, 5)	2.2424E-04 (260, 6)	2.5466E-04 (222, 6)	2.0882E-04 (222, 6)	1.8060E-04 (138, 7)
29	5.8802E-05 (227, 5)	2.3507E-04 (227, 5)	2.4713E-04 (281, 6)	1.9913E-04 (112, 6)	1.6840E-04 (123, 3)
30	8.3419E-05 (216, 5)	3.5728E-04 (136, 4)	2.9879E-04 (122, 6)	2.4052E-04 (122, 6)	2.0103E-04 (62, 6)
31	7.2613E-05 (111, 5)	2.7582E-04 (192, 6)	2.5105E-04 (43, 7)	2.4796E-04 (43, 7)	2.1404E-04 (43, 7)
32	4.4067E-05 (209, 5)	2.7989E-04 (313, 5)	2.2726E-04 (237, 5)	2.0352E-04 (334, 3)	1.7271E-04 (334, 3)
33	3.4987E-05 (108, 5)	2.4084E-04 (93, 5)	2.1961E-04 (210, 6)	1.9301E-04 (146, 7)	1.5958E-04 (146, 7)
34	3.8754E-05 (207, 4)	2.6263E-04 (206, 6)	2.6439E-04 (87, 5)	1.9734E-04 (87, 5)	1.5615E-04 (87, 5)
35	4.6971E-05 (183, 5)	2.2530E-04 (250, 4)	2.2804E-04 (114, 3)	1.9427E-04 (63, 4)	1.6807E-04 (114, 1)
36	6.9404E-05 (94, 5)	3.4363E-04 (262, 4)	3.0701E-04 (95, 2)	2.6641E-04 (233, 3)	2.4189E-04 (234, 7)

PLANT NAME: KISS. UTILITIES POLLUTANT: SO2 AIR QUALITY UNITS: GM/M**3
YEARLY SECOND MAXIMUM 3-HOUR CONC= 3.5230E-04 DIRECTION= 26 DISTANCE= 0.3 KM DAY=169 TIME PERIOD= 5
YEAR= 78

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE 0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	6.6106E-05 (212, 5)	2.5501E-04 (212, 5)	2.6051E-04 (335, 1)	2.4540E-04 (335, 1)	2.0619E-04 (335, 1)
2	5.3613E-05 (119, 4)	2.4940E-04 (75, 5)	2.8973E-04 (155, 4)	2.2284E-04 (54, 7)	1.9977E-04 (69, 1)
3	4.7922E-05 (119, 4)	1.9467E-04 (73, 6)	1.9939E-04 (73, 6)	1.6000E-04 (74, 5)	1.2814E-04 (74, 5)
4	4.7858E-05 (119, 5)	2.5490E-04 (122, 5)	2.3940E-04 (334, 4)	2.0788E-04 (334, 4)	1.7055E-04 (334, 4)
5	5.6993E-05 (184, 4)	2.7439E-04 (353, 4)	2.3477E-04 (343, 5)	2.1430E-04 (334, 7)	1.8939E-04 (334, 7)
6	4.3956E-05 (134, 5)	2.3752E-04 (69, 6)	2.3168E-04 (20, 1)	1.8906E-04 (20, 1)	1.6813E-04 (214, 3)
7	3.8841E-05 (111, 5)	2.2344E-04 (121, 6)	2.3659E-04 (50, 8)	2.3944E-04 (353, 5)	1.8889E-04 (353, 5)
8	4.2809E-05 (250, 5)	2.2764E-04 (111, 6)	2.0973E-04 (339, 5)	1.7921E-04 (339, 5)	1.4927E-04 (335, 6)
9	4.8162E-05 (116, 5)	2.2404E-04 (86, 4)	2.2754E-04 (13, 8)	2.1266E-04 (51, 1)	1.7269E-04 (14, 3)
10	3.9568E-05 (116, 5)	2.0531E-04 (20, 4)	2.3217E-04 (20, 4)	1.8307E-04 (9, 3)	1.4040E-04 (9, 3)
11	2.8344E-05 (182, 4)	1.7129E-04 (182, 4)	1.7729E-04 (50, 2)	1.6762E-04 (37, 6)	1.3036E-04 (37, 6)
12	3.6173E-05 (160, 5)	2.3585E-04 (116, 8)	2.7654E-04 (116, 8)	2.3382E-04 (14, 8)	1.8287E-04 (14, 8)
13	5.9944E-05 (117, 5)	3.0898E-04 (249, 4)	2.5681E-04 (117, 5)	1.9014E-04 (63, 6)	1.5951E-04 (313, 5)
14	5.8948E-05 (231, 5)	2.8972E-04 (117, 1)	2.4587E-04 (76, 2)	1.9775E-04 (29, 3)	1.6755E-04 (313, 4)
15	4.6748E-05 (254, 4)	2.2477E-04 (81, 4)	2.1120E-04 (27, 2)	1.9251E-04 (307, 6)	1.5565E-04 (307, 6)
16	3.6044E-05 (110, 4)	2.4378E-04 (308, 5)	2.4917E-04 (361, 6)	2.3201E-04 (361, 6)	1.9425E-04 (361, 6)
17	1.9103E-05 (110, 3)	2.3006E-04 (322, 5)	2.7029E-04 (280, 3)	2.4687E-04 (280, 3)	2.0417E-04 (280, 3)
18	3.3221E-05 (81, 5)	2.9731E-04 (305, 4)	2.8764E-04 (344, 3)	2.8585E-04 (305, 4)	2.2596E-04 (27, 3)
19	2.3529E-05 (125, 5)	2.8846E-04 (304, 4)	2.9766E-04 (304, 4)	2.3588E-04 (304, 4)	1.8282E-04 (304, 4)
20	3.7472E-05 (145, 5)	2.4516E-04 (35, 5)	2.4551E-04 (344, 5)	1.9602E-04 (344, 5)	1.6185E-04 (275, 2)
21	5.9001E-05 (145, 5)	3.0105E-04 (258, 4)	2.4856E-04 (362, 5)	2.0537E-04 (23, 2)	1.7899E-04 (283, 3)
22	6.2553E-05 (252, 5)	2.7577E-04 (252, 5)	2.6737E-04 (269, 6)	2.0921E-04 (269, 6)	1.7126E-04 (2, 6)
23	5.6943E-05 (263, 5)	2.9590E-04 (323, 5)	2.6011E-04 (267, 4)	2.1428E-04 (267, 6)	1.8815E-04 (261, 4)
24	6.4803E-05 (89, 5)	2.7209E-04 (87, 4)	2.5945E-04 (295, 4)	2.1631E-04 (295, 4)	1.7024E-04 (295, 4)
25	5.7597E-05 (106, 4)	2.7463E-04 (310, 4)	2.7647E-04 (243, 6)	2.1771E-04 (147, 3)	1.8659E-04 (48, 3)
26	6.8826E-05 (169, 5)	3.5230E-04 (169, 5)	2.6588E-04 (169, 5)	2.4431E-04 (163, 6)	1.8456E-04 (163, 6)
27	7.6014E-05 (202, 5)	3.2078E-04 (171, 6)	3.1315E-04 (171, 6)	2.6341E-04 (92, 6)	2.1613E-04 (92, 6)
28	7.6093E-05 (146, 5)	2.6946E-04 (94, 5)	2.5582E-04 (202, 6)	2.1371E-04 (202, 6)	1.7684E-04 (24, 5)
29	6.1563E-05 (190, 5)	2.7249E-04 (239, 6)	2.3643E-04 (203, 6)	1.7775E-04 (165, 5)	1.4429E-04 (165, 5)
30	6.1206E-05 (218, 4)	3.0274E-04 (78, 5)	2.6819E-04 (124, 1)	2.4422E-04 (83, 6)	1.9290E-04 (83, 6)
31	5.6769E-05 (216, 4)	2.8690E-04 (218, 4)	2.3227E-04 (123, 8)	1.9637E-04 (96, 6)	1.6961E-04 (174, 6)
32	5.6989E-05 (222, 4)	3.1290E-04 (222, 4)	2.3992E-04 (173, 5)	1.9009E-04 (123, 7)	1.6693E-04 (245, 6)
33	7.3566E-05 (108, 4)	3.0118E-04 (207, 5)	2.6069E-04 (208, 7)	2.3109E-04 (208, 7)	1.8746E-04 (208, 7)
34	6.7138E-05 (101, 4)	3.3713E-04 (199, 4)	2.6211E-04 (199, 3)	2.3169E-04 (210, 4)	1.9746E-04 (198, 4)
35	7.1540E-05 (196, 4)	3.1810E-04 (129, 4)	2.7416E-04 (209, 4)	2.0317E-04 (183, 3)	1.5332E-04 (209, 4)
36	6.2915E-05 (103, 5)	3.4986E-04 (25, 7)	3.0920E-04 (25, 7)	2.2816E-04 (25, 7)	1.8568E-04 (311, 5)

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COMPOSITE ANNUAL CONCENTRATION TABLE,UG/CU.M

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1		1.	7.	7.	6.	4.
2		1.	6.	6.	5.	4.
3		0.	5.	5.	4.	3.
4		0.	5.	5.	4.	4.
5		1.	6.	6.	5.	4.
6		1.	6.	5.	5.	4.
7		0.	5.	5.	4.	3.
8		0.	4.	4.	3.	3.
9		0.	6.	6.	5.	4.
10		0.	5.	5.	4.	3.
11		0.	5.	5.	4.	4.
12		0.	7.	6.	5.	4.
13		0.	6.	6.	5.	4.
14		0.	6.	6.	5.	4.
15		0.	5.	5.	4.	4.
16		0.	5.	6.	5.	5.
17		0.	6.	7.	6.	5.
18		0.	10.	12.	10.	9.
19		0.	8.	8.	7.	6.
20		0.	8.	8.	7.	6.
21		0.	7.	7.	6.	5.
22		1.	8.	8.	7.	6.
23		1.	9.	9.	8.	7.
24		1.	8.	8.	7.	6.
25		1.	8.	8.	6.	5.
26		1.	11.	10.	8.	7.
27		1.	12.	12.	9.	8.
28		1.	9.	9.	7.	6.
29		1.	7.	6.	5.	4.
30		1.	8.	8.	7.	6.
31		1.	7.	7.	6.	5.
32		1.	7.	7.	6.	5.
33		1.	7.	8.	7.	6.
34		1.	8.	8.	7.	6.
35		1.	8.	8.	6.	5.
36		1.	11.	11.	9.	8.

