Golder Associates

REVISED AMBIENT IMPACT ANALYSIS FOR MACT I COMPLIANCE POLLUTION CONTROL PROJECT

GEORGIA-PACIFIC CORPORATION PALATKA MILL

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1.0 INTRODUCTION

Georgia-Pacific Corporation (G-P) operates a Kraft pulp and paper mill located in Palatka, Putnam County, Florida. As part of the Mill's overall compliance plan to meet maximum achievable control technology (MACT) standards for the Pulp and Paper industry, G-P submitted a MACT I compliance air construction permit application to the Florida Department of Environmental Protection (FDEP) in July 1999.

The July 1999 air application proposed to install a new thermal oxidizer followed by a sulfur dioxide (SO_2) wet scrubbing system (post-scrubber). The low volume high concentration (LVHC) noncondensable gases (NCGs) from the pulping system were to be routed to pre-scrubbers for sulfur removal prior to combustion in the new Thermal Oxidizer. The stripper off-gases (SOGs) from the new condensate stripper were also to be routed to the new Thermal oxidizer for destruction. The stack height for the new Thermal Oxidizer was planned to be 100 feet. In addition, the No. 4 Combination Boiler was to be used as the backup destruction device for the LVHC NCGs and SOGs for up to 10 percent of the time. The old total reduced sulfur (TRS) incinerator was to be shutdown as part of the project.

A revised MACT I Compliance Pollution Control Project (PCP) application was submitted by G-P to FDEP in November 2001, and makes updates to the original MACT I Compliance application that was submitted in July 1999. The revisions to the application include increasing the sulfur removal efficiency of the pre-scrubbers, adding candle mist eliminators to the new Thermal Oxidizer, and increasing the stack height from 100 to 250 ft. In addition, the No. 4 Combination Boiler will be used as the primary destruction device for the LVHC NCGs and SOGs until the construction on the new Thermal Oxidizer is complete. After construction is complete, the No. 4 Combination Boiler will continue to act as a backup destruction device for up to 20 percent of the time. An increase in emissions of nitrogen oxides (NO_x) and SO_2 will result from these changes.

An updated atmospheric dispersion modeling analysis of the G-P Palatka Mill has been conducted for nitrogen dioxide (NO_2) and SO_2 in support of revisions to G-P's MACT I Compliance PCP. G-P is submitting this air dispersion modeling analysis to demonstrate that the G-P Palatka Mill will be in compliance with ambient air quality standards (AAQS) and Prevention of Significant Deterioration (PSD) Class II and Class I allowable increments for NO_2 and SO_2, considering the proposed changes for the MACT I Compliance PCP.

This report contains the technical information and analysis developed in accordance with the PSD regulations as promulgated by the U.S. Environmental Protection Agency (EPA) and implemented through delegation to the FDEP. It presents an assessment of potential air quality impacts associated with the G-P Palatka Mill for NO_2 and SO_2, for which AAQS and PSD increments have been promulgated.

The existing applicable national and Florida AAQS are presented in Table 1-1. Primary national AAQS were promulgated to protect the public health. Secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Florida has adopted state AAQS in Rule 62-204.240. These standards are the same as the national AAQS for SO_2 and NO_2, except for the 3-hour SO_2 standard, which is more stringent than the national AAQS.

EPA has promulgated allowable PSD air quality increments, which limit increases in air quality levels above an air quality baseline concentration level for SO_2, particulate matter (PM_{10}), and NO_2. Increases above these increments would constitute significant deterioration. The EPA class designations and allowable PSD increments are presented in Table 1-1. The magnitude of the allowable increment depends on the classification of the area where the source is located or will have an impact. Three classifications are designated based on criteria established in the Clean Air Act Amendments. Congress promulgated areas as Class I (international parks, national wilderness areas, memorial parks, larger than 5,000 acres; and national parks, larger than 6,000 acres) or as Class II (all areas not designated as Class I). No Class III areas, which would be allowed greater deterioration than Class II areas, were designated.

Putnam County has been designated as an attainment or unclassifiable area for all criteria pollutants. The County is also classified as a PSD Class II area for PM_{10}, SO_2, and NO_2. The PSD Class I areas located within 200 kilometers (km) of the G-P Palatka Mill are the Okefenokee National Wilderness Area (NWA), Wolf Island NWA and Chassahowitzka NWA. Okefenokee NWA is located 108 km north of the G-P Palatka Mill, Wolf Island NWA is located 186 km north of the G-P Palatka Mill, and Chassahowitzka NWA is located 137 km southwest of the G-P Palatka Mill.

The air quality impact analysis demonstrates that emissions from the G-P Palatka Mill will not result in ambient concentrations above the AAQS or the PSD Class II or Class I increments for NO_2 or SO_2.

This report is divided into five sections, including this introduction:

- Section 2.0 presents a description of the G-P Palatka facility, along with NO_2 and SO_2 source emission rates and stack parameters;
- Section 3.0 presents existing air quality data for purposes of determining suitable background air quality concentrations for NO_2 and SO_2;
- Section 4.0 presents the air modeling methodology, emissions inventories, and data used in the analysis;
- Section 5.0 presents the results, which demonstrate compliance of the G-P Palatka Mill with the AAQS and PSD increments for NO_2 and SO_2.

Table 1-1. National and State AAQS, Allowable PSD Increments, and Significant Impact Levels (μg/m³)

Pollutant	Averaging Time	AAQS			PSD Increments		Significant Impact Levels[d]
		National Primary Standard	National Secondary Standard	State of Florida	Class I	Class II	
Particulate Matter[a] (PM_{10})	Annual Arithmetic Mean	50	50	50	4	17	1
	24-Hour Maximum [b]	150	150	150	8	30	5
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	1
	24-Hour Maximum	365 [b]	NA	260 [b]	5	91	5
	3-Hour Maximum [b]	NA	1,300	1,300	25	512	25
Carbon Monoxide	8-Hour Maximum [b]	10,000	10,000	10,000	NA	NA	500
	1-Hour Maximum [b]	40,000	40,000	40,000	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	1
Ozone[a]	1-Hour Maximum	235[c]	235 [c]	235 [c]	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	1.5	NA	NA	NA

Note: Particulate matter (PM_{10}) = particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.
NA = Not applicable, *i.e.*, no standard exists.

[a] On July 18, 1997, EPA promulgated revised AAQS for particulate matter and ozone. For particulate matter, $PM_{2.5}$ standards were introduced with a 24-hour standard of 65 μg/m³ (3-year average of 98th percentile) and an annual standard of 15 μg/m³ (3-year average at community monitors). Implementation of these standards are many years away. The ozone standard was modified to be 0.08 ppm for an 8-hour average; achieved when the 3-year average of the 99th percentile is 0.08 ppm or less. FDEP has not yet adopted these standards.

[b] Short-term maximum concentrations are not to be exceeded more than once per year except for the PM_{10} AAQS (these do not apply to significant impact levels).

[c] Achieved when the expected number of days per year with concentrations above the standard is fewer than 1.

[d] Maximum concentrations.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978. 40 CFR 50. 40 CFR 52.21. Rule 62-204, F.A.C.

2.0 PROJECT DESCRIPTION

2.1 SITE DESCRIPTION

The G-P Palatka Mill is located in Palatka, Putnam County, Florida. A site map of the area, showing the plant property boundaries, is provided in Figure 2-1. The G-P Palatka Mill consists of a Kraft pulp and paper mill, which has several air emission sources including three power boilers (one natural gas-fired; two No. 6 fuel oil-fired), a recovery boiler, a smelt dissolving tank, a lime kiln, a thermal oxidizer, and a combination bark/oil-fired boiler. The mill also has a bleach plant and other equipment necessary to produce bleached and unbleached kraft paper.

2.2 G-P PALATKA EMISSIONS

2.2.1 PROPOSED PROJECT

G-P is proposing to make changes to the existing system to improve operation of the new Thermal Oxidizer. The changes are summarized as follows:

- Thermal Oxidizer and MACT I sources
  - Route the continuous LVHC NCG streams to one existing pre-scrubber and the batch NCG stream to a new pre-scrubber located in parallel for sulfur removal prior to destruction in the new Thermal Oxidizer;
  - Revise maximum stripper flow rate for the new condensate stripper from 950 to 800 gpm to reflect actual design;
  - Add a candle mist eliminator filter after the wet SO_2 scrubber to reduce sulfuric acid mist (SAM) emissions;
  - Revise emission estimates based on source testing conducted on the new Thermal Oxidizer; and
  - Increase stack height from 100 to 250 feet.
- No. 4 Combination Boiler
  - Route the LVHC NCG streams to pre-scrubbers as described above; and
  - Allow incineration of LVHC NCGs and SOGs in this boiler during the interim period until the modifications to the new Thermal Oxidizer are complete and all of the issues (*e.g.,* odors, visible plume) have been determined to be resolved. Once the construction is complete and the issues have been determined to be resolved, this scenario would no longer be available;

- Continue to use this boiler as a backup destruction device to the new Thermal Oxidizer after the interim period. The maximum uptime as a backup destruction device is increased from 10 percent to 20 percent.

G-P is proposing interim and final compliance scenarios in order to implement these changes. Details of these scenarios are discussed further in the revised permit application, and are summarized in the following sections.

Interim Compliance Scenario

The interim compliance scenario involves the No. 4 Combination Boiler as the destruction device for NCGs/SOGs for an interim period up to 1 year after the time of permit issuance. As presented in the revised MACT I Compliance PCP application, the interim compliance scenario is expected to result in an increase in annual NO_x and SO_2 emissions as compared to the original MACT I application. The estimated annual NO_x and SO_2 emissions due to LVHC/SOG destruction alone are 179.1 tons per year (TPY) and up to 2,743.6 TPY, respectively.

The annual SO_2 emissions due to LVHC/SOG destruction for the interim compliance scenario are presented in Table 2-1. The annual NO_x emissions due to this scenario are presented in Table 2-2. These include the offsetting emissions from the shutdown of the old TRS Incinerator, which were also modeled. These emissions were used in the significant impact analysis (refer to Section 4.0).

Although there is an increase in annual emissions for SO_2 compared to the original MACT I application, the maximum short-term emissions for the interim compliance scenario decrease from what was presented in the original MACT I compliance application. In the original application, maximum short-term SO_2 emissions from the No. 4 Combination Boiler were 2,232.0 lb/hr, based on 1,151 lb/hr from fuel oil firing and 1,080 lb/hr from NCG/SOG burning. These original short-term emissions were modeled and the results were submitted to FDEP in July 1999. These short-term emissions complied with both AAQS and PSD Class I and Class II increments.

For the revised interim compliance scenario, the maximum short-term SO_2 emissions are 1,777.4 lb/hr, based on 1,151 lb/hr from fuel oil burning and 626.4 lb/hr from NCG/SOG burning. As a result, these lower short-term emissions expected from the revised interim compliance scenario were not modeled in this analysis.

2.2.2 Final Compliance Scenario

The final compliance scenario will be the new Thermal Oxidizer as the primary NCG/SOG destruction device, with the No. 4 Combination Boiler as backup for up to 20 percent of the time. Under the final compliance scenario, there are two operating options. Option 1 is the new Thermal Oxidizer operating at 100 percent of the time and Option 2 is the new Thermal Oxidizer operating at 80 percent and the No. 4 Combination Boiler operating at 20 percent of the time.

The final compliance scenario is estimated to result in 137.2 TPY annual SO_2 emissions for Option 1 and 658.5 TPY for Option 2 due to LVHC/SOG destruction alone. The final compliance scenario annual emissions were not modeled because the interim compliance scenario results in much higher annual emissions due to LVHC/SOG destruction alone (2,743.6 TPY versus 658.5 TPY). In addition, the new Thermal oxidizer stack will now be higher than the No. 4 Combination Boiler stack, therefore the interim scenario should represent the worst case for ground-level impacts.

As for the interim compliance scenario, the maximum short-term SO_2 emissions resulting from the final compliance scenario are less than evaluated in the original modeling analysis, and therefore revised short-term modeling was not performed. The original modeling was based on 54.0 lb/hr SO_2 from the new thermal oxidizer and 1,080 lb/hr from the No. 4 Combination Boiler (due to LVHC/SOG destruction only). Maximum emissions for the revised final compliance scenario are 31.3 lb/hr from the New Thermal Oxidizer and 626.4 lb/hr from the No. 4 Combination Boiler.

The annual NO_x emissions due LVHC/SOG destruction for the final compliance scenario, both Option 1 and Option 2 are presented in Table 2-2. The final compliance scenario is estimated to result in 189.2 TPY of NO_x due to LVHC/SOG destruction alone, under both operating options.

2.2.3 OTHER G-P PALATKA SOURCES

The NO_2 and SO_2 modeling analyses are being conducted to assess the impacts of the increase in NO_2 and SO_2 emissions due to the changes proposed in the MACT I Compliance PCP application. The maximum annual (long-term) emissions for all permitted point sources of SO_2 and NO_x located at the G-P Palatka Mill are presented in Tables 2-3 and 2-4, respectively. The basis for the maximum emissions are the permitted emission rates, where permit limits exist. For those sources not having a permitted emission rate, the basis was permitted or maximum operational rates.

Baseline SO_2 and NO_x emissions for the G-P Palatka Mill, for purposes of calculating PSD increment consumption, are presented in Table 2-5. For SO_2, the major source baseline date is January 6, 1975. For NO_2, both the major and minor source baseline date is February 8, 1988. Therefore, changes in actual emissions from both major and minor sources occurring after these dates, resulting from a physical change or a change in the method of operation, affects PSD increments.

2.3 SITE LAYOUT AND STRUCTURES

A plot plan of the G-P Palatka facility, showing stack locations, is presented in Figure 2-2. The dimensions of the major buildings and structures at the facility are presented in Section 4.0.

2.4 STACK PARAMETERS

Stack parameters for future emission sources are presented in Table 2-6. Stack parameters for both the SO_2 PSD baseline and NO_2 PSD baseline cases are presented in Table 2-7.

Table 2-1. Existing and Future SO_2 Emissions Due to LVHC NCG/SOG Destruction Used in the Significant Impact Analysis for Georgia-Pacific, Palatka

Emission Unit	Unit ID	Short-Term Emissions (lb/hr)	Short-Term Emissions (g/s)	Long-Term Emissions (TPY)	Long-Term Emissions (lb/hr)	Long-Term Emissions (g/s)
EXISTING SCENARIO						
Old TRS Incinerator	TRS	NA	NA	749.8	171.2	21.57
FINAL COMPLIANCE SCENARIO: LVHC NCGs/SOGs to Thermal Oxidizer (Primary) and No. 4 Combination Boiler (Backup)						
Option 1: SOGs/LVHCs to Thermal Oxidizer, 100%						
New Thermal Oxidizer	TO	31.3	3.94	137.2	31.3	3.95
Option 2: LVHC NCGs/SOGs to Thermal Oxidizer, 80%; LVHC NCGs/SOGs to No. 4 Combination Boiler, 20%						
New Thermal Oxidizer	TO	0.0	0.00	109.7	25.0	3.16
BB4 No. 4 Combination Boiler	CB4	626.4	78.93	548.7	125.3	15.78
TOTALS		626.4	78.93	658.4	150.3	18.94
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler, 100%						
No. 4 Combination Boiler	CB4	626.4	78.93	2,601.7	594.0	74.84

[a] Conservative estimate based on annual emissions from AOR. Hourly emissions data not available.

Sig Impact
TRS − 21.57
BB4 +78.93

Table 2-2. Existing and Future NO_x Emissions Due to LVHC NCG/SOG Incineration Used in the Significant Impact Analysis for Georgia-Pacific, Palatka

Emission Unit	Unit ID	Long-Term Emissions TPY	lb/hr	g/s
EXISTING SCENARIO				
Old TRS Incinerator	TRS	49.5	11.3	1.42
PRIMARY FUTURE SCENARIO				
Option 1: SOGs/LVHCs to Thermal Oxidizer at 100%				
Thermal Oxidizer	TO	189.2	43.2	5.44
Option 2: LVHC NCGs/SOGs to Thermal Oxidizer at 80%; LVHC NCGs/SOGs to No. 4 Combination Boiler at 20%				
Thermal Oxidizer	TO	151.4	34.6	4.35
No. 4 Combination Boiler	CB4	37.8	8.6	1.09
TOTALS		189.2	43.2	5.44
INTERIM SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%				
No. 4 Combination Boiler	CB4	189.2	43.2	5.44

Table 2-3. Maximum Future Annual SO_2 Emissions Used in the Modeling Analysis for Georgia-Pacific, Palatka

Emission Unit	Unit ID	Long-Term Emissions (TPY)	(lb/hr)	(g/s)
INTERIM SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler, 100%				
New Thermal Oxidizer	TO	0.0	0.0	0.00
No. 4 Recovery Boiler	RB4	481.4	109.9	13.85
No. 4 Smelt Dissolving Tank	SDT4	34.6	7.9	1.00
No. 4 Lime Kiln	LK4	47.7	10.9	1.37
No. 4 Power Boiler	PB4	1,572.4	359.0	45.23
No. 5 Power Boiler	PB5	6,852.5	1,564.5	197.13
No. 6 Power Boiler	PB6	48.6	11.1	1.40
No. 4 Combination Boiler	CB4	7,785.1	1,777.4	223.95
TOTALS		16,822.4	3,840.7	483.93

Table 2-4. Maximum Future Annual NO_x Emissions Used in the Modeling Analysis for Georgia-Pacific, Palatka

Emission Unit	Unit ID	Long-Term Emissions (TPY)	Long-Term Emissions (lb/hr)	Long-Term Emissions (g/s)
FINAL COMPLIANCE SCENARIO				
Option 1: SOGs/LVHCs to Thermal Oxidizer at 100%				
New Thermal Oxidizer	TO	189.2	43.2	5.44
No. 4 Recovery Boiler	RB4	738.1	168.5	21.23
No. 4 Smelt Dissolving Tank	SDT4	69.0	15.8	1.98
No. 4 Lime Kiln	LK4	220.3	50.3	6.34
No. 4 Power Boiler	PB4	183.9	42.0	5.29
No. 5 Power Boiler	PB5	780.8	178.3	22.46
No. 6 Power Boiler	PB6	39.4	9.0	1.13
No. 4 Combination Boiler	CB4	574.5	131.2	16.53
TOTALS		2,795.2	638.2	80.41
Option 2: LVHC NCGs/SOGs to Thermal Oxidizer, 80%; LVHC NCGs/SOGs to No. 4 Combination Boiler, 20%				
New Thermal Oxidizer	TO	151.4	34.6	4.35
No. 4 Recovery Boiler	RB4	738.1	168.5	21.23
No. 4 Smelt Dissolving Tank	SDT4	69.0	15.8	1.98
No. 4 Lime Kiln	LK4	220.3	50.3	6.34
No. 4 Power Boiler	PB4	183.9	42.0	5.29
No. 5 Power Boiler	PB5	780.8	178.3	22.46
No. 6 Power Boiler	PB6	39.4	9.0	1.13
No. 4 Combination Boiler	CB4	612.3	139.8	17.62
TOTALS		2,795.2	638.2	80.41
INTERIM COMPLIANCE SCENARIO				
LVHC NCGs/SOGs to No. 4 Combination Boiler, 100%				
New Thermal Oxidizer	TO	0.0	0.0	0.00
No. 4 Recovery Boiler	RB4	738.1	168.5	21.23
No. 4 Smelt Dissolving Tank	SDT4	69.0	15.8	1.98
No. 4 Lime Kiln	LK4	220.3	50.3	6.34
No. 4 Power Boiler	PB4	183.9	42.0	5.29
No. 5 Power Boiler	PB5	780.8	178.3	22.46
No. 6 Power Boiler	PB6	39.4	9.0	1.13
No. 4 Combination Boiler	CB4	763.7	174.4	21.97
TOTALS		2,795.2	638.2	80.41

Table 2-5. PSD Baseline Emissions Used in the Modeling Analysis for Georgia-Pacific, Palatka

Emission Unit	Unit ID	PSD Baseline Emissions		
SO_2 Emissions		Long-Term Emissions (1974)		
		(TPY)	(lb/hr)	(g/s)
No. 1 Recovery Boiler	RB1B	216	49.3	6.21
No. 2 Recovery Boiler	RB2B	309	70.5	8.89
No. 3 Recovery Boiler	RB3B	298	68.0	8.57
No. 4 Recovery Boiler	RB4B	1,215	277.4	34.95
No. 1 Smelt Dissolving Tank	SDT1B	4	0.9	0.12
No. 2 Smelt Dissolving Tank	SDT2B	6	1.4	0.17
No. 3 Smelt Dissolving Tank	SDT3B	6	1.4	0.17
No. 4 Smelt Dissolving Tank	SDT4B	25	5.7	0.72
No. 1 Lime Kiln	LK1B	8	1.8	0.23
No. 2 Lime Kiln	LK2B	8	1.8	0.23
No. 3 Lime Kiln	LK3B	17	3.9	0.49
No. 4 Lime Kiln	LK4B	49	11.2	1.40
No. 4 Power Boiler	PB4B	1,192	272.1	34.29
No. 5 Power Boiler	PB5B	4,658	1,063.5	134.00
No. 4 Combination Boiler	CB4B	1,008	230.1	29.00
TOTALS		9,019	2,059.1	259.44
NO_x Emissions		Long-Term Emissions (1988)		
		(TPY)	(lb/hr)	(g/s)
No. 4 Recovery Boiler	RB4B	392.1	89.5	11.28
No. 4 Smelt Dissolving Tank	SDT4B	0.0	0.0	0.00
No. 4 Lime Kiln	LK4B	249.4	56.9	7.17
No. 4 Power Boiler	PB4B	113.1	25.8	3.25
No. 5 Power Boiler	PB5B	560.3	127.9	16.12
No. 4 Combination Boiler	CB4B	313.6	71.6	9.02
TOTALS		1,628.5	371.8	46.85

OK

less than Old PSD

References: Ambient Impact Analysis for Georgia-Pacific Corporation Palatka Mill, June 1999. Golder Associates Inc.
NO_2 Ambient Impact Analysis for Georgia-Pacific Corporation Palatka Mill, December 1999. Golder Associates Inc.

Note: lb/hr = pounds per hour.
g/s = grams per second.
TPY = tons per year.

Table 2-6. Future Stack Parameters and Locations Used in the Modeling Analysis for Georgia-Pacific, Palatka

Emission Unit	Unit ID	Relative Location [a] X (ft)	X (m)	Y (ft)	Y (m)	Stack Parameters Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Operating Parameters Temperature (°F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)
Thermal Oxidizer	TO	-332	-101	126	38	250	76.2	3.60	1.10	160	344	13.4	4.09
No. 4 Recovery Boiler	RB4	-630	-192	300	91	230	70.1	12.00	3.66	400	478	63.7	19.42
No. 4 Smelt Dissolving Tanks	SDT4 [b]	-475	-145	415	126	206	62.8	5.00	1.52	160	344	21.2	6.46
No. 4 Lime Kiln	LK4	70	21	-320	-98	131	39.9	4.42	1.35	150	339	60.8	18.53
No. 4 Power Boiler	PB4	-265	-81	435	133	200	61.0	4.00	1.22	395	475	71.6	21.82
No. 5 Power Boiler	PB5	-332	-101	330	101	232	70.7	9.00	2.74	445	503	60.6	18.47
No. 4 Combination Boiler	CB4	-313	-95	340	104	237	72.2	8.00	2.44	440	500	71.8	21.88
No. 6 Power Boiler	PB6	-298	-91	390	119	60	18.3	6.00	1.83	660	622	57.2	17.43
Old TRS Incinerator [c]	TRS	0	0	0	0	250	76.2	3.10	0.94	500	533	105.1	32.03

[a] Relative to old TRS Incinerator stack location and true north

[b] Source has two stacks. Location is centroid.

[c] The old TRS Incinerator will not be operational in the future, but stack parameters were incorporated into the modeling since it is used in the significant impact analysis.

Velocity is much lower

Table 2-7. Baseline Stack Parmameters and Locations Used in the Modeling Analysis, Georgia-Pacific, Palatka

		Relative Location [a]				Stack Parameters				Operating Parameters			
	Unit	X		Y		Height		Diameter		Temperature		Velocity	
Emission Unit	ID	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)
NO_x PSD Baseline (1988) Conditions													
No. 4 Recovery Boiler	RB4B	-630	-192	300	91	230	70.1	12.00	3.66	400	478	63.7	19.42
No. 4 Smelt Dissolving Tanks	SDT4B [b]	-475	-145	415	126	206	62.8	5.00	1.52	160	344	21.2	6.46
No. 4 Lime Kiln	LK4B	70	21	-320	-98	131	39.9	4.42	1.35	150	339	60.8	18.53
No. 4 Power Boiler	PB4B	-265	-81	435	133	122	37.2	4.00	1.22	395	475	71.6	21.82
No. 5 Power Boiler	PB5B	-332	-101	330	101	232	70.7	9.00	2.74	445	503	60.6	18.47
No. 4 Combination Boiler	CB4B	-313	-95	340	104	237	72.2	8.00	2.44	440	500	71.8	21.88
SO_2 PSD Baseline (1974) Conditions													
No. 1 Recovery Boiler	RB1B	-70	-21	190	58	250	76.2	12.0	3.66	188	360	28.9	8.80
No. 2 Recovery Boiler	RB2B	-70	-21	190	58	250	76.2	12.0	3.66	210	372	28.9	8.80
No. 3 Recovery Boiler	RB3B	-183	-56	118	36	133	40.5	11.2	3.41	210	372	23.9	7.28
No. 4 Recovery Boiler	RB4B	-630	-192	300	91	230	70.1	12.0	3.66	394	474	55.3	16.86
No. 1 Smelt Dissolving Tank	SDT1B	-70	-21	190	58	100	30.5	2.5	0.76	199	366	24.7	7.53
No. 2 Smelt Dissolving Tank	SDT2B	-70	-21	190	58	100	30.5	3.0	0.91	215	375	31.2	9.51
No. 3 Smelt Dissolving Tank	SDT3B	-183	-56	118	36	109	33.2	2.5	0.76	205	369	11.7	3.57
No. 4 Smelt Dissolving Tanks	SDT4B [b]	-475	-145	415	126	206	62.8	5.0	1.52	163	346	27.1	8.26
No. 1 Lime Kiln	LK1B	120	37	-143	-44	50	15.2	4.2	1.28	262	401	17.2	5.24
No. 2 Lime Kiln	LK2B	105	32	-150	-46	52	15.9	5.6	1.71	154	341	35.0	10.67
No. 3 Lime Kiln	LK3B	107	33	-242	-74	52	15.9	5.6	1.71	156	342	27.8	8.47
No. 4 Lime Kiln	LK4B	67	20	-318	-97	149	45.4	4.3	1.31	172	351	54.0	16.46
No. 4 Power Boiler	PB4B	-265	-81	435	133	122	37.2	4.0	1.22	399	477	47.7	14.54
No. 5 Power Boiler	PB5B	-332	-101	330	101	232	70.7	9.0	2.74	476	520	52.4	15.97
No. 4 Combination Boiler	CB4B	-313	-95	340	104	237	72.2	10.0	3.05	399	477	34.5	10.52

[a] Relative to old TRS Incinerator stack location and true north.

[b] Source has two stacks. Location is centroid.

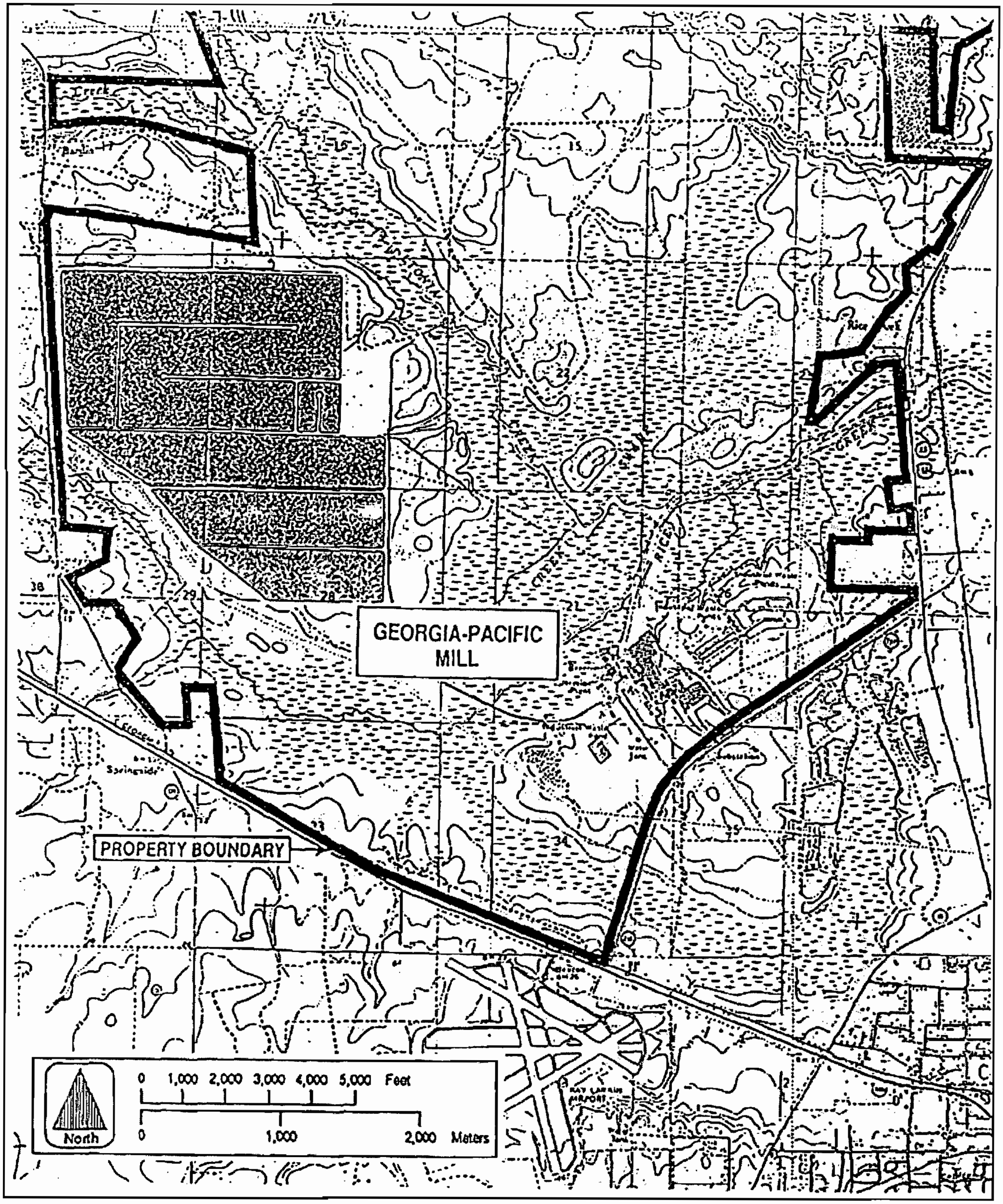

Figure 2-1. Site Map
Georgia-Pacific Corporation - Palatka Mill

Source: Golder, 2001.