COMPOSITE HIGHEST,SECOND-HIGHEST 24-HOUR CONCENTRATION TABLE,UG/CU.M

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	14.	76.	69.	51.	40.
2	14.	76.	72.	63.	52.
3	10.	59.	63.	59.	48.
4	10.	67.	74.	58.	49.
5	10.	75.	74.	61.	51.
6	10.	64.	65.	57.	49.
7	10.	69.	60.	48.	42.
8	14.	61.	65.	49.	40.
9	14.	96.	88.	76.	70.
10	8.	60.	62.	57.	47.
11	11.	72.	75.	60.	47.
12	18.	74.	82.	66.	58.
13	14.	75.	81.	68.	56.
14	10.	74.	70.	57.	45.
15	9.	64.	81.	62.	47.
16	13.	67.	83.	73.	59.
17	14.	72.	86.	75.	63.
18	9.	124.	141.	121.	98.
19	8.	98.	103.	86.	70.
20	12.	85.	97.	78.	62.
21	10.	74.	81.	63.	49.
22	12.	73.	76.	61.	50.
23	11.	78.	82.	74.	60.
24	11.	90.	88.	77.	60.
25	11.	76.	81.	65.	53.
26	12.	99.	86.	67.	53.
27	12.	108.	107.	88.	68.
28	10.	86.	88.	69.	54.
29	9.	72.	61.	53.	46.
30	14.	98.	82.	68.	56.
31	14.	71.	78.	66.	53.
32	12.	67.	63.	55.	47.
33	11.	79.	96.	83.	68.
34	11.	72.	73.	67.	61.
35	12.	83.	66.	53.	46.
36	14.	105.	112.	98.	84.

COMPOSITE HIGHEST, SECOND-HIGHEST 3-HOUR CONCENTRATION TABLE,UG/CU.M

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR \ RANGE	0.1 KM	0.3 KM	0.5 KM	0.7 KM	0.9 KM
1	73.	299.	261.	245.	206.
2	69.	266.	290.	223.	200.
3	69.	300.	264.	235.	166.
4	72.	322.	315.	299.	244.
5	65.	292.	279.	254.	211.
6	64.	265.	260.	216.	174.
7	73.	296.	294.	239.	190.
8	110.	295.	273.	224.	177.
9	76.	286.	278.	220.	182.
10	56.	297.	260.	218.	176.
11	68.	307.	300.	228.	181.
12	97.	262.	284.	247.	199.
13	69.	319.	278.	230.	175.
14	59.	290.	277.	232.	185.
15	52.	279.	250.	204.	160.
16	60.	262.	250.	232.	199.
17	55.	249.	270.	247.	204.
18	59.	341.	320.	286.	243.
19	45.	288.	298.	236.	183.
20	64.	312.	307.	239.	224.
21	59.	301.	249.	214.	179.
22	69.	292.	267.	209.	171.
23	68.	299.	314.	287.	237.
24	76.	372.	278.	243.	190.
25	69.	323.	276.	220.	191.
26	69.	352.	267.	244.	185.
27	76.	324.	334.	269.	224.
28	76.	293.	256.	214.	181.
29	62.	272.	252.	206.	179.
30	83.	357.	299.	244.	201.
31	73.	287.	251.	248.	214.
32	85.	313.	255.	224.	181.
33	74.	301.	261.	231.	187.
34	67.	337.	291.	232.	197.
35	72.	310.	274.	204.	168.
36	70.	350.	309.	266.	242.

*** KISSIMMEE DAY 325 SO2 ***

SOURCE # 1---KISS. UTILITIES PT01-04 UNIT #7
SOURCE # 2---KISS. UTILITIES PT01-05,PT01-06 UNITS #8
SOURCE # 3---KISS. UTILITIES PT01-07,PT01-08 UNITS #1
SOURCE # 4---KISS. UTILITIES PT01-11-PT01-15 UNITS #1
SOURCE # 5---KISS. UTILITIES UNITS #19-#20
SOURCE # 6---CITY OF ST. CLOUD PT02-02,PT02-04
SOURCE # 7---CITY OF ST. CLOUD PT02-05,PT02-06
SOURCE # 8---CITY OF ST. CLOUD PT02-07,PT02-08
SOURCE # 11---STOKELY VAN CAMP PT07-01
SOURCE # 12---CW BAILEY PT11-01
SOURCE # 13---FLA POWER COPR PT14-01-PT14-06
SOURCE # 15---DIXIE ASPHALT PT41-01
SOURCE # 16---ST. CLOUD HOSPITAL PT10-02,PT10-03
SOURCE # 17---KISS. UTLITIES COMBUSTION TURBINE

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	0.870	460100.	3129300.	0.0	13.11	466.5	16.30	0.61	0.00	0.00	0.00
2	0	0	0	3.360	460100.	3129300.	0.0	16.15	477.6	17.60	0.85	0.00	0.00	0.00
3	0	0	0	2.280	460100.	3129300.	0.0	7.01	466.5	9.60	0.76	0.00	0.00	0.00
4	0	0	0	5.370	460100.	3129300.	0.0	13.41	505.4	8.70	0.80	0.00	0.00	0.00
5	0	0	0	2.890	460100.	3129300.	0.0	8.69	505.4	17.20	0.90	0.00	0.00	0.00
6	0	0	0	4.660	471800.	3124900.	0.0	7.92	727.6	34.70	0.76	0.00	0.00	0.00
7	0	0	0	3.780	471800.	3124900.	0.0	8.53	699.8	1.17	0.64	0.00	0.00	0.00
8	0	0	0	6.550	471800.	3124900.	0.0	11.89	727.6	29.51	1.07	0.00	0.00	0.00
11	0	0	0	2.520	451100.	3125800.	0.0	7.32	513.7	11.50	0.46	0.00	0.00	0.00
12	0	0	0	0.130	470800.	3133800.	0.0	9.45	1005.7	11.60	0.61	0.00	0.00	0.00
13	0	0	0	34.020	446300.	3126000.	0.0	7.92	703.7	18.06	4.24	0.00	0.00	0.00
15	0	0	0	0.260	463200.	3143000.	0.0	7.92	394.3	26.95	1.10	0.00	0.00	0.00
16	0	0	0	0.060	470300.	3124100.	0.0	5.49	505.4	15.00	0.46	0.00	0.00	0100
17	0	0	0	48.900	460100.	3129300.	0.0	9.14	422.0	38.03	2.44	0.00	0.00	0.00

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DAILY: 325 SO2
24-HR/PD 1
SGROUP# 1
YEAR 1978
*** KISSIMMEE DAY 325 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 325 *

* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *
* MAXIMUM VALUE EQUALS 135.0 AND OCCURRED AT (460100.0, 3128800.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 459600.0	459700.0	459800.0	459900.0	460000.0	460100.0	460200.0	460300.0	460400.0
3128900.0 /	9.1	9.3	15.4	26.3	13.3	131.8	30.8	11.3	13.1
3128800.0 /	7.1	8.4	37.6	6.4	27.2	135.0	60.2	13.4	10.9
3128700.0 /	5.3	26.3	24.5	2.3	37.4	128.2	80.6	13.2	10.5
3128600.0 /	15.3	31.4	8.7	3.9	42.9	117.8	90.4	17.1	13.0
3128500.0 /	25.9	19.7	2.6	7.1	45.1	106.8	92.8	24.6	12.3
3128400.0 /	24.1	8.8	1.3	10.5	45.4	96.3	90.7	32.1	10.5
3128300.0 /	15.5	3.3	1.6	13.4	44.6	86.9	86.2	37.7	10.7
3128200.0 /	8.1	1.3	2.6	15.8	43.3	78.6	80.9	41.2	12.7
3128100.0 /	3.7	0.8	3.9	17.5	41.9	71.6	75.4	43.2	15.7
3128000.0 /	1.6	0.9	5.2	18.7	40.5	65.6	70.1	44.0	18.6

*** KISSIMMEE INTERACTION WITH ST. CLOUD DAY 113/78 ***

SOURCE # 1---KISS. UTILITIES PT01-04 UNIT #7
SOURCE # 2---KISS. UTILITIES PT01-05,PT01-06 UNITS #8
SOURCE # 3---KISS. UTILITIES PT01-07,PT01-08 UNITS #1
SOURCE # 4---KISS. UTILITIES PT01-11-PT01-15 UNITS #1
SOURCE # 5---KISS. UTILITIES UNITS #19-#20
SOURCE # 6---KISS. UTLITIES COMBUSTION TURBINE
SOURCE # 7---CITY OF ST. CLOUD PT02-02,PT02-04
SOURCE # 8---CITY OF ST. CLOUD PT02-05,PT02-06
SOURCE # 9---CITY OF ST. CLOUD PT02-07,PT02-08

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	0.870	0.	0.	0.0	13.11	466.5	16.30	0.61	0.00	0.00	0.00
2	0	0	0	3.360	0.	0.	0.0	16.15	477.6	17.60	0.85	0.00	0.00	0.00
3	0	0	0	2.280	0.	0.	0.0	7.01	466.5	9.60	0.76	0.00	0.00	0.00
4	0	0	0	5.370	0.	0.	0.0	13.41	505.4	8.70	0.80	0.00	0.00	0.00
5	0	0	0	2.890	0.	0.	0.0	8.69	505.4	17.20	0.90	0.00	0.00	0.00
6	0	0	0	48.900	0.	0.	0.0	9.14	422.0	38.03	2.44	0.00	0.00	0.00
7	0	0	0	4.660	-4400.	11700.	0.0	7.92	727.6	34.70	0.76	0.00	0.00	0.00
8	0	0	0	3.780	-4400.	11700.	0.0	8.53	699.8	1.17	0.64	0.00	0.00	0.00
9	0	0	0	6.550	-4400.	11700.	0.0	11.89	727.6	29.51	1.07	0.00	0.00	0.00

DAILY: 113
24-HR/PD 1
SGROUP# 3
YEAR 1978
*** KISSIMMEE INTERACTION WITH ST. CLOUD DAY 113/78 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 113 *
* FROM SOURCES: 1, -9,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 75.8 AND OCCURRED AT (500.0, 290.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	900.0
295.0 /	4.1	42.6	43.4	35.0	27.8
290.0 /	4.4	68.0	75.8	63.9	51.8
285.0 /	3.0	64.1	70.0	56.6	44.0

*** KISSIMMEE INTERACTION WITH FPC DAY 158/75 ***

SOURCE # 1---KISS. UTILITIES PT01-04 UNIT #7
SOURCE # 2---KISS. UTILITIES PT01-05,PT01-06 UNITS #8
SOURCE # 3---KISS. UTILITIES PT01-07,PT01-08 UNITS #1
SOURCE # 4---KISS. UTILITIES PT01-11-PT01-15 UNITS #1
SOURCE # 5---KISS. UTILITIES UNITS #19-#20
SOURCE # 6---KISS. UTLITIES COMBUSTION TURBINE
SOURCE # 7---FLA POWER COPR PT14-01-PT14-06

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	0.870	0.	0.	0.0	13.11	466.5	16.30	0.61	0.00	0.00	0.00
2	0	0	0	3.360	0.	0.	0.0	16.15	477.6	17.60	0.85	0.00	0.00	0.00
3	0	0	0	2.280	0.	0.	0.0	7.01	466.5	9.60	0.76	0.00	0.00	0.00
4	0	0	0	5.370	0.	0.	0.0	13.41	505.4	8.70	0.80	0.00	0.00	0.00
5	0	0	0	2.890	0.	0.	0.0	8.69	505.4	17.20	0.90	0.00	0.00	0.00
6	0	0	0	48.900	0.	0.	0.0	9.14	422.0	38.03	2.44	0.00	0.00	0.00
7	0	0	0	34.020	-13800.	-3300.	0.0	7.92	703.7	18.06	4.24	0.00	0.00	0.00

DAILY: 158
24-HR/PD 1
SGROUP# 3
YEAR 1975
*** KISSIMMEE INTERACTION WITH FPC DAY 158/75 ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 158 *

* FROM SOURCES: 1, -7,
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 69.3 AND OCCURRED AT (500.0, 70.0) *

DIRECTION / (DEGREES) /	RANGE (METERS) 100.0	300.0	500.0	700.0	900.0
80.0 /	5.4	41.5	38.7	29.9	23.3
75.0 /	8.4	64.0	62.3	50.0	40.0
70.0 /	9.3	65.8	69.3	60.0	51.7
65.0 /	7.6	42.7	47.0	43.7	40.7

*** KISSIMMEE DAY 325 TSP ***

SOURCE # 1---KISS. UTILITIES PT01-04 UNIT #7
SOURCE # 2---KISS. UTILITIES PT01-05,PT01-06 UNITS #8
SOURCE # 3---KISS. UTILITIES PT01-07,PT01-08 UNITS #1
SOURCE # 4---KISS. UTILITIES PT01-11-PT01-15 UNITS #1
SOURCE # 5---KISS. UTILITIES UNITS #19-#20
SOURCE # 6---KISS. UTLITIES COMBUSTION TURBINE
SOURCE # 7---CITY OF ST. CLOUD PT02-02,PT02-04
SOURCE # 8---CITY OF ST. CLOUD PT02-05,PT02-06
SOURCE # 9---CITY OF ST. CLOUD PT02-07,PT02-08
SOURCE # 10---FLA. DEPT. OF AGRIC. PT05-01
SOURCE # 11---KISS. COMMUNITY HOSP. PT06-01
SOURCE # 12---STOKELY VAN CAMP PT07-01
SOURCE # 13---CW BAILEY PT11-01
SOURCE # 14---FLA POWER COPR PT14-01-PT14-06
SOURCE # 15---OWENS ILL PT32-01,PT32-02
SOURCE # 16---DIXIE ASPHALT PT41-01
SOURCE # 17---GOULD BATTERY PT56-01
SOURCE # 18---GOULD BATTERY PT56-03
SOURCE # 19---GOULD BATTERY PT56-05
SOURCE # 20---ST. CLOUD HOSPITAL PT10-02,PT10-03

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
1	0	0	0	0.520	460100.	3129300.	0.0	13.11	466.5	16.30	0.61	0.00	0.00	0.00
2	0	0	0	2.010	460100.	3129300.	0.0	16.15	477.6	17.60	0.85	0.00	0.00	0.00
3	0	0	0	1.360	460100.	3129300.	0.0	7.01	466.5	9.60	0.76	0.00	0.00	0.00
4	0	0	0	3.210	460100.	3129300.	0.0	13.41	505.4	8.70	0.80	0.00	0.00	0.00
5	0	0	0	1.730	460100.	3129300.	0.0	8.69	505.4	17.20	0.90	0.00	0.00	0.00
6	0	0	0	1.980	460100.	3129300.	0.0	9.14	422.0	38.03	2.44	0.00	0.00	0.00
7	0	0	0	2.820	471800.	3124900.	0.0	7.92	727.6	34.70	0.76	0.00	0.00	0.00
8	0	0	0	2.270	471800.	3124900.	0.0	8.53	699.8	1.17	0.64	0.00	0.00	0.00
9	0	0	0	3.780	471800.	3124900.	0.0	11.89	727.6	29.51	1.07	0.00	0.00	0.00
10	0	0	0	0.190	458700.	3133400.	0.0	9.14	727.6	5.47	0.55	0.00	0.00	0.00
11	0	0	0	0.190	459900.	3130300.	0.0	7.62	755.4	13.78	0.40	0.00	0.00	0.00
12	0	0	0	0.130	451100.	3125800.	0.0	7.32	513.7	11.50	0.46	0.00	0.00	0.00
13	0	0	0	0.320	470800.	3133800.	0.0	9.45	1005.7	11.60	0.61	0.00	0.00	0.00
14	0	0	0	40.900	446300.	3126000.	0.0	7.92	703.7	18.06	4.24	0.00	0.00	0.00
15	0	0	0	1.500	460700.	3142000.	0.0	9.14	299.8	4.17	0.91	0.00	0.00	0.00
16	0	0	0	1.440	463200.	3143000.	0.0	7.92	394.3	26.95	1.10	0.00	0.00	0.00
17	0	0	0	0.170	460400.	3142600.	0.0	7.01	301.5	18.52	0.98	0.00	0.00	0.00

*** KISSIMMEE DAY 325 TSP ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (G/S) TYPE=2 (G/S) *PER M**2	X (M)	Y (M)	BASE ELEV. (M)	HEIGHT (M)	TEMP. TYPE=0 (DEG.K) VERT.DIM. TYPE=1 (M)	EXIT VEL. TYPE=0 (M/S) HORZ.DIM. TYPE=1,2 (M)	DIAM. TYPE=0 (M)	BLDG. HEIGHT TYPE=0 (M)	BLDG. LENGTH TYPE=0 (M)	BLDG. WIDTH TYPE=0 (M)
18	0	0	0	0.140	460400.	3142600.	0.0	4.57	294.3	15.00	0.30	0.00	0.00	0.00
19	0	0	0	0.060	460400.	3142600.	0.0	9.14	305.4	13.95	0.76	0.00	0.00	0.00
20	0	0	0	0.060	470300.	3124100.	0.0	5.49	505.4	15.00	0.46	0.00	0.00	0.00

DAILY; 325
24-HR/PD 1
SGROUP# 1
YEAR 1978
*** KISSIMMEE DAY 325 TSP ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 325 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 81.7 AND OCCURRED AT (460100.0, 3128800.0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 459600.0	459700.0	459800.0	459900.0	460000.0	460100.0	460200.0	460300.0	460400.0
3129400.0 /	0.3	0.5	1.2	2.3	2.2	1.0	0.6	0.6	0.5
3129300.0 /	0.3	0.5	1.1	2.0	2.0	1.1	0.6	0.6	0.5
3129200.0 /	0.3	0.6	1.1	2.5	4.4	1.6	1.0	0.6	0.6
3129100.0 /	0.4	1.2	6.0	9.6	7.1	27.8	3.7	3.0	0.6
3129000.0 /	2.1	6.8	8.3	17.5	3.6	64.8	5.7	9.4	3.1
3128900.0 /	5.8	6.2	10.2	17.1	9.4	79.9	19.1	7.3	8.3
3128800.0 /	4.6	5.6	23.4	5.1	17.6	81.7	36.7	8.5	7.0
3128700.0 /	3.6	16.3	15.6	2.6	23.6	77.6	48.9	8.4	6.8
3128600.0 /	9.6	19.4	6.1	3.4	26.8	71.4	54.8	10.8	8.2
3128500.0 /	15.9	12.4	2.4	5.3	28.1	64.8	56.2	15.3	7.8

DAILY: 325
24-HR/PD 1
SGROUP# 1
YEAR 1978
*** KISSIMMEE DAY 325 TSP ***

* DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* ENDING WITH HOUR 24 FOR DAY 325 *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 81.7 AND OCCURRED AT (460100.0, 3126800.0) *

Y-AXIS (METERS)	X-AXIS (METERS) 460500.0
3129400.0	0.5
3129300.0	0.5
3129200.0	0.5
3129100.0	0.5
3129000.0	0.6
3128900.0	2.5
3128800.0	6.1
3128700.0	6.3
3128600.0	5.0
3128500.0	5.6

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LONG-TERM MODELS

- ISCLT INPUT DATA -

NUMBER OF SOURCES = 14
NUMBER OF X AXIS GRID SYSTEM POINTS = 10
NUMBER OF Y AXIS GRID SYSTEM POINTS = 10
NUMBER OF SPECIAL POINTS = 0
NUMBER OF SEASONS = 1
NUMBER OF WIND SPEED CLASSES = 6
NUMBER OF STABILITY CLASSES = 5
NUMBER OF WIND DIRECTION CLASSES = 16
FILE NUMBER OF DATA FILE USED FOR REPORTS = 1
THE PROGRAM IS RUN IN RURAL MODE
CONCENTRATION (DEPOSITION) UNITS CONVERSION FACTOR =0.10000000E+07
ACCELERATION OF GRAVITY (METERS/SEC**2) = 9.800
HEIGHT OF MEASUREMENT OF WIND SPEED (METERS) = 10.000
ENTRAINMENT PARAMETER FOR UNSTABLE CONDITIONS = 0.600
ENTRAINMENT PARAMETER FOR STABLE CONDITIONS = 0.600
CORRECTION ANGLE FOR GRID SYSTEM VERSUS DIRECTION DATA NORTH (DEGREES) = 0.000
DECAY COEFFICIENT =0.00000000E+00
PROGRAM OPTION SWITCHES = 1, 1, 1, 0, 0, 3, 2, 2, 3, 0, 0, 0, 0,-1,-1, 0, 0, 1, 0, 0,
ALL SOURCES ARE USED TO FORM SOURCE COMBINATION 1
DISTANCE X AXIS GRID SYSTEM POINTS (METERS)= 455600.00, 456600.00, 457600.00, 458600.00, 459600.00, 460600.00, 461600.00, 462600.00, 463600.00, 464600.00,
DISTANCE Y AXIS GRID SYSTEM POINTS (METERS)= 3124800.00, 3125800.00, 3126800.00, 3127800.00, 3128800.00, 3129800.00, 3130800.00, 3131800.00, 3132800.00, 3133800.00,

- AMBIENT AIR TEMPERATURE (DEGREES KELVIN) -

	STABILITY CATEGORY 1	STABILITY CATEGORY 2	STABILITY CATEGORY 3	STABILITY CATEGORY 4	STABILITY CATEGORY 5	STABILITY CATEGORY 6
SEASON 1	300.0000	300.0000	300.0000	295.0000	290.0000	