3.0 AMBIENT MONITORING ANALYSIS

Background concentrations are necessary to determine total ambient air quality impacts to demonstrate compliance with the AAQS. "Background concentrations" are defined as concentrations due to sources other than those specifically included in the modeling analysis. For all pollutants, background would include other point sources not included in the modeling (*i.e.*, distant sources or small sources), fugitive emission sources, and natural background sources.

3.1 AMBIENT BACKGROUND CONCENTRATIONS

Presented in Table 3-1 is a summary of existing continuous ambient NO_2 and SO_2 data for monitors located in the area of Palatka. Data are presented for the last year of record, 2000. As shown, no NO_2 monitors were operational in the vicinity of Palatka during this period. The nearest NO_2 monitoring stations were located in Jacksonville. The SO_2 monitor is located in Palatka, Florida.

The NO_2 monitoring data show that ambient NO_2 concentrations were well below the ambient air quality standards of 100 micrograms per cubic meter ($\mu g/m^3$) annual average. The monitor in Jacksonville is not considered to be representative of the Palatka area due to the distance this monitor is from Palatka, and the difference in NO_x sources for the two sites. However, it is the closest monitoring station to Palatka.

For purposes of an ambient NO_2 background concentration for use in the modeling analysis, the annual average concentration of 28 $\mu g/m^3$, recorded at the Jacksonville monitor during 2000, was selected. This concentration is very conservative since this monitor is impacted by significant mobile and industrial sources in Jacksonville, while Palatka has relatively little mobile traffic or industrial sources.

The monitoring data for SO_2 show that ambient SO_2 concentrations are well below the ambient air quality standards of 1,300 $\mu g/m^3$, maximum 3-hour average; 260 $\mu g/m^3$, maximum 24-hour average; and 60 $\mu g/m^3$, annual average. The second-highest recorded 24-hour average was 39 $\mu g/m^3$, and the annual average was 8 $\mu g/m^3$.

For purposes of an ambient SO_2 background concentration for use in the modeling analysis, the annual average concentration of 8 $\mu g/m^3$, recorded at the Palatka monitor during 2000, was selected. This concentration is very conservative since the G-P Palatka Mill impacts this monitor, which is included explicitly in the modeling analysis. Other major point sources of SO_2 in the area, such as Seminole Electric and FP&L Putnam, are also included explicitly in the modeling analysis. These other background sources were also included in the modeling analysis.

Table 3-1. Summary of Continuous Ambient Monitoring Data Collected Near Palatka

Pollutant	Year	Station ID	Monitor Location	Number of Observations	Concentration (μg/m^3)						
					1-Hour		3-Hour		24-Hour		Annual
					Maximum	2nd-High	Maximum	2nd-High	Maximum	2nd-High	Average
NO_2	2000	12-031-0032	2900 Bennett St, Jacksonville	7,661	136	132	--	--	--	--	28
SO_2	2000	12-107-1008	100 ft west of Comfort and Port Roads	8,727	205	198	122	120	39	37	8

Source: EPA Aerometric Information Retrieval System (AIRS), 2001.

260 - 37 =
223

4.0 AIR QUALITY IMPACT ANALYSIS METHODOLOGY

4.1 AIR MODELING ANALYSIS APPROACH

An air quality impact analysis of the G-P Palatka Mill was conducted for NO_2 and SO_2. As discussed in Section 2.0, short-term SO_2 emissions were not modeled since they have been addressed previously, and are significantly decreasing for the revised compliance scenarios. Annual NO_2 and SO_2 impacts were remodeled for the revised scenarios.

For the area within 50 km of the G-P Palatka Mill, the air quality modeling analysis was performed using the Industrial Source Complex Short-Term (ISCST3) model, Version 00101, currently recommended for regulatory applications, to assess maximum ground-level impacts. The analysis followed EPA and FDEP modeling guidelines for assessing compliance with the AAQS and PSD increments.

The impact analysis used screening and refinement phases to determine the maximum pollutant impacts associated with the G-P facility. The difference between the two modeling phases is the density of the receptor grid spacing used when predicting concentrations. Concentrations are predicted for the screening phase using a coarse (*i.e.*, large spacing) receptor grid and a 5-year meteorological data record. In this analysis, the receptor grid consisted of a polar receptor grid with a 10-degree angular spacing between receptors.

Refinements of the maximum predicted concentrations from the screening phase are performed in the vicinity of the receptors of the screening receptor grid at which the highest predicted concentrations occurred over the 5-year period. Generally, if maximum concentrations predicted in another year are within 10 percent of the overall maximum concentration predicted for the 5-year period, then the other concentrations are refined as well. Modeling refinements are performed to determine maximum concentrations with a receptor grid spacing of 100 meters (m) or less.

The domain of a refined receptor grid will generally extend to all adjacent screening receptors surrounding a particular screening grid receptor. The air dispersion model is then executed with the refined grid for the entire year of meteorology during which the maximum concentration in the screening phase occurred. This approach is used to ensure that a valid maximum concentration is obtained.

Generally, if a proposed project is located within 200 km of a PSD Class I area, then a significant impact analysis is also performed for the PSD Class I area. EPA has proposed PSD Class I significant impact levels, but they have not been finalized as of the date of this report. Nevertheless, the proposed project's impacts on the Class I areas were compared to the proposed significant impact levels. Because the G-P Palatka Mill is located within 200 km of three Class I areas, the Okefenokee NWA, the Wolf Island NWA and Chassahowitzka NWA, a significant impact analysis for the project only was performed at these Class I areas. Since Okefenokee NWA and Wolf Island NWA are both north of the G-P Palatka site and Okefenokee is the closer of the two PSD Class I areas, only impacts at Okefenokee NWA were evaluated.

For predicting impacts in the Class I areas, the CALPUFF model (EPA, 2000) was used. This model is recommended by FDEP and the Federal Land Managers (FLM) for Class I area impact analysis. A more detailed description of the model, along with the emission inventory, meteorological data, and screening receptor grids, is presented in the following sections.

4.2 SIGNIFICANT IMPACT ANALYSIS

A significant impact analysis was performed to determine the magnitude and distance to which the project's NO_2 and SO_2 impacts exceed the EPA's significant impact level of 1 $\mu g/m^3$, annual average, for both NO_2 and SO_2. If the significant impact level is not exceeded in the vicinity of the plant, AAQS and PSD Class II increment analyses are not required. A significant impact analysis is also performed for the project at the PSD Class I area(s). If the maximum NO_2 and SO_2 impacts from the proposed project do not exceed EPA's proposed PSD Class I annual average significant impact level of 0.1 $\mu g/m^3$ at the PSD Class I areas for both NO_2 and SO_2, a PSD Class I increment analysis is not required.

For the significant impact analyses, the annual increases in NO_x and SO_2 emissions due to LVHC/SOG destruction, as shown in Tables 2-1 and 2-2, were modeled. As discussed previously, revised short-term modeling was not performed since short-term SO_2 emissions are decreasing compared to the original modeling analysis. The analyses considered the reduction in actual SO_2 emissions due to the shutting down of the old TRS Incinerator.

Based on the results of the air modeling for the PSD Class II areas, the maximum annual SO_2 and NO_2 impacts were predicted to be greater than the PSD Class II significant impact levels. As a result, further air modeling analyses for SO_2 and NO_2 in the PSD Class II areas is required for the proposed project.

Based on the results of the air modeling for the PSD Class I areas, the maximum SO_2 and NO_2 impacts were predicted to be less than the PSD Class I significant impact level at the two Class I areas modeled. Since the predicted impacts at Okefenokee NWA were below the significant impact level, impacts at Wolf Island NWA are also assumed to be below significance. As a result, no further air modeling analyses for SO_2 and NO_2 at these three PSD Class I areas are required for the proposed project.

4.3 AAQS AND PSD CLASS II INCREMENT ANALYSES

When 5 years of meteorological data are used, the highest annual NO_2 and SO_2 concentrations are compared to the applicable AAQS and allowable PSD Class II increment. For the AAQS analysis, the future emissions of the facility are modeled together with background emission facilities. Additionally, a non-modeled background concentration is added to the maximum predicted air quality concentration to determine a total air quality concentration. The maximum annual total concentration is compared to the AAQS.

For the PSD Class II increment analysis, the PSD increment consuming and expanding sources at the G-P Palatka Mill site are modeled with background PSD consuming or expanding sources. The maximum predicted annual PSD increment consumption is compared to the NO_2 PSD Class II increment.

4.4 MODEL SELECTION

The selection of an air quality model to determine air quality impacts for the G-P project was based on its applicability to simulate impacts in areas surrounding the project as well as at the PSD Class I areas of the Okefenokee and Chassahowitzka NWAs. Two air quality dispersion models were selected and used in these analyses to address air quality impacts for the project. These models were:

- The Industrial Source Complex Short-Term (ISCST3) model, and
- The California Puff model (CALPUFF).

The ISCST3 dispersion model (Version 00101) was used to evaluate all pollutant impacts within 50 km of the G-P Mill. This model is currently available on the EPA's Internet web site, Support Center for Regulatory Air Models (SCRAM), within the Technical Transfer Network (TTN). A listing of ISCST3 model features is presented in Table 4-1. The ISCST3 model is designed to calculate hourly concentrations based on hourly meteorological data (*i.e.*, wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The ISCST3 model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights. These areas are referred to as simple terrain. Since the terrain surrounding the G-P Palatka Mill is flat, the modeling analysis assumed that all receptors were at the base elevation of the facility (*i.e.*, flat terrain assumption in ISCST3).

In this analysis, the EPA regulatory default options were used to predict all maximum impacts. The ISCST3 model can run in the rural or urban land use mode, which affects stability dispersion coefficients, wind speed profiles, and mixing heights. Land use can be characterized based on a scheme recommended by EPA (Auer, 1978). If more than 50 percent of the land use within a 3-km radius circle around a facility is classified as industrial or commercial, or high-density residential, then the urban option should be selected. Otherwise, the rural option is appropriate. Based on reviews of aerial and U.S. Geological Survey (USGS) topographical maps and a site visit, the land use within a 3-km (1.9-mile) radius of the G-P Palatka Mill site is considered to be rural (*i.e.*, very little heavy industrial, light-moderate industrial, commercial, or compact residential land use categories). Therefore, the rural mode was used in the air dispersion model to predict impacts from the G-P Palatka Mill and other emission sources considered in the modeling analysis.

The ISCST3 model was used to predict maximum pollutant concentrations for the annual averaging time period. The predicted concentrations were then compared to the applicable significant impact level, monitoring *de minimis* level, allowable PSD increment, and the AAQS.

For predicting maximum impacts at the Class I areas, the CALPUFF modeling system was used. CALPUFF, Version 5.4 (EPA 2000), is a Langrangian puff model that is recommended by the FDEP, and the FLM, for Class I area impact analysis. The CALPUFF model was used to assess impacts from the project at the PSD Class I areas located beyond 50 km from the mill (i.e., Okefenokee NWA and Chasshowitzka NWA). The predicted concentrations were then compared to applicable PSD Class I significant impact levels. More detailed descriptions of the assumptions and methods used for the CALPUFF model are presented in Appendix A.

4.5 METEOROLOGICAL DATA

Meteorological data used in the ISCST3 model to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) offices located at the Jacksonville International Airport (JAX) and Waycross, GA, respectively. Concentrations were predicted using 5 years of hourly meteorological data from 1984 through 1988. These data have been approved by FDEP for modeling applications in the Putnam County area. The NWS office at JAX is located approximately 91 km (56 miles) north of the site and is the closest primary weather station to the study area considered to have meteorological data representative of the project site. The JAX station meteorological data have been used for previous air modeling studies for the G-P Palatka Mill.

The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling height. The wind speed, cloud cover, and cloud ceiling values were used in the ISCST3 meteorological preprocessor program to determine atmospheric stability using the Turner stability scheme. Based on the temperature measurements at morning and afternoon, mixing heights were calculated from the radiosonde data at Waycross, GA using the Holzworth approach (Holzworth, 1972). Hourly mixing heights were derived from the morning and afternoon mixing heights using the interpolation method developed by EPA (Holzworth, 1972). The hourly surface data and mixing heights were used to develop a sequential, hourly meteorological data set (*i.e.*, wind direction, wind speed, temperature, stability, and mixing heights). Because the observed hourly wind directions at the NWS stations are classified into one of thirty-six 10-degree sectors, the wind directions were randomized within each sector to account for the expected variability in air flow. These calculations were performed using the EPA RAMMET meteorological preprocessor program.

4.6 EMISSION INVENTORY

4.6.1 G-P PALATKA MILL

The maximum annual SO_2 and NO_2 emissions for the G-P Palatka Mill for the future operating condition are summarized in Tables 2-3 and 2-4, respectively. The PSD baseline emissions are presented in Table 2-5. Future and baseline stack parameters and source locations are presented in Tables 2-6 and 2-7, respectively.

4.6.2 OTHER EMISSION SOURCES

In the vicinity of the G-P Palatka Mill, the increase in emissions due to the revised MACT I Compliance PCP will exceed the annual significant impact level for SO_2 due to the interim compliance scenario. Also, the increase in emissions will exceed the annual significant impact level for NO_2 due to Option 1 of the final compliance scenario. As a result, other non-G-P facilities were evaluated for inclusion in the AAQS and PSD Class II increment analyses.

For the AAQS and PSD Class II increment analyses, only other major sources located in Putnam County were included. Sources outside of Putnam County are accounted for in the SO_2 and NO_x background concentrations (refer to Section 3.0). This is consistent with the previous modeling analysis performed for the MACT I Compliance application in 1999. A listing of these facilities was developed mainly from previous air modeling studies performed by Golder for G-P Palatka and from Title V air permit data. A summary of these facilities is presented in Table 4-2, as shown, the Seminole Electric and FP&L Putnam and Palatka facilities are the only SO_2 sources located in Putnam County. As a result, these facilities are included in the AAQS and PSD Class II increment air modeling analyses. The individual source emissions, stack, and operating parameters for the AAQS and PSD Class II modeling analysis were developed and are presented in Table 4-3.

The Seminole Electric and FP&L Putnam facilities are the only major NO_2 sources in Putnam County, and were therefore included in the AAQS and PSD Class II increment air modeling analyses. The individual source emissions, stack, and operating parameters for the AAQS and PSD Class II modeling analyses were developed and are presented in Table 4-4.

A PSD Class I increment modeling analysis is not required and therefore was not performed for SO_2 or NO_2 because the increase in emissions due to the MACT I Compliance PCP causes impacts which are below EPA's proposed PSD Class I significant impact levels.

4.7 BUILDING DOWNWASH EFFECTS FOR G-P PALATKA MILL

Based on the building dimensions associated with buildings and structures at the plant, all stacks at the G-P Palatka Mill will comply with the good engineering practice (GEP) stack height regulations. However, these stacks are less than GEP height. Therefore, the potential for building downwash to occur was considered in the air modeling analysis for these stacks.

Generally, a stack is considered to be within the influence of a building if it is within the lesser of 5 times L, where L is the lesser dimension of the building height or projected width. The ISCST3 and CALPUFF models use two procedures to address the effects of building downwash. For both methods, the direction-specific building dimensions are input for H_b and l_b for 36 radial directions, with each direction representing a 10-degree sector. The H_b is the building height and L_b is the lesser of the building height or projected width. For short stacks (*i.e.*, physical stack height is less than H_b + 0.5 L_b), the Schulman and Scire (1980) method is used. The features of the Schulman and Scire method are as follows:

1. Reduced plume rise as a result of initial plume dilution,
2. Enhanced plume spread as a linear function of the effective plume height, and
3. Specification of building dimensions as a function of wind direction.

For cases where the physical stack height is greater than H_b + 0.5 L_b, but less than GEP, the Huber-Snyder (1976) method is used. Both downwash algorithms affect stacks that are within the influence of a building, without regard for the actual distance the stack or stack's plume is from the building during any given moment.

The building dimensions considered in the air modeling analysis for the G-P Palatka Mill are presented in Table 4-5. The location of the buildings and stacks can also be found on the site plot plan (Figure 2-2). At the G-P Palatka Mill, several stacks are influenced by one or more buildings. For the modeling analysis, direction-specific building dimensions are input for H_b and L_b for 36 radial directions, with each direction representing a 10-degree sector. All direction-specific building parameters were calculated with the Building Profile Input Program (BPIP), Version 95086. The BPIP program was used to generate building data for the ISCST3 model and CALPUFF model input.

4.8 <u>RECEPTOR LOCATIONS</u>

For predicting maximum concentrations due to the project only in the vicinity of the G-P Palatka Mill, an array of discrete polar receptors was used. A number of discrete receptors were modeled, including 334 receptors located along the property line of the G-P Palatka Mill and additional offsite polar receptors located at varying distances from 0.7 to 10 km from the old TRS Incinerator stack location, which is the origin (*i.e.*, 0,0) for the air modeling analysis. A summary of the boundary receptors at the G-P Palatka Mill is presented in Table 4-6.

Modeling refinements were performed as needed. At a distance of less than 575 m, the angular distance between receptors is 100 m or less and additional refinements may not be performed. At distances of 600 m and beyond, modeling refinements are performed by employing an angular spacing between radials of 1 or 2 degrees and a spacing interval along radials of 100 m.

Pollutant concentrations for SO_2 and NO_2 were also predicted at 161 discrete receptors located in the Okefenokee NWA PSD Class I area, and 13 discrete receptors located in the Chassahowitzka NWA.

4.9 BACKGROUND CONCENTRATIONS

Total air quality impacts were predicted for the AAQS analysis by adding the maximum annual averaged concentrations due to all modeled sources to estimated background concentrations. Background concentrations are concentrations due to sources not explicitly included in the modeling analysis. These concentrations consist of two components:

- Impacts due to other non-modeled emission sources (*i.e.*, point sources not explicitly included in the modeling inventory), and
- Natural and fugitive emission sources.

The non-modeled background concentrations were obtained from air quality monitoring data, as described in Section 3.0, and are as follows:

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)
NO_2	Annual	28
SO_2	Annual	8

Table 4-1. Major Features of the ISCST3 Model

- Polar or Cartesian coordinate systems for receptor locations
- Rural or one of three urban options which affect wind speed profile exponent, dispersion rates, and mixing height calculations
- Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1972, and 1975; Bowers, et al., 1979).
- Procedures suggested by Huber and Snyder (1976); Huber (1977); and Schulman and Scire (1980) for evaluating building wake effects
- Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
- Separation of multiple emission sources
- Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
- Capability of simulating point, line, volume, area, and open pit sources
- Capability to calculate dry and wet deposition, including both gaseous and particulate precipitation scavenging for wet deposition
- Variation of wind speed with height (wind speed-profile exponent law)
- Concentration estimates for 1 hour to annual average times
- Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm for ISCST3; a built-in algorithm for predicting concentrations in complex terrain
- Consideration of time-dependent exponential decay of pollutants
- The method of Pasquill (1976) to account for buoyancy-induced dispersion
- A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
- Procedure for calm-wind processing including setting wind speeds less than 1 m/s to 1 m/s.

Note: ISCST3 = Industrial Source Complex Short-Term.

References:

Bowers, J.F., J.R. Bjorklund and C.S. Cheney. 1979. Industrial Source Complex (ISC) Dispersion Model User's Guide. Volume I, EPA-450/4-79-030; Volume II. EPA-450/4-79-031. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

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Pasquill, F. 1976. Atmospheric Dispersion Parameters in Gaussian Plume Modeling - Part II. Possible Requirements for Change in the Turner Workbook Values. EPA-600/4-76-030b, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

Schulman, L.L. and J.S. Scire. 1980. Buoyant Line and Point Source (BLP) Dispersion Model User's Guide. Document P-7304B, Environmental Research and Technology, Inc., Concord, MA.

Table 4-2. Summary of Facilities Included in the AAQS and PSD Class II Air Modeling Analyses

			UTM Coordinates		Relative to G-P Palatka Mill [a]			
Facility ID	Facility	County	East (km)	North (km)	X (km)	Y (km)	Distance (km)	Direction (deg)
1070025	Seminole Power Plant	Putnam	438.8	3289.2	4.8	5.8	7.5	40
1070014	FPL - Putnam Power Plant	Putnam	443.3	3277.6	9.3	-5.8	11.0	122
1070016	FPL - Palatka Power Plant	Putnam	442.8	3277.6	8.8	-5.8	10.5	123

[a] G-P Palatka Mill Coordinates: 434.0 3283.4

Table 4-3. Inventory of SO_2 Sources Included in the AAQS and PSD Class II Air Modeling Analyses

Facility ID	Facility	Units	ISCST3 ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)	SO_2 PSD Source? (EXP/CON)	Modeled in AAQS	Class II
1070025	Seminole Power Plant	Units 1 and 2	SEMELECT	205.7	10.97	326.5	7.99	2168.80	CON	Yes	Yes
1070014	Florida Power & Light - Putnam	4x70Mw CT/HRSG + DB	FPLPUTNM	22.3	3.15	437.4	58.60	119.67	CON [a]	Yes	Yes
1070016	Florida Power & Light - Palatka	Unit 2	FPLPALAT	45.7	3.96	408.1	9.50	-257.03	EXP	No	Yes

[a] Two of the four CT units (half of the total plant emissions) consume PSD increment and are included in the PSD increment analysis.

Table 4-4. Inventory of NO_x Sources Included in the AAQS and PSD Class II Air Modeling Analyses

Facility ID	Facility Units	ISCST3 ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)	NO_2 PSD Source? (EXP/CON)	Modeled in AAQS	Class II
1070025	Seminole Power Plant									
	Units 1 and 2	SEMELECT	205.7	10.97	326.5	7.99	1319.32	No	Yes	No
1070014	Florida Power & Light - Putnam									
	4x70Mw CT/HRSG + DB	FPLPUTNM	22.3	3.15	437.4	58.60	346.45	No	Yes	No

Table 4-5. Structure Dimensions Used in the Georgia-Pacific Modeling Analysis

Structure	Height		Length		Width	
	ft	m	ft	m	ft	m
RB4 Precipitator	85	25.9	130	39.6	59	18.0
RB4 Boiler Building	193.7	59.0	104	31.7	90	27.4
Power Plant Building	107.6	32.8	92	28.0	92	28.0
Pulp Dryer No. 3	84.5	25.8	263	80.2	147	44.8
Pulp Dryer No. 5	70.5	21.5	306	93.3	95	29.0
Pulp Dryer No. 4	73	22.3	242	73.8	127	38.7
Warehouse Complex 1	62.67	19.1	1,382	421.2	411	125.3
Warehouse Complex 2	46.8	14.3	852	259.7	370	112.8
Nos. 1 and 2 Machines, Storage	71.16	21.7	232	70.7	412	125.6
Kraft Converting and Storing	60.75	18.5	264	80.5	516	157.3
Kraft Warehouse and Multi-Wall	56.7	17.3	274	83.5	507	154.5
Digester	62.2	19.0	264	80.5	32	9.8
No. 3 RB Building [a]	100	30.5	61	18.6	34	10.4
No. 2 RB Building [a]	100	30.5	58	17.7	73	22.3

[a] 1974 Baseline Only

Table 4-6. Property Boundary Receptors Used in the G-P Modeling Analysis

Coordinates (m)		Coordinates (m)		Coordinates (m)		Coordinates (m)		Coordinates (m)		Coordinates (m)		Coordinates (m)		Coordinates (m)	
X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
-311.0	-1781.0	-3231.4	-279.6	-4162.2	2413.6	-3944.5	3977.0	-1217.8	4808.0	1914.3	4492.0	1574.6	2851.9	1248.5	842.0
-402.0	-1739.6	-3331.4	-276.3	-4168.3	2513.4	-4044.5	3977.0	-1117.8	4808.6	1911.6	4392.0	1527.7	2763.6	1348.5	842.0
-493.1	-1698.2	-3431.3	-273.0	-4174.5	2613.3	-4144.5	3977.0	-1017.8	4809.3	1908.9	4292.0	1480.8	2675.3	1448.5	842.0
-584.1	-1656.9	-3531.3	-269.7	-4180.6	2713.1	-4185.0	4036.5	-917.8	4809.9	1906.3	4192.1	1433.9	2587.0	1548.5	842.0
-675.1	-1615.5	-3631.2	-266.4	-4186.8	2812.9	-4185.0	4136.5	-817.8	4810.5	1903.6	4092.1	1341.7	2574.0	1648.5	842.0
-766.2	-1574.1	-3731.1	-263.1	-4193.0	2912.7	-4185.0	4236.5	-717.8	4811.2	1826.1	4069.0	1241.7	2574.0	1740.2	832.5
-857.2	-1532.7	-3831.1	-259.8	-4199.1	3012.5	-4161.5	4313.4	-617.8	4811.8	1739.0	4081.9	1141.7	2574.0	1737.6	740.0
-948.3	-1491.3	-3931.0	-256.5	-4205.3	3112.3	-4061.5	4315.0	-517.8	4812.5	1739.0	4181.9	1116.1	2482.6	1657.5	680.0
-1039.3	-1450.0	-3894.6	-190.3	-4211.4	3212.1	-3961.5	4316.6	-417.8	4813.1	1739.0	4281.9	1095.9	2384.7	1577.5	620.1
-1130.3	-1408.6	-3832.3	-112.1	-4217.6	3311.9	-3861.6	4318.3	-317.8	4813.7	1739.0	4381.9	1075.6	2286.8	1497.4	560.2
-1221.4	-1367.2	-3769.9	-33.9	-4176.6	3360.5	-3761.6	4319.9	-217.8	4814.4	1739.0	4481.9	1055.4	2188.8	1417.4	500.2
-1312.4	-1325.8	-3707.6	44.3	-4077.7	3346.0	-3661.6	4321.5	-117.8	4815.0	1739.0	4581.9	1035.1	2090.9	1337.3	440.3
-1403.4	-1284.4	-3651.2	125.9	-3978.8	3331.6	-3561.6	4323.2	-17.9	4815.7	1739.0	4681.9	1033.7	2027.3	1257.3	380.4
-1494.5	-1243.1	-3613.9	218.7	-3879.8	3317.1	-3461.6	4324.8	82.1	4816.3	1642.1	4685.0	1105.3	2097.0	1177.2	320.4
-1585.5	-1201.7	-3576.7	311.5	-3780.9	3302.6	-3361.6	4326.4	182.1	4816.9	1542.1	4685.0	1177.0	2166.7	1097.2	260.5
-1676.5	-1160.3	-3562.9	403.3	-3681.9	3288.1	-3261.6	4328.1	282.1	4817.6	1442.1	4685.0	1248.7	2236.4	1017.1	200.6
-1767.6	-1118.9	-3608.6	492.2	-3583.0	3273.7	-3161.6	4329.7	382.1	4818.2	1410.0	4624.5	1320.4	2306.2	937.1	140.6
-1858.6	-1077.5	-3654.2	581.2	-3484.0	3259.2	-3087.4	4349.2	482.1	4818.9	1421.4	4525.2	1392.1	2375.9	857.0	80.7
-1949.7	-1036.2	-3732.9	616.0	-3385.1	3244.7	-3120.8	4443.5	582.1	4819.5	1432.8	4425.8	1466.0	2440.6	777.0	20.7
-2040.7	-994.8	-3832.9	616.0	-3286.1	3230.2	-3154.1	4537.8	682.1	4820.1	1444.3	4326.5	1565.7	2448.5	696.9	-39.2
-2131.7	-953.4	-3924.1	634.0	-3187.2	3215.8	-3187.4	4632.1	782.1	4820.8	1455.7	4227.1	1615.7	2396.7	616.9	-99.1
-2222.8	-912.0	-3985.8	712.8	-3088.2	3201.3	-3220.7	4726.4	882.1	4821.4	1467.2	4127.8	1625.9	2297.2	536.8	-159.1
-2313.8	-870.6	-4039.0	789.7	-2989.3	3186.8	-3217.8	4795.2	982.1	4822.1	1478.6	4028.4	1636.0	2197.8	456.8	-219.0
-2404.8	-829.3	-3951.2	837.5	-2890.3	3172.3	-3117.8	4795.8	1082.1	4822.7	1490.0	3929.1	1646.2	2098.3	376.7	-278.9
-2495.9	-787.9	-3863.4	885.4	-2806.0	3174.8	-3017.8	4796.5	1182.1	4823.3	1551.6	3886.0	1656.4	1998.8	296.7	-338.9
-2586.9	-746.5	-3831.0	966.1	-2806.0	3274.8	-2917.8	4797.1	1282.1	4824.0	1651.6	3886.0	1666.6	1899.3	216.6	-398.8
-2678.0	-705.1	-3831.0	1066.1	-2806.0	3374.8	-2817.8	4797.7	1382.1	4824.6	1751.6	3886.0	1676.8	1799.8	169.7	-483.4
-2769.0	-663.7	-3899.1	1098.0	-2806.0	3474.8	-2717.8	4798.4	1482.1	4825.3	1851.6	3886.0	1687.0	1700.4	134.9	-577.2
-2860.0	-622.4	-3999.1	1098.0	-2806.0	3574.8	-2617.8	4799.0	1582.1	4825.9	1951.6	3886.0	1625.4	1642.7	100.2	-671.0
-2940.6	-573.9	-4082.1	1116.1	-2806.0	3674.8	-2517.8	4799.7	1682.1	4826.5	2051.6	3886.0	1537.4	1600.6	65.5	-764.7
-2945.1	-474.0	-4088.3	1215.9	-2806.0	3774.8	-2417.8	4800.3	1782.1	4827.2	2076.0	3837.1	1549.7	1501.3	30.7	-858.5
-2949.7	-374.1	-4094.4	1315.7	-2860.4	3831.0	-2317.8	4800.9	1882.1	4827.8	2034.9	3745.9	1562.0	1402.1	-4.0	-952.3
-2954.3	-274.2	-4100.6	1415.5	-2958.1	3852.7	-2217.8	4801.6	1982.1	4828.5	1993.9	3654.8	1617.3	1369.0	-38.8	-1046.1
-2958.8	-174.3	-4106.8	1515.3	-3055.7	3874.3	-2117.8	4802.2	2082.1	4829.1	1952.8	3563.6	1696.5	1367.8	-73.5	-1139.8
-2963.4	-74.4	-4112.9	1615.2	-3153.4	3895.9	-2017.8	4802.9	2182.1	4829.7	1911.7	3472.4	1723.6	1271.6	-108.2	-1233.6
-2968.0	25.5	-4119.1	1715.0	-3251.0	3917.5	-1917.8	4803.5	2282.1	4830.4	1940.0	3383.5	1641.3	1229.4	-143.0	-1327.4
-3004.4	92.0	-4125.2	1814.8	-3348.6	3939.1	-1817.8	4804.1	2376.0	4830.1	1924.8	3291.7	1548.4	1192.5	-177.7	-1421.1
-3104.4	92.0	-4131.4	1914.6	-3446.3	3960.7	-1717.8	4804.8	2280.4	4801.0	1875.8	3209.6	1457.8	1152.2	-212.4	-1514.9
-3190.0	77.6	-4137.5	2014.4	-3544.5	3977.0	-1617.8	4805.4	2184.7	4771.8	1787.8	3162.1	1389.9	1078.8	-247.2	-1608.7
-3190.0	-22.4	-4143.7	2114.2	-3644.5	3977.0	-1517.8	4806.1	2107.3	4712.3	1699.8	3114.6	1322.0	1005.4	-281.9	-1702.5
-3190.0	-122.4	-4149.9	2214.0	-3744.5	3977.0	-1417.8	4806.7	2036.6	4641.6	1654.9	3033.7	1254.1	931.9		
-3190.0	-222.4	-4156.0	2313.8	-3844.5	3977.0	-1317.8	4807.3	1965.9	4570.9	1621.5	2940.2	1186.2	858.5		

Note: All coordinates are relative to old TRS incinerator stack location.