- MIXING LAYER HEIGHT (METERS) -

SEASON 1

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.213800E+04	0.213800E+04	0.213800E+04	0.213800E+04	0.213800E+04	0.213800E+04
STABILITY CATEGORY 2	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04
STABILITY CATEGORY 3	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04
STABILITY CATEGORY 4	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04	0.142500E+04
STABILITY CATEGORY 5	0.100000E+05	0.100000E+05	0.100000E+05	0.100000E+05	0.100000E+05	0.100000E+05

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- ISCLT INPUT DATA (CONT.) -

- FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY -

SEASON 1

STABILITY CATEGORY 1

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00025400	0.00047900	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00021800	0.00043400	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00020300	0.00063900	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00013300	0.00027400	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00042800	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00019200	0.00029700	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00011500	0.00031900	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00021200	0.00054800	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00023500	0.00052500	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00020100	0.00034200	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00019100	0.00043400	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00018700	0.00041100	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00025500	0.00034200	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00014500	0.00047900	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00019200	0.00029700	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00012500	0.00022800	0.00000000	0.00000000	0.00000000	0.00000000

SEASON 1

STABILITY CATEGORY 2

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00107600	0.00219099	0.00152900	0.00000000	0.00000000	0.00000000
22.500	0.00093100	0.00125500	0.00079900	0.00000000	0.00000000	0.00000000
45.000	0.00083000	0.00187100	0.00152900	0.00000000	0.00000000	0.00000000
67.500	0.00097400	0.00139200	0.00143800	0.00000000	0.00000000	0.00000000
90.000	0.00113100	0.00262399	0.00250999	0.00000000	0.00000000	0.00000000
112.500	0.00083300	0.00209899	0.00127800	0.00000000	0.00000000	0.00000000
135.000	0.00078200	0.00230499	0.00171100	0.00000000	0.00000000	0.00000000
157.500	0.00088300	0.00148300	0.00100300	0.00000000	0.00000000	0.00000000
180.000	0.00092300	0.00301199	0.00260099	0.00000000	0.00000000	0.00000000
202.500	0.00056600	0.00162000	0.00127800	0.00000000	0.00000000	0.00000000
225.000	0.00067500	0.00166600	0.00120900	0.00000000	0.00000000	0.00000000
247.500	0.00057700	0.00150600	0.00136900	0.00000000	0.00000000	0.00000000
270.000	0.00065700	0.00152900	0.00116400	0.00000000	0.00000000	0.00000000
292.500	0.00072900	0.00148300	0.00111800	0.00000000	0.00000000	0.00000000
315.000	0.00077200	0.00182500	0.00136900	0.00000000	0.00000000	0.00000000
337.500	0.00050600	0.00155200	0.00095000	0.00000000	0.00000000	0.00000000

- ISCLT INPUT DATA (CONT.) -

- FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY -

SEASON 1

STABILITY CATEGORY 3

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00043200	0.00273799	0.00620698	0.00063900	0.00000000	0.00000000
22.500	0.00046900	0.00225899	0.00428999	0.00045600	0.00006800	0.00000000
45.000	0.00056700	0.00321699	0.00570499	0.00095800	0.00000000	0.00000000
67.500	0.00044300	0.00287499	0.00590998	0.00118700	0.00002300	0.00000000
90.000	0.00056600	0.00351399	0.00928698	0.00230499	0.00002300	0.00000000
112.500	0.00032500	0.00198499	0.00463199	0.00132300	0.00000000	0.00000000
135.000	0.00049400	0.00225899	0.00472299	0.00086700	0.00000000	0.00000000
157.500	0.00029200	0.00219099	0.00492899	0.00089000	0.00002300	0.00000000
180.000	0.00039700	0.00292099	0.00883098	0.00175700	0.00016000	0.00000000
202.500	0.00027200	0.00162000	0.00381099	0.00066200	0.00002300	0.00000000
225.000	0.00025700	0.00173400	0.00321699	0.00079900	0.00002300	0.00000000
247.500	0.00023400	0.00143800	0.00294399	0.00057000	0.00004600	0.00000000
270.000	0.00024600	0.00159700	0.00369699	0.00079900	0.00013700	0.00000000
292.500	0.00018800	0.00116400	0.00323999	0.00063900	0.00002300	0.00000000
315.000	0.00023500	0.00146000	0.00442699	0.00098100	0.00002300	0.00000000
337.500	0.00022000	0.00157400	0.00381099	0.00018300	0.00000000	0.00000000

SEASON 1

STABILITY CATEGORY 4

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00092300	0.00419899	0.01868795	0.01702296	0.00157400	0.00004600
22.500	0.00067500	0.00417599	0.00949297	0.00981198	0.00127800	0.00018300
45.000	0.00096000	0.00529399	0.01106697	0.00969798	0.00061600	0.00004600
67.500	0.00096100	0.00467799	0.00985797	0.00775798	0.00029700	0.00004600
90.000	0.00104400	0.00572699	0.01572196	0.01266397	0.00038800	0.00000000
112.500	0.00069900	0.00323999	0.00937798	0.00828298	0.00022800	0.00000000
135.000	0.00049900	0.00319499	0.00873998	0.00570499	0.00031900	0.00004600
157.500	0.00050800	0.00330899	0.00853398	0.00835198	0.00105000	0.00004600
180.000	0.00093600	0.00467799	0.01435296	0.01375997	0.00237299	0.00013700
202.500	0.00030700	0.00200799	0.00543099	0.00488299	0.00093600	0.00009100
225.000	0.00070500	0.00237299	0.00705098	0.00654898	0.00102700	0.00022800
247.500	0.00041400	0.00273799	0.00584199	0.00451799	0.00102700	0.00018300
270.000	0.00057600	0.00292099	0.00775798	0.00928698	0.00175700	0.00025100
292.500	0.00045700	0.00234999	0.00574999	0.00748398	0.00152900	0.00022800
315.000	0.00046000	0.00207599	0.00508899	0.00830598	0.00109500	0.00002300
337.500	0.00048800	0.00212199	0.00593298	0.00618398	0.00034200	0.00009100

- ISCLT INPUT DATA (CONT.) -

- FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY -

SEASON 1

STABILITY CATEGORY 5

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.01233297	0.02523693	0.01181997	0.00000000	0.00000000	0.00000000
22.500	0.01131597	0.02078795	0.00419899	0.00000000	0.00000000	0.00000000
45.000	0.01238997	0.02598993	0.00387899	0.00000000	0.00000000	0.00000000
67.500	0.01144697	0.02149495	0.00394799	0.00000000	0.00000000	0.00000000
90.000	0.01342797	0.02619594	0.00563599	0.00000000	0.00000000	0.00000000
112.500	0.00845298	0.01332597	0.00385599	0.00000000	0.00000000	0.00000000
135.000	0.00765098	0.01197997	0.00308099	0.00000000	0.00000000	0.00000000
157.500	0.00710998	0.01327997	0.00178000	0.00000000	0.00000000	0.00000000
180.000	0.01033097	0.02067395	0.00333199	0.00000000	0.00000000	0.00000000
202.500	0.00326299	0.00625198	0.00116400	0.00000000	0.00000000	0.00000000
225.000	0.00367199	0.00821498	0.00212199	0.00000000	0.00000000	0.00000000
247.500	0.00448799	0.00823698	0.00209899	0.00000000	0.00000000	0.00000000
270.000	0.00535199	0.01081597	0.00570499	0.00000000	0.00000000	0.00000000
292.500	0.00445199	0.00853398	0.00444999	0.00000000	0.00000000	0.00000000
315.000	0.00192800	0.00342299	0.00292099	0.00000000	0.00000000	0.00000000
337.500	0.00329399	0.00679998	0.00435799	0.00000000	0.00000000	0.00000000

- VERTICAL POTENTIAL TEMPERATURE GRADIENT (DEGREES KELVIN/METER) -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY	10.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY	20.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY	30.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY	40.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY	50.200000E-010	0.200000E-010	0.200000E-010	0.200000E-010	0.200000E-010	0.200000E-010

- WIND PROFILE POWER LAW EXPONENTS -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY	10.100000E+000	0.100000E+000	0.100000E+000	0.100000E+000	0.100000E+000	0.100000E+000
STABILITY CATEGORY	20.150000E+000	0.150000E+000	0.150000E+000	0.150000E+000	0.150000E+000	0.150000E+000
STABILITY CATEGORY	30.200000E+000	0.200000E+000	0.200000E+000	0.200000E+000	0.200000E+000	0.200000E+000
STABILITY CATEGORY	40.250000E+000	0.250000E+000	0.250000E+000	0.250000E+000	0.250000E+000	0.250000E+000
STABILITY CATEGORY	50.300000E+000	0.300000E+000	0.300000E+000	0.300000E+000	0.300000E+000	0.300000E+000

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202.500	0.00326299	0.00625198	0.00116400	0.00000000	0.00000000	0.00000000
225.000	0.00367199	0.00821498	0.00212199	0.00000000	0.00000000	0.00000000
247.500	0.00448799	0.00823698	0.00209899	0.00000000	0.00000000	0.00000000
270.000	0.00535199	0.01081597	0.00570499	0.00000000	0.00000000	0.00000000
292.500	0.00445199	0.00853398	0.00444999	0.00000000	0.00000000	0.00000000
315.000	0.00192800	0.00342299	0.00292099	0.00000000	0.00000000	0.00000000
337.500	0.00329399	0.00679998	0.00435799	0.00000000	0.00000000	0.00000000

0 - VERTICAL POTENTIAL TEMPERATURE GRADIENT (DEGREES KELVIN/METER) -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 2	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 3	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 4	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 5	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01

0 - WIND PROFILE POWER LAW EXPONENTS -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00
STABILITY CATEGORY 2	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00
STABILITY CATEGORY 3	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00
STABILITY CATEGORY 4	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00
STABILITY CATEGORY 5	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00

ORLANDO UTILITIES PT 33-01 - PT 33-03 - SOURCE INPUT DATA -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		2	STACK	463300.00	3159000.00	34.40	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 10.16, STACK DIAMETER (M)= 2.440, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
3.22000E+00			

KISSIMMEE UTILITIES PT01-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		5	STACK	460100.00	3129300.00	13.11	0.00	GAS EXIT TEMP (DEG K)= 466.50, GAS EXIT VEL. (M/SEC)= 16.30, STACK DIAMETER (M)= 0.610, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1 SEASON 2 SEASON 3 SEASON 4
4.46000E+00

KISSIMMEE UTILITIES PT01-05, PT01-06 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		6	STACK	460100.00	3129300.00	16.15	0.00	GAS EXIT TEMP (DEG K)= 477.60, GAS EXIT VEL. (M/SEC)= 17.60, STACK DIAMETER (M)= 0.850, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) : SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.70900E+01

KISSIMMEE UTILITIES PT01-07, PT01-08 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		7	STACK	460100.00	3129300.00	7.01	0.00	GAS EXIT TEMP (DEG K)= 466.50, GAS EXIT VEL. (M/SEC)= 9.60, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) : SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.05800E+01

KISSIMMEE UTILITIES PT01-11 - 01-15 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		8	STACK	460100.00	3129300.00	13.41	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 8.70, STACK DIAMETER (M)= 0.800, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) : SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.13400E+01

- SOURCE INPUT DATA (CONT.) -

C A R D	T SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
		KISSIMMEE UTILITIES UNITS #19 and #20					
X	9	STACK	460100.00	3129300.00	8.69	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 17.20, STACK DIAMETER (M)= 0.900, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.46600E+01

CITY OF ST. CLOUD PT02-03, PT02-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X	10	STACK	471800.00	3124900.00	7.92	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 34.70, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 3.90500E+01

CITY OF ST. CLOUD PT02-05, PT02-06 - SOURCE INPUT DATA (CONT.) -

C A R D	T SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X	11	STACK	471800.00	3124900.00	8.53	0.00	GAS EXIT TEMP (DEG K)= 699.80, GAS EXIT VEL. (M/SEC)= 1.17, STACK DIAMETER (M)= 0.640, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 3.16800E+01

CITY OF ST CLOUD PT02-07, PT02-08 - SOURCE INPUT DATA (CONT.) -

C A R D	T SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X	12	STACK	471800.00	3124900.00	11.89	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 29.51, STACK DIAMETER (M)= 1.070, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF

ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
5.48900E+01

Florida Power Corp PT 14-01 thru 14-06

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		15	STACK	446300.00	3126000.00	7.92	0.00	GAS EXIT TEMP (DEG K)= 703.70, GAS EXIT VEL. (M/SEC)= 18.06, STACK DIAMETER (M)= 4.240, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
8.23300E+01

KISSIMMEE UTILITIES -- NON COMBUSTION TURBINE

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		18	STACK	460100.00	3129300.00	9.14	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 38.03, STACK DIAMETER (M)= 2.440, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
3.85000E+01

SOUTHEAST PT 39-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		41	STACK	462900.00	3153300.00	16.20	0.00	GAS EXIT TEMP (DEG K)= 388.70, GAS EXIT VEL. (M/SEC)= 15.63, STACK DIAMETER (M)= 1.960, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.27000E+00

COCA COLA PT 23-02

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		57	STACK	421300.00	3103600.00	17.40	0.00	GAS EXIT TEMP (DEG K)= 547.00, GAS EXIT VEL. (M/SEC)= 15.24, STACK DIAMETER (M)= 1.830, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.07000E+00			

CITY OF ORLANDO INCINERATORS
PT 61-01 - 61-08

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		100	STACK	456300.00	3152700.00	11.60	0.00	GAS EXIT TEMP (DEG K)= 922.00, GAS EXIT VEL. (M/SEC)= 12.50, STACK DIAMETER (M)= 1.130, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
3.22000E+00			

8
3

** ANNUAL GROUND LEVEL CONCENTRATION (MICROGRAMS PER CUBIC METER) FROM ALL SOURCES COMBINED **

- GRID SYSTEM RECEPTORS -
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE, METERS)	455600.000	456600.000	457600.000	458600.000	459600.000	460600.000	461600.000	462600.000	463600.000
	- CONCENTRATION -								
3133800.000	7.203840	7.964563	8.739365	10.094641	12.641409	11.831429	7.906047	6.718377	6.766826
3132800.000	8.158581	9.024574	10.281042	11.513060	15.680794	14.248495	7.985918	8.064526	7.872984
3131800.000	9.220030	10.622097	12.266405	14.717760	20.462940	17.504848	10.435093	10.003328	9.036943
3130800.000	11.287207	12.482058	16.444592	19.514755	27.810764	19.813309	14.907787	11.940344	10.217138
3129800.000	15.011848	18.458504	23.717342	30.083835	41.979912	32.367508	19.995598	15.218042	12.624662
3128800.000	16.160568	20.197514	26.816319	38.308418	68.864471	27.363506	21.915806	16.040699	13.286333
3127800.000	14.496395	17.129650	22.702099	32.408695	38.785179	24.626392	13.384481	13.274551	12.466822
3126800.000	13.051397	16.693878	20.721905	23.239521	28.532719	23.279018	12.975653	11.292343	11.945793
3125800.000	13.539406	15.729925	17.290092	18.354015	22.694443	20.341648	12.536428	12.001600	11.948391
3124800.000	12.916681	13.981201	14.924110	16.399517	19.236763	18.162243	13.646818	12.377136	12.907539

- GRID SYSTEM RECEPTORS -
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE, METERS)	464600.000
	- CONCENTRATION -
3133800.000	6.747674
3132800.000	7.515856
3131800.000	8.364370
3130800.000	9.566696
3129800.000	11.270599
3128800.000	11.962540
3127800.000	11.676460
3126800.000	12.386490
3125800.000	13.252758
3124800.000	13.973961

202.500	0.00326299	0.00625198	0.00116400	0.00000000	0.00000000	0.00000000
225.000	0.00367199	0.00821498	0.00212199	0.00000000	0.00000000	0.00000000
247.500	0.00448799	0.00823698	0.00209899	0.00000000	0.00000000	0.00000000
270.000	0.00535199	0.01081597	0.00570499	0.00000000	0.00000000	0.00000000
292.500	0.00445199	0.00853398	0.00444999	0.00000000	0.00000000	0.00000000
315.000	0.00192800	0.00342299	0.00292099	0.00000000	0.00000000	0.00000000
337.500	0.00329399	0.00679998	0.00435799	0.00000000	0.00000000	0.00000000

0 - VERTICAL POTENTIAL TEMPERATURE GRADIENT (DEGREES KELVIN/METER) -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 2	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 3	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 4	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 5	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01

0 - WIND PROFILE POWER LAW EXPONENTS -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00
STABILITY CATEGORY 2	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00
STABILITY CATEGORY 3	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00
STABILITY CATEGORY 4	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00
STABILITY CATEGORY 5	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00

ORLANDO UTILITIES PT 33-01 - 33-03 - SOURCE INPUT DATA -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		1	STACK	463300.00	3159000.00	34.40	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 17.00, STACK DIAMETER (M)= 1.830, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.25000E+00			

ORLANDO UTILITIES PT 33-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		2	STACK	463300.00	3159000.00	34.40	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 10.16, STACK DIAMETER (M)= 2.440, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

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SEASON 1 SEASON 2 SEASON 3 SEASON 4
2.85000E+00

STANDARD SAND SILICA PT14-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		3	STACK	441500.00	3118200.00	9.10	0.00	GAS EXIT TEMP (DEG K)= 380.40, GAS EXIT VEL. (M/SEC)= 24.13, STACK DIAMETER (M)= 0.430, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.04000E+00

STANDARD SAND SILICA PT14-02 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		4	STACK	441500.00	3118200.00	9.10	0.00	GAS EXIT TEMP (DEG K)= 350.90, GAS EXIT VEL. (M/SEC)= 26.55, STACK DIAMETER (M)= 1.400, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.04000E+00

KISSIMMEE UTILITIES PT35-01-3405 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		5	STACK	460100.00	3129300.00	13.11	0.00	GAS EXIT TEMP (DEG K)= 466.50, GAS EXIT VEL. (M/SEC)= 16.30, STACK DIAMETER (M)= 0.610, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
5.30000E-01

- SOURCE INPUT DATA (CONT.) -

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KISSIMMEE UTILITIES PTN-05, PT01-06

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		6	STACK	460100.00	3129300.00	16.15	0.00	GAS EXIT TEMP (DEG K)= 477.60, GAS EXIT VEL. (M/SEC)= 17.60, STACK DIAMETER (M)= 0.850, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.02000E+00			

KISSIMMEE UTILITIES PT01-07, PT01-08 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		7	STACK	460100.00	3129300.00	7.01	0.00	GAS EXIT TEMP (DEG K)= 466.50, GAS EXIT VEL. (M/SEC)= 9.60, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.36000E+00			

KISSIMMEE UTILITIES PT 01-11-01-15 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		8	STACK	460100.00	3129300.00	13.41	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 8.70, STACK DIAMETER (M)= 0.800, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
3.15000E+00			

KISSIMMEE UTILITIES UNITS #19 and #20 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		9	STACK	460100.00	3129300.00	8.69	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 17.20, STACK DIAMETER (M)= 0.900, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF

L9

ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC)
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.74000E+00

CITY OF ST. CLOUD PT02-03, PT02-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		10	STACK	471800.00	3124900.00	7.92	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 34.70, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) SEASON 1 SEASON 2 SEASON 3 SEASON 4 2.82000E+00

CITY OF ST. CLOUD PT02-05, PT02-06 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		11	STACK	471800.00	3124900.00	8.53	0.00	GAS EXIT TEMP (DEG K)= 699.80, GAS EXIT VEL. (M/SEC)= 1.17, STACK DIAMETER (M)= 0.610, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) SEASON 1 SEASON 2 SEASON 3 SEASON 4 2.27000E+00

CITY OF ST. CLOUD PT02-07, PT02-08 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		12	STACK	471800.00	3124900.00	11.89	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 29.51, STACK DIAMETER (M)= 1.070, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) SEASON 1 SEASON 2 SEASON 3 SEASON 4 3.78000E+00

STOKELY VAN CAMP PT07-01

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		13	STACK	451100.00	3125800.00	7.32	0.00	GAS EXIT TEMP (DEG K)= 513.70, GAS EXIT VEL. (M/SEC)= 11.50, STACK DIAMETER (M)= 0.460, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.30000E-01

C W DAILEY PT 11-01

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		14	STACK	470800.00	3133800.00	9.45	0.00	GAS EXIT TEMP (DEG K)=1005.70, GAS EXIT VEL. (M/SEC)= 11.60, STACK DIAMETER (M)= 0.610, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 3.20000E-01

FLA. POWER CORP. PT14-01 - 14-06

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		15	STACK	446300.00	3126000.00	7.92	0.00	GAS EXIT TEMP (DEG K)= 703.70, GAS EXIT VEL. (M/SEC)= 18.06, STACK DIAMETER (M)= 4.240, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 4.09000E+01

DIXIE ASPHALT PT 41-01

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -

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X 16 STACK 463200.00 3143000.00 7.92 0.00 GAS EXIT TEMP (DEG K)= 394.30, GAS EXIT VEL. (M/SEC)= 26.95,
STACK DIAMETER (M)= 1.100, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF
ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.440000E+00