5.0 AIR MODELING ANALYSIS RESULTS

5.1 SIGNIFICANT IMPACT ANALYSIS

5.1.1 Site Vicinity

The predicted maximum increase in annual SO_2 concentrations due to the interim compliance scenario of the MACT I Compliance PCP only is presented in Table 5-1. The maximum predicted annual average impact of 1.29 ug/m^3 exceeds the significant impact level of 1 ug/m^3, annual average. The location of the predicted maximum impact is at 106.5 degrees and 559.9 meters from the old TRS Incinerator stack location (the modeling analysis origin).

The predicted maximum increase in annual NO_2 concentrations due to both the interim compliance scenario and the final compliance scenario of the MACT I Compliance PCP only are presented in Table 5-2. Option 1 of the final compliance scenario had the highest impacts of the three modeled scenarios. The maximum predicted annual average impact of 1.11 ug/m^3 exceeds the significant impact level of 1 ug/m^3, annual average. The location of the predicted maximum impact is at 134 degrees and 500 meters from the old TRS Incinerator stack location (the modeling analysis origin).

5.1.2 PSD Class I Area

5.1.2.1 Okefenokee NWA

The predicted maximum increase in annual NO_2 and SO_2 concentrations due to the interim compliance scenario of the MACT I Compliance PCP at the Okefenokee NWR are presented in Table 5-3. The maximum predicted SO_2 impacts for the interim compliance scenario of 0.014 μg/m^3 are well below the proposed EPA PSD Class I significant impact level of 0.1 μg/m^3. The maximum predicted NO_2 impacts for the interim compliance scenario of 0.0002 μg/m^3 are well below the proposed PSD Class I significant impact levels of 0.1 μg/m^3 annual average. Therefore, a full PSD Class I increment analysis was not performed for the interim compliance scenario.

The predicted maximum increase in annual NO_2 concentrations due to Option 1 of the final compliance scenario of the MACT I Compliance PCP at the Okefenokee NWR are also presented in Table 5-3. The maximum predicted NO_2 impacts for the interim scenario of 0.0002 μg/m^3 are well below the proposed PSD Class I significant impact level of 0.1 μg/m^3. Therefore, a full PSD Class I increment analysis was not performed for Option 1 of the final compliance scenario.

5.1.2.2 Chassahowitzka NWA

The predicted maximum increase in annual NO_2 and SO_2 concentrations due to the interim compliance scenario of the MACT I Compliance PCP at the Chassahowitzka NWA are also presented in Table 5-3. The maximum predicted annual SO_2 impacts for the interim compliance scenario of 1.6 x 10^{-8} μg/m^3 are well below the proposed EPA PSD Class I significant impact level of 0.1 μg/m^3. The maximum predicted annual NO_2 impact for the interim compliance scenario of 3.6 x 10^{-10} μg/m^3 are well below the proposed PSD Class I significant impact level of 0.1 μg/m^3. Therefore, a full PSD Class I increment analysis was not performed for the interim compliance scenario.

The predicted maximum increase in annual NO_2 concentrations due to Option 1 of the final compliance scenario of the MACT I Compliance PCP at the Chassahowitzka NWA are presented in Table 5-3. The predicted maximum NO_2 impacts for the interim scenario of 4.6 x 10^{-4} μg/m^3 are well below the proposed PSD Class I significant impact levels of 0.1 μg/m^3. Therefore, a full PSD Class I increment analysis was not performed for Option 1 of the final compliance scenario.

5.2 AAQS ANALYSIS

A summary of the SO_2 AAQS screening analysis for the interim compliance scenario is presented in Table 5-4. Because the maximum predicted impact occurred at 600 m from the modeling origin, additional refinements were performed. The refined AAQS modeling results are presented in Table 5-5. The maximum predicted refined impact due to modeled sources is 21.9 μg/m^3, annual average. With a background concentration of 8 μg/m^3, the total maximum impact is 29.9 μg/m^3, annual average. This concentration is well below the AAQS of 60 μg/m^3.

Since the Class II impacts for Option 1 of the final scenario was the only modeled operating scenario with significant impacts, it was the only scenario modeled to compare with NO_2 AAQS. A summary of the NO_2 AAQS screening analysis for the final compliance scenario is presented in Table 5-6. The maximum predicted impacts occurred at 506.6-m downwind. Although the distance is less than 575 m, refinements were performed since other impacts were greater than 90 percent of the maximum impact.

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The refined AAQS modeling results for NO_2 are presented in Table 5-7. The maximum predicted impact due to the modeled sources is 5.9 μg/m^3, annual average. With a background concentration of

28 μg/m^3, the total maximum impact is 34.2 μg/m^3, annual average. This concentration is well below the AAQS of 100 μg/m^3.

5.3 PSD CLASS II INCREMENT ANALYSIS

The maximum predicted SO_2 PSD increment consumption, from the screening analysis, due to all PSD-affecting sources operating under the interim compliance scenario, is presented in Table 5-8. Based on the results of the screening analyses, additional refined modeling analyses were not performed. The maximum predicted annual average SO_2 PSD increment consumption is 6.8 μg/m^3, which is well below the allowable PSD Class II increment of 20 μg/m^3.

The maximum predicted NO_2 PSD increment consumption, from the screening analysis, due to all PSD-affecting sources operating under the final compliance scenario, is presented in Table 5-9. Based on the results of the screening analyses, additional refined modeling analyses were not performed. The maximum predicted annual average NO_2 PSD increment consumption is 1.9 μg/m^3, which is well below the allowable PSD Class II increment of 25 μg/m^3.

Table 5-1. Maximum Predicted Annual SO_2 Concentrations Due to Project:
Class II Significant Impact Analysis

Averaging Time	Concentration [a] (μg/m³)	Receptor Location [b]		Time Period (YYMMDDHH)	EPA Significant Impact Level (μg/m³)
		Direction (degree)	Distance (m)		
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual					
	1.03	96.0	1900.0	84123124	1
	1.13	96.0	1900.0	85123124	
	0.86	100.0	2000.0	86123124	
	1.29	106.5	559.9	87123124	
	1.06	306.0	2100.0	88123124	

Note: YY = Year. MM = Month.
DD = Day. HH = Hour.

[a] Concentrations are based on highest concentrations predicted using five years of surface and upper air meteorological data (1984 to 1988) from the National Weather Service stations at Jacksonville, Florida and Waycross, Georgia, respectively.

[b] All receptor coordinates are relative to the old TRS Incinerator stack location.

Table 5-2. Maximum Predicted Annual NO_x Concentrations Due to Project: Class II Significant Impact Analysis

Averaging Time	Concentration [a] ($\mu g/m^3$)	Receptor Location [b] Direction (degree)	Receptor Location [b] Distance (m)	Time Period (YYMMDDHH)	EPA Significant Impact Level ($\mu g/m^3$)
FINAL COMPLIANCE SCENARIO: LVHC NCGs/SOGs to New Thermal Oxidizer/ No. 4 CB					
Option 1: SOGs/LVHCs to New Thermal Oxidizer at 100%					
Annual					
	0.93	138.8	450.4	84123124	1
	0.83	138.8	450.4	85123124	
	0.85	138.8	450.4	86123124	
	1.11	134.0	500.0	87123124	
	1.10	138.8	450.4	88123124	
Option 2: LVHC NCGs/SOGs to New Thermal Oxidizer at 80%; LVHC NCGs/SOGs to No. 4 Combination Boiler at 20%					
Annual					
	0.74	138.8	450.4	84123124	1
	0.66	138.8	450.4	85123124	
	0.68	138.8	450.4	86123124	
	0.88	134.0	500.0	87123124	
	0.88	138.8	450.4	88123124	
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual					
	0.07	96.0	1900.0	84123124	1
	0.08	96.0	1900.0	85123124	
	0.06	98.0	1900.0	86123124	
	0.09	108.0	550.0	87123124	
	0.08	108.0	550.0	88123124	

Note: YY = Year. MM = Month.
DD = Day. HH = Hour.

[a] Concentrations are based on highest concentrations predicted using five years of surface and upper air meteorological data (1984 to 1988) from the National Weather Service stations at Jacksonville, Florida and Waycross, Georgia, respectively.

[b] All receptor coordinates are relative to the old TRS Incinerator stack location.

Table 5-3. Maximum Pollutant Impacts Predicted for the Project Only at Okefenokee Chassahowitzka NWA: PSD Class I Significant Impact Analyses

Pollutant / Averaging Time	Concentration [a] (μg/m³)	Receptor UTM Location (km) East	North	Time Period (Year, Julian Day, Ending Time)	Proposed EPA Class I Significant Impact Level (μg/m³)
		Okefenokee NWA			
SO_2					
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual	0.014	385.7	3379.7	NA	0.1
NO_2					
FINAL SCENARIO: Option 1: SOGs/LVHCs to New Thermal Oxidizer at 100%					
Annual	0.0002	385.7	3379.7	NA	0.1
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual	0.0002	385.7	3379.7	NA	0.1
		Chassahowitzka NWA			
SO_2					
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual	1.6E-08	341.1	3183.4	NA	0.1
NO_2					
FINAL SCENARIO: Option 1: SOGs/LVHCs to New Thermal Oxidizer at 100%					
Annual	4.6E-04	341.1	3183.4	NA	0.1
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual	3.6E-10	341.1	3183.4	NA	0.1

[a] Based on the CALPUFF model using 1990 surface and upper air meteorological data developed with the CALMET program. UTM coordinates relative to Zone 17.

Note: UTM = Universal Transverse Mercator.

Table 5-4. Maximum Predicted Annual SO_2 Concentrations Due to All Future Sources: AAQS Screening Analysis

Averaging Time	Concentration [a] (μg/m^3)	Receptor Location [b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 CB at 100%				
Annual				
	19.25	93.2	698.0	84123124
	20.91	93.2	698.0	85123124
	18.04	93.2	698.0	86123124
	21.93	102.0	600.0	87123124
	19.90	102.0	600.0	88123124

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Note: YY = Year. MM = Month.
DD = Day. HH = Hour.

[a] Concentrations are based on highest concentrations predicted using five years of surface and upper air meteorological data (1984 to 1988) from the National Weather Service stations at Jacksonville, Florida and Waycross, Georgia, respectively.

[b] All receptor coordinates are relative to the old TRS Incinerator stack location.

Table 5-5. Maximum Predicted SO_2 Impacts Due to All Future Sources For Comparison to AAQS, Refined Analysis

Averaging Time	Predicted SO_2 Concentration ($\mu g/m^3$)			Receptor Location[b]		Time Period	Florida
	Total	Modeled	Background	Direction (degree)	Distance (m)	(YYMMDDHH)	AAQS ($\mu g/m^3$)
INTERIM SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%							
Annual	29.9	21.9	8	102.0	600.0	87123124	60

[a] Based on 5-year meteorological record, Jacksonville/Waycross, 1984-88
[b] Relative to TRS Incinerator Stack Location
Note: YYMMDDHH = Year, Month, Day, Hour Ending
HSH = Highest, 2nd-Highest Concentration in 5 years.

Table 5-6. Maximum Predicted Annual NO_x Concentrations Due to All Future Sources: AAQS Screening Analysis

Averaging Time	Concentration [a] ($\mu g/m^3$)	Receptor Location [b]		Time Period (YYMMDDHH)
		Direction (degree)	Distance (m)	
<u>FINAL COMPLIANCE SCENARIO</u>: Option 1: SOGs/LVHCs to Thermal Oxidizer at 100%				
Annual				
	5.15	93.2	698.0	84123124
	5.40	93.2	698.0	85123124
	4.73	93.2	698.0	86123124
	5.86	115.6	506.6	87123124
	4.96	99.1	624.8	88123124

Note: YY = Year. MM = Month.
DD = Day. HH = Hour.

[a] Concentrations are based on highest concentrations predicted using five years of surface and upper air meteorological data (1984 to 1988) from the National Weather Service stations at Jacksonville, Florida and Waycross, Georgia, respectively.

[b] All receptor coordinates are relative to the old TRS Incinerator stack location.

Table 5-7. Maximum Predicted NO_x Impacts Due to All Future Sources For Comparison to AAQS, Refined Analysis

Averaging Time	Predicted SO_2 Concentration ($\mu g/m^3$)			Receptor Location[b]		Time Period	Florida
	Total	Modeled[a]	Background	Direction (degree)	Distance (m)	(YYMMDDHH)	AAQS ($\mu g/m^3$)
FINAL SCENARIO: Option 1: SOGs/LVHCs to Thermal Oxidizer at 100%							
Annual	34.2	5.9	28	115.6	506.6	87123124	100

[a] Based on 5-year meteorological record, Jacksonville/Waycross, 1984-88
[b] Relative to TRS Incinerator Stack Location
Note: YYMMDDHH = Year, Month, Day, Hour Ending
HSH = Highest, 2nd-Highest Concentration in 5 years.

Table 5-8. Maximum Predicted Annual SO_2 Concentrations Due to All Future Sources: Class II PSD Increment Consumption

Averaging Time	Concentration [a] (μg/m^3)	Receptor Location [b] Direction (degree)	Receptor Location [b] Distance (m)	Time Period (YYMMDDHH)	Allowable PSD Class II Increment (μg/m^3)
INTERIM COMPLIANCE SCENARIO: LVHC NCGs/SOGs to No. 4 Combination Boiler at 100%					
Annual					
	5.95	60.0	10000.0	84123124	20
	5.48	50.0	10000.0	85123124	
	6.12	60.0	9000.0	86123124	
	6.80	60.0	8500.0	87123124	
	6.48	10.0	8500.0	88123124	

Note: YY = Year. MM = Month.
DD = Day. HH = Hour.

[a] Concentrations are based on highest concentrations predicted using five years of surface and upper air meteorological data (1984 to 1988) from the National Weather Service stations at Jacksonville, Florida and Waycross, Georgia, respectively.

[b] All receptor coordinates are relative to the old TRS Incinerator stack location.

Table 5-9. Maximum Predicted Annual NO_2 Concentrations Due to All Future Sources: Class II PSD Increment Consumption

Averaging Time	Concentration [a] (μg/m^3)	Receptor Location [b] Direction (degree)	Receptor Location [b] Distance (m)	Time Period (YYMMDDHH)	Allowable PSD Class II Increment (μg/m^3)
FINAL SCENARIO: Option 1: SOGs/LVHCs to Thermal Oxidizer at 100%					
Annual					
	1.53	138.8	450.4	84123124	25
	1.35	93.2	698.0	85123124	
	1.39	138.8	450.4	86123124	
	1.90	130.0	500.0	87123124	
	1.86	138.8	450.4	88123124	

Note: YY = Year. MM = Month.
DD = Day. HH = Hour.

[a] Concentrations are based on highest concentrations predicted using five years of surface and upper air meteorological data (1984 to 1988) from the National Weather Service stations at Jacksonville, Florida and Waycross, Georgia, respectively.

[b] All receptor coordinates are relative to the old TRS Incinerator stack location.

APPENDIX A

CALPUFF MODEL DESCRIPTION AND METHODOLOGY

TABLE OF CONTENTS

A.0 CALPUFF MODEL DESCRIPTION AND METHODOLOGY

A.1 INTRODUCTION

As part of the new source review requirements under Prevention of Significant Deterioration (PSD) regulations, new sources are required to address air quality impacts at PSD Class I areas. As part of the modeling report submitted to the Florida Department of Environmental Protection (FDEP), the air quality impacts due to the potential emissions of the proposed project at the G-P Palatka Mill are required to be addressed at the PSD Class I areas of the Okefenokee National Wildlife Area (NWA), Wolf Island NWA, and Chassahowitzka NWA. Okefenokee NWA is located 108 kilometers (km) north of the G-P Palatka Mill. Wolf Island NWA is located 186 km north of the G-P Palatka Mill. Chassahowitzka NWA is located 137 km southwest of the G-P Palatka Mill. Since Wolf Island NWA and Okefenokee NWA are both north of the G-P Palatka Mill site, only the impacts of the closer Class I area, Okefenokee NWA, were evaluated.

Compliance with PSD Class I increments can be evaluated by determining if the source's impacts are less than the proposed U.S. Environmental Protection Agency (EPA) Class I significant impact levels. The significant impact levels are threshold levels that are used to determine the type of air impact analyses needed for the facility. If the new source's impacts are predicted to be less than significant, then the source's impacts are assumed not to have a significant adverse affect on air quality and additional modeling with other sources is not required. However, if the source's impacts are predicted to be greater than the significant impact levels, additional modeling with other sources is required to demonstrate compliance with Class I increments.

Currently, there are several air quality modeling approaches recommended by the Interagency Workgroup on Air Quality Models (IWAQM) to perform these analyses. The IWAQM consists of EPA and Federal Land Managers (FLM) of Class I areas that are responsible for ensuring that AQRVs are not adversely impacted by new and existing sources. These recommendations have been summarized in two documents:

- *Interagency Workgroup on Air Quality Models (IWAQM), Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA, 1998), referred to as the IWAQM Phase 2 report.
- *Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report,* USFS, NPS, USFWS (December, 2000), referred to as the FLAG document.

For a project located within 50 km of a PSD Class I area, a short-range transport air dispersion model should be used to address air quality impacts. For a project located beyond 50 km of a PSD Class I area, a long-range air dispersion model should be used to address air quality impacts.

A.2 GENERAL AIR MODELING APPROACH

The general modeling approach was based on using the long-range transport model, California Puff model (CALPUFF, Version 5.4). At distances beyond 50 km, the ISCST3 model is considered to over predict air quality impacts, because it is a steady-state model. At those distances, the CALPUFF model is recommended for use. The FLM have requested that air quality impacts for a source located more than 50 km from a Class I area be predicted using the CALPUFF model.

The methods and assumptions used in the CALPUFF model were based on the latest recommendations for a refined analysis as presented in the IWAQM Phase 2 Summary Report and the FLAG document.

The following sections present the methods and assumptions used to assess the significant impact analyses performed for the proposed project. The results of these analyses are presented in Section 5.0 of the modeling report.

A.3 MODEL SELECTION AND SETTINGS

The California Puff (CALPUFF, version 5.4) air modeling system was used to model to assess the Proposed Project's impacts at the PSD Class I area for comparison to the PSD Class I significant impact levels. CALPUFF is a non-steady state Lagrangian Gaussian puff long-range transport model that includes algorithms for building downwash effects as well as chemical transformations (important for visibility controlling pollutants), and wet/dry deposition. The CALPUFF meteorological and geophysical data preprocessor (CALMET, Version 5.2), a preprocessor to CALPUFF, is a diagnostic meteorological model that produces a three-dimensional field of wind and temperature and a two-dimensional field of other meteorological parameters. CALMET was designed to process raw meteorological, terrain and land-use databases to be used in the air modeling analysis. The CALPUFF modeling system uses a number of FORTRAN preprocessor programs that extract data from large databases and converts the data into formats suitable for input to CALMET. The processed data produced from CALMET was input to CALPUFF to assess the pollutant specific impact. Both CALMET and CALPUFF were used in a manner that is recommended by the IWAQM Phase 2 and FLAG reports.

A.3.1 CALPUFF MODEL APPROACHES AND SETTINGS

The IWAQM has recommended approaches for performing a Phase 2 refined modeling analyses that are presented in Table A-1. These approaches involve use of meteorological data, selection of receptors and dispersion conditions, and processing of model output.

The specific settings used in the CALPUFF model are presented in Table A-2.

A.3.2 EMISSION INVENTORY AND BUILDING WAKE EFFECTS

The CALPUFF model included the facility's emission, stack, and operating data as well as building dimensions to account for the effects of building-induced downwash on the emission sources. Dimensions for all significant building structures were processed with the Building Profile Input Program modified to process additional direction-specific building information (BPIP), Version 95039, and were included in the CALPUFF model input. The modeling presents a listing of the facility's emissions and structures included in the analysis.

A.4 RECEPTOR LOCATIONS

For the refined analyses, pollutant concentrations were predicted in an array of 161 discrete receptors located at the Okefenokee NWA area and 13 discrete receptors at Chassahowitzka NWA.

A.5 METEOROLOGICAL DATA

Two wind field domains were developed to model the two Class I areas that are described in the following sections.

A.5.1 OKEFENOKEE NWA WIND FIELD DOMAINS

A.5.1.1 Refined Analysis

CALMET was used to develop the grid pattern for the parameter fields required for the refined modeling analyses. The following sections discuss the specific data used and processed in the CALMET model.

A.5.1.2 Calmet Settings

The CALMET settings contained in Table A-3 were used for the refined modeling analysis. All input data files needed for CALMET were developed by Golder staff.

A.5.1.3 Modeling Domain

A rectangular modeling domain extending 320 km in the east-west (x) direction and 415 km in the north-south (y) direction was used for the refined modeling analysis. The southwest corner of the domain is the origin and is located at 29.25 degrees north latitude and 84.0 degrees west longitude (east and north UTM coordinates of 208.0 and 3239.0 km, respectively, zone 17). This location is in the Gulf of Mexico approximately 110 km west of Cedar Key, Florida. For the processing of meteorological and geophysical data, the domain contains 64 grid cells in the x-direction and 83 grid cells in the y-direction. The domain grid resolution is 5 km. The air modeling analysis was performed in the UTM coordinate system.

A.5.1.4 Mesoscale Model – Generation 4 (MM4) Data

Pennsylvania State University in conjunction with the NCAR Assessment Laboratory developed the MM4 data set, a prognostic wind field or "guess" field, for the United States. The hourly meteorological variables used to create this data set (wind, temperature, dew point depression, and geopotential height for eight standard levels and up to 15 significant levels) are extensive and only allow for one database set for the year 1990. The analysis used the MM4 data to initialize the CALMET wind field. The MM4 data have a horizontal spacing of 80 km and are used to simulate atmospheric variables within the modeling domain.

The MM4 subset domain consisted of a 6 x 8- cell rectangle, with 80 km grid resolution, extending from the MM4 grid points (49,13) to (54, 20). These data were processed to create a MM4.DAT file, for input to the CALMET model.

The MM4 data set used in the CALMET, although advanced, lacks the fine detail of specific temporal and spatial meteorological variables and geophysical data. These variables were processed into the appropriate format and introduced into the CALMET model through the additional data files obtained from the following sources.

A.5.1.5 Surface Data Stations and processing

The surface station data processed for the CALPUFF analyses consisted of data from ten NWS stations or Federal Aviation Administration (FAA) Flight Service stations for Columbus, Macon, Savannah, Augusta, Athens, and Atlanta in Georgia; and Tampa, Jacksonville, Daytona Beach, Tallahassee, and Gainesville in Florida. A summary of the surface station information and locations are presented in Table A-4. The surface station parameters include wind speed, wind direction, cloud ceiling height, opaque cloud cover, dry bulb temperature, relative humidity, station pressure, and a precipitation code that is based on current weather conditions. The surface station data were processed into a SURF.DAT file format for CALMET input.

Because the modeling domain extends over water, three sea surface stations were used. Data were obtained from two C-Man stations from Folly Island, South Carolina, and Savannah Light, Georgia, and one buoy identified NOAA Buoy 41008. These data were processed into an over-water surface station format (i.e., SEA*.DAT) for input to CALMET. The over-water station data include wind direction, wind speed and air temperature.

A.5.1.6 Upper Air Data Stations and Processing

The analysis included five upper air NWS stations located in Waycross and Athens, Georgia; Charleston in South Carolina; and Ruskin in Florida.

The data and locations for the upper air stations are presented in Table A-4.

A.5.1.7 Precipitation Data Stations and Processing

Precipitation data were processed from a network of hourly precipitation data files collected from primary and secondary NWS precipitation-recording stations located within the latitude and longitudinal limits of the modeling domain. Data for 19 stations in Georgia and 22 stations in Florida were obtained in NCDC TD-3240 variable format and converted into a fixed-length format. The utility programs PXTRACT and PMERGE were then used to process the data into the format for the PRECIP.DAT file that is used by CALMET. A listing of the precipitation stations used for the modeling analysis is presented in Table A-5.

A.5.1.8 Geophysical Data Processing

Terrain elevations for each grid cell of the modeling domain were obtained from 1-degree Digital Elevation Model (DEM) files obtained from the U.S. Geographical Survey (USGS) Internet website. The DEM data was extracted for the modeling domain grid using the utility program TERREL. Land-use data were also extracted from 1-degree USGS files and processed using utility programs CTGCOMP and CTGPROC. Both the terrain and land use files were combined into a GEO.DAT file for input to CALMET with the MAKEGEO utility program.

A.5.2 CHASSAHOWITZKA NWA WIND FIELD DOMAINS

A.5.2.1 Refined Analysis

CALMET was used to develop the grid pattern for parameter fields required for the refined modeling analyses. The follow sections discuss the specific data used and processed in the CALMET model.

A.5.2.2 Calmet Settings

The CALMET settings contained in Table A-6 were used for the refined modeling analysis. All input data files needed for CALMET were developed by Golder staff.

A.5.2.3 Modeling Domain

A rectangular modeling domain extending 350 km in the east-west (x) direction and 280 km in the north-south (y) direction was used for the refined modeling analysis. The southwest corner of the domain is the origin and is located at 27 degrees north latitude and 83.5 degrees west longitude. This location is in the Gulf of Mexico approximately 110 km west of Venice, Florida. For the processing of meteorological and geophysical data, the domain contains 70 grid cells in the x-direction and 56 grid cells in the y-direction. The domain grid resolution is 5 km. The air modeling analysis was performed in the UTM coordinate system.

A.5.2.4 Mesoscale Model – Generation 4 (MM4) Data

Pennsylvania State University in conjunction with the NCAR Assessment Laboratory developed the MM4 data set, a prognostic wind field or "guess" field, for the United States. The hourly meteorological variables used to create this data set (wind, temperature, dew point depression, and geopotential height for eight standard levels and up to 15 significant levels) are extensive and only allow for one database set for the year 1990. The analysis used the MM4 data to initialize the CALMET wind field. The MM4 data have a horizontal spacing of 80 km and are used to simulate atmospheric variables within the modeling domain.