- SOURCE INPUT DATA (CONT.) -

ST CLOUD HOSPITAL PT 10-02, PT10-03

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		17	STACK	470300.00	3124100.00	5.49	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 15.00, STACK DIAMETER (M)= 0.460, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 6.000000E-02

KILLIMMEE UTILITIES NEW COMBUSTION TURBINE

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		18	STACK	460100.00	3129300.00	9.14	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 38.03, STACK DIAMETER (M)= 2.440, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.980000E+00

FLA DEPT AGRICULTURE AT05-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		19	STACK	458700.00	3133400.00	9.14	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 5.47, STACK DIAMETER (M)= 0.550, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.900000E-01

KISSIMMEE COMMUNITY HOSPITAL PT04-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		20	STACK	459900.00	3130300.00	7.62	0.00	GAS EXIT TEMP (DEG K)= 744.50, GAS EXIT VEL. (M/SEC)= 13.78, STACK DIAMETER (M)= 0.400, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.90000E-01			

OWENS ILLINOIS PT32-01, PT32-02 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		21	STACK	460700.00	3142000.00	9.14	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 4.17, STACK DIAMETER (M)= 0.910, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.50000E+00			

GOULD BATTERY PT56-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		22	STACK	460400.00	3142600.00	7.01	0.00	GAS EXIT TEMP (DEG K)= 301.50, GAS EXIT VEL. (M/SEC)= 18.52, STACK DIAMETER (M)= 0.980, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.70000E-01			

GOULD BATTERY PT56-03 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -

D E					(M) /	
X	23	STACK	460400.00	3142600.00	4.57	0.00 GAS EXIT TEMP (DEG K)= 294.30, GAS EXIT VEL. (M/SEC)= 15.00, STACK DIAMETER (M)= 0.300, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.40000E-01

GOULD BATTERY PT 56-05

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M) /	- SOURCE DETAILS DEPENDING ON TYPE -
X		24	STACK	460400.00	3142600.00	9.14	0.00	GAS EXIT TEMP (DEG K)= 305.40, GAS EXIT VEL. (M/SEC)= 13.95, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 6.00000E-02

FLA. MIN & MAT'LS PT 11-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M) /	- SOURCE DETAILS DEPENDING ON TYPE -
X		25	STACK	462000.00	3149000.00	12.20	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.32, STACK DIAMETER (M)= 1.220, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.04000E+00

FLA. MIN. & MAT'LS PT 12-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M) /	- SOURCE DETAILS DEPENDING ON TYPE -
X		26	STACK	444500.00	3160000.00	10.10	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.24, STACK DIAMETER (M)= 1.100, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4

8.60000E-01

INLAND MAT'LS PT20-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		27	STACK	459900.00	3160900.00	16.20	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 1.57, STACK DIAMETER (M)= 0.370, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC SEASON 1 SEASON 2 SEASON 3 SEASON 4) - 7.50000E-01

ORLANDO PAVING PT21-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		28	STACK	453900.00	3160700.00	12.80	0.00	GAS EXIT TEMP (DEG K)= 331.50, GAS EXIT VEL. (M/SEC)= 8.55, STACK DIAMETER (M)= 2.260, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC SEASON 1 SEASON 2 SEASON 3 SEASON 4) - 1.04000E+00

KISSAM ROCK IND PT23-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		29	STACK	461300.00	3157900.00	18.30	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 1.34, STACK DIAMETER (M)= 0.400, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC SEASON 1 SEASON 2 SEASDN 3 SEASON 4) - 1.24000E+00

FLA ROCK IND PT24-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -

A R D	A P E	NUMBER	TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		30	STACK	459200.00	3174200.00	3.70	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 17.35, STACK DIAMETER (M)= 0.500, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.24000E+00

FLA ROCK IND PT24-OR, PT 24-03 - SOURCE INPUT DATA (CONT.) -

A R D	A P E	NUMBER	TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		31	STACK	459200.00	3174200.00	16.80	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 35.07, STACK DIAMETER (M)= 0.090, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 2.48000E+00

RINKER MATLS PT25-01 - SOURCE INPUT DATA (CONT.) -

A R D	A P E	NUMBER	TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		32	STACK	458300.00	3165000.00	3.40	0.00	GAS EXIT TEMP (DEG K)= 297.00, GAS EXIT VEL. (M/SEC)= 43.12, STACK DIAMETER (M)= 0.370, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.44000E+00

RINKER MATLS PT25-02 - SOURCE INPUT DATA (CONT.) -

A R D	A P E	NUMBER	TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		33	STACK	458300.00	3165000.00	28.90	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.11, STACK DIAMETER (M)= 1.220, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.15000E+00

LONE STAR PT27-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		34	STACK	462600.00	3154200.00	14.60	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.52, STACK DIAMETER (M)= 0.910, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
9.50000E-01

ORLANDO PAVING PT31-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		35	STACK	465300.00	3145900.00	9.10	0.00	GAS EXIT TEMP (DEG K)= 644.30, GAS EXIT VEL. (M/SEC)= 5.75, STACK DIAMETER (M)= 0.460, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.21000E+00

KINKER MATLS PT 86-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		36	STACK	470700.00	3163900.00	2.70	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 4.22, STACK DIAMETER (M)= 1.070, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.15000E+00

- SOURCE INPUT DATA (CONT.) -

RINKER MATLS PT37-01

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		37	STACK	462500.00	3154300.00	20.40	0.00	GAS EXIT TEMP (DEG K)= 298.20, GAS EXIT VEL. (M/SEC)= 0.13, STACK DIAMETER (M)= 4.850, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.32000E+00			

RINKER MATLS PT 37-02 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		38	STACK	462500.00	3154300.00	20.40	0.00	GAS EXIT TEMP (DEG K)= 297.00, GAS EXIT VEL. (M/SEC)= 0.17, STACK DIAMETER (M)= 1.340, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.32000E+00			

RINKER MATLS PT 37-02 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		39	STACK	460600.00	3145500.00	15.20	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.24, STACK DIAMETER (M)= 4.180, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.76000E+00			

RINKER MATLS PT 37-03, PT 37-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		40	STACK	460600.00	3145500.00	26.50	0.00	GAS EXIT TEMP (DEG K)= 299.40, GAS EXIT VEL. (M/SEC)= 0.02,

STACK DIAMETER (M)= 4.390, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF
ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
2.88000E+00

SOUTHERN FRUIT PT 39-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		41	STACK	462900.00	3153300.00	16.20	0.00	GAS EXIT TEMP (DEG K)= 388.70, GAS EXIT VEL. (M/SEC)= 15.63, STACK DIAMETER (M)= 1.460, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.58000E+00

CARNS CONCRETE PIPE PT 50-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		42	STACK	454600.00	3167800.00	15.20	0.00	GAS EXIT TEMP (DEG K)= 297.00, GAS EXIT VEL. (M/SEC)= 0.59, STACK DIAMETER (M)= 1.520, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 9.50000E-01

WINTER GARDEN CITRUS PT 53-01, PT 53-02

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		43	STACK	443800.00	3159600.00	24.40	0.00	GAS EXIT TEMP (DEG K)= 338.70, GAS EXIT VEL. (M/SEC)= 8.08, STACK DIAMETER (M)= 1.190, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 2.48000E+00

WINTER GARDEN CITRUS PT53-06, PT53-12

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		44	STACK	443800.00	3159600.00	15.20	0.00	GAS EXIT TEMP (DEG K)= 308.20, GAS EXIT VEL. (M/SEC)= 17.85, STACK DIAMETER (M)= 1.160, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.54000E+00			

WINTER GARDEN CITRUS PT53-14

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		45	STACK	443800.00	3159600.00	24.40	0.00	GAS EXIT TEMP (DEG K)= 340.40, GAS EXIT VEL. (M/SEC)= 17.11, STACK DIAMETER (M)= 0.820, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
3.17000E+00			

A1 Block - PT54-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		46	STACK	462500.00	3155000.00	16.80	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.20, STACK DIAMETER (M)= 1.220, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.87000E+00			

A1 B-OCK PT 54-02

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -

89

X 47 STACK 462500.00 3155000.00 16.80 0.00 GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 0.30,
STACK DIAMETER (M)= 1.220, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF
ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
2.16000E+00

MEDUSA CEMENT PT59-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		48	STACK	462600.00	3154400.00.	11.30	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 19.40, STACK DIAMETER (M)= 0.300, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.12000E+00

MEDUSA CEMENT PT59-02

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		49	STACK	462600.00	3154400.00	0.60	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 10.78, STACK DIAMETER (M)= 0.090, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 8.60000E-01

FLA. ROCK IND PT71-02, PT71-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		50	STACK	463000.00	3145500.00	16.80	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 1.62, STACK DIAMETER (M)= 0.370, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 1.96000E+00

FLA ROCK IND PT 91-05

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		51	STACK	463000.00	3145500.00	16.80	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 1.62, STACK DIAMETER (M)= 0.370, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.12000E+00			

STANDARD SAND SILICA PT 14-03

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		52	STACK	441500.00	3118200.00	25.90	0.00	GAS EXIT TEMP (DEG K)= 377.60, GAS EXIT VEL. (M/SEC)= 26.94, STACK DIAMETER (M)= 0.490, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.76000E+00			

STANDARD SAND SILICA PT 14-04

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		53	STACK	441500.00	3118200.00	25.90	0.00	GAS EXIT TEMP (DEG K)= 314.80, GAS EXIT VEL. (M/SEC)= 8.85, STACK DIAMETER (M)= 1.220, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
8.10000E-01			

SWIFT AGRICHEM PT 17-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE	Y COORDINATE	EMISSION HEIGHT	BASE ELEV-	- SOURCE DETAILS DEPENDING ON TYPE -

```
R P                    (M)          (M)          (M)    ATION /
D E                                                     (M)  /
-------------------------------------------------------------------------------------------------------------------------------
X       54  STACK    427900.00  3097400.00  10.10      0.00 GAS EXIT TEMP (DEG K)= 297.00, GAS EXIT VEL. (M/SEC)=  6.61,
                                                             STACK DIAMETER (M)= 0.550, HEIGHT OF ASSO. BLDG. (M)=  0.00, WIDTH OF
                                                             ASSO. BLDG. (M)=    0.00, WAKE EFFECTS FLAG = 0
                                                                - SOURCE STRENGTHS ( GRAMS PER SEC                          ) -
                                                                     SEASON 1     SEASON 2     SEASON 3     SEASON 4
                                                                   9.50000E-01
```