The MM4 subset domain was provided by FDEP and consisted of an 8 x 6- cell rectangle, with 80 km grid resolution, extending from the MM4 grid points (49,10) to (56, 15). These data were processed to create a MM4.DAT file, for input to the CALMET model.

The MM4 data set used in the CALMET, although advanced, lacks the fine detail of specific temporal and spatial meteorological variables and geophysical data. These variables were processed into the appropriate format and introduced into the CALMET model through the additional data files obtained from the following sources.

A.5.2.5 Surface Data Stations and Processing

The surface station data processed for the CALPUFF analyses consisted of data from five NWS stations or Federal Aviation Administration (FAA) Flight Service stations for Gainesville, Tampa, Daytona Beach, Vero Beach, Fort Myers and Orlando. A summary of the surface station information and locations are presented in Table A-7. The surface station parameters include wind speed, wind direction, cloud ceiling height, opaque cloud cover, dry bulb temperature, relative humidity, station pressure, and a precipitation code that is based on current weather conditions. The surface station data were processed by FDEP into a SURF.DAT file format for CALMET input.

Because the modeling domain extends largely over water, C-Man station data from Venice was obtained. Florida DEP processed these data into an over-water surface station format (i.e., SEA*.DAT) for input to CALMET. The over-water station data include wind direction, wind speed and air temperature.

A.5.2.6 Upper Air Data Stations and Processing

The analysis included three upper air NWS stations located in Ruskin, Apalachicola, and West Palm Beach. Data for each station were obtained from the Florida DEP in a format for CALMET input.

The data and locations for the upper air stations are presented in Table A-7.

A.5.2.7 Precipitation Data stations and Processing

Precipitation data were processed from a network of hourly precipitation data files collected from primary and secondary NWS precipitation-recording stations located within the latitude and longitudinal limits of the modeling domain. Data for 14 stations were obtained in NCDC TD-3240 variable format and converted into a fixed-length format. The utility programs PXTRACT and PMERGE were then used to process the data into the format for the PRECIP.DAT file that is used by CALMET. A listing of the precipitation stations used for the modeling analysis is presented in Table A-8.

A.5.2.8 Geophysical Data Processing

The land-use and terrain information data were developed by the FDEP for the modeling domain and were provided in a GEO.DAT file format for input to CALMET. Terrain elevations for each grid cell of the modeling domain were obtained from DEM files obtained from USGS. The DEM data was extracted for the modeling domain grid using the utility extraction program LCELEV. Land-use data were obtained from the USGS GIS.DAT, which is based on the ARM3 data. The resolution of the GIS.DAT file is one-eighth of a degree in the east-west direction and one-twelfth of a degree in the north-south direction. Land-use values for the domain grid were obtained with the utility program CAL-LAND. Other parameters processed for the modeling domain by CAL-LAND include surface roughness, surface Albedo, Bowen ratio, soil heat flux, and leaf index field. The land-use parameter values were based on annual averaged values.

Table A-1. Refined Modeling Analyses Recommendations[a]

Model Input/Output	Description
Meteorology	Use CALMET (minimum 6 to 10 layers in the vertical; top layer must extend above the maximum mixing depth expected); horizontal domain extends 50 to 80 km beyond outer receptors and sources being modeled; terrain elevation and land-use data is resolved for the situation.
Receptors	Within Class I area(s) of concern; obtain regulatory concurrence on coverage.
Dispersion	1. CALPUFF with default dispersion settings. 2. Use MESOPUFF II chemistry with wet and dry deposition. 3. Define background values for ozone and ammonia for area.
Processing	1. For PSD increments: use highest, second highest 3-hour and 24-hour average SO_2 concentrations; highest, second highest 24-hour average PM_{10} concentrations; and highest annual average SO_2, PM_{10} and NO_x concentrations. 2. For haze: process, on a 24-hour basis, compute the source extinction from the maximum increase in emissions of SO_2, NO_x and PM_{10}; compute the daily relative humidity factor [f(RH)], provided from an external disk file; and compute the maximum percent change in extinction using the FLM supplied background extinction data in the FLAG document. 3. For significant impact analysis: use highest annual and highest short-term averaging time concentrations for SO_2, PM_{10}, and NO_x.

[a] IWAQM Phase II report (December, 1998) and FLAG document (December, 2000)

Table A-2. CALPUFF Model Settings

Parameter	Setting
Pollutant Species	SO_2, SO_4, NO_x, HNO_3, NO_3, PM_{10}
Chemical Transformation	MESOPUFF II scheme including hourly ozone data
Deposition	Include both dry and wet deposition, plume depletion
Meteorological/Land Use Input	CALMET
Plume Rise	Transitional, Stack-tip downwash, Partial plume penetration
Dispersion	Puff plume element, PG /MP coefficients, rural mode, ISC building downwash scheme
Terrain Effects	Partial plume path adjustment
Output	Create binary concentration file including output species for SO_4, NO_3, PM_{10}, SO_2, and NO_x; process for visibility change using Method 2 and FLAG background extinctions
Model Processing	For haze: highest predicted 24-hour extinction change (%) for the year For significant impact analysis: highest predicted annual and highest short-term averaging time concentrations for SO_2, NO_x, and PM_{10}.
Background Values	Ozone: 80 ppb; Ammonia: 1 ppb

Table A-3. CALMET Settings, Okefenokee NWA PSD Class I Area Analysis

Parameter	Setting
Horizontal Grid Dimensions	320 by 415 km, 5 km grid resolution
Vertical Grid	10 layers
Weather Station Data Inputs	6 surface, 5 upper air, 41 precipitation stations
Wind model options	Diagnostic wind model, no kinematic effects
Prognostic wind field model	MM4 data, 80 km resolution, 6 x 8 grid, used for wind field initialization
Output	Binary hourly grid pattern for meteorological data file for CALPUFF input

Table A-4. Surface and Upper Air Stations Used in the CALPUFF Analysis, Okefenokee NWA PSD Class I Area

Station Name	Station Symbol	WBAN Number	UTM Coordinates Easting (km)	UTM Coordinates Northing (km)	Zone	Anemometer Height (m)
Surface Stations						
Tampa, FL	TPA	12842	349.17	3094.25	17	6.7
Jacksonville, FL	JAX	13889	432.82	3374.19	17	6.1
Daytona Beach, FL	DAB	12834	495.14	3228.09	17	9.1
Tallahassee, FL	TLH	93805	173.04[a]	3363.99	16	7.6
Columbus, GA	COL	93842	112.57[a]	3599.35	16	9.1
Macon, GA	MCN	3813	251.58	3620.93	17	7.0
Savannah, GA	SAV	3822	481.13	3555.03	17	9.1
Gainesville, FL	GNV	12816	377.43	3284.16	17	6.7
Augusta, GA	AGS	3820	410.25	3692.49	17	6.1
Athens, GA	AHN	13873	284.98	3758.67	17	7.6
Atlanta, GA	ATL	13874	158.65[a]	3725.04	16	6.1
Sea Surface Stations						
NOAA Buoy 41008	41008	-	490.42	3396.12	17	4.0
Folly Island (SC) C-Man	FBIS1	-	603.15	3618.33	17	6.7
Savannah Light (GA) C-Man	SVLS1	-	528.37	3540.27	17	10.0
Upper Air Stations						
Ruskin, FL	TBW	12842	361.95	3064.55	17	NA
Waycross, GA	AYS	13861	366.68	3457.95	17	NA
Athens, GA	AHN	13873	285.91	3758.83	17	NA
Charleston, SC	CHS	13880	590.42	3640.42	17	NA
Apalachicola, FL	AQQ	12832	110.22[a]	3290.65	16	NA

[a] Equivalent coordinate for Zone 17.

Table A-5. Hourly Precipitation Stations Used in the Okefenokee NWA CALPUFF Analysis

Station Name	Station Number	UTM Coordinate Easting (km)	Northing (km)	Zone
Florida				
Branford	80975	315.61	3315.96	17
Bristol	81020	113.72[a]	3366.47	16
Brooksville 7 SSW	81048	358.03	3149.55	17
Cross city 2 WNW	82008	290.27	3281.75	17
Daytona Beach WSO AP	82158	495.14	3228.09	17
Deland 1 SSE	82229	470.78	3209.66	17
Dowling Park 1 W	82391	283.51	3348.42	17
Gainesville 11 WNW	83322	354.85	3284.43	17
Inglis 3 E	84273	342.63	3211.65	17
Jacksonville WSO AP	84358	434.27	3372.40	17
Lakeland	84797	409.87	3099.18	17
Lisbon	85076	423.59	3193.26	17
Lynne	85237	409.26	3230.30	17
Marineland	85391	479.19	3282.03	17
Melbourne WSO	85612	534.38	3109.97	17
Monticello 3 W	85879	220.17	3381.29	17
Orlando WSO McCoy	86628	468.99	3146.88	17
Panacea 3 s	86828	172.45[a]	3319.61	16
Raiford State Prison	87440	385.93	3326.55	17
Saint Leo	87851	376.48	3135.09	17
Tallahassee WSO AP	88758	173.04[a]	3363.99	16
Woodruff Dam	89795	124.29[a]	3399.94	16
Georgia				
Abbeville 4 S	90010	281.84	3535.69	17
Bainbridge Intl Paper Co	90586	144.85[a]	3409.59	16
Brunswick	91340	452.34	3447.98	17
Coolidge	92238	226.34	3434.77	17
Doles	92728	226.73	3510.59	17
Edison	93028	135.13[a]	3494.43	16
Fargo	93312	349.92	3395.35	17
Folkston 3 SW	93460	401.13	3407.69	17
Hazlehurst	94204	348.49	3526.08	17
Jesup	94671	416.21	3498.08	17
Pearson	96879	325.50	3464.09	17
Richmond Hill	97468	468.92	3535.69	17
Valdosta 4 NW	98974	276.90	3416.95	17
Claxton	91973	415.05	3559.19	17
Dublin 2	92844	321.61	3603.71	17
Lizella	95249	235.94	3633.39	17
Macon Middle Ga Regional	95443	251.13	3619.58	17
Savannah WSO Airport	97847	480.92	3553.43	17
Sylvania 2 SSE	98517	442.11	3621.57	17

[a] Equivalent coordinate for Zone 17.

Table A-6. CALMET Settings, Chassahowitzka NWA PSD Class I Area Analysis

Parameter	Setting
Horizontal Grid Dimensions	350 by 280 km, 5 km grid resolution
Vertical Grid	9 layers
Weather Station Data Inputs	6 surface, 3 upper air, 27 precipitation stations
Wind model options	Diagnostic wind model, no kinematic effects
Prognostic wind field model	MM4 data, 80 km resolution, 8 x 6 grid, used for wind field initialization
Output	Binary hourly grid pattern for meteorological data file for CALPUFF input

Table A-7. Surface and Upper Air Stations Used in the CALPUFF Analysis, Chassahowitzka NWA PSD Class I Area

			UTM Coordinates			
Station Name	**Station Symbol**	**WBAN Number**	**Easting (km)**	**Northing (km)**	**Zone**	**Anemometer Height (m)**
Surface Stations						
Tampa	TPA	12842	349.20	3094.25	17	6.7
Daytona Beach	DAB	12834	495.14	3228.05	17	9.1
Orlando	ORL	12815	468.96	3146.88	17	10.1
Gainesville	GNV	12816	377.40	3284.12	17	6.7
Vero Beach	VER	12843	557.52	3058.36	17	6.7
Fort Myers	FMY	12835	413.65	2940.38	17	6.1
Upper Air Stations						
Ruskin	TBW	12842	349.20	3094.28	17	NA
West Palm Beach	PBI	12844	587.87	2951.42	17	NA
Apalachicola	AQQ	12832	110.00 [a]	3296.00	16	NA

[a] Equivalent coordinate for Zone 17; Zone 16 coordinate is 690.22 km.

Table A-8. Hourly Precipitation Stations Used in the Chassahowitzka NWA CALPUFF Analysis

Station Name	Station Number	UTM Coordinate		
		Easting (km)	Northing (km)	Zone
Belle Glade Hrcn Gt 4	80616	528.190	2953.034	17
Branford	80975	315.606	3315.955	17
Brooksville 7 SSW	81048	358.029	3149.545	17
Canal Point Gate 5	81271	536.428	2971.514	17
Daytona Beach WSO AP	82158	494.165	3227.413	17
Deland 1 SSE	82229	470.780	3209.660	17
Fort Myers FAA/AP	83186	413.992	2940.710	17
Gainesville 11 WNW	83322	355.411	3284.205	17
Inglis 3 E	84273	342.631	3211.652	17
Lakeland	84797	409.871	3099.178	17
Lisbon	85076	423.594	3193.256	17
Lynne	85237	409.255	3230.295	17
Marineland	85391	479.193	3282.030	17
Melbourne WSO	85612	534.381	3109.967	17
Moore Haven Lock 1	85895	491.608	2967.803	17
Orlando Wso Mccoy	86628	468.169	3145.102	17
Ortona Lock 2	86657	470.174	2962.267	17
Parrish	86880	366.986	3054.394	17
Port Mayaca S L Canal	87293	538.044	2984.440	17
Saint Leo	87851	376.483	3135.086	17
St Lucie New Lock 1	87859	571.042	2999.353	17
St Petersburg	87886	339.608	3071.991	17
Tampa Wscmo AP	88788	348.478	3093.670	17
Venice	89176	357.593	2998.178	17
Venus	89184	467.266	3001.224	17
Vero Beach 4 W	89219	554.268	3056.498	17
West Palm Beach Int AP	89525	589.611	2951.627	17

APPENDIX B

MODEL INPUT FILES AND SUM FILES

BUILDING DOWNWASH

```
'BPIP DATA FOR GA-PACIFIC PALATKA    10/25/01'
'ST'
'FEET' 0.3048
'UTMN' -34.0
12
'RB4 Precipitator' 1 0.0
4 85
     -304    552
     -304    682
     -245    682
     -245    552
'RB4 Building' 1 0.0
4 193.7
     -228    569
     -228    659
     -124    659
     -124    569
'Power House' 1 0.0
4 107.6
     -83     533
     -83     625
      9      625
      9      533
'Pulp Dryer 3' 1 0.0
4 84.5
     496     -158
     496      105
     643      105
     643     -158
'Pulp Dryer 5' 1 0.0
4 70.5
     696     -158
     696      148
     791      148
     791     -158
'Pulp Dryer 4' 1 0.0
4 73
     791     -158
     791       84
     918       84
     918     -158
'Warehouse complex 1' 1 0.0
4 62.67
     485     -580
     485     -169
     1867    -169
     1867    -580
'Warehouse Complex 2' 1 0.0
4 46.8
     675     -950
     675     -580
     1527    -580
     1527    -950
'#1 & #2 Machines, Storage' 1 0.0
4 71.16
     211      327
     211      739
     443      739
     443      327
'Kraft Converting & Storage' 1 0.0
4 60.75
     211      739
     211     1255
     475     1255
     475      739
'Kraft Warehouse & Multiwall' 1 0.0
6 56.7
     559      886
     559     1393
     833     1393
     833     1118
     717     1118
     717      886
'Digester' 1 0.0
4 62.2
```

```
     211        95
     211       127
     475       127
     475        95
10
'TRS'       0.0  250     0.00       0.00
'RB4'       0.0  230  -354.54     601.00
'SDT4'      0.0  206  -161.73     609.67
'LK4'       0.0  131  -123.00    -302.50
'PB4'       0.0  200    23.55     508.82
'PB5'       0.0  232   -90.71     459.23
'CB4'       0.0  237   -69.36     456.90
'PB6'       0.0   60   -28.97     489.96
'BLEACH'    0.0  118   557.09     183.92
'TO'        0.0  100  -205.00     290.00
0
** Revision of file from 1/24/00 (GPPALFT2.BPP)
```

BPIP (Dated: 95086)

DATE : 12/05/01
TIME : 22:11:12
BPIP DATA FOR GA-PACIFIC PALATKA 10/25/01

==========================
BPIP PROCESSING INFORMATION:
==========================

The ST flag has been set for processing for an ISCST2 run.

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to -34.00 degrees with respect to True North.

BPIP DATA FOR GA-PACIFIC PALATKA 10/25/01

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
TRS	76.20	0.00	118.45	118.45
RB4	70.10	0.00	116.20	116.20
SDT4	62.79	0.00	121.92	121.92
LK4	39.93	N/A	0.00	65.00
PB4	60.96	0.00	121.79	121.79
PB5	70.71	0.00	121.92	121.92
CB4	72.24	0.00	121.92	121.92
PB6	18.29	0.00	121.92	121.92
BLEACH	35.97	0.00	64.39	65.00
TO	30.48	0.00	116.09	116.09

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

BPIP (Dated: 95086)

DATE : 12/05/01
TIME : 22:11:12

BPIP DATA FOR GA-PACIFIC PALATKA 10/25/01

BPIP output is in meters

SO BUILDHGT	TRS	0.00	18.96	0.00	0.00	0.00	0.00
SO BUILDHGT	TRS	0.00	0.00	18.96	18.96	0.00	59.04
SO BUILDHGT	TRS	59.04	59.04	32.80	0.00	0.00	0.00

SO BUILDHGT TRS	0.00	18.96	18.96	18.96	18.96	18.96
SO BUILDHGT TRS	18.96	18.96	18.96	18.96	0.00	0.00
SO BUILDHGT TRS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID TRS	0.00	471.02	0.00	0.00	0.00	0.00
SO BUILDWID TRS	0.00	0.00	339.41	382.73	0.00	39.61
SO BUILDWID TRS	38.03	34.39	74.74	0.00	0.00	0.00
SO BUILDWID TRS	0.00	55.19	44.04	31.56	100.16	86.21
SO BUILDWID TRS	88.62	285.77	339.41	382.73	0.00	0.00
SO BUILDWID TRS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDWID RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDWID RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDWID SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDWID SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDWID PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDWID PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDHGT PB5	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDHGT PB5	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDWID PB5	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID PB5	42.80	37.95	40.47	41.75	41.77	40.52

SO BUILDWID PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDWID PB5	39.65	39.17	37.50	34.68	132.28	130.20
SO BUILDWID PB5	44.92	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDHGT CB4	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDHGT CB4	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDWID CB4	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID CB4	42.80	37.95	40.47	41.75	41.77	40.52
SO BUILDWID CB4	38.03	34.39	74.74	33.99	37.02	38.93
SO BUILDWID CB4	39.65	39.17	37.50	34.68	132.28	130.20
SO BUILDWID CB4	44.92	37.95	40.47	41.75	41.77	40.52
SO BUILDWID CB4	38.03	34.39	74.74	33.99	37.02	38.93
SO BUILDHGT PB6	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB6	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB6	59.04	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB6	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB6	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB6	59.04	32.80	32.80	32.80	32.80	32.80
SO BUILDWID PB6	39.65	39.17	37.50	34.68	45.75	37.44
SO BUILDWID PB6	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB6	38.03	73.63	74.74	33.99	37.02	38.93
SO BUILDWID PB6	39.65	39.17	37.50	34.68	45.75	37.44
SO BUILDWID PB6	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB6	38.03	73.63	74.74	33.99	37.02	38.93
SO BUILDHGT BLEACH	25.76	25.76	18.96	18.96	18.96	21.49
SO BUILDHGT BLEACH	21.49	25.76	25.76	25.76	25.76	25.76
SO BUILDHGT BLEACH	25.76	25.76	25.76	25.76	25.76	25.76
SO BUILDHGT BLEACH	25.76	25.76	18.96	18.96	18.96	21.49
SO BUILDHGT BLEACH	22.25	25.76	25.76	25.76	25.76	25.76
SO BUILDHGT BLEACH	25.76	25.76	25.76	25.76	25.76	25.76
SO BUILDWID BLEACH	87.92	91.19	44.04	31.56	100.16	99.31
SO BUILDWID BLEACH	112.25	91.46	91.51	88.79	83.37	75.41
SO BUILDWID BLEACH	65.17	52.94	50.29	62.87	73.54	81.97
SO BUILDWID BLEACH	87.92	91.19	44.04	31.56	100.16	95.06
SO BUILDWID BLEACH	80.94	91.46	91.51	88.79	83.37	75.41
SO BUILDWID BLEACH	65.17	52.94	50.29	62.87	73.54	81.97
SO BUILDHGT TO	32.80	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT TO	0.00	0.00	0.00	0.00	0.00	25.91
SO BUILDHGT TO	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT TO	32.80	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT TO	0.00	0.00	0.00	0.00	0.00	25.91
SO BUILDHGT TO	59.04	0.00	0.00	0.00	59.04	25.91
SO BUILDWID TO	78.64	0.00	0.00	0.00	0.00	0.00
SO BUILDWID TO	0.00	0.00	0.00	0.00	0.00	33.53
SO BUILDWID TO	38.03	34.39	33.54	37.39	38.03	38.93
SO BUILDWID TO	39.65	0.00	0.00	0.00	0.00	0.00
SO BUILDWID TO	0.00	0.00	0.00	0.00	0.00	95.50
SO BUILDWID TO	38.03	0.00	0.00	0.00	38.03	104.49

BPIP (Dated: 95086)

DATE : 12/05/01
TIME : 22:11:12
BPIP DATA FOR GA-PACIFIC PALATKA 10/25/01

===========================
BPIP PROCESSING INFORMATION:
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The ST flag has been set for processing for an ISCST2 run.

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to -34.00 degrees with respect to True North.

The plant coordinates will appear as entered in the Summary output file and they will be adjusted to True North prior to processing. The True North oriented coordinates appear below between the square brackets.

==============
INPUT SUMMARY:
==============

Number of buildings to be processed : 12

RB4 Prec has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS		CORNER X	COORDINATES Y	
RB4 Prec	1	1	85.00	4				
			25.91 meters					
						-304.00	552.00	FEET
						-92.66	168.25	meters
					[	-170.90	87.67]	meters
						-304.00	682.00	FEET
						-92.66	207.87	meters
					[	-193.06	120.52]	meters
						-245.00	682.00	FEET
						-74.68	207.87	meters
					[	-178.15	130.58]	meters
						-245.00	552.00	FEET
						-74.68	168.25	meters
					[	-155.99	97.73]	meters

RB4 Buil has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS		CORNER X	COORDINATES Y	
RB4 Buil	1	5	193.70	4				
			59.04 meters					
						-228.00	569.00	FEET
						-69.49	173.43	meters
					[	-154.60	104.92]	meters
						-228.00	659.00	FEET
						-69.49	200.86	meters
					[	-169.93	127.66]	meters
						-124.00	659.00	FEET
						-37.80	200.86	meters

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                                        [     -143.66      145.39] meters
                                              -124.00      569.00 FEET
                                               -37.80      173.43 meters
                                        [     -128.32      122.65] meters


Power Ho has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

Power Ho    1        9    107.60     4
                           32.80 meters
                                               -83.00      533.00 FEET
                                               -25.30      162.46 meters
                                        [     -111.82      120.54] meters
                                               -83.00      625.00 FEET
                                               -25.30      190.50 meters
                                        [     -127.50      143.78] meters
                                                 9.00      625.00 FEET
                                                 2.74      190.50 meters
                                        [     -104.25      159.47] meters
                                                 9.00      533.00 FEET
                                                 2.74      162.46 meters
                                        [      -88.57      136.22] meters


Pulp Dry has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

Pulp Dry    1       13     84.50     4
                           25.76 meters
                                               496.00     -158.00 FEET
                                               151.18      -48.16 meters
                                        [      152.26       44.61] meters
                                               496.00      105.00 FEET
                                               151.18       32.00 meters
                                        [      107.44      111.07] meters
                                               643.00      105.00 FEET
                                               195.99       32.00 meters
                                        [      144.58      136.13] meters
                                               643.00     -158.00 FEET
                                               195.99      -48.16 meters
                                        [      189.41       69.67] meters


Pulp Dry has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

Pulp Dry    1       17     70.50     4
                           21.49 meters
                                               696.00     -158.00 FEET
                                               212.14      -48.16 meters
                                        [      202.80       78.70] meters
                                               696.00      148.00 FEET
                                               212.14       45.11 meters
                                        [      150.65      156.03] meters
                                               791.00      148.00 FEET
                                               241.10       45.11 meters
                                        [      174.65      172.22] meters
                                               791.00     -158.00 FEET
                                               241.10      -48.16 meters
                                        [      226.81       94.89] meters


Pulp Dry has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters
```

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
Pulp Dry	1	21	73.00	4		
			22.25 meters			
					791.00	-158.00 FEET
					241.10	-48.16 meters
				[	226.81	94.89] meters
					791.00	84.00 FEET
					241.10	25.60 meters
				[	185.56	156.05] meters
					918.00	84.00 FEET
					279.81	25.60 meters
				[	217.65	177.69] meters
					918.00	-158.00 FEET
					279.81	-48.16 meters
				[	258.90	116.54] meters

Warehous has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
Warehous	1	25	62.67	4		
			19.10 meters			
					485.00	-580.00 FEET
					147.83	-176.78 meters
				[	221.41	-63.90] meters
					485.00	-169.00 FEET
					147.83	-51.51 meters
				[	151.36	39.96] meters
					1867.00	-169.00 FEET
					569.06	-51.51 meters
				[	500.58	275.51] meters
					1867.00	-580.00 FEET
					569.06	-176.78 meters
				[	570.63	171.65] meters

Warehous has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
Warehous	1	29	46.80	4		
			14.26 meters			
					675.00	-950.00 FEET
					205.74	-289.56 meters
				[	332.49	-125.01] meters
					675.00	-580.00 FEET
					205.74	-176.78 meters
				[	269.42	-31.51] meters
					1527.00	-580.00 FEET
					465.43	-176.78 meters
				[	484.71	113.70] meters
					1527.00	-950.00 FEET
					465.43	-289.56 meters
				[	547.78	20.21] meters

#1 & #2 has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
#1 & #2	1	33	71.16	4		
			21.69 meters			
					211.00	327.00 FEET
					64.31	99.67 meters
				[	-2.42	118.59] meters
					211.00	739.00 FEET

	64.31	225.25 meters
[	-72.64	222.70] meters
	443.00	739.00 FEET
	135.03	225.25 meters
[	-14.01	262.24] meters
	443.00	327.00 FEET
	135.03	99.67 meters
[	56.21	158.14] meters

Kraft Co has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS		CORNER X	COORDINATES Y
Kraft Co	1	37	60.75	4			
			18.52 meters				
						211.00	739.00 FEET
						64.31	225.25 meters
					[	-72.64	222.70] meters
						211.00	1255.00 FEET
						64.31	382.52 meters
					[	-160.59	353.09] meters
						475.00	1255.00 FEET
						144.78	382.52 meters
					[	-93.88	398.09] meters
						475.00	739.00 FEET
						144.78	225.25 meters
					[	-5.93	267.70] meters

Kraft Wa has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS		CORNER X	COORDINATES Y
Kraft Wa	1	41	56.70	6			
			17.28 meters				
						559.00	886.00 FEET
						170.38	270.05 meters
					[	-9.76	319.16] meters
						559.00	1393.00 FEET
						170.38	424.59 meters
					[	-96.17	447.28] meters
						833.00	1393.00 FEET
						253.90	424.59 meters
					[	-26.93	493.98] meters
						833.00	1118.00 FEET
						253.90	340.77 meters
					[	19.94	424.49] meters
						717.00	1118.00 FEET
						218.54	340.77 meters
					[	-9.38	404.72] meters
						717.00	886.00 FEET
						218.54	270.05 meters
					[	30.17	346.09] meters

Digester has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS		CORNER X	COORDINATES Y
Digester	1	45	62.20	4			
			18.96 meters				
						211.00	95.00 FEET
						64.31	28.96 meters
					[	37.13	59.97] meters
						211.00	127.00 FEET
						64.31	38.71 meters
					[	31.67	68.05] meters
						475.00	127.00 FEET

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                                              144.78       38.71 meters
                                        [      98.38      113.05] meters
                                              475.00       95.00 FEET
                                              144.78       28.96 meters
                                        [     103.84      104.97] meters

Number of stacks to be processed :  10

                     STACK              STACK   COORDINATES
 STACK NAME      BASE  HEIGHT             X          Y

 TRS             0.00  250.00 FEET
            (    0.00   76.20) meters
                                        0.00        0.00 FEET
                             (          0.00        0.00) meters
                             [          0.00        0.00] meters
 RB4             0.00  230.00 FEET
            (    0.00   70.10) meters
                                     -354.54      601.00 FEET
                             (       -108.06      183.18) meters
                             [       -192.02       91.44] meters
 SDT4            0.00  206.00 FEET
            (    0.00   62.79) meters
                                     -161.73      609.67 FEET
                             (        -49.30      185.83) meters
                             [       -144.78      126.49] meters
 LK4             0.00  131.00 FEET
            (    0.00   39.93) meters
                                     -123.00     -302.50 FEET
                             (        -37.49      -92.20) meters
                             [         20.48      -97.40] meters
 PB4             0.00  200.00 FEET
            (    0.00   60.96) meters
                                       23.55      508.82 FEET
                             (          7.18      155.09) meters
                             [        -80.77      132.59] meters
 PB5             0.00  232.00 FEET
            (    0.00   70.71) meters
                                      -90.71      459.23 FEET
                             (        -27.65      139.97) meters
                             [       -101.19      100.58] meters
 CB4             0.00  237.00 FEET
            (    0.00   72.24) meters
                                      -69.36      456.90 FEET
                             (        -21.14      139.26) meters
                             [        -95.40      103.63] meters
 PB6             0.00   60.00 FEET
            (    0.00   18.29) meters
                                      -28.97      489.96 FEET
                             (         -8.83      149.34) meters
                             [        -90.83      118.87] meters
 BLEACH          0.00  118.00 FEET
            (    0.00   35.97) meters
                                      557.09      183.92 FEET
                             (        169.80       56.06) meters
                             [        109.42      141.43] meters
 TO              0.00  100.00 FEET
            (    0.00   30.48) meters
                                     -205.00      290.00 FEET
                             (        -62.48       88.39) meters
                             [       -101.23       38.34] meters
```

The following lists the stacks that have been identified
as being atop the noted building-tiers.