SWIFT AGRICHEM PT 17-04

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                                                - SOURCE INPUT DATA (CONT.) -
C T SOURCE SOURCE      X            Y       EMISSION  BASE /
A A NUMBER  TYPE  COORDINATE  COORDINATE   HEIGHT   ELEV- /                - SOURCE DETAILS DEPENDING ON TYPE -
R P                    (M)          (M)          (M)    ATION /
D E                                                     (M)  /
-------------------------------------------------------------------------------------------------------------------------------
X       55  STACK    427900.00  3097400.00  10.10      0.00 GAS EXIT TEMP (DEG K)= 294.30, GAS EXIT VEL. (M/SEC)= 17.69,
                                                             STACK DIAMETER (M)= 0.340, HEIGHT OF ASSO. BLDG. (M)=  0.00, WIDTH OF
                                                             ASSO. BLDG. (M)=    0.00, WAKE EFFECTS FLAG = 0
                                                                - SOURCE STRENGTHS ( GRAMS PER SEC                          ) -
                                                                     SEASON 1     SEASON 2     SEASON 3     SEASON 4
                                                                   8.90000E-01
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COCA COLA PT 23-01

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                                                - SOURCE INPUT DATA (CONT.) -
C T SOURCE SOURCE      X            Y       EMISSION  BASE /
A A NUMBER  TYPE  COORDINATE  COORDINATE   HEIGHT   ELEV- /                - SOURCE DETAILS DEPENDING ON TYPE -
R P                    (M)          (M)          (M)    ATION /
D E                                                     (M)  /
-------------------------------------------------------------------------------------------------------------------------------
X       56  STACK    421300.00  3103600.00  28.30      0.00 GAS EXIT TEMP (DEG K)= 333.20, GAS EXIT VEL. (M/SEC)= 16.84,
                                                             STACK DIAMETER (M)= 1.070, HEIGHT OF ASSO. BLDG. (M)=  0.00, WIDTH OF
                                                             ASSO. BLDG. (M)=    0.00, WAKE EFFECTS FLAG = 0
                                                                - SOURCE STRENGTHS ( GRAMS PER SEC                          ) -
                                                                     SEASON 1     SEASON 2     SEASON 3     SEASON 4
                                                                   1.56000E+00
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COCA COLA PT 23-02

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                                                - SOURCE INPUT DATA (CONT.) -
C T SOURCE SOURCE      X            Y       EMISSION  BASE /
A A NUMBER  TYPE  COORDINATE  COORDINATE   HEIGHT   ELEV- /                - SOURCE DETAILS DEPENDING ON TYPE -
R P                    (M)          (M)          (M)    ATION /
D E                                                     (M)  /
-------------------------------------------------------------------------------------------------------------------------------
X       57  STACK    421300.00  3103600.00  17.40      0.00 GAS EXIT TEMP (DEG K)= 547.00, GAS EXIT VEL. (M/SEC)= 15.24,
                                                             STACK DIAMETER (M)= 1.830, HEIGHT OF ASSO. BLDG. (M)=  0.00, WIDTH OF
                                                             ASSO. BLDG. (M)=    0.00, WAKE EFFECTS FLAG = 0
                                                                - SOURCE STRENGTHS ( GRAMS PER SEC                          ) -
```

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SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.04000E+00

- SOURCE INPUT DATA (CONT.) -

COCA COLA PT 23-03

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		58	STACK	421300.00	3103600.00	30.50	0.00	GAS EXIT TEMP (DEG K)= 334.80, GAS EXIT VEL. (M/SEC)= 15.16, STACK DIAMETER (M)= 0.980, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
9.50000E-01

- SOURCE INPUT DATA (CONT.) -

BORDO CITRUS PT 23-01

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		59	STACK	438000.00	3109000.00	14.60	0.00	GAS EXIT TEMP (DEG K)= 349.80, GAS EXIT VEL. (M/SEC)= 8.41, STACK DIAMETER (M)= 1.680, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.30000E+00

- SOURCE INPUT DATA (CONT.) -

BORDO CITRUS PT 23-02

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		60	STACK	438000.00	3109000.00	14.60	0.00	GAS EXIT TEMP (DEG K)= 349.80, GAS EXIT VEL. (M/SEC)= 8.41, STACK DIAMETER (M)= 1.680, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.56000E+00

- SOURCE INPUT DATA (CONT.) -

ADAMS PACKING PT37-01

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		61	STACK	421700.00	3104200.00	28.00	0.00	GAS EXIT TEMP (DEG K)= 347.00, GAS EXIT VEL. (M/SEC)= 7.20, STACK DIAMETER (M)= 1.430, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
9.80000E-01			

HOLLY HILL FRUIT PT61-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		62	STACK	441000.00	3115400.00	18.00	0.00	GAS EXIT TEMP (DEG K)= 344.30, GAS EXIT VEL. (M/SEC)= 18.98, STACK DIAMETER (M)= 0.850, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.22000E+00			

MASASPHALT PT62-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		63	STACK	423100.00	3101500.00	12.20	0.00	GAS EXIT TEMP (DEG K)= 335.90, GAS EXIT VEL. (M/SEC)= 2.58, STACK DIAMETER (M)= 3.670, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.41000E+00			

KISSAM CONCRETE PT05-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		64	STACK	465100.00	3170400.00	18.30	0.00	GAS EXIT TEMP (DEG K)= 299.80, GAS EXIT VEL. (M/SEC)= 2.26, STACK DIAMETER (M)= 0.300, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF

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ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.09000E+00

COCA-COLA PT 06-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		65	STACK	459400.00	3170500.00	25.90	0.00	GAS EXIT TEMP (DEG K)= 346.50, GAS EXIT VEL. (M/SEC)= 10.00, STACK DIAMETER (M)= 0.330, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.38000E+00

ALCOA PACKING PT 01-05

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		66	STACK	451600.00	3085500.00	27.10	0.00	GAS EXIT TEMP (DEG K)= 333.20, GAS EXIT VEL. (M/SEC)= 10.30, STACK DIAMETER (M)= 0.970, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.84000E+00

OWENS ILL PT 07-01

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		67	STACK	423400.00	3102800.00	22.90	0.00	GAS EXIT TEMP (DEG K)= 616.50, GAS EXIT VEL. (M/SEC)= 10.20, STACK DIAMETER (M)= 0.910, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
1.35000E+00

401

OWENS ILL PTOT-02

- SOURCE INPUT DATA (CONT.) -

CARD	TYP	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		68	STACK	423400.00	3102800.00	30.50	0.00	GAS EXIT TEMP (DEG K)= 667.60, GAS EXIT VEL. (M/SEC)= 8.79, STACK DIAMETER (M)= 0.910, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.32000E+00			

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Page 106 was removed intentionally.

** ANNUAL GROUND LEVEL CONCENTRATION (MICROGRAMS PER CUBIC METER) FROM ALL SOURCES COMBINED **

- GRID SYSTEM RECEPTORS -
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE, METERS)	455600.000	456600.000	457600.000	458600.000	459600.000	460600.000	461600.000	462600.000	463600.000
	- CONCENTRATION -								
3133800.000	2.245856	2.427762	2.680215	3.378129	3.260363	3.045914	2.366919	2.121501	2.001059
3132800.000	2.341279	2.533473	2.906910	3.611741	3.649281	3.339121	2.293711	2.234515	2.087627
3131800.000	2.444424	2.698689	3.045435	3.561871	4.352484	3.759547	2.598719	2.452543	2.192334
3130800.000	2.707517	2.926487	3.466785	4.242141	5.697381	4.196010	3.252588	2.695564	2.307661
3129800.000	3.205897	3.776152	4.698115	6.039921	8.169916	6.169805	4.028359	3.135576	2.599305
3128800.000	3.332613	3.975383	5.088609	7.076319	12.141668	5.159636	4.198111	3.176387	2.621487
3127800.000	3.044877	3.453615	4.352426	5.928562	7.002213	4.597054	2.691142	2.605469	2.385247
3126800.000	2.914648	3.329578	3.938472	4.337887	5.140557	4.224217	2.512691	2.164910	2.155696
3125800.000	2.824025	3.117635	3.327342	3.462462	4.072254	3.628188	2.336672	2.154866	2.013765
3124800.000	2.653468	2.774981	2.877188	3.055317	3.417007	3.175718	2.403286	2.101062	2.034462

- GRID SYSTEM RECEPTORS -
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE, METERS)	464600.000
	- CONCENTRATION -
3133800.000	1.856926
3132800.000	1.899871
3131800.000	1.962985
3130800.000	2.076941
3129800.000	2.257932
3128800.000	2.285676
3127800.000	2.162861
3126800.000	2.095856
3125800.000	2.051329
3124800.000	2.010640

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202.500	0.00326299	0.00625198	0.00116400	0.00000000	0.00000000	0.00000000
225.000	0.00367199	0.00821498	0.00212199	0.00000000	0.00000000	0.00000000
247.500	0.00448799	0.00823698	0.00209899	0.00000000	0.00000000	0.00000000
270.000	0.00535199	0.01081597	0.00570499	0.00000000	0.00000000	0.00000000
292.500	0.00445199	0.00853398	0.00444999	0.00000000	0.00000000	0.00000000
315.000	0.00192600	0.00342299	0.00292099	0.00000000	0.00000000	0.00000000
337.500	0.00329399	0.00679998	0.00435799	0.00000000	0.00000000	0.00000000

0 - VERTICAL POTENTIAL TEMPERATURE GRADIENT (DEGREES KELVIN/METER) -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 2	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 3	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 4	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
STABILITY CATEGORY 5	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01	0.200000E-01

0 - WIND PROFILE POWER LAW EXPONENTS -

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 1	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00	0.100000E+00
STABILITY CATEGORY 2	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00	0.150000E+00
STABILITY CATEGORY 3	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00	0.200000E+00
STABILITY CATEGORY 4	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00	0.250000E+00
STABILITY CATEGORY 5	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00	0.300000E+00

ORLANDO UTILITIES PT 3301-33-03 - SOURCE INPUT DATA -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		1	STACK	463300.00	3159000.00	34.40	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 17.00, STACK DIAMETER (M)= 1.830, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC

SEASON 1	SEASON 2	SEASON 3	SEASON 4
6.300000E+01			

) -

ORLANDO UTILITIES PT 33-04, PT 33-05 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		2	STACK	463300.00	3159000.00	34.40	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 10.16, STACK DIAMETER (M)= 2.440, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

801

SEASON 1 SEASON 2 SEASON 3 SEASON 4
7.86500E+01

- SOURCE INPUT DATA (CONT.) -

ORLANDO UTILITIES PT 53-06

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		3	STACK	463300.00	3159000.00	33.20	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 13.02, STACK DIAMETER (M)= 2.900, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1 SEASON 2 SEASON 3 SEASON 4
8.00000E+00

- SOURCE INPUT DATA (CONT.) -

STANDARD SAND SILICA PT 14-04

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		4	STACK	441500.00	3118200.00	25.90	0.00	GAS EXIT TEMP (DEG K)= 314.80, GAS EXIT VEL. (M/SEC)= 8.85, STACK DIAMETER (M)= 1.220, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1 SEASON 2 SEASON 3 SEASON 4
6.90000E+00

- SOURCE INPUT DATA (CONT.) -

KISSIMMEE UTILITIES PT 01-04

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		5	STACK	460100.00	3129300.00	13.11	0.00	GAS EXIT TEMP (DEG K)= 466.50, GAS EXIT VEL. (M/SEC)= 16.30, STACK DIAMETER (M)= 0.610, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC) -

SEASON 1 SEASON 2 SEASON 3 SEASON 4
8.70000E-01

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- SOURCE INPUT DATA (CONT.) -

KISSIMMEE UTILITIES PT01-03, PT01-04

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		6	STACK	460100.00	3129300.00	16.15	0.00	GAS EXIT TEMP (DEG K)= 477.60, GAS EXIT VEL. (M/SEC)= 17.60, STACK DIAMETER (M)= 0.850, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
3.36000E+00			

KISSIMMEE UTILITIES PT01-01 & PT01-02 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		7	STACK	460100.00	3129300.00	7.01	0.00	GAS EXIT TEMP (DEG K)= 466.50, GAS EXIT VEL. (M/SEC)= 9.60, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.28000E+00			

KISSIMMEE UTILITIES PT01-11 - 01-15 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		8	STACK	460100.00	3129300.00	13.41	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 8.70, STACK DIAMETER (M)= 0.800, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
5.37000E+00			

KISSIMMEE UTILITIES UNITS #19 and #20 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV-ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		9	STACK	460100.00	3129300.00	8.69	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 17.20, STACK DIAMETER (M)= 0.900, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF

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ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0
- SOURCE STRENGTHS (GRAMS PER SEC) -
SEASON 1 SEASON 2 SEASON 3 SEASON 4
2.89000E+00

City of St. Cloud PT02-03, 02-04 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	/ - SOURCE DETAILS DEPENDING ON TYPE -
X		10	STACK	471800.00	3124900.00	7.92	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 34.70, STACK DIAMETER (M)= 0.760, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 4.66000E+00

City of St. Cloud PT02-05, PT02-06 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	/ - SOURCE DETAILS DEPENDING ON TYPE -
X		11	STACK	471800.00	3124900.00	8.53	0.00	GAS EXIT TEMP (DEG K)= 699.80, GAS EXIT VEL. (M/SEC)= 1.17, STACK DIAMETER (M)= 0.640, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 3.78000E+00

City of St Cloud PT02-07, PT02-08 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	/ - SOURCE DETAILS DEPENDING ON TYPE -
X		12	STACK	471800.00	3124900.00	11.89	0.00	GAS EXIT TEMP (DEG K)= 727.60, GAS EXIT VEL. (M/SEC)= 29.51, STACK DIAMETER (M)= 1.070, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 6.55000E+00

STOKELY VAN CAMP PT07-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		13	STACK	451100.00	3125800.00	7.32	0.00	GAS EXIT TEMP (DEG K)= 513.70, GAS EXIT VEL. (M/SEC)= 11.50, STACK DIAMETER (M)= 0.460, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
2.52000E+00			

COOSA VALLEY PT11-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		14	STACK	470800.00	3133800.00	9.45	0.00	GAS EXIT TEMP (DEG K)=1005.70, GAS EXIT VEL. (M/SEC)= 11.60, STACK DIAMETER (M)= 0.610, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
1.30000E-01			

FLA. POWER CORP. PT14-01 - 14-06 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -
X		15	STACK	446300.00	3126000.00	7.92	0.00	GAS EXIT TEMP (DEG K)= 703.70, GAS EXIT VEL. (M/SEC)= 18.06, STACK DIAMETER (M)= 4.240, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0

- SOURCE STRENGTHS (GRAMS PER SEC)

SEASON 1	SEASON 2	SEASON 3	SEASON 4
3.40200E+01			

DIXIE ASPHALT PT41-01 - SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	- SOURCE DETAILS DEPENDING ON TYPE -

11/90

DIXIE ASPHALT PT 41-01


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 X       16  STACK    463200.00  3143000.00    7.92     0.00 GAS EXIT TEMP (DEG K)= 394.30, GAS EXIT VEL. (M/SEC)= 26.55,
                                                             STACK DIAMETER (M)= 1.100, HEIGHT OF ASSO. BLDG. (M)=  0.00, WIDTH OF
                                                             ASSO. BLDG. (M)=   0.00, WAKE EFFECTS FLAG = 0
                                                                   - SOURCE STRENGTHS ( GRAMS PER SEC                        ) -
                                                                        SEASON 1     SEASON 2     SEASON 3     SEASON 4
                                                                      2.60000E-01
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ST CLOUD HOSPITAL PT 10-02, PT10-03

- SOURCE INPUT DATA (CONT.) -

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	/ - SOURCE DETAILS DEPENDING ON TYPE -
X		17	STACK	470300.00	3124100.00	5.49	0.00	GAS EXIT TEMP (DEG K)= 505.40, GAS EXIT VEL. (M/SEC)= 15.00, STACK DIAMETER (M)= 0.460, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 6.00000E-02

- SOURCE INPUT DATA (CONT.) -

KISSIMMEE UTILITIES NEW COMBUSTION TURBINE

C A R D	T A P E	SOURCE NUMBER	SOURCE TYPE	X COORDINATE (M)	Y COORDINATE (M)	EMISSION HEIGHT (M)	BASE ELEV- ATION (M)	/ - SOURCE DETAILS DEPENDING ON TYPE -
X		18	STACK	460100.00	3129300.00	9.14	0.00	GAS EXIT TEMP (DEG K)= 422.00, GAS EXIT VEL. (M/SEC)= 38.03, STACK DIAMETER (M)= 2.440, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0 - SOURCE STRENGTHS (GRAMS PER SEC) - SEASON 1 SEASON 2 SEASON 3 SEASON 4 4.89000E+01

** ANNUAL GROUND LEVEL CONCENTRATION (MICROGRAMS PER CUBIC METER) FROM ALL SOURCES COMBINED **

- GRID SYSTEM RECEPTORS -
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE, METERS)	455600.000	456600.000	457600.000	458600.000	459600.000	460600.000	461600.000	462600.000	463600.000
	- CONCENTRATION -								
3133800.000	3.674304	3.908367	4.148832	4.581690	5.418777	5.192412	3.960702	3.612009	3.603863
3132800.000	3.694543	4.140950	4.487364	4.829161	6.097342	5.690645	3.811295	3.866843	3.803264
3131800.000	4.159456	4.528245	4.958326	5.508191	7.217253	6.386456	4.363052	4.287263	3.972458
3130800.000	4.721351	4.993611	5.755788	6.814646	8.997168	6.773283	5.457381	4.663729	4.153190
3129800.000	5.818188	6.675803	7.994432	9.787376	12.650610	9.974773	6.710643	5.492033	4.780505
3128800.000	6.107369	7.094499	8.752081	11.702003	19.907223	8.427357	7.125950	5.651487	4.876876
3127800.000	5.516002	6.109768	7.509365	10.043007	11.655142	7.712202	4.715505	4.693777	4.440250
3126800.000	5.324643	5.993368	6.990936	7.513328	8.966705	7.454960	4.466377	3.947322	4.012264
3125800.000	5.264185	5.748311	6.012345	6.160860	7.439410	6.682451	4.208803	3.932830	3.730122
3124800.000	5.022981	5.160911	5.284714	5.628808	6.481002	6.049376	4.440091	3.853153	3.763406

- GRID SYSTEM RECEPTORS -
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE, METERS)	464600.000
	- CONCENTRATION -
3133800.000	3.444981
3132800.000	3.529097
3131800.000	3.631041
3130800.000	3.849765
3129800.000	4.272913
3128800.000	4.356063
3127800.000	4.096053
3126800.000	3.935273
3125800.000	3.811047
3124800.000	3.700760

AP

John, CAPS may need this information to change the NO_x emission limit. I don't think it is appropriate for us to do that perhaps in opposition to CAPS determinations. Tom. 4/28/87

ace Air Consulting and Engineering

April 27, 1987
151 87 01

Mr. John Turner
Florida Department of
Environmental Regulation
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803

RE: Kissimmee Utilities Gas Turbine (AO 49-093754)

Dear John:

In response to your "Completeness" inquiry of March 27, 1987, please accept the following responses:

Item 1: Estimate of actual NO_x emissions at 130 and 79 ppm.

$$\text{High Load Volumetric Flow} = (30.9\ \text{MW})\left(1000\ \frac{\text{KW}}{\text{MW}}\right)\left(\frac{14735\ \text{BTU}}{\text{KW}}\right)\left(9180\ \frac{\text{SCF}}{10^6\text{BTU}}\right)\left(\frac{20.9}{20.9-15.0}\right)$$

$$= 14{,}806{,}000\ \text{SCFH} = 246{,}770\ \text{SCFMD}$$

$$NO_x\ \text{lb/Hr} = \text{ppm}\ (1.194 \times 10^{-7})(14806000\ \text{SCFH}) =$$
$$= 229.8\ \text{lb/Hr @ 130 ppm}$$
$$= 139.7\ \text{lb/Hr @ 79 ppm}$$

Note: These values are conservative as the 130 and 79 ppm values are corrected to ISO ambient conditions. Actual emissions will be as much as 20% less depending on atmospheric conditions (for example, they were 7.14% less during 2/25/87 compliance test).

Item 4: CO emissions at NO_x concentrations of 130 and 79 ppm.

The CO concentrations were about 23 ppm at high load with water injection to control $NO_x \leq 79$ ppm.

$$CO\ \text{lb/Hr} = 23(7.266 \times 10^{-8})(14806000\ \text{SCFH}) = 24.74$$

DER
APR 30 1987
BAQM

2106 N.W. 67th Place, Suite 4 • Gainesville, Florida 32606 • (904) 335-1889

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

	Initial	Date
1. TO: (NAME, OFFICE, LOCATION) Bill Thomas Bureau of Air Quality Manag.		
2.		
3.		
4. Barry A. DER		

REMARKS:

Response to our previously forwarded incompleteness letter being handled by CAPS!

APR 30 1987

BAQM

INFORMATION

- Review & Return
- Review & File
- Initial & Forward

DISPOSITION

- Review & Respond
- Prepare Response
- For My Signature
- For Your Signature
- Let's Discuss
- Set Up Meeting
- Investigate & Report
- Initial & Forward
- Distribute
- Concurrence
- For Processing
- Initial & Return

FROM: John Tamer Tedder 5/11/87

DATE 4/29/87

PHONE SC 325-1403