STACK NAME	NO.	BUILDING NAME	NO.	TIER NO.
SDT4	3	RB4 Buil	2	1

Overall GEP Summary Table
(Units: meters)

```
StkNo:  1  Stk Name:TRS      Stk Ht:  76.20 Prelim. GEP Stk.Ht:  118.45
           GEP:  BH:  59.04  PBW:   39.61               *Eqn1 Ht:  118.45
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  124.25
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  2  Stk Name:RB4      Stk Ht:  70.10 Prelim. GEP Stk.Ht:  116.20
           GEP:  BH:  59.04  PBW:   38.11               *Eqn1 Ht:  116.20
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  211.50
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  3  Stk Name:SDT4     Stk Ht:  62.79 Prelim. GEP Stk.Ht:  121.92
           GEP:  BH:  59.04  PBW:   41.92               *Eqn1 Ht:  121.92
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:    6.75
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  4  Stk Name:LK4      Stk Ht:  39.93 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:   0.00  PBW:    0.00               *Eqn1 Ht:    0.00
      No tiers affect this stack.

StkNo:  5  Stk Name:PB4      Stk Ht:  60.96 Prelim. GEP Stk.Ht:  121.79
           GEP:  BH:  59.04  PBW:   41.84               *Eqn1 Ht:  121.79
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  101.50
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  6  Stk Name:PB5      Stk Ht:  70.71 Prelim. GEP Stk.Ht:  121.92
           GEP:  BH:  59.04  PBW:   41.92               *Eqn1 Ht:  121.92
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  105.25
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  7  Stk Name:CB4      Stk Ht:  72.24 Prelim. GEP Stk.Ht:  121.92
           GEP:  BH:  59.04  PBW:   41.92               *Eqn1 Ht:  121.92
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  105.25
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  8  Stk Name:PB6      Stk Ht:  18.29 Prelim. GEP Stk.Ht:  121.92
           GEP:  BH:  59.04  PBW:   41.92               *Eqn1 Ht:  121.92
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  105.25
  Bldg-Tier nos. contributing to GEP:   5

StkNo:  9  Stk Name:BLEACH   Stk Ht:  35.97 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:  25.76  PBW:   44.81               *Eqn1 Ht:   64.39
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  326.00
  Bldg-Tier nos. contributing to GEP:  13

StkNo: 10  Stk Name:TO       Stk Ht:  30.48 Prelim. GEP Stk.Ht:  116.09
           GEP:  BH:  59.04  PBW:   38.03               *Eqn1 Ht:  116.09
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  162.00
  Bldg-Tier nos. contributing to GEP:   5
```

FINAL COMPLIANCE SCENARIO

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NSIGF1R.084
ISCST3 OUTPUT FILE NUMBER 2 :NSIGF1R.085
ISCST3 OUTPUT FILE NUMBER 3 :NSIGF1R.086
ISCST3 OUTPUT FILE NUMBER 4 :NSIGF1R.087
ISCST3 OUTPUT FILE NUMBER 5 :NSIGF1R.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY NOX REFINED SIG ANALYSIS, FINAL SCENARIO, OPTION 1

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.93	138.8	450.4	84123124
	1985	0.83	138.8	450.4	85123124
	1986	0.85	138.8	450.4	86123124
	1987	1.11	134.	500.	87123124
	1988	1.10	138.8	450.4	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NSIGF1.084
ISCST3 OUTPUT FILE NUMBER 2 :NSIGF1.085
ISCST3 OUTPUT FILE NUMBER 3 :NSIGF1.086
ISCST3 OUTPUT FILE NUMBER 4 :NSIGF1.087
ISCST3 OUTPUT FILE NUMBER 5 :NSIGF1.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY NOX SIG ANALYSIS, FINAL SCENARIO, OPTION 1

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.93	138.8	450.4	84123124
	1985	0.83	138.8	450.4	85123124
	1986	0.85	138.8	450.4	86123124
	1987	1.07	138.8	450.4	87123124
	1988	1.10	138.8	450.4	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I                              11/12/01
CO TITLETWO PROJECT ONLY NOX SIG ANALYSIS, FINAL SCENARIO, OPTION 1
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME PERIOD
CO POLLUTID NOX
CO DCAYCOEF     .000000
CO RUNORNOT RUN
CO FINISHED


SO STARTING
** NEW THERMAL OXIDIZER BURNING LVHC NCGS AND SOGS 100%
** Source Location Cards:
**          SRCID SRCTYP        XS              YS            ZS
** OLD TRS INCINERATOR STACK IS ORIGIN ONLY
SO LOCATION   TRS POINT         0               0             0
SO LOCATION   TO  POINT      -101              38             0

** Source Parameter Cards:
** POINT:   SRCID              QS         HS          TS           VS            DS
SO SRCPARAM   TRS           -1.42        76.2        533          32.03         0.94
SO SRCPARAM   TO             5.44        76.2        344           4.09         1.10


SO BUILDHGT TRS          0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS          0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS         59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS          0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS         18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS         38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS          0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS         88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS          0.00    0.00    0.00    0.00    0.00    0.00


**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4        25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4        25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDWID RB4        38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4        34.29   37.95   38.11   38.11   37.84   33.53
**SO BUILDWID RB4        28.21    0.00    0.00   27.03   32.55   37.07
**SO BUILDWID RB4        38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4        34.29   37.95   38.11   38.11   37.84   33.53
**SO BUILDWID RB4        28.21    0.00    0.00   27.03   32.55   37.07


**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDWID SDT4       41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID SDT4       38.03   34.39   33.54   37.39   40.12   41.62
**SO BUILDWID SDT4       41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID SDT4       38.03   34.39   33.54   37.39   40.12   41.62


**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
```

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**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00

**SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   59.04
**SO BUILDHGT PB4        59.04   59.04   59.04   59.04   59.04   32.80
**SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   59.04
**SO BUILDHGT PB4        59.04   59.04   59.04   59.04   59.04   32.80
**SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDWID PB4        39.65   39.17   37.50   34.68   45.75   29.58
**SO BUILDWID PB4        34.29   37.95   40.47   41.75   41.77   37.50
**SO BUILDWID PB4        34.68   73.63   74.74   33.99   37.02   38.93
**SO BUILDWID PB4        39.65   39.17   37.50   34.68   45.75   29.58
**SO BUILDWID PB4        34.29   37.95   40.47   41.75   41.77   37.50
**SO BUILDWID PB4        34.68   73.63   74.74   33.99   37.02   38.93

**SO BUILDHGT PB5        32.80   32.80   32.80   32.80    0.00    0.00
**SO BUILDHGT PB5        25.91   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB5        59.04   59.04   59.04   59.04   32.80   32.80
**SO BUILDHGT PB5        32.80   32.80   32.80   32.80   21.69   21.69
**SO BUILDHGT PB5        25.91   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB5        59.04   59.04   59.04   59.04   32.80   32.80
**SO BUILDWID PB5        39.65   39.17   37.50   34.68    0.00    0.00
**SO BUILDWID PB5        42.80   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB5        38.03   34.39   33.54   37.39   37.02   38.93
**SO BUILDWID PB5        39.65   39.17   37.50   34.68  132.28  130.20
**SO BUILDWID PB5        44.92   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB5        38.03   34.39   33.54   37.39   37.02   38.93

**SO BUILDHGT CB4        32.80   32.80   32.80   32.80    0.00    0.00
**SO BUILDHGT CB4        25.91   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT CB4        59.04   59.04   32.80   32.80   32.80   32.80
**SO BUILDHGT CB4        32.80   32.80   32.80   32.80   21.69   21.69
**SO BUILDHGT CB4        25.91   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT CB4        59.04   59.04   32.80   32.80   32.80   32.80
**SO BUILDWID CB4        39.65   39.17   37.50   34.68    0.00    0.00
**SO BUILDWID CB4        42.80   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID CB4        38.03   34.39   74.74   33.99   37.02   38.93
**SO BUILDWID CB4        39.65   39.17   37.50   34.68  132.28  130.20
**SO BUILDWID CB4        44.92   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID CB4        38.03   34.39   74.74   33.99   37.02   38.93

**SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
**SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
**SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93
**SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
**SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93

**SO BUILDHGT Bleach     25.76   25.76   18.96   18.96   18.96   21.49
**SO BUILDHGT Bleach     21.49   25.76   25.76   25.76   25.76   25.76
**SO BUILDHGT Bleach     25.76   25.76   25.76   25.76   25.76   25.76
**SO BUILDHGT Bleach     25.76   25.76   18.96   18.96   18.96   21.49
**SO BUILDHGT Bleach     22.25   25.76   25.76   25.76   25.76   25.76
**SO BUILDHGT Bleach     25.76   25.76   25.76   25.76   25.76   25.76
**SO BUILDWID Bleach     87.92   91.19   44.04   31.56  100.16   99.31
**SO BUILDWID Bleach    112.25   91.46   91.51   88.79   83.37   75.41
**SO BUILDWID Bleach     65.17   52.94   50.29   62.87   73.54   81.97
**SO BUILDWID Bleach     87.92   91.19   44.04   31.56  100.16   95.06
**SO BUILDWID Bleach     80.94   91.46   91.51   88.79   83.37   75.41
**SO BUILDWID Bleach     65.17   52.94   50.29   62.87   73.54   81.97
```

```
SO BUILDHGT TO        32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO         0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO        59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT TO        32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO         0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO        59.04    0.00    0.00    0.00   59.04   25.91
SO BUILDWID TO        78.64    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO         0.00    0.00    0.00    0.00    0.00   33.53
SO BUILDWID TO        38.03   34.39   33.54   37.39   38.03   38.93
SO BUILDWID TO        39.65    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO         0.00    0.00    0.00    0.00    0.00   95.50
SO BUILDWID TO        38.03    0.00    0.00    0.00   38.03  104.49


SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 6600 6700 6800 6900 7000 7500 8000 8500 9000 9200 9400 9600 9800 10000
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS      5000.        10
RE DISCPOLR TRS      5500.        10
RE DISCPOLR TRS      6000.        10
RE DISCPOLR TRS      6100.        10
RE DISCPOLR TRS      5500.        20
RE DISCPOLR TRS      6000.        20
RE DISCPOLR TRS      6100.        20
RE DISCPOLR TRS      5500.        20
RE DISCPOLR TRS      6000.        20
RE DISCPOLR TRS      6100.        20
RE DISCPOLR TRS      5500.        20
RE DISCPOLR TRS      6000.        20
RE DISCPOLR TRS      6100.        20
RE DISCPOLR TRS      4000.        30
RE DISCPOLR TRS      4500.        30
RE DISCPOLR TRS      5000.        30
RE DISCPOLR TRS      5500.        30
RE DISCPOLR TRS      6000.        30
RE DISCPOLR TRS      6100.        30
RE DISCPOLR TRS      4000.        30
RE DISCPOLR TRS      4500.        30
RE DISCPOLR TRS      5000.        30
RE DISCPOLR TRS      5500.        30
RE DISCPOLR TRS      6000.        30
RE DISCPOLR TRS      6100.        30
RE DISCPOLR TRS      4000.        30
RE DISCPOLR TRS      4500.        30
RE DISCPOLR TRS      5000.        30
RE DISCPOLR TRS      5500.        30
RE DISCPOLR TRS      6000.        30
RE DISCPOLR TRS      6100.        30
RE DISCPOLR TRS      3000.        40
RE DISCPOLR TRS      3500.        40
RE DISCPOLR TRS      4000.        40
RE DISCPOLR TRS      4500.        40
RE DISCPOLR TRS      5000.        40
RE DISCPOLR TRS      5500.        40
RE DISCPOLR TRS      6000.        40
RE DISCPOLR TRS      6100.        40
RE DISCPOLR TRS      2500.        50
RE DISCPOLR TRS      3000.        50
RE DISCPOLR TRS      3500.        50
RE DISCPOLR TRS      4000.        50
RE DISCPOLR TRS      4500.        50
RE DISCPOLR TRS      5000.        50
RE DISCPOLR TRS      5500.        50
RE DISCPOLR TRS      6000.        50
RE DISCPOLR TRS      6100.        50
RE DISCPOLR TRS      2000.        60
```

RE	DISCPOLR	TRS	2500.	60
RE	DISCPOLR	TRS	3000.	60
RE	DISCPOLR	TRS	3500.	60
RE	DISCPOLR	TRS	4000.	60
RE	DISCPOLR	TRS	4500.	60
RE	DISCPOLR	TRS	5000.	60
RE	DISCPOLR	TRS	5500.	60
RE	DISCPOLR	TRS	6000.	60
RE	DISCPOLR	TRS	6100.	60
RE	DISCPOLR	TRS	2000.	70
RE	DISCPOLR	TRS	2500.	70
RE	DISCPOLR	TRS	3000.	70
RE	DISCPOLR	TRS	3500.	70
RE	DISCPOLR	TRS	4000.	70
RE	DISCPOLR	TRS	4500.	70
RE	DISCPOLR	TRS	5000.	70
RE	DISCPOLR	TRS	5500.	70
RE	DISCPOLR	TRS	6000.	70
RE	DISCPOLR	TRS	6100.	70
RE	DISCPOLR	TRS	1100.	80
RE	DISCPOLR	TRS	1500.	80
RE	DISCPOLR	TRS	2000.	80
RE	DISCPOLR	TRS	2500.	80
RE	DISCPOLR	TRS	3000.	80
RE	DISCPOLR	TRS	3500.	80
RE	DISCPOLR	TRS	4000.	80
RE	DISCPOLR	TRS	4500.	80
RE	DISCPOLR	TRS	5000.	80
RE	DISCPOLR	TRS	5500.	80
RE	DISCPOLR	TRS	6000.	80
RE	DISCPOLR	TRS	6100.	80
RE	DISCPOLR	TRS	1100.	90
RE	DISCPOLR	TRS	1500.	90
RE	DISCPOLR	TRS	2000.	90
RE	DISCPOLR	TRS	2500.	90
RE	DISCPOLR	TRS	3000.	90
RE	DISCPOLR	TRS	3500.	90
RE	DISCPOLR	TRS	4000.	90
RE	DISCPOLR	TRS	4500.	90
RE	DISCPOLR	TRS	5000.	90
RE	DISCPOLR	TRS	5500.	90
RE	DISCPOLR	TRS	6000.	90
RE	DISCPOLR	TRS	6100.	90
RE	DISCPOLR	TRS	700.	100
RE	DISCPOLR	TRS	1100.	100
RE	DISCPOLR	TRS	1500.	100
RE	DISCPOLR	TRS	2000.	100
RE	DISCPOLR	TRS	2500.	100
RE	DISCPOLR	TRS	3000.	100
RE	DISCPOLR	TRS	3500.	100
RE	DISCPOLR	TRS	4000.	100
RE	DISCPOLR	TRS	4500.	100
RE	DISCPOLR	TRS	5000.	100
RE	DISCPOLR	TRS	5500.	100
RE	DISCPOLR	TRS	6000.	100
RE	DISCPOLR	TRS	6100.	100
RE	DISCPOLR	TRS	700.	110
RE	DISCPOLR	TRS	1100.	110
RE	DISCPOLR	TRS	1500.	110
RE	DISCPOLR	TRS	2000.	110
RE	DISCPOLR	TRS	2500.	110
RE	DISCPOLR	TRS	3000.	110
RE	DISCPOLR	TRS	3500.	110
RE	DISCPOLR	TRS	4000.	110
RE	DISCPOLR	TRS	4500.	110
RE	DISCPOLR	TRS	5000.	110
RE	DISCPOLR	TRS	5500.	110
RE	DISCPOLR	TRS	6000.	110
RE	DISCPOLR	TRS	6100.	110
RE	DISCPOLR	TRS	700.	120
RE	DISCPOLR	TRS	1100.	120
RE	DISCPOLR	TRS	1500.	120
RE	DISCPOLR	TRS	2000.	120
RE	DISCPOLR	TRS	2500.	120
RE	DISCPOLR	TRS	3000.	120

RE	DISCPOLR	TRS	3500.	120
RE	DISCPOLR	TRS	4000.	120
RE	DISCPOLR	TRS	4500.	120
RE	DISCPOLR	TRS	5000.	120
RE	DISCPOLR	TRS	5500.	120
RE	DISCPOLR	TRS	6000.	120
RE	DISCPOLR	TRS	6100.	120
RE	DISCPOLR	TRS	700.	130
RE	DISCPOLR	TRS	1100.	130
RE	DISCPOLR	TRS	1500.	130
RE	DISCPOLR	TRS	2000.	130
RE	DISCPOLR	TRS	2500.	130
RE	DISCPOLR	TRS	3000.	130
RE	DISCPOLR	TRS	3500.	130
RE	DISCPOLR	TRS	4000.	130
RE	DISCPOLR	TRS	4500.	130
RE	DISCPOLR	TRS	5000.	130
RE	DISCPOLR	TRS	5500.	130
RE	DISCPOLR	TRS	6000.	130
RE	DISCPOLR	TRS	6100.	130
RE	DISCPOLR	TRS	700.	140
RE	DISCPOLR	TRS	1100.	140
RE	DISCPOLR	TRS	1500.	140
RE	DISCPOLR	TRS	2000.	140
RE	DISCPOLR	TRS	2500.	140
RE	DISCPOLR	TRS	3000.	140
RE	DISCPOLR	TRS	3500.	140
RE	DISCPOLR	TRS	4000.	140
RE	DISCPOLR	TRS	4500.	140
RE	DISCPOLR	TRS	5000.	140
RE	DISCPOLR	TRS	5500.	140
RE	DISCPOLR	TRS	6000.	140
RE	DISCPOLR	TRS	6100.	140
RE	DISCPOLR	TRS	700.	150
RE	DISCPOLR	TRS	1100.	150
RE	DISCPOLR	TRS	1500.	150
RE	DISCPOLR	TRS	2000.	150
RE	DISCPOLR	TRS	2500.	150
RE	DISCPOLR	TRS	3000.	150
RE	DISCPOLR	TRS	3500.	150
RE	DISCPOLR	TRS	4000.	150
RE	DISCPOLR	TRS	4500.	150
RE	DISCPOLR	TRS	5000.	150
RE	DISCPOLR	TRS	5500.	150
RE	DISCPOLR	TRS	6000.	150
RE	DISCPOLR	TRS	6100.	150
RE	DISCPOLR	TRS	700.	160
RE	DISCPOLR	TRS	1100.	160
RE	DISCPOLR	TRS	1500.	160
RE	DISCPOLR	TRS	2000.	160
RE	DISCPOLR	TRS	2500.	160
RE	DISCPOLR	TRS	3000.	160
RE	DISCPOLR	TRS	3500.	160
RE	DISCPOLR	TRS	4000.	160
RE	DISCPOLR	TRS	4500.	160
RE	DISCPOLR	TRS	5000.	160
RE	DISCPOLR	TRS	5500.	160
RE	DISCPOLR	TRS	6000.	160
RE	DISCPOLR	TRS	6100.	160
RE	DISCPOLR	TRS	700.	170
RE	DISCPOLR	TRS	1100.	170
RE	DISCPOLR	TRS	1500.	170
RE	DISCPOLR	TRS	2000.	170
RE	DISCPOLR	TRS	2500.	170
RE	DISCPOLR	TRS	3000.	170
RE	DISCPOLR	TRS	3500.	170
RE	DISCPOLR	TRS	4000.	170
RE	DISCPOLR	TRS	4500.	170
RE	DISCPOLR	TRS	5000.	170
RE	DISCPOLR	TRS	5500.	170
RE	DISCPOLR	TRS	6000.	170
RE	DISCPOLR	TRS	6100.	170
RE	DISCPOLR	TRS	1100.	180
RE	DISCPOLR	TRS	1500.	180
RE	DISCPOLR	TRS	2000.	180

RE	DISCPOLR TRS	2500.	180
RE	DISCPOLR TRS	3000.	180
RE	DISCPOLR TRS	3500.	180
RE	DISCPOLR TRS	4000.	180
RE	DISCPOLR TRS	4500.	180
RE	DISCPOLR TRS	5000.	180
RE	DISCPOLR TRS	5500.	180
RE	DISCPOLR TRS	6000.	180
RE	DISCPOLR TRS	6100.	180
RE	DISCPOLR TRS	2000.	190
RE	DISCPOLR TRS	2500.	190
RE	DISCPOLR TRS	3000.	190
RE	DISCPOLR TRS	3500.	190
RE	DISCPOLR TRS	4000.	190
RE	DISCPOLR TRS	4500.	190
RE	DISCPOLR TRS	5000.	190
RE	DISCPOLR TRS	5500.	190
RE	DISCPOLR TRS	6000.	190
RE	DISCPOLR TRS	6100.	190
RE	DISCPOLR TRS	2000.	200
RE	DISCPOLR TRS	2500.	200
RE	DISCPOLR TRS	3000.	200
RE	DISCPOLR TRS	3500.	200
RE	DISCPOLR TRS	4000.	200
RE	DISCPOLR TRS	4500.	200
RE	DISCPOLR TRS	5000.	200
RE	DISCPOLR TRS	5500.	200
RE	DISCPOLR TRS	6000.	200
RE	DISCPOLR TRS	6100.	200
RE	DISCPOLR TRS	2000.	210
RE	DISCPOLR TRS	2500.	210
RE	DISCPOLR TRS	3000.	210
RE	DISCPOLR TRS	3500.	210
RE	DISCPOLR TRS	4000.	210
RE	DISCPOLR TRS	4500.	210
RE	DISCPOLR TRS	5000.	210
RE	DISCPOLR TRS	5500.	210
RE	DISCPOLR TRS	6000.	210
RE	DISCPOLR TRS	6100.	210
RE	DISCPOLR TRS	2000.	220
RE	DISCPOLR TRS	2500.	220
RE	DISCPOLR TRS	3000.	220
RE	DISCPOLR TRS	3500.	220
RE	DISCPOLR TRS	4000.	220
RE	DISCPOLR TRS	4500.	220
RE	DISCPOLR TRS	5000.	220
RE	DISCPOLR TRS	5500.	220
RE	DISCPOLR TRS	6000.	220
RE	DISCPOLR TRS	6100.	220
RE	DISCPOLR TRS	2000.	230
RE	DISCPOLR TRS	2500.	230
RE	DISCPOLR TRS	3000.	230
RE	DISCPOLR TRS	3500.	230
RE	DISCPOLR TRS	4000.	230
RE	DISCPOLR TRS	4500.	230
RE	DISCPOLR TRS	5000.	230
RE	DISCPOLR TRS	5500.	230
RE	DISCPOLR TRS	6000.	230
RE	DISCPOLR TRS	6100.	230
RE	DISCPOLR TRS	2500.	240
RE	DISCPOLR TRS	3000.	240
RE	DISCPOLR TRS	3500.	240
RE	DISCPOLR TRS	4000.	240
RE	DISCPOLR TRS	4500.	240
RE	DISCPOLR TRS	5000.	240
RE	DISCPOLR TRS	5500.	240
RE	DISCPOLR TRS	6000.	240
RE	DISCPOLR TRS	6100.	240
RE	DISCPOLR TRS	2500.	250
RE	DISCPOLR TRS	3000.	250
RE	DISCPOLR TRS	3500.	250
RE	DISCPOLR TRS	4000.	250
RE	DISCPOLR TRS	4500.	250
RE	DISCPOLR TRS	5000.	250
RE	DISCPOLR TRS	5500.	250

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RE DISCPOLR TRS     6000.        250
RE DISCPOLR TRS     6100.        250
RE DISCPOLR TRS     3000.        260
RE DISCPOLR TRS     3500.        260
RE DISCPOLR TRS     4000.        260
RE DISCPOLR TRS     4500.        260
RE DISCPOLR TRS     5000.        260
RE DISCPOLR TRS     5500.        260
RE DISCPOLR TRS     6000.        260
RE DISCPOLR TRS     6100.        260
RE DISCPOLR TRS     4000.        270
RE DISCPOLR TRS     4500.        270
RE DISCPOLR TRS     5000.        270
RE DISCPOLR TRS     5500.        270
RE DISCPOLR TRS     6000.        270
RE DISCPOLR TRS     6100.        270
RE DISCPOLR TRS     4000.        270
RE DISCPOLR TRS     4500.        270
RE DISCPOLR TRS     5000.        270
RE DISCPOLR TRS     5500.        270
RE DISCPOLR TRS     6000.        270
RE DISCPOLR TRS     6100.        270
RE DISCPOLR TRS     4000.        270
RE DISCPOLR TRS     4500.        270
RE DISCPOLR TRS     5000.        270
RE DISCPOLR TRS     5500.        270
RE DISCPOLR TRS     6000.        270
RE DISCPOLR TRS     6100.        270
RE DISCPOLR TRS     4500.        280
RE DISCPOLR TRS     5000.        280
RE DISCPOLR TRS     5500.        280
RE DISCPOLR TRS     6000.        280
RE DISCPOLR TRS     6100.        280
RE DISCPOLR TRS     4500.        290
RE DISCPOLR TRS     5000.        290
RE DISCPOLR TRS     5500.        290
RE DISCPOLR TRS     6000.        290
RE DISCPOLR TRS     6100.        290
RE DISCPOLR TRS     5000.        300
RE DISCPOLR TRS     5500.        300
RE DISCPOLR TRS     6000.        300
RE DISCPOLR TRS     6100.        300
RE DISCPOLR TRS     5500.        310
RE DISCPOLR TRS     6000.        310
RE DISCPOLR TRS     6100.        310
RE DISCPOLR TRS     6000.        320
RE DISCPOLR TRS     6100.        320
RE DISCPOLR TRS     6000.        320
RE DISCPOLR TRS     6100.        320
RE DISCPOLR TRS     6000.        320
RE DISCPOLR TRS     6100.        320
RE DISCPOLR TRS     6000.        330
RE DISCPOLR TRS     6100.        330
RE DISCPOLR TRS     5500.        340
RE DISCPOLR TRS     6000.        340
RE DISCPOLR TRS     6100.        340
RE DISCPOLR TRS     5000.        350
RE DISCPOLR TRS     5500.        350
RE DISCPOLR TRS     6000.        350
RE DISCPOLR TRS     6100.        350
RE DISCPOLR TRS     5000.        360
RE DISCPOLR TRS     5500.        360
RE DISCPOLR TRS     6000.        360
RE DISCPOLR TRS     6100.        360
**  CARTESIAN FENCE LINE RECEPTORS AT 100-M INTERVALS
RE DISCCART      -311.0    -1781.0
RE DISCCART      -402.0    -1739.6
RE DISCCART      -493.1    -1698.2
RE DISCCART      -584.1    -1656.9
RE DISCCART      -675.1    -1615.5
RE DISCCART      -766.2    -1574.1
RE DISCCART      -857.2    -1532.7
RE DISCCART      -948.3    -1491.3
RE DISCCART     -1039.3    -1450.0
RE DISCCART     -1130.3    -1408.6
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RE DISCCART	-1221.4	-1367.2
RE DISCCART	-1312.4	-1325.8
RE DISCCART	-1403.4	-1284.4
RE DISCCART	-1494.5	-1243.1
RE DISCCART	-1585.5	-1201.7
RE DISCCART	-1676.5	-1160.3
RE DISCCART	-1767.6	-1118.9
RE DISCCART	-1858.6	-1077.5
RE DISCCART	-1949.7	-1036.2
RE DISCCART	-2040.7	-994.8
RE DISCCART	-2131.7	-953.4
RE DISCCART	-2222.8	-912.0
RE DISCCART	-2313.8	-870.6
RE DISCCART	-2404.8	-829.3
RE DISCCART	-2495.9	-787.9
RE DISCCART	-2586.9	-746.5
RE DISCCART	-2678.0	-705.1
RE DISCCART	-2769.0	-663.7
RE DISCCART	-2860.0	-622.4
RE DISCCART	-2940.6	-573.9
RE DISCCART	-2945.1	-474.0
RE DISCCART	-2949.7	-374.1
RE DISCCART	-2954.3	-274.2
RE DISCCART	-2958.8	-174.3
RE DISCCART	-2963.4	-74.4
RE DISCCART	-2968.0	25.5
RE DISCCART	-3004.4	92.0
RE DISCCART	-3104.4	92.0
RE DISCCART	-3190.0	77.6
RE DISCCART	-3190.0	-22.4
RE DISCCART	-3190.0	-122.4
RE DISCCART	-3190.0	-222.4
RE DISCCART	-3231.4	-279.6
RE DISCCART	-3331.4	-276.3
RE DISCCART	-3431.3	-273.0
RE DISCCART	-3531.3	-269.7
RE DISCCART	-3631.2	-266.4
RE DISCCART	-3731.1	-263.1
RE DISCCART	-3831.1	-259.8
RE DISCCART	-3931.0	-256.5
RE DISCCART	-3894.6	-190.3
RE DISCCART	-3832.3	-112.1
RE DISCCART	-3769.9	-33.9
RE DISCCART	-3707.6	44.3
RE DISCCART	-3651.2	125.9
RE DISCCART	-3613.9	218.7
RE DISCCART	-3576.7	311.5
RE DISCCART	-3562.9	403.3
RE DISCCART	-3608.6	492.2
RE DISCCART	-3654.2	581.2
RE DISCCART	-3732.9	616.0
RE DISCCART	-3832.9	616.0
RE DISCCART	-3924.1	634.0
RE DISCCART	-3985.8	712.8
RE DISCCART	-4039.0	789.7
RE DISCCART	-3951.2	837.5
RE DISCCART	-3863.4	885.4
RE DISCCART	-3831.0	966.1
RE DISCCART	-3831.0	1066.1
RE DISCCART	-3899.1	1098.0
RE DISCCART	-3999.1	1098.0
RE DISCCART	-4082.1	1116.1
RE DISCCART	-4088.3	1215.9
RE DISCCART	-4094.4	1315.7
RE DISCCART	-4100.6	1415.5
RE DISCCART	-4106.8	1515.3
RE DISCCART	-4112.9	1615.2
RE DISCCART	-4119.1	1715.0
RE DISCCART	-4125.2	1814.8
RE DISCCART	-4131.4	1914.6
RE DISCCART	-4137.5	2014.4
RE DISCCART	-4143.7	2114.2
RE DISCCART	-4149.9	2214.0
RE DISCCART	-4156.0	2313.8
RE DISCCART	-4162.2	2413.6

RE DISCCART	-4168.3	2513.4
RE DISCCART	-4174.5	2613.3
RE DISCCART	-4180.6	2713.1
RE DISCCART	-4186.8	2812.9
RE DISCCART	-4193.0	2912.7
RE DISCCART	-4199.1	3012.5
RE DISCCART	-4205.3	3112.3
RE DISCCART	-4211.4	3212.1
RE DISCCART	-4217.6	3311.9
RE DISCCART	-4176.6	3360.5
RE DISCCART	-4077.7	3346.0
RE DISCCART	-3978.8	3331.6
RE DISCCART	-3879.8	3317.1
RE DISCCART	-3780.9	3302.6
RE DISCCART	-3681.9	3288.1
RE DISCCART	-3583.0	3273.7
RE DISCCART	-3484.0	3259.2
RE DISCCART	-3385.1	3244.7
RE DISCCART	-3286.1	3230.2
RE DISCCART	-3187.2	3215.8
RE DISCCART	-3088.2	3201.3
RE DISCCART	-2989.3	3186.8
RE DISCCART	-2890.3	3172.3
RE DISCCART	-2806.0	3174.8
RE DISCCART	-2806.0	3274.8
RE DISCCART	-2806.0	3374.8
RE DISCCART	-2806.0	3474.8
RE DISCCART	-2806.0	3574.8
RE DISCCART	-2806.0	3674.8
RE DISCCART	-2806.0	3774.8
RE DISCCART	-2860.4	3831.0
RE DISCCART	-2958.1	3852.7
RE DISCCART	-3055.7	3874.3
RE DISCCART	-3153.4	3895.9
RE DISCCART	-3251.0	3917.5
RE DISCCART	-3348.6	3939.1
RE DISCCART	-3446.3	3960.7
RE DISCCART	-3544.5	3977.0
RE DISCCART	-3644.5	3977.0
RE DISCCART	-3744.5	3977.0
RE DISCCART	-3844.5	3977.0
RE DISCCART	-3944.5	3977.0
RE DISCCART	-4044.5	3977.0
RE DISCCART	-4144.5	3977.0
RE DISCCART	-4185.0	4036.5
RE DISCCART	-4185.0	4136.5
RE DISCCART	-4185.0	4236.5
RE DISCCART	-4161.5	4313.4
RE DISCCART	-4061.5	4315.0
RE DISCCART	-3961.5	4316.6
RE DISCCART	-3861.6	4318.3
RE DISCCART	-3761.6	4319.9
RE DISCCART	-3661.6	4321.5
RE DISCCART	-3561.6	4323.2
RE DISCCART	-3461.6	4324.8
RE DISCCART	-3361.6	4326.4
RE DISCCART	-3261.6	4328.1
RE DISCCART	-3161.6	4329.7
RE DISCCART	-3087.4	4349.2
RE DISCCART	-3120.8	4443.5
RE DISCCART	-3154.1	4537.8
RE DISCCART	-3187.4	4632.1
RE DISCCART	-3220.7	4726.4
RE DISCCART	-3217.8	4795.2
RE DISCCART	-3117.8	4795.8
RE DISCCART	-3017.8	4796.5
RE DISCCART	-2917.8	4797.1
RE DISCCART	-2817.8	4797.7
RE DISCCART	-2717.8	4798.4
RE DISCCART	-2617.8	4799.0
RE DISCCART	-2517.8	4799.7
RE DISCCART	-2417.8	4800.3
RE DISCCART	-2317.8	4800.9
RE DISCCART	-2217.8	4801.6
RE DISCCART	-2117.8	4802.2

RE DISCCART	-2017.8	4802.9
RE DISCCART	-1917.8	4803.5
RE DISCCART	-1817.8	4804.1
RE DISCCART	-1717.8	4804.8
RE DISCCART	-1617.8	4805.4
RE DISCCART	-1517.8	4806.1
RE DISCCART	-1417.8	4806.7
RE DISCCART	-1317.8	4807.3
RE DISCCART	-1217.8	4808.0
RE DISCCART	-1117.8	4808.6
RE DISCCART	-1017.8	4809.3
RE DISCCART	-917.8	4809.9
RE DISCCART	-817.8	4810.5
RE DISCCART	-717.8	4811.2
RE DISCCART	-617.8	4811.8
RE DISCCART	-517.8	4812.5
RE DISCCART	-417.8	4813.1
RE DISCCART	-317.8	4813.7
RE DISCCART	-217.8	4814.4
RE DISCCART	-117.8	4815.0
RE DISCCART	-17.9	4815.7
RE DISCCART	82.1	4816.3
RE DISCCART	182.1	4816.9
RE DISCCART	282.1	4817.6
RE DISCCART	382.1	4818.2
RE DISCCART	482.1	4818.9
RE DISCCART	582.1	4819.5
RE DISCCART	682.1	4820.1
RE DISCCART	782.1	4820.8
RE DISCCART	882.1	4821.4
RE DISCCART	982.1	4822.1
RE DISCCART	1082.1	4822.7
RE DISCCART	1182.1	4823.3
RE DISCCART	1282.1	4824.0
RE DISCCART	1382.1	4824.6
RE DISCCART	1482.1	4825.3
RE DISCCART	1582.1	4825.9
RE DISCCART	1682.1	4826.5
RE DISCCART	1782.1	4827.2
RE DISCCART	1882.1	4827.8
RE DISCCART	1982.1	4828.5
RE DISCCART	2082.1	4829.1
RE DISCCART	2182.1	4829.7
RE DISCCART	2282.1	4830.4
RE DISCCART	2376.0	4830.1
RE DISCCART	2280.4	4801.0
RE DISCCART	2184.7	4771.8
RE DISCCART	2107.3	4712.3
RE DISCCART	2036.6	4641.6
RE DISCCART	1965.9	4570.9
RE DISCCART	1914.3	4492.0
RE DISCCART	1911.6	4392.0
RE DISCCART	1908.9	4292.0
RE DISCCART	1906.3	4192.1
RE DISCCART	1903.6	4092.1
RE DISCCART	1826.1	4069.0
RE DISCCART	1739.0	4081.9
RE DISCCART	1739.0	4181.9
RE DISCCART	1739.0	4281.9
RE DISCCART	1739.0	4381.9
RE DISCCART	1739.0	4481.9
RE DISCCART	1739.0	4581.9
RE DISCCART	1739.0	4681.9
RE DISCCART	1642.1	4685.0
RE DISCCART	1542.1	4685.0
RE DISCCART	1442.1	4685.0
RE DISCCART	1410.0	4624.5
RE DISCCART	1421.4	4525.2
RE DISCCART	1432.8	4425.8
RE DISCCART	1444.3	4326.5
RE DISCCART	1455.7	4227.1
RE DISCCART	1467.2	4127.8
RE DISCCART	1478.6	4028.4
RE DISCCART	1490.0	3929.1
RE DISCCART	1551.6	3886.0

RE DISCCART	1651.6	3886.0
RE DISCCART	1751.6	3886.0
RE DISCCART	1851.6	3886.0
RE DISCCART	1951.6	3886.0
RE DISCCART	2051.6	3886.0
RE DISCCART	2076.0	3837.1
RE DISCCART	2034.9	3745.9
RE DISCCART	1993.9	3654.8
RE DISCCART	1952.8	3563.6
RE DISCCART	1911.7	3472.4
RE DISCCART	1940.0	3383.5
RE DISCCART	1924.8	3291.7
RE DISCCART	1875.8	3209.6
RE DISCCART	1787.8	3162.1
RE DISCCART	1699.8	3114.6
RE DISCCART	1654.9	3033.7
RE DISCCART	1621.5	2940.2
RE DISCCART	1574.6	2851.9
RE DISCCART	1527.7	2763.6
RE DISCCART	1480.8	2675.3
RE DISCCART	1433.9	2587.0
RE DISCCART	1341.7	2574.0
RE DISCCART	1241.7	2574.0
RE DISCCART	1141.7	2574.0
RE DISCCART	1116.1	2482.6
RE DISCCART	1095.9	2384.7
RE DISCCART	1075.6	2286.8
RE DISCCART	1055.4	2188.8
RE DISCCART	1035.1	2090.9
RE DISCCART	1033.7	2027.3
RE DISCCART	1105.3	2097.0
RE DISCCART	1177.0	2166.7
RE DISCCART	1248.7	2236.4
RE DISCCART	1320.4	2306.2
RE DISCCART	1392.1	2375.9
RE DISCCART	1466.0	2440.6
RE DISCCART	1565.7	2448.5
RE DISCCART	1615.7	2396.7
RE DISCCART	1625.9	2297.2
RE DISCCART	1636.0	2197.8
RE DISCCART	1646.2	2098.3
RE DISCCART	1656.4	1998.8
RE DISCCART	1666.6	1899.3
RE DISCCART	1676.8	1799.8
RE DISCCART	1687.0	1700.4
RE DISCCART	1625.4	1642.7
RE DISCCART	1537.4	1600.6
RE DISCCART	1549.7	1501.3
RE DISCCART	1562.0	1402.1
RE DISCCART	1617.3	1369.0
RE DISCCART	1696.5	1367.8
RE DISCCART	1723.6	1271.6
RE DISCCART	1641.3	1229.4
RE DISCCART	1548.4	1192.5
RE DISCCART	1457.8	1152.2
RE DISCCART	1389.9	1078.8
RE DISCCART	1322.0	1005.4
RE DISCCART	1254.1	931.9
RE DISCCART	1186.2	858.5
RE DISCCART	1248.5	842.0
RE DISCCART	1348.5	842.0
RE DISCCART	1448.5	842.0
RE DISCCART	1548.5	842.0
RE DISCCART	1648.5	842.0
RE DISCCART	1740.2	832.5
RE DISCCART	1737.6	740.0
RE DISCCART	1657.5	680.0
RE DISCCART	1577.5	620.1
RE DISCCART	1497.4	560.2
RE DISCCART	1417.4	500.2
RE DISCCART	1337.3	440.3
RE DISCCART	1257.3	380.4
RE DISCCART	1177.2	320.4
RE DISCCART	1097.2	260.5
RE DISCCART	1017.1	200.6

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RE DISCCART      937.1     140.6
RE DISCCART      857.0      80.7
RE DISCCART      777.0      20.7
RE DISCCART      696.9     -39.2
RE DISCCART      616.9     -99.1
RE DISCCART      536.8    -159.1
RE DISCCART      456.8    -219.0
RE DISCCART      376.7    -278.9
RE DISCCART      296.7    -338.9
RE DISCCART      216.6    -398.8
RE DISCCART      169.7    -483.4
RE DISCCART      134.9    -577.2
RE DISCCART      100.2    -671.0
RE DISCCART       65.5    -764.7
RE DISCCART       30.7    -858.5
RE DISCCART       -4.0    -952.3
RE DISCCART      -38.8   -1046.1
RE DISCCART      -73.5   -1139.8
RE DISCCART     -108.2   -1233.6
RE DISCCART     -143.0   -1327.4
RE DISCCART     -177.7   -1421.1
RE DISCCART     -212.4   -1514.9
RE DISCCART     -247.2   -1608.7
RE DISCCART     -281.9   -1702.5
RE FINISHED

ME STARTING
ME INPUTFIL JAXAYS84.ASC
ME ANEMHGHT  20 FEET
ME SURFDATA  13889  1984           JACKSONVILLE
ME UAIRDATA  13861  1984           WAYCROSS
ME WINDCATS    1.50    3.10    5.10    8.20   10.80
ME FINISHED

OU STARTING
OU RECTABLE ALLAVE FIRST
OU FINISHED
```

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NSIGF2R.084
ISCST3 OUTPUT FILE NUMBER 2 :NSIGF2R.085
ISCST3 OUTPUT FILE NUMBER 3 :NSIGF2R.086
ISCST3 OUTPUT FILE NUMBER 4 :NSIGF2R.087
ISCST3 OUTPUT FILE NUMBER 5 :NSIGF2R.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY NOX REFINED SIG ANALYSIS, FINAL SCENARIO, OPTION 2

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.74	138.8	450.4	84123124
	1985	0.66	138.8	450.4	85123124
	1986	0.68	138.8	450.4	86123124
	1987	0.88	134.	500.	87123124
	1988	0.88	138.8	450.4	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NSIGF2.084
ISCST3 OUTPUT FILE NUMBER 2 :NSIGF2.085
ISCST3 OUTPUT FILE NUMBER 3 :NSIGF2.086
ISCST3 OUTPUT FILE NUMBER 4 :NSIGF2.087
ISCST3 OUTPUT FILE NUMBER 5 :NSIGF2.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY NOX SIG ANALYSIS, FINAL SCENARIO, OPTION 2

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.74	138.8	450.4	84123124
	1985	0.66	138.8	450.4	85123124
	1986	0.68	138.8	450.4	86123124
	1987	0.86	138.8	450.4	87123124
	1988	0.88	138.8	450.4	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I                              11/12/01
CO TITLETWO PROJECT ONLY NOX SIG ANALYSIS, FINAL SCENARIO, OPTION 2
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME PERIOD
CO POLLUTID NOX
CO DCAYCOEF    .000000
CO RUNORNOT RUN
CO FINISHED


SO STARTING
** NEW THERMAL OXIDIZER BURNING LVHC NCGS AND SOGS 80%
** NO. 4 COMBINATION BOILER BURNING LVHC NCGS AND SOGS 20%
** Source Location Cards:
**          SRCID SRCTYP        XS            YS            ZS
** OLD TRS INCINERATOR STACK IS ORIGIN ONLY
SO LOCATION   TRS POINT          0             0            0
SO LOCATION   TO  POINT       -101            38            0
SO LOCATION   CB4 POINT        -95           104            0

** Source Parameter Cards:
** POINT:   SRCID           QS         HS          TS          VS          DS
SO SRCPARAM   TRS         -1.42       76.2        533         32.03        0.94
SO SRCPARAM   TO           4.35       76.2        344          4.09        1.10
SO SRCPARAM   CB4          1.09       72.2        500         21.88        2.44


SO BUILDHGT TRS          0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS          0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS         59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS          0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS         18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS         38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS          0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS         88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS          0.00    0.00    0.00    0.00    0.00    0.00


**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4        25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4        25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDWID RB4        38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4        34.29   37.95   38.11   38.11   37.84   33.53
**SO BUILDWID RB4        28.21    0.00    0.00   27.03   32.55   37.07
**SO BUILDWID RB4        38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4        34.29   37.95   38.11   38.11   37.84   33.53
**SO BUILDWID RB4        28.21    0.00    0.00   27.03   32.55   37.07


**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDWID SDT4       41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID SDT4       38.03   34.39   33.54   37.39   40.12   41.62
**SO BUILDWID SDT4       41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID SDT4       38.03   34.39   33.54   37.39   40.12   41.62


**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
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**SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00

**SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   59.04
**SO BUILDHGT PB4       59.04   59.04   59.04   59.04   59.04   32.80
**SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   59.04
**SO BUILDHGT PB4       59.04   59.04   59.04   59.04   59.04   32.80
**SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDWID PB4       39.65   39.17   37.50   34.68   45.75   29.58
**SO BUILDWID PB4       34.29   37.95   40.47   41.75   41.77   37.50
**SO BUILDWID PB4       34.68   73.63   74.74   33.99   37.02   38.93
**SO BUILDWID PB4       39.65   39.17   37.50   34.68   45.75   29.58
**SO BUILDWID PB4       34.29   37.95   40.47   41.75   41.77   37.50
**SO BUILDWID PB4       34.68   73.63   74.74   33.99   37.02   38.93

**SO BUILDHGT PB5       32.80   32.80   32.80   32.80    0.00    0.00
**SO BUILDHGT PB5       25.91   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB5       59.04   59.04   59.04   59.04   32.80   32.80
**SO BUILDHGT PB5       32.80   32.80   32.80   32.80   21.69   21.69
**SO BUILDHGT PB5       25.91   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB5       59.04   59.04   59.04   59.04   32.80   32.80
**SO BUILDWID PB5       39.65   39.17   37.50   34.68    0.00    0.00
**SO BUILDWID PB5       42.80   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB5       38.03   34.39   33.54   37.39   37.02   38.93
**SO BUILDWID PB5       39.65   39.17   37.50   34.68  132.28  130.20
**SO BUILDWID PB5       44.92   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB5       38.03   34.39   33.54   37.39   37.02   38.93

SO BUILDHGT CB4       32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT CB4       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4       59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDHGT CB4       32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT CB4       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4       59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDWID CB4       39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID CB4       42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4       38.03   34.39   74.74   33.99   37.02   38.93
SO BUILDWID CB4       39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID CB4       44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4       38.03   34.39   74.74   33.99   37.02   38.93

**SO BUILDHGT PB6       32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB6       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB6       59.04   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB6       32.80   32.80   32.80   32.80   32.80   32.80
**SO BUILDHGT PB6       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT PB6       59.04   32.80   32.80   32.80   32.80   32.80
**SO BUILDWID PB6       39.65   39.17   37.50   34.68   45.75   37.44
**SO BUILDWID PB6       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB6       38.03   73.63   74.74   33.99   37.02   38.93
**SO BUILDWID PB6       39.65   39.17   37.50   34.68   45.75   37.44
**SO BUILDWID PB6       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID PB6       38.03   73.63   74.74   33.99   37.02   38.93

**SO BUILDHGT Bleach    25.76   25.76   18.96   18.96   18.96   21.49
**SO BUILDHGT Bleach    21.49   25.76   25.76   25.76   25.76   25.76
**SO BUILDHGT Bleach    25.76   25.76   25.76   25.76   25.76   25.76
**SO BUILDHGT Bleach    25.76   25.76   18.96   18.96   18.96   21.49
**SO BUILDHGT Bleach    22.25   25.76   25.76   25.76   25.76   25.76
**SO BUILDHGT Bleach    25.76   25.76   25.76   25.76   25.76   25.76
**SO BUILDWID Bleach    87.92   91.19   44.04   31.56  100.16   99.31
**SO BUILDWID Bleach   112.25   91.46   91.51   88.79   83.37   75.41
**SO BUILDWID Bleach    65.17   52.94   50.29   62.87   73.54   81.97
**SO BUILDWID Bleach    87.92   91.19   44.04   31.56  100.16   95.06
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**SO BUILDWID Bleach     80.94   91.46   91.51   88.79   83.37   75.41
**SO BUILDWID Bleach     65.17   52.94   50.29   62.87   73.54   81.97

SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO         59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO         59.04    0.00    0.00    0.00   59.04   25.91
SO BUILDWID TO         78.64    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   33.53
SO BUILDWID TO         38.03   34.39   33.54   37.39   38.03   38.93
SO BUILDWID TO         39.65    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   95.50
SO BUILDWID TO         38.03    0.00    0.00    0.00   38.03  104.49

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 6600 6700 6800 6900 7000 7500 8000 8500 9000 9200 9400 9600 9800 10000
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS     5000.         10
RE DISCPOLR TRS     5500.         10
RE DISCPOLR TRS     6000.         10
RE DISCPOLR TRS     6100.         10
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     3000.         40
RE DISCPOLR TRS     3500.         40
RE DISCPOLR TRS     4000.         40
RE DISCPOLR TRS     4500.         40
RE DISCPOLR TRS     5000.         40
RE DISCPOLR TRS     5500.         40
RE DISCPOLR TRS     6000.         40
RE DISCPOLR TRS     6100.         40
RE DISCPOLR TRS     2500.         50
RE DISCPOLR TRS     3000.         50
RE DISCPOLR TRS     3500.         50
RE DISCPOLR TRS     4000.         50
RE DISCPOLR TRS     4500.         50
RE DISCPOLR TRS     5000.         50
RE DISCPOLR TRS     5500.         50
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ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NAQSF1.084
ISCST3 OUTPUT FILE NUMBER 2 :NAQSF1.085
ISCST3 OUTPUT FILE NUMBER 3 :NAQSF1.086
ISCST3 OUTPUT FILE NUMBER 4 :NAQSF1.087
ISCST3 OUTPUT FILE NUMBER 5 :NAQSF1.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/13/01
Second title for last output file is: NOX AAQS, FINAL SCENARIO, OPTION 1

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	5.15	93.2	698.0	84123124
	1985	5.40	93.2	698.0	85123124
	1986	4.73	93.2	698.0	86123124
	1987	5.86	115.6	506.6	87123124
	1988	4.96	99.1	624.8	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I          11/13/01
CO TITLETWO NOX AAQS, FINAL SCENARIO, OPTION 1
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME PERIOD
CO POLLUTID NOX
CO DCAYCOEF    .000000
CO RUNORNOT RUN
CO FINISHED

SO STARTING
** NEW THERMAL OXIDIZER BURNING LVHCS/SOGS 100%
** Source Location Cards:
**          SRCID SRCTYP         XS              YS           ZS
** GP FACILITY SOURCES
** OLD TRS INCINERATOR STACK IS ORIGIN ONLY
SO LOCATION   TRS  POINT          0               0            0
SO LOCATION   TO   POINT       -101              38            0
SO LOCATION   RB4  POINT       -192              91            0
SO LOCATION   SDT4 POINT       -145             126            0
SO LOCATION   LK4  POINT         21             -98            0
SO LOCATION   PB4  POINT        -81             133            0
SO LOCATION   PB5  POINT       -101             101            0
SO LOCATION   CB4  POINT        -95             104            0
SO LOCATION   PB6  POINT        -91             119            0
** OTHER SO2 SOURCES LOCATED IN PUTNAM COUNTY
SO LOCATION   SEMELECT POINT        4800            5800            0
SO LOCATION   FPLPUTNM POINT        9300           -5800            0

** Source Parameter Cards:
** POINT:   SRCID            QS         HS          TS           VS          DS
** GP FACILITY SOURCES
SO SRCPARAM   TRS          0.00       76.2        533         32.03        0.94
SO SRCPARAM   TO           5.44       76.2        344          4.09        3.60
SO SRCPARAM   RB4         21.23       70.1        478         19.42        3.66
SO SRCPARAM   SDT4         1.98       62.8        344          6.46        1.52
SO SRCPARAM   LK4          6.34       39.9        339         18.53        1.35
SO SRCPARAM   PB4          5.29       61.0        475         21.82        1.22
SO SRCPARAM   PB5         22.46       70.7        503         18.47        2.74
SO SRCPARAM   CB4         16.53       72.2        500         21.88        2.44
SO SRCPARAM   PB6          1.13       18.3        622         17.43        1.83
** OTHER NOX SOURCES LOCATED IN PUTNAM COUNTY
SO SRCPARAM SEMELECT    1319.32      205.7        326.5        7.99       10.97
SO SRCPARAM FPLPUTNM      25.20       22.3        437.4       58.60        3.15

SO BUILDHGT TRS        0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS        0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS       59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS        0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS       18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS        0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS        0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS       38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS        0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS       88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS        0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT TO        32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO         0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO        59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT TO        32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO         0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO        59.04    0.00    0.00    0.00   59.04   25.91
SO BUILDWID TO        78.64    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO         0.00    0.00    0.00    0.00    0.00   33.53
SO BUILDWID TO        38.03   34.39   33.54   37.39   38.03   38.93
SO BUILDWID TO        39.65    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO         0.00    0.00    0.00    0.00    0.00   95.50
SO BUILDWID TO        38.03    0.00    0.00    0.00   38.03  104.49

SO BUILDHGT RB4       59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4       59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4       25.91    0.00    0.00   25.91   25.91   25.91
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SO BUILDHGT RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDWID RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDWID RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDWID SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDWID SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDWID PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDWID PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDHGT PB5	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDHGT PB5	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDWID PB5	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID PB5	42.80	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDWID PB5	39.65	39.17	37.50	34.68	132.28	130.20
SO BUILDWID PB5	44.92	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDHGT CB4	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDHGT CB4	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDWID CB4	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID CB4	42.80	37.95	40.47	41.75	41.77	40.52
SO BUILDWID CB4	38.03	34.39	74.74	33.99	37.02	38.93
SO BUILDWID CB4	39.65	39.17	37.50	34.68	132.28	130.20
SO BUILDWID CB4	44.92	37.95	40.47	41.75	41.77	40.52
SO BUILDWID CB4	38.03	34.39	74.74	33.99	37.02	38.93

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SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 6600 6700 6800 6900 7000 7500 8000 8500 9000 9200 9400 9600 9800 10000
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS     5000.        10
RE DISCPOLR TRS     5500.        10
RE DISCPOLR TRS     6000.        10
RE DISCPOLR TRS     5500.        20
RE DISCPOLR TRS     6000.        20
RE DISCPOLR TRS     5500.        20
RE DISCPOLR TRS     6000.        20
RE DISCPOLR TRS     5500.        20
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RE DISCPOLR TRS     6000.        30
RE DISCPOLR TRS     4000.        30
RE DISCPOLR TRS     4500.        30
RE DISCPOLR TRS     5000.        30
RE DISCPOLR TRS     5500.        30
RE DISCPOLR TRS     6000.        30
RE DISCPOLR TRS     3000.        40
RE DISCPOLR TRS     3500.        40
RE DISCPOLR TRS     4000.        40
RE DISCPOLR TRS     4500.        40
RE DISCPOLR TRS     5000.        40
RE DISCPOLR TRS     5500.        40
RE DISCPOLR TRS     6000.        40
RE DISCPOLR TRS     2500.        50
RE DISCPOLR TRS     3000.        50
RE DISCPOLR TRS     3500.        50
RE DISCPOLR TRS     4000.        50
RE DISCPOLR TRS     4500.        50
RE DISCPOLR TRS     5000.        50
RE DISCPOLR TRS     5500.        50
RE DISCPOLR TRS     6000.        50
RE DISCPOLR TRS     2000.        60
RE DISCPOLR TRS     2500.        60
RE DISCPOLR TRS     3000.        60
RE DISCPOLR TRS     3500.        60
RE DISCPOLR TRS     4000.        60
RE DISCPOLR TRS     4500.        60
RE DISCPOLR TRS     5000.        60
RE DISCPOLR TRS     5500.        60
RE DISCPOLR TRS     6000.        60
RE DISCPOLR TRS     2000.        70
RE DISCPOLR TRS     2500.        70
RE DISCPOLR TRS     3000.        70
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ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NCL2R.087
ISCST3 OUTPUT FILE NUMBER 2 :NCL2R.088
First title for last output file is: 1987 GEORGIA-PACIFIC MACT I 11/13/01
Second title for last output file is: PROJECT ONLY NOX CLASS 2 REFINED ANALYSIS, FINAL SCENARIO, OPTION 1

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1987	1.90	130.	500.	87123124
	1988	1.86	138.8	450.4	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

ISCST3 OUTPUT FILE NUMBER 1 :NCL2.084
ISCST3 OUTPUT FILE NUMBER 2 :NCL2.085
ISCST3 OUTPUT FILE NUMBER 3 :NCL2.086
ISCST3 OUTPUT FILE NUMBER 4 :NCL2.087
ISCST3 OUTPUT FILE NUMBER 5 :NCL2.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/13/01
Second title for last output file is: PROJECT ONLY NOX CLASS 2 ANALYSIS, FINAL SCENARIO, OPTION 1

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	1.53	138.8	450.4	84123124
	1985	1.35	93.2	698.0	85123124
	1986	1.39	138.8	450.4	86123124
	1987	1.83	126.5	468.7	87123124
	1988	1.86	138.8	450.4	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

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CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I                               11/13/01
CO TITLETWO PROJECT ONLY NOX CLASS 2 ANALYSIS, FINAL SCENARIO, OPTION 1
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME  PERIOD
CO POLLUTID NOX
CO DCAYCOEF     .000000
CO RUNORNOT RUN
CO FINISHED


SO STARTING
** NEW THERMAL OXIDIZER BURNING LVHC NCGS/SOGS 100%
** Source Location Cards:
**          SRCID SRCTYP             XS              YS           ZS
** TRS INCINERATOR STACK IS ORIGIN LOCATION
SO LOCATION   TRS      POINT          0               0            0
SO LOCATION   TO       POINT       -101              38            0
SO LOCATION   RB4      POINT       -192              91            0
SO LOCATION   SDT4     POINT       -145             126            0
SO LOCATION   LK4      POINT         21             -98            0
SO LOCATION   PB4      POINT        -81             133            0
SO LOCATION   PB5      POINT       -101             101            0
SO LOCATION   CB4      POINT        -95             104            0
SO LOCATION   PB6      POINT        -91             119            0
** G-P 1988 NOX BASELINE
SO LOCATION   RB4B     POINT       -192              91            0
SO LOCATION   LK4B     POINT         21             -98            0
SO LOCATION   PB4B     POINT        -81             133            0
SO LOCATION   PB5B     POINT       -101             101            0
SO LOCATION   CB4B     POINT        -95             104            0

** Source Parameter Cards:
** POINT:   SRCID       QS         HS          TS          VS          DS
** TRS STACK USED AS ORIGIN ONLY
SO SRCPARAM   TRS       0.00         76.2        533        32.03        0.94
SO SRCPARAM   TO        5.44         76.2        344         4.09        1.10
SO SRCPARAM   RB4      21.23         70.1        478        19.42        3.66
SO SRCPARAM   SDT4      1.98         62.8        344         6.46        1.52
SO SRCPARAM   LK4       6.34         39.9        339        18.53        1.35
SO SRCPARAM   PB4       5.29         61.0        475        21.82        1.22
SO SRCPARAM   PB5      22.47         70.7        503        18.47        2.74
SO SRCPARAM   CB4      16.53         72.2        500        21.88        2.44
SO SRCPARAM   PB6       1.13         18.3        622        17.43        1.83

** G-P 1988 NOX BASELINE
SO SRCPARAM   RB4B    -11.28         70.1        478        19.42        3.66
SO SRCPARAM   LK4B     -7.17         39.9        339        18.53        1.35
SO SRCPARAM   PB4B     -3.25         37.2        475        21.82        1.22
SO SRCPARAM   PB5B    -16.12         70.7        503        18.47        2.74
SO SRCPARAM   CB4B     -9.02         72.2        500        21.88        2.44

SO BUILDHGT TRS         0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS         0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS        59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS         0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS        18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS         0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS         0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS         0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS        38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS         0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS        88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS         0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO         59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO         59.04    0.00    0.00    0.00   59.04   25.91
SO BUILDWID TO         78.64    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   33.53
SO BUILDWID TO         38.03   34.39   33.54   37.39   38.03   38.93
SO BUILDWID TO         39.65    0.00    0.00    0.00    0.00    0.00
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SO BUILDWID	TO	0.00	0.00	0.00	0.00	0.00	95.50
SO BUILDWID	TO	38.03	0.00	0.00	0.00	38.03	104.49
SO BUILDHGT	RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT	RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDHGT	RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT	RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDWID	RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID	RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID	RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDWID	RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID	RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID	RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDHGT	SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDWID	SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID	SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID	SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDWID	SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID	SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID	SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDHGT	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT	PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT	PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT	PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT	PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT	PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDWID	PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID	PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID	PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDWID	PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID	PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID	PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDHGT	PB5	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT	PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDHGT	PB5	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT	PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDWID	PB5	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID	PB5	42.80	37.95	40.47	41.75	41.77	40.52
SO BUILDWID	PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDWID	PB5	39.65	39.17	37.50	34.68	132.28	130.20
SO BUILDWID	PB5	44.92	37.95	40.47	41.75	41.77	40.52
SO BUILDWID	PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDHGT	CB4	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT	CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDHGT	CB4	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT	CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT	CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDWID	CB4	39.65	39.17	37.50	34.68	0.00	0.00

```
SO BUILDWID CB4        42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4        38.03   34.39   74.74   33.99   37.02   38.93
SO BUILDWID CB4        39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID CB4        44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4        38.03   34.39   74.74   33.99   37.02   38.93

SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93

** 1988 BASELINE BUILDINGS

SO BUILDHGT RB4B       59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4B       59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4B       25.91    0.00    0.00   25.91   25.91   25.91
SO BUILDHGT RB4B       59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4B       59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4B       25.91    0.00    0.00   25.91   25.91   25.91
SO BUILDWID RB4B       38.11   38.11   38.11   35.11   30.60   29.58
SO BUILDWID RB4B       34.29   37.95   38.11   38.11   37.84   33.53
SO BUILDWID RB4B       28.21    0.00    0.00   27.03   32.55   37.07
SO BUILDWID RB4B       38.11   38.11   38.11   35.11   30.60   29.58
SO BUILDWID RB4B       34.29   37.95   38.11   38.11   37.84   33.53
SO BUILDWID RB4B       28.21    0.00    0.00   27.03   32.55   37.07

SO BUILDHGT LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4B        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4B        0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT PB4B       32.80   32.80   32.80   32.80   32.80   59.04
SO BUILDHGT PB4B       59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT PB4B       32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB4B       32.80   32.80   32.80   32.80   32.80   59.04
SO BUILDHGT PB4B       59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT PB4B       32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB4B       39.65   39.17   37.50   34.68   45.75   29.58
SO BUILDWID PB4B       34.29   37.95   40.47   41.75   41.77   37.50
SO BUILDWID PB4B       34.68   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB4B       39.65   39.17   37.50   34.68   45.75   29.58
SO BUILDWID PB4B       34.29   37.95   40.47   41.75   41.77   37.50
SO BUILDWID PB4B       34.68   73.63   74.74   33.99   37.02   38.93

SO BUILDHGT PB5B       32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT PB5B       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB5B       59.04   59.04   59.04   59.04   32.80   32.80
SO BUILDHGT PB5B       32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT PB5B       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB5B       59.04   59.04   59.04   59.04   32.80   32.80
SO BUILDWID PB5B       39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID PB5B       42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB5B       38.03   34.39   33.54   37.39   37.02   38.93
SO BUILDWID PB5B       39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID PB5B       44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB5B       38.03   34.39   33.54   37.39   37.02   38.93
```

```
SO BUILDHGT CB4B       32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT CB4B       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4B       59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDHGT CB4B       32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT CB4B       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4B       59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDWID CB4B       39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID CB4B       42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4B       38.03   34.39   74.74   33.99   37.02   38.93
SO BUILDWID CB4B       39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID CB4B       44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4B       38.03   34.39   74.74   33.99   37.02   38.93

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 7000 7500 8000 9500 9000 10000 10500
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS     5000.        10
RE DISCPOLR TRS     5500.        10
RE DISCPOLR TRS     6000.        10
RE DISCPOLR TRS     6100.        10
RE DISCPOLR TRS     5500.        20
RE DISCPOLR TRS     6000.        20
RE DISCPOLR TRS     6100.        20
RE DISCPOLR TRS     5500.        20
RE DISCPOLR TRS     6000.        20
RE DISCPOLR TRS     6100.        20
RE DISCPOLR TRS     5500.        20
RE DISCPOLR TRS     6000.        20
RE DISCPOLR TRS     6100.        20
RE DISCPOLR TRS     4000.        30
RE DISCPOLR TRS     4500.        30
RE DISCPOLR TRS     5000.        30
RE DISCPOLR TRS     5500.        30
RE DISCPOLR TRS     6000.        30
RE DISCPOLR TRS     6100.        30
RE DISCPOLR TRS     4000.        30
RE DISCPOLR TRS     4500.        30
RE DISCPOLR TRS     5000.        30
RE DISCPOLR TRS     5500.        30
RE DISCPOLR TRS     6000.        30
RE DISCPOLR TRS     6100.        30
RE DISCPOLR TRS     4000.        30
RE DISCPOLR TRS     4500.        30
RE DISCPOLR TRS     5000.        30
RE DISCPOLR TRS     5500.        30
RE DISCPOLR TRS     6000.        30
RE DISCPOLR TRS     6100.        30
RE DISCPOLR TRS     3000.        40
RE DISCPOLR TRS     3500.        40
RE DISCPOLR TRS     4000.        40
RE DISCPOLR TRS     4500.        40
RE DISCPOLR TRS     5000.        40
RE DISCPOLR TRS     5500.        40
RE DISCPOLR TRS     6000.        40
RE DISCPOLR TRS     6100.        40
RE DISCPOLR TRS     2500.        50
RE DISCPOLR TRS     3000.        50
RE DISCPOLR TRS     3500.        50
RE DISCPOLR TRS     4000.        50
RE DISCPOLR TRS     4500.        50
RE DISCPOLR TRS     5000.        50
RE DISCPOLR TRS     5500.        50
RE DISCPOLR TRS     6000.        50
RE DISCPOLR TRS     6100.        50
RE DISCPOLR TRS     2000.        60
```

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT CHASSAHOWITZKA NWA, PROJECT ONLY SOURCES, FINAL SCENARIO    11/15/01
FUTURE EMISSION RATES, NEW THERMAL OXIDIZER BURNING NCGS 100%
---------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                    Default: 1       ! NMETDAT =   4   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =             *
    or
ISCMET.DAT    input    * ISCDAT =             *
    or
PLMMET.DAT    input    * PLMDAT =             *
    or
PROFILE.DAT   input    * PRFDAT =             *
SURFACE.DAT   input    * SFCDAT =             *
RESTARTB.DAT  input    * RSTARTB=             *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFFUT4.LST   !
CONC.DAT      output   ! CONDAT =PUFFFUT4.CON   !
DFLX.DAT      output   * DFDAT  =             *
WFLX.DAT      output   * WFDAT  =             *

VISB.DAT      output   ! VISDAT =VISB4.DAT    !
RESTARTE.DAT  output   * RSTARTE=             *
--------------------------------------------------------------------------------
Emission Files                    3
--------------
PTEMARB.DAT   input    * PTDAT  =             *
VOLEM.DAT     input    * VOLDAT =             *
BAEMARB.DAT   input    * ARDAT  =             *
LNEMARB.DAT   input    * LNDAT  =             *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =O3OWR90.DAT  !
VD.DAT        input    * VDDAT  =             *
CHEM.DAT      input    * CHEMDAT=             *
HILL.DAT      input    * HILDAT=             *
HILLRCT.DAT   input    * RCTDAT=             *
COASTLN.DAT   input    * CSTDAT=             *
FLUXBDY.DAT   input    * BDYDAT=             *
DEBUG.DAT     output   * DEBUG =             *
MASSFLX.DAT   output   * FLXDAT=             *
MASSBAL.DAT   output   * BALDAT=             *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=C:\CALMET\CHASS\METQ1.DAT     !  !END!
 none         input    ! METDAT=C:\CALMET\CHASS\METQ2.DAT     !  !END!
 none         input    ! METDAT=C:\CALMET\CHASS\METQ3.DAT     !  !END!
```

```
none         input    ! METDAT=C:\CALMET\CHASS\METQ4.DAT     !  !END!

-------------------------------------------------------------------------------

INPUT GROUP: 1 -- General run control parameters
--------------

    Option to run all periods found
    in the met. file     (METRUN)   Default: 0       ! METRUN =   0  !

         METRUN = 0 - Run period explicitly defined below
         METRUN = 1 - Run all periods in met. file

     Starting date:   Year (IBYR) -- No default       ! IBYR =  1990  !
     (used only if   Month (IBMO) -- No default       ! IBMO =  1  !
      METRUN = 0)      Day (IBDY) -- No default       ! IBDY =  6  !
                      Hour (IBHR) -- No default       ! IBHR =  0  !

     Length of run (hours) (IRLG) -- No default       ! IRLG =  8616  !

     Number of chemical species (NSPEC)
                                      Default: 5      ! NSPEC =  6  !

     Number of chemical species
     to be emitted  (NSE)             Default: 3      ! NSE =  3  !

     Flag to stop run after
     SETUP phase (ITEST)              Default: 2      ! ITEST =  2   !
     (Used to allow checking
     of the model inputs, files, etc.)
           ITEST = 1 - STOPS program after SETUP phase
           ITEST = 2 - Continues with execution of program
                       after SETUP

     Restart Configuration:

        Control flag (MRESTART)       Default: 0      ! MRESTART =  0   !

           0 = Do not read or write a restart file
           1 = Read a restart file at the beginning of
               the run
           2 = Write a restart file during run
           3 = Read a restart file at beginning of run
               and write a restart file during run

        Number of periods in Restart
        output cycle (NRESPD)         Default: 0      ! NRESPD =  0   !

           0 = File written only at last period
          >0 = File updated every NRESPD periods

     Meteorological Data Format (METFM)
                                      Default: 1      ! METFM =  1   !

           METFM = 1 - CALMET binary file (CALMET.MET)
           METFM = 2 - ISC ASCII file (ISCMET.MET)
           METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
           METFM = 4 - CTDM plus tower file (PROFILE.DAT) and
                       surface parameters file (SURFACE.DAT)

     PG sigma-y is adjusted by the factor (AVET/PGTIME)**0.2
     Averaging Time (minutes) (AVET)
                                      Default: 60.0    ! AVET = 60. !
     PG Averaging Time (minutes) (PGTIME)
                                      Default: 60.0    ! PGTIME = 60. !


!END!


-------------------------------------------------------------------------------

INPUT GROUP: 2 -- Technical options
--------------
```

```
Vertical distribution used in the
near field (MGAUSS)                Default: 1     ! MGAUSS =  1   !
   0 = uniform
   1 = Gaussian

Terrain adjustment method
(MCTADJ)                           Default: 3     ! MCTADJ =  3   !
   0 = no adjustment
   1 = ISC-type of terrain adjustment
   2 = simple, CALPUFF-type of terrain
       adjustment
   3 = partial plume path adjustment

Subgrid-scale complex terrain
flag (MCTSG)                       Default: 0     ! MCTSG =  0   !
   0 = not modeled
   1 = modeled

Near-field puffs modeled as
elongated 0 (MSLUG)                Default: 0     ! MSLUG =  0   !
   0 = no
   1 = yes (slug model used)

Transitional plume rise modeled ?
(MTRANS)                           Default: 1     ! MTRANS =  1   !
   0 = no  (i.e., final rise only)
   1 = yes (i.e., transitional rise computed)

Stack tip downwash? (MTIP)         Default: 1     ! MTIP =  1  !
   0 = no  (i.e., no stack tip downwash)
   1 = yes (i.e., use stack tip downwash)

Vertical wind shear modeled above
stack top? (MSHEAR)                Default: 0     ! MSHEAR =  1  !
   0 = no  (i.e., vertical wind shear not modeled)
   1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT)   Default: 0     ! MSPLIT =  0  !
   0 = no (i.e., puffs not split)
   1 = yes (i.e., puffs are split)

Chemical mechanism flag (MCHEM)    Default: 1     ! MCHEM =  1   !
   0 = chemical transformation not
       modeled
   1 = transformation rates computed
       internally (MESOPUFF II scheme)
   2 = user-specified transformation
       rates used
   3 = transformation rates computed
       internally (RIVAD/ARM3 scheme)

Wet removal modeled ? (MWET)       Default: 1     ! MWET =  1   !
   0 = no
   1 = yes

Dry deposition modeled ? (MDRY)    Default: 1     ! MDRY =  1   !
   0 = no
   1 = yes
   (dry deposition method specified
    for each species in Input Group 3)

Method used to compute dispersion
coefficients (MDISP)               Default: 3     ! MDISP =  4   !

   1 = dispersion coefficients computed from measured values
       of turbulence, sigma v, sigma w
   2 = dispersion coefficients from internally calculated
       sigma v, sigma w using micrometeorological variables
       (u*, w*, L, etc.)
   3 = PG dispersion coefficients for RURAL areas (computed using
       the ISCST multi-segment approximation) and MP coefficients in
       urban areas
   4 = same as 3 except PG coefficients computed using
```

```
        the MESOPUFF II eqns.
     5 = CTDM sigmas used for stable and neutral conditions.
        For unstable conditions, sigmas are computed as in
        MDISP = 3, described above.  MDISP = 5 assumes that
        measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)
(Used only if MDISP = 1 or 5)          Default: 3     ! MTURBVW =  0  !
   1 = use sigma-v or sigma-theta measurements
       from PROFILE.DAT to compute sigma-y
       (valid for METFM = 1, 2, 3, 4)
   2 = use sigma-w measurements
       from PROFILE.DAT to compute sigma-z
       (valid for METFM = 1, 2, 3, 4)
   3 = use both sigma-(v/theta) and sigma-w
       from PROFILE.DAT to compute sigma-y and sigma-z
       (valid for METFM = 1, 2, 3, 4)
   4 = use sigma-theta measurements
       from PLMMET.DAT to compute sigma-y
       (valid only if METFM = 3)

Back-up method used to compute dispersion
when measured turbulence data are
missing (MDISP2)                       Default: 3     ! MDISP2 =  4  !
(used only if MDISP = 1 or 5)
   2 = dispersion coefficients from internally calculated
       sigma v, sigma w using micrometeorological variables
       (u*, w*, L, etc.)
   3 = PG dispersion coefficients for RURAL areas (computed using
       the ISCST multi-segment approximation) and MP coefficients in
       urban areas
   4 = same as 3 except PG coefficients computed using
       the MESOPUFF II eqns.

PG sigma-y,z adj. for roughness?       Default: 0     ! MROUGH =  0  !
(MROUGH)
   0 = no
   1 = yes

Partial plume penetration of           Default: 1     ! MPARTL =  1  !
elevated inversion?
(MPARTL)
   0 = no
   1 = yes

Strength of temperature inversion      Default: 0     ! MTINV =  0  !
provided in PROFILE.DAT extended records?
(MTINV)
   0 = no (computed from measured/default gradients)
   1 = yes

PDF used for dispersion under convective conditions?
                                       Default: 0     ! MPDF =  0  !
(MPDF)
   0 = no
   1 = yes

Sub-Grid TIBL module used for shore line?
                                       Default: 0     ! MSGTIBL = 0  !
(MSGTIBL)
   0 = no
   1 = yes

Test options specified to see if
they conform to regulatory
values? (MREG)                         Default: 1     ! MREG =  0   !

   0 = NO checks are made
   1 = Technical options must conform to USEPA values
                 METFM     1
                 AVET      60. (min)
                 MGAUSS    1
                 MCTADJ    3
                 MTRANS    1
                 MTIP      1
```

```
                    MCHEM     1 (if modeling SOx, NOx)
                    MWET      1
                    MDRY      1
                    MDISP     3
                    MROUGH    0
                    MPARTL    1
                    SYTDEP    550. (m)
                    MHFTSZ    0


!END!

-------------------------------------------------------------------------------

INPUT GROUP: 3a, 3b -- Species list
-------------------

------------
Subgroup (3a)
------------

  The following species are modeled:

! CSPEC =          SO2 !          !END!
! CSPEC =          SO4 !          !END!
! CSPEC =          NOX !          !END!
! CSPEC =         HNO3 !          !END!
! CSPEC =          NO3 !          !END!
! CSPEC =         PM10 !          !END!
                                                         Dry                 OUTPUT GROUP
    SPECIES          MODELED           EMITTED         DEPOSITED                NUMBER
     NAME         (0=NO, 1=YES)     (0=NO, 1=YES)     (0=NO,                 (0=NONE,
   (Limit: 12                                           1=COMPUTED-GAS        1=1st CGRUP,
    Characters                                          2=COMPUTED-PARTICLE   2=2nd CGRUP,
    in length)                                          3=USER-SPECIFIED)     3= etc.)

!         SO2  =          1,                1,            1,                  0    !
!         SO4  =          1,                0,            2,                  0    !
!         NOX  =          1,                1,            1,                  0    !
!        HNO3  =          1,                0,            1,                  0    !
!         NO3  =          1,                0,            2,                  0    !
!        PM10  =          1,                1,            2,                  0    !


!END!

-------------
Subgroup (3b)
-------------
  The following names are used for Species-Groups in which results
  for certain species are combined (added) prior to output.  The
  CGRUP name will be used as the species name in output files.
  Use this feature to model specific particle-size distributions
  by treating each size-range as a separate species.
  Order must be consistent with 3(a) above.



-------------------------------------------------------------------------------


INPUT GROUP: 4 -- Grid control parameters
--------------


METEOROLOGICAL grid:

           No. X grid cells (NX)      No default      ! NX =  70   !
           No. Y grid cells (NY)      No default      ! NY =  75   !
        No. vertical layers (NZ)      No default      ! NZ =   9   !

          Grid spacing (DGRIDKM)      No default      ! DGRIDKM = 5. !
                                      Units: km
```

```
             Cell face heights
                 (ZFACE(nz+1))        No defaults
                                      Units: m
 ! ZFACE = 0.,20.,50.,100.,200.,500.,1000.,1500.,2500.,3500. !

         Reference Coordinates
        of SOUTHWEST corner of
              grid cell(1, 1):

         X coordinate (XORIGKM)       No default      ! XORIGKM = 250.0 !
         Y coordinate (YORIGKM)       No default      ! YORIGKM = 2990.0 !
                                     Units: km

              UTM zone (IUTMZN)       No default      ! IUTMZN =  17   !

  Reference coordinates of CENTER
       of the domain (used in the
   calculation of solar elevation
                          angles)

         Latitude  (deg.) (XLAT)      No default      ! XLAT   = 27.011 !
        Longitude (deg.) (XLONG)      No default      ! XLONG = 83.52 !
          Time zone         (XTZ)     No default      ! XTZ    = 5.0  !
     (PST=8, MST=7, CST=6, EST=5)
```

Computational grid:

```
     The computational grid is identical to or a subset of the MET. grid.
     The lower left (LL) corner of the computational grid is at grid point
     (IBCOMP, JBCOMP) of the MET. grid.  The upper right (UR) corner of the
     computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.
     The grid spacing of the computational grid is the same as the MET. grid.

        X index of LL corner (IBCOMP)      No default      ! IBCOMP =  1    !
                  (1 <= IBCOMP <= NX)

        Y index of LL corner (JBCOMP)      No default      ! JBCOMP =  1    !
                  (1 <= JBCOMP <= NY)


        X index of UR corner (IECOMP)      No default      ! IECOMP =  70    !
                  (1 <= IECOMP <= NX)

        Y index of UR corner (JECOMP)      No default      ! JECOMP =  75    !
                  (1 <= JECOMP <= NY)
```

SAMPLING GRID (GRIDDED RECEPTORS):

```
     The lower left (LL) corner of the sampling grid is at grid point
     (IBSAMP, JBSAMP) of the MET. grid.  The upper right (UR) corner of the
     sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.
     The sampling grid must be identical to or a subset of the computational
     grid.  It may be a nested grid inside the computational grid.
     The grid spacing of the sampling grid is DGRIDKM/MESHDN.

        Logical flag indicating if gridded
        receptors are used (LSAMP)         Default: T      ! LSAMP = F !
        (T=yes, F=no)

        X index of LL corner (IBSAMP)      No default      ! IBSAMP =  0    !
         (IBCOMP <= IBSAMP <= IECOMP)

        Y index of LL corner (JBSAMP)      No default      ! JBSAMP =  0    !
         (JBCOMP <= JBSAMP <= JECOMP)


        X index of UR corner (IESAMP)      No default      ! IESAMP =  70   !
         (IBCOMP <= IESAMP <= IECOMP)

        Y index of UR corner (JESAMP)      No default      ! JESAMP =  75   !
         (JBCOMP <= JESAMP <= JECOMP)
```

```
      Nesting factor of the sampling
       grid (MESHDN)                    Default: 1     ! MESHDN =  1  !
       (MESHDN is an integer >= 1)

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 5 -- Output Options
-------------
                                              *                         *
    FILE                       DEFAULT VALUE             VALUE THIS RUN
    ----                       -------------             -------------

   Concentrations (ICON)            1                    !  ICON =  1   !
   Dry Fluxes (IDRY)                1                    !  IDRY =  0   !
   Wet Fluxes (IWET)                1                    !  IWET =  0   !
   Relative Humidity (IVIS)         1                    !  IVIS =  1   !
    (relative humidity file is
     required for visibility
     analysis)
   Use data compression option in output file?
   (LCOMPRS)                        Default: T           ! LCOMPRS = F !

   *
    0 = Do not create file, 1 = create file


    DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

      Mass flux across specified boundaries
      for selected species reported hourly?
      (IMFLX)                       Default: 0           ! IMFLX =  0  !
        0 = no
        1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames
                 are specified in Input Group 0)

      Mass balance for each species
      reported hourly?
      (IMBAL)                       Default: 0           ! IMBAL =  0  !
        0 = no
        1 = yes (MASSBAL.DAT filename is
             specified in Input Group 0)


    LINE PRINTER OUTPUT OPTIONS:

      Print concentrations (ICPRT)  Default: 0           ! ICPRT =  0   !
      Print dry fluxes (IDPRT)      Default: 0           ! IDPRT =  0   !
      Print wet fluxes (IWPRT)      Default: 0           ! IWPRT =  0   !
      (0 = Do not print, 1 = Print)

      Concentration print interval
      (ICFRQ) in hours              Default: 1           ! ICFRQ =  24   !
      Dry flux print interval
      (IDFRQ) in hours              Default: 1           ! IDFRQ =  1   !
      Wet flux print interval
      (IWFRQ) in hours              Default: 1           ! IWFRQ =  1   !

      Units for Line Printer Output
      (IPRTU)                       Default: 1           ! IPRTU =  3   !
                      for             for
                 Concentration    Deposition
          1 =       g/m**3         g/m**2/s
          2 =      mg/m**3        mg/m**2/s
          3 =      ug/m**3        ug/m**2/s
          4 =      ng/m**3        ng/m**2/s
          5 =     Odour Units

      Messages tracking progress of  Default: 1          ! IMESG =  1   !
      run written to the screen ?
```

```
      (IMESG) -- 0=no, 1=yes

    SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

                 ---- CONCENTRATIONS ----   ------ DRY FLUXES ------   ------ WET FLUXES ------   -- MASS FLUX --
   SPECIES
   /GROUP        PRINTED?  SAVED ON DISK?   PRINTED?  SAVED ON DISK?   PRINTED?  SAVED ON DISK?   SAVED ON DISK?
   -------       ------------------------   ------------------------   ------------------------   ---------------
!         SO2 =      0,          1,             0,         0,              0,          0,              0   !
!         SO4 =      0,          1,             0,         0,              0,          0,              0   !
!         NOX =      0,          1,             0,         0,              0,          0,              0   !
!        HNO3 =      0,          1,             0,         0,              0,          0,              0   !
!         NO3 =      0,          1,             0,         0,              0,          0,              0   !
!        PM10 =      0,          1,             0,         0,              0,          0,              0   !
    OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

      Logical for debug output
      (LDEBUG)                                 Default: F     ! LDEBUG = F !

      First puff to track
      (IPFDEB)                                 Default: 1     ! IPFDEB =  1  !

      Number of puffs to track
      (NPFDEB)                                 Default: 1     ! NPFDEB =  1  !

      Met. period to start output
      (NN1)                                    Default: 1     ! NN1 =  1   !

      Met. period to end output
      (NN2)                                    Default: 10    ! NN2 =  10  !

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs
-------------------------

---------------
Subgroup (6a)
---------------
      Number of terrain features (NHILL)       Default: 0     ! NHILL =  0   !

      Number of special complex terrain
      receptors  (NCTREC)                      Default: 0     ! NCTREC =  0   !

      Terrain and CTSG Receptor data for
      CTSG hills input in CTDM format ?
      (MHILL)                                  No Default     ! MHILL =  0   !
      1 = Hill and Receptor data created
          by CTDM processors & read from
          HILL.DAT and HILLRCT.DAT files
      2 = Hill data created by OPTHILL &
          input below in Subgroup (6b);
          Receptor data in Subgroup (6c)

      Factor to convert horizontal dimensions  Default: 1.0   ! XHILL2M = 1. !
      to meters (MHILL=1)

      Factor to convert vertical dimensions    Default: 1.0   ! ZHILL2M = 1. !
      to meters (MHILL=1)

      X-origin of CTDM system relative to      No Default     ! XCTDMKM = 0.0E00 !
      CALPUFF coordinate system, in Kilometers (MHILL=1)

      Y-origin of CTDM system relative to      No Default     ! YCTDMKM = 0.0E00 !
      CALPUFF coordinate system, in Kilometers (MHILL=1)

! END !

---------------
Subgroup (6b)
```

----

1 **

HILL information

HILL NO.	XC (km)	YC (km)	THETAH (deg.)	ZGRID (m)	RELIEF (m)	EXPO 1 (m)	EXPO 2 (m)	SCALE 1 (m)	SCALE 2 (m)	AMAX1 (m)	AMAX2 (m)

Subgroup (6c)

COMPLEX TERRAIN RECEPTOR INFORMATION

XRCT (km)	YRCT (km)	ZRCT (m)	XHH

1

Description of Complex Terrain Variables:

```
XC, YC   = Coordinates of center of hill
THETAH   = Orientation of major axis of hill (clockwise from
           North)
ZGRID    = Height of the  0  of the grid above mean sea
           level
RELIEF   = Height of the crest of the hill above the grid elevation
EXPO 1   = Hill-shape exponent for the major axis
EXPO 2   = Hill-shape exponent for the major axis
SCALE 1  = Horizontal length scale along the major axis
SCALE 2  = Horizontal length scale along the minor axis
AMAX     = Maximum allowed axis length for the major axis
BMAX     = Maximum allowed axis length for the major axis

XRCT, YRCT = Coordinates of the complex terrain receptors
ZRCT     = Height of the ground (MSL) at the complex terrain
           Receptor
XHH      = Hill number associated with each complex terrain receptor
           (NOTE: MUST BE ENTERED AS A REAL NUMBER)
```

**

NOTE: DATA for each hill and CTSG receptor are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases
----

	SPECIES NAME	DIFFUSIVITY (cm**2/s)	ALPHA STAR	REACTIVITY	MESOPHYLL RESISTANCE (s/cm)	HENRY'S LAW COEFFICIENT (dimensionless)	
!	SO2 =	0.1509,	1000.,	8.,	0.,	0.04	!
!	NOX =	0.1656,	1.,	8.,	5.,	3.5	!
!	HNO3 =	0.1628,	1.,	18.,	0.,	0.00000008	!

!END!

INPUT GROUP: 8 -- Size parameters for dry deposition of particles
----

For SINGLE SPECIES, the mean and standard deviation are used to compute a deposition velocity for NINT (see group 9) size-ranges, and these are then averaged to obtain a mean deposition velocity.

For GROUPED SPECIES, the size distribution should be explicitly

```
     specified (by the 'species' in the group), and the standard deviation
     for each should be entered as 0.  The model will then use the
     deposition velocity for the stated mean diameter.

      SPECIES      GEOMETRIC MASS MEAN        GEOMETRIC STANDARD
       NAME             DIAMETER                  DEVIATION
                        (microns)                 (microns)
      -------      -------------------        ------------------
!         SO4 =            0.48,                     2.    !
!         NO3 =            0.48,                     2.    !
!        PM10 =            0.48,                     2.    !

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters
--------------

     Reference cuticle resistance (s/cm)
     (RCUTR)                           Default: 30    !  RCUTR = 30. !
     Reference ground resistance  (s/cm)
     (RGR)                             Default: 10    !    RGR = 10. !
     Reference pollutant reactivity
     (REACTR)                          Default: 8     ! REACTR = 8. !

     Number of particle-size intervals used to
     evaluate effective particle deposition velocity
     (NINT)                            Default: 9     !   NINT =  9   !

     Vegetation state in unirrigated areas
     (IVEG)                            Default: 1     !   IVEG =  1    !
        IVEG=1 for active and unstressed vegetation
        IVEG=2 for active and stressed vegetation
        IVEG=3 for inactive vegetation

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 10 -- Wet Deposition Parameters
---------------

                        Scavenging Coefficient -- Units: (sec)**(-1)

       Pollutant        Liquid Precip.        Frozen Precip.
       ---------        --------------        --------------
!         SO2 =           3.0E-05,               0.0E00 !
!         SO4 =           1.0E-04,              3.0E-05 !
!        HNO3 =           6.0E-05,               0.0E00 !
!         NO3 =           1.0E-04,              3.0E-05 !
!        PM10 =           1.0E-04,              3.0E-05 !

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 11 -- Chemistry Parameters
---------------

     Ozone data input option (MOZ)     Default: 1            ! MOZ =  1    !
     (Used only if MCHEM = 1 or 3)
        0 = use a constant background ozone value
        1 = read hourly ozone concentrations from
            the OZONE.DAT data file

     Background ozone concentration
     (BCKO3) in ppb                    Default: 80.          ! BCKO3 = 80. !
```

```
     (Used only if MCHEM = 1 or 3 and
      MOZ = 0 or (MOZ = 1 and all hourly
      O3 data missing)

     Background ammonia concentration  (CHANGED TO 0.5 PPM)
     (BCKNH3) in ppb                   Default: 10.         ! BCKNH3 = 1.0 !

     Nighttime SO2 loss rate (RNITE1)
     in percent/hour                   Default: 0.2         ! RNITE1 = 0.2 !

     Nighttime NOx loss rate (RNITE2)
     in percent/hour                   Default: 2.0         ! RNITE2 = 2. !

     Nighttime HNO3 formation rate (RNITE3)
     in percent/hour                   Default: 2.0         ! RNITE3 = 2. !

!END!


-------------------------------------------------------------------------------


INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters
---------------

     Horizontal size of puff (m) beyond which
     time-dependent dispersion equations (Heffter)
     are used to determine sigma-y and
     sigma-z (SYTDEP)                           Default: 550.   ! SYTDEP = 5.5E02 !

     Switch for using Heffter equation for sigma z
     as above (0 = Not use Heffter; 1 = use Heffter
     (MHFTSZ)                                   Default: 0      ! MHFTSZ =  0   !

     Stability class used to determine plume
     growth rates for puffs above the boundary
     layer (JSUP)                               Default: 5      ! JSUP =  5   !

     Vertical dispersion constant for stable
     conditions (k1 in Eqn. 2.7-3)  (CONK1)     Default: 0.01   ! CONK1 = 0.01 !

     Vertical dispersion constant for neutral/
     unstable conditions (k2 in Eqn. 2.7-4)
     (CONK2)                                    Default: 0.1    ! CONK2 = 0.1 !

     Factor for determining Transition-point from
     Schulman-Scire to Huber-Snyder Building Downwash
     scheme (SS used for Hs < Hb + TBD * HL)
     (TBD)                                      Default: 0.5    ! TBD = 0.5 !
        TBD < 0   ==> always use Huber-Snyder
        TBD = 1.5 ==> always use Schulman-Scire
        TBD = 0.5 ==> ISC Transition-point

     Range of land use categories for which
     urban dispersion is assumed
     (IURB1, IURB2)                             Default: 10     ! IURB1 =  10  !
                                                         19     ! IURB2 =  19  !

     Site characterization parameters for single-point Met data files ---------
     (needed for METFM = 2,3,4)

        Land use category for modeling domain
        (ILANDUIN)                              Default: 20     ! ILANDUIN =  20  !

        Roughness length (m) for modeling domain
        (Z0IN)                                  Default: 0.25   ! Z0IN = 0.25 !

        Leaf area index for modeling domain
        (XLAIIN)                                Default: 3.0    ! XLAIIN = 3. !

        Elevation above sea level (m)
        (ELEVIN)                                Default: 0.0    ! ELEVIN = 0. !

        Latitude (degrees) for met location
        (XLATIN)                                Default: -999.  ! XLATIN = -999. !
```

```
   Longitude (degrees) for met location
   (XLONIN)                                Default: -999.  ! XLONIN = -999. !

Specialized information for interpreting single-point Met data files -----

   Anemometer height (m) (Used only if METFM = 2,3)
   (ANEMHT)                                Default: 10.    ! ANEMHT = 6.7 !

   Form of lateral turbulance data in PROFILE.DAT file
   (Used only if METFM = 4 or MTURBVW = 1 or 3)
   (ISIGMAV)                               Default: 1      ! ISIGMAV =  2  !
       0 = read sigma-theta
       1 = read sigma-v

   Choice of mixing heights (Used only if METFM = 4)
   (IMIXCTDM)                              Default: 0      ! IMIXCTDM =  0  !
       0 = read PREDICTED mixing heights
       1 = read OBSERVED mixing heights

Maximum length of a slug (met. grid units)
(XMXLEN)                                   Default: 1.0    ! XMXLEN = 1. !

Maximum travel distance of a puff/slug (in
grid units) during one sampling step
(XSAMLEN)                                  Default: 1.0    ! XSAMLEN = 1. !

Maximum Number of slugs/puffs release from
one source during one time step
(MXNEW)                                    Default: 99     ! MXNEW =  99   !

Maximum Number of sampling steps for
one puff/slug during one time step
(MXSAM)                                    Default: 99     ! MXSAM =  99   !

Number of iterations used when computing
the transport wind for a sampling step
that includes gradual rise (for CALMET
and PROFILE winds)
(NCOUNT)                                   Default: 2      ! NCOUNT =  2   !

Minimum sigma y for a new puff/slug (m)
(SYMIN)                                    Default: 1.0    ! SYMIN = 1.  !

Minimum sigma z for a new puff/slug (m)
(SZMIN)                                    Default: 1.0    ! SZMIN = 1.  !

Default minimum turbulence velocities
sigma-v and sigma-w for each
stability class (m/s)
(SVMIN(6) and SWMIN(6))     Default SVMIN : .50,  .50,  .50,  .50,  .50,  .50
                            Default SWMIN : .20,  .12,  .08,  .06,  .03,  .016

                          Stability Class :  A     B     C     D     E     F
                                            ---   ---   ---   ---   ---   ---
                                  ! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500!
                                  ! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff
used to initiate adjustment for horizontal
convergence (1/s)
Partial adjustment starts at CDIV(1), and
full adjustment is reached at CDIV(2)
(CDIV(2))                                  Default: 0.0,0.0  ! CDIV = 0., 0. !

Minimum wind speed (m/s) allowed for
non-calm conditions. Also used as minimum
speed returned when using power-law
extrapolation toward surface
(WSCALM)                                   Default: 0.5    ! WSCALM = 0.5 !

Maximum mixing height (m)
(XMAXZI)                                   Default: 3000.  ! XMAXZI = 3000. !

Minimum mixing height (m)
```

```
(XMINZI)                                  Default: 50.    ! XMINZI = 50. !

Default wind speed classes --
5 upper bounds (m/s) are entered;
the 6th class has no upper limit
(WSCAT(5))                     Default    :
                               ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10,8 (10.8+)

                       Wind Speed Class :  1     2     3     4     5     6
                                          ---   ---   ---   ---   ---   ---
                               ! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.80 !

Default wind speed profile power-law
exponents for stabilities 1-6
(PLX0(6))                      Default    : ISC RURAL values
                               ISC RURAL : .07, .07, .10, .15, .35, .55
                               ISC URBAN : .15, .15, .20, .25, .30, .30

                        Stability Class :  A     B     C     D     E     F
                                          ---   ---   ---   ---   ---   ---
                                ! PLX0 = 0.07, 0.07, 0.10, 0.15, 0.35, 0.55 !

Default potential temperature gradient
for stable classes E, F (degK/m)
(PTG0(2))                      Default: 0.020, 0.035
                                ! PTG0 = 0.020,   0.035 !

Default plume path coefficients for
each stability class (used when option
for partial plume height terrain adjustment
is selected -- MCTADJ=3)
(PPC(6))                Stability Class :  A     B     C     D     E     F
                            Default  PPC : .50,  .50,  .50,  .50,  .35,  .35
                                          ---   ---   ---   ---   ---   ---
                                !  PPC = 0.50, 0.50, 0.50, 0.50, 0.35, 0.35 !

Slug-to-puff transition criterion factor
equal to sigma-y/length of slug
(SL2PF)                           Default: 10.        ! SL2PF = 10. !

Puff-splitting control variables ------------------------

  Number of puffs that result every time a puff
  is split - nsplit=2 means that 1 puff splits
  into 2
  (NSPLIT)                        Default:   3        ! NSPLIT =  3  !

  Time(s) of a day when split puffs are eligible to
  be split once again; this is typically set once
  per day, around sunset before nocturnal shear develops.
  24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)
  0=do not re-split    1=eligible for re-split
  (IRESPLIT(24))                  Default:  Hour 17 = 1
  !  IRESPLIT = 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0 !

  Split is allowed only if last hour's mixing
  height (m) exceeds a minimum value
  (ZISPLIT)                       Default: 100.       ! ZISPLIT = 100. !

  Split is allowed only if ratio of last hour's
  mixing ht to the maximum mixing ht experienced
  by the puff is less than a maximum value (this
  postpones a split until a nocturnal layer develops)
  (ROLDMAX)                       Default: 0.25       ! ROLDMAX = 0.25 !

Integration control variables ------------------------

  Fractional convergence criterion for numerical SLUG
  sampling integration
  (EPSSLUG)                       Default:   1.0e-04  ! EPSSLUG = 1.0E-04 !

  Fractional convergence criterion for numerical AREA
  source integration
  (EPSAREA)                       Default:   1.0e-06  ! EPSAREA = 1.0E-06 !
```

```
      Trajectory step-length (m) used for numerical rise
      integration
      (DSRISE)                          Default:   1.0     ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------


INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below      (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)        (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file      (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                             a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                 b          c
  Source       X UTM      Y UTM      Stack    Base     Stack    Exit  Exit     Bldg.  Emission
   No.     Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.    Dwash   Rates
              (km)       (km)       (m)      (m)        (m)  (m/s) (deg. K)
  ------   ---------- ---------- -----  ------   -------- -------- -------- -------------
      2  ! SRCNAM = TO          !
      2  ! X =    434.0000,  3283.400,   76.20,    0.00,    1.10,   4.09,  344, 1.0, 0.0E00, 0.00E00, 5.44,
           0.0E00, 0.0E00, 0.0E00 !
  !END!
   a
    Data for each source are treated as a separate input subgroup
    and therefore must end with an input group terminator.

   b
    0. = No building downwash modeled, 1. = downwash modeled
    NOTE: must be entered as a REAL number (i.e., with decimal point)

   c
    An emission rate must be entered for every pollutant modeled.
    Enter emission rate of zero for secondary pollutants that are
    modeled, but not emitted.  Units are specified by IPTU
    (e.g. 1 for g/s).

---------------
```

```
Subgroup (13c)
--------------
           BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
           ------------------------------------------------------
       2  ! SRCNAM = TO         !
       2  !  HEIGHT =  32.80,   0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   25.91,
                59.04,   59.04,   59.04,   59.04,   59.04,   32.80,
                32.80,    0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   25.91,
                59.04,    0.00,    0.00,    0.00,   59.04,   25.91 !
       2  !  WIDTH =   78.64,   0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   33.53,
                38.03,   34.39,   33.54,   37.39,   38.03,   38.93,
                39.65,    0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   95.50,
                38.03,    0.00,    0.00,    0.00,   38.03,  104.49 !
!END!

Source                                                                   a
 No.       Effective building width and height (in meters) every 10 degrees
------     ------------------------------------------------------------


--------

   a
    Each pair of width and height values is treated as a separate input
    subgroup and therefore must end with an input group terminator.

--------------
Subgroup (13d)
--------------
                                                  a
          POINT SOURCE: VARIABLE EMISSIONS DATA
          ---------------------------------------

    Use this subgroup to describe temporal variations in the emission
    rates given in 13b.  Factors entered multiply the rates in 13b.
    Skip sources here that have constant emissions.  For more elaborate
    variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

    IVARY determines the type of variation, and is source-specific:
    (IVARY)                              Default: 0
          0 =       Constant
          1 =       Diurnal cycle (24 scaling factors: hours 1-24)
          2 =       Monthly cycle (12 scaling factors: months 1-12)
          3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                   where first group is DEC-JAN-FEB)
          4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                   first group is Stability Class A,
                                   and the speed classes have upper
                                   bounds (m/s) defined in Group 12
          5 =       Temperature   (12 scaling factors, where temperature
                                   classes have upper bounds (C) of:
                                   0, 5, 10, 15, 20, 25, 30, 35, 40,
                                   45, 50, 50+)


--------
   a
    Data for each species are treated as a separate input subgroup
    and therefore must end with an input group terminator.


------------------------------------------------------------------------


INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters
--------------------------------

--------------
Subgroup (14a)
--------------
```

```
     Number of polygon area sources with
     parameters specified below (NAR1)       No default  !  NAR1 =  0   !

     Units used for area source
     emissions below            (IARU)       Default: 1  !  IARU =   1  !
           1 =        g/m**2/s
           2 =       kg/m**2/hr
           3 =       lb/m**2/hr
           4 =     tons/m**2/yr
           5 =     Odour Unit * m/s  (vol. flux/m**2 of odour compound)
           6 =     Odour Unit * m/min
           7 =     metric tons/m**2/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (14d)        (NSAR1) Default: 0  !  NSAR1 =  0  !

     Number of buoyant polygon area sources
     with variable location and emission
     parameters (NAR2)                      No default  !  NAR2 =  0   !
     (If NAR2 > 0, ALL parameter data for
     these sources are read from the file: BAEMARB.DAT)

!END!

---------------
Subgroup (14b)
---------------
                                          a
          AREA SOURCE: CONSTANT DATA
          ----------------------------
                                                         b
Source          Effect.    Base     Initial    Emission
 No.            Height   Elevation  Sigma z     Rates
                  (m)       (m)       (m)
-------         ------    ------    --------   ---------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.
    b
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IARU
     (e.g. 1 for g/m**2/s).

---------------
Subgroup (14c)
---------------

           COORDINATES (UTM-km) FOR EACH VERTEX(4) OF EACH POLYGON
           --------------------------------------------------------
Source                                                              a
 No.       Ordered list of X followed by list of Y, grouped by source
------     ------------------------------------------------------------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.


---------------
Subgroup (14d)
---------------
                                                    a
          AREA SOURCE: VARIABLE EMISSIONS DATA
          --------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 14b.  Factors entered multiply the rates in 14b.
     Skip sources here that have constant emissions.  For more elaborate
```

variation in source parameters, use BAEMARB.DAT and NAR2 > 0.

```
IVARY determines the type of variation, and is source-specific:
(IVARY)                                Default: 0
      0 =       Constant
      1 =       Diurnal cycle (24 scaling factors: hours 1-24)
      2 =       Monthly cycle (12 scaling factors: months 1-12)
      3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                              where first group is DEC-JAN-FEB)
      4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                              first group is Stability Class A,
                              and the speed classes have upper
                              bounds (m/s) defined in Group 12
      5 =       Temperature   (12 scaling factors, where temperature
                              classes have upper bounds (C) of:
                              0, 5, 10, 15, 20, 25, 30, 35, 40,
                              45, 50, 50+)
```

----
a
Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 15a, 15b, 15c -- Line source parameters

```
---------------
Subgroup (15a)
---------------

     Number of buoyant line sources
     with variable location and emission
     parameters (NLN2)                         No default  !  NLN2 =  0   !

     (If NLN2 > 0, ALL parameter data for
      these sources are read from the file: LNEMARB.DAT)

     Number of buoyant line sources (NLINES)   No default   ! NLINES =  0  !

     Units used for line source
     emissions below              (ILNU)       Default: 1  !  ILNU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (15c)       (NSLN1) Default: 0  !  NSLN1 =  0  !

     Maximum number of segments used to model
     each line (MXNSEG)                        Default: 7   ! MXNSEG =  7  !

     The following variables are required only if NLINES > 0.  They are
     used in the buoyant line source plume rise calculations.

        Number of distances at which           Default: 6   ! NLRISE =  6  !
        transitional rise is computed

        Average building length (XL)           No default   ! XL = 0. !
                                               (in meters)

        Average building height (HBL)          No default   ! HBL = 0. !
                                               (in meters)

        Average building width (WBL)           No default   ! WBL = 0. !
```

```
                                                (in meters)

      Average line source width (WML)           No default   ! WML = 0. !
                                                (in meters)

      Average separation between buildings (DXL) No default  ! DXL = 0. !
                                                (in meters)

      Average buoyancy parameter (FPRIMEL)      No default   ! FPRIMEL = 0. !
                                                (in m**4/s**3)

!END!

---------------
Subgroup (15b)
---------------

        BUOYANT LINE SOURCE: CONSTANT DATA
        ----------------------------------
                                                                              a
Source    Beg. X     Beg. Y     End. X    End. Y    Release   Base       Emission
 No.    Coordinate Coordinate Coordinate Coordinate Height  Elevation     Rates
           (km)       (km)       (km)       (km)      (m)      (m)
------  ---------- ---------- --------- ---------- -------  ---------   ---------

--------
   a
    Data for each source are treated as a separate input subgroup
    and therefore must end with an input group terminator.

   b
    An emission rate must be entered for every pollutant modeled.
    Enter emission rate of zero for secondary pollutants that are
    modeled, but not emitted.  Units are specified by ILNTU
    (e.g. 1 for g/s).

---------------
Subgroup (15c)
---------------
                                                    a
        BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA
        ---------------------------------------------

    Use this subgroup to describe temporal variations in the emission
    rates given in 15b.  Factors entered multiply the rates in 15b.
    Skip sources here that have constant emissions.

    IVARY determines the type of variation, and is source-specific:
    (IVARY)                             Default: 0
          0 =       Constant
          1 =       Diurnal cycle (24 scaling factors: hours 1-24)
          2 =       Monthly cycle (12 scaling factors: months 1-12)
          3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                   where first group is DEC-JAN-FEB)
          4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                   first group is Stability Class A,
                                   and the speed classes have upper
                                   bounds (m/s) defined in Group 12
          5 =       Temperature   (12 scaling factors, where temperature
                                   classes have upper bounds (C) of:
                                   0, 5, 10, 15, 20, 25, 30, 35, 40,
                                   45, 50, 50+)


--------
   a
    Data for each species are treated as a separate input subgroup
    and therefore must end with an input group terminator.

--------------------------------------------------------------------------------
```

```
INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters
---------------------------

---------------
Subgroup (16a)
---------------

     Number of volume sources with
     parameters provided in 16b,c (NVL1)     No default  !  NVL1 =  0   !

     Units used for volume source
     emissions below in 16b       (IVLU)     Default: 1  !  IVLU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (16c)      (NSVL1)    Default: 0  !  NSVL1 =  0  !

     Gridded volume source data
     used ? (IGRDVL)                         No default  ! IGRDVL =  0   !
        0 = no
        1 = yes (gridded volume source
           emissions read from the file:
           VOLEM.DAT)

     The following parameters apply to the data in the
     gridded volume source emissions file (VOLEM.DAT)

        -  Effective height of emissions
           (VEFFHT) in meters                No default  ! VEFFHT =  0. !

        -  Initial sigma y (VSIGYI) in
           meters                            No default  ! VSIGYI =  0. !

        -  Initial sigma z (VSIGZI) in
           meters                            No default  ! VSIGZI =  0. !

!END!

---------------
Subgroup (16b)
---------------
                                            a
           VOLUME SOURCE: CONSTANT DATA
           -----------------------------
                                                                        b
        X UTM      Y UTM     Effect.   Base     Initial    Initial    Emission
     Coordinate  Coordinate  Height  Elevation  Sigma y    Sigma z     Rates
        (km)        (km)       (m)      (m)       (m)        (m)
     ----------  ----------  ------   ------   --------   --------   --------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IVLU
     (e.g. 1 for g/s).

---------------
Subgroup (16c)
---------------
                                                a
          VOLUME SOURCE: VARIABLE EMISSIONS DATA
```

```
          ----------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 16b.  Factors entered multiply the rates in 16b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use VOLEM.DAT and IGRDVL = 1.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                               Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.


-------------------------------------------------------------------------------

INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information
----------------------

---------------
Subgroup (17a)
---------------

     Number of non-gridded receptors (NREC)  No default  !  NREC = 13 !

!END!

---------------
Subgroup (17b)
---------------
                                                      a
           NON-GRIDDED (DISCRETE) RECEPTOR DATA
           ------------------------------------

                   X UTM       Y UTM        Ground       Height   b
Receptor         Coordinate  Coordinate   Elevation   Above Ground
  No.               (km)        (km)          (m)           (m)
--------         ----------  ----------   ---------   ------------
     1  ! X =  340.3,  3165.70,  0.0!  !END!
     2  ! X =  340.3,  3167.70,  0.0!  !END!
     3  ! X =  340.3,  3169.80,  0.0!  !END!
     4  ! X =  340.7,  3171.90,  0.0!  !END!
     5  ! X =  342.0,  3174.00,  0.0!  !END!
     6  ! X =  343.0,  3176.20,  0.0!  !END!
     7  ! X =  343.7,  3178.30,  0.0!  !END!
     8  ! X =  342.4,  3180.60,  0.0!  !END!
     9  ! X =  341.1,  3183.40,  0.0!  !END!
     10 ! X =  339.0,  3183.40,  0.0!  !END!
     11 ! X =  336.5,  3183.40,  0.0!  !END!
     12 ! X =  334.0,  3183.40,  0.0!  !END!
     13 ! X =  331.5,  3183.40,  0.0!  !END!
-------------
    a
     Data for each receptor are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     Receptor height above ground is optional.  If no value is entered,
```

the receptor is placed on the ground.

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT CHASSAHOWITZKA NWA, PROJECT ONLY SOURCES, FINAL SCENARIO 11/15/01
CURRENT ACTUAL EMISSION RATES, TRS STACK ONLY
--------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                  Default: 1      ! NMETDAT =   4   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =              *
    or
ISCMET.DAT    input    * ISCDAT =              *
    or
PLMMET.DAT    input    * PLMDAT =              *
    or
PROFILE.DAT   input    * PRFDAT =              *
SURFACE.DAT   input    * SFCDAT =              *
RESTARTB.DAT  input    * RSTARTB=              *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFCUR4.LST   !
CONC.DAT      output   ! CONDAT =PUFFCUR4.CON   !
DFLX.DAT      output   * DFDAT  =              *
WFLX.DAT      output   * WFDAT  =              *

VISB.DAT      output   ! VISDAT =VISB4.DAT   !
RESTARTE.DAT  output   * RSTARTE=              *
--------------------------------------------------------------------------------
Emission Files                        3
--------------
PTEMARB.DAT   input    * PTDAT  =              *
VOLEM.DAT     input    * VOLDAT =              *
BAEMARB.DAT   input    * ARDAT  =              *
LNEMARB.DAT   input    * LNDAT  =              *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =O3OWR90.DAT  !
VD.DAT        input    * VDDAT  =              *
CHEM.DAT      input    * CHEMDAT=              *
HILL.DAT      input    * HILDAT=              *
HILLRCT.DAT   input    * RCTDAT=              *
COASTLN.DAT   input    * CSTDAT=              *
FLUXBDY.DAT   input    * BDYDAT=              *
DEBUG.DAT     output   * DEBUG =              *
MASSFLX.DAT   output   * FLXDAT=              *
MASSBAL.DAT   output   * BALDAT=              *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=C:\CALMET\CHASS\METQ1.DAT     !  !END!
 none         input    ! METDAT=C:\CALMET\CHASS\METQ2.DAT     !  !END!
 none         input    ! METDAT=C:\CALMET\CHASS\METQ3.DAT     !  !END!
```

```
      Trajectory step-length (m) used for numerical rise
      integration
      (DSRISE)                             Default:   1.0      ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------


INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below      (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)        (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file      (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                              a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                    b          c
  Source      X UTM      Y UTM      Stack   Base      Stack    Exit  Exit     Bldg.  Emission
   No.     Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.    Dwash   Rates
              (km)       (km)       (m)     (m)       (m)   (m/s) (deg. K)
  ------   ---------- ---------- ------  ------    -------- ----- -------- ----- --------
       1  ! SRCNAM = TRS        !
       1  ! X =   434.0000,  3283.400,    76.20,  0.00,  0.94,    28.25,  533.0, 1.0, 0.00E00, 0.00E00, 1.42,
             0.0E00, 0.0E00, 0.0E00 !
  !END!


    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     0. = No building downwash modeled, 1. = downwash modeled
     NOTE: must be entered as a REAL number (i.e., with decimal point)

    c
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted. Units are specified by IPTU
```

(e.g. 1 for g/s).

```
--------------
Subgroup (13c)
--------------
          BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
          ---------------------------------------------------

      1  ! SRCNAM = TRS            !
       1  !  HEIGHT =    0.00,  18.96,    0.00,    0.00,    0.00,    0.00,
                   0.00,    0.00,  18.96,   18.96,    0.00,  59.04,
                  59.04,  59.04,  32.80,    0.00,    0.00,    0.00,
                   0.00,  18.96,  18.96,   18.96,   18.96,  18.96,
                  18.96,  18.96,  18.96,   18.96,    0.00,    0.00,
                   0.00,    0.00,    0.00,    0.00,    0.00,    0.00 !
       1  !  WIDTH =     0.00, 471.02,    0.00,    0.00,    0.00,    0.00,
                   0.00,    0.00, 339.41, 382.73,    0.00,  39.61,
                  38.03,  34.39,  74.74,    0.00,    0.00,    0.00,
                   0.00,  55.19,  44.04,   31.56, 100.16,  86.21,
                  88.62, 285.77, 339.41, 382.73,    0.00,    0.00,
                   0.00,    0.00,    0.00,    0.00,    0.00,    0.00 !

!END!

Source                                                                  a
 No.      Effective building width and height (in meters) every 10 degrees
------    ----------------------------------------------------------------


--------
```

a
Each pair of width and height values is treated as a separate input subgroup and therefore must end with an input group terminator.

```
--------------
Subgroup (13d)
--------------
                                            a
         POINT SOURCE: VARIABLE EMISSIONS DATA
         -------------------------------------
```

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:

```
(IVARY)                               Default: 0
      0 =      Constant
      1 =      Diurnal cycle (24 scaling factors: hours 1-24)
      2 =      Monthly cycle (12 scaling factors: months 1-12)
      3 =      Hour & Season (4 groups of 24 hourly scaling factors,
                              where first group is DEC-JAN-FEB)
      4 =      Speed & Stab. (6 groups of 6 scaling factors, where
                              first group is Stability Class A,
                              and the speed classes have upper
                              bounds (m/s) defined in Group 12
      5 =      Temperature   (12 scaling factors, where temperature
                              classes have upper bounds (C) of:
                              0, 5, 10, 15, 20, 25, 30, 35, 40,
                              45, 50, 50+)
```

----

a
Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT OKEFENOKEE NWA, PROJECT ONLY SOURCES, FINAL SCENARIO     11/15/01
FUTURE MAXIMUM EMISSION RATES, NEW THERMAL OXIDIZER BURNING NCGS 100%
--------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                  Default: 1       ! NMETDAT =   6   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =             *
    or
ISCMET.DAT    input    * ISCDAT =             *
    or
PLMMET.DAT    input    * PLMDAT =             *
    or
PROFILE.DAT   input    * PRFDAT =             *
SURFACE.DAT   input    * SFCDAT =             *
RESTARTB.DAT  input    * RSTARTB=             *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFFUT2.LST   !
CONC.DAT      output   ! CONDAT =PUFFFUT2.CON   !
DFLX.DAT      output   * DFDAT  =             *
WFLX.DAT      output   * WFDAT  =             *

VISB.DAT      output   ! VISDAT =VISB2.DAT    !
RESTARTE.DAT  output   * RSTARTE=             *
--------------------------------------------------------------------------------
Emission Files                      3
--------------
PTEMARB.DAT   input    * PTDAT  =             *
VOLEM.DAT     input    * VOLDAT =             *
BAEMARB.DAT   input    * ARDAT  =             *
LNEMARB.DAT   input    * LNDAT  =             *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =O3OWR90.DAT  !
VD.DAT        input    * VDDAT  =             *
CHEM.DAT      input    * CHEMDAT=             *
HILL.DAT      input    * HILDAT=             *
HILLRCT.DAT   input    * RCTDAT=             *
COASTLN.DAT   input    * CSTDAT=             *
FLUXBDY.DAT   input    * BDYDAT=             *
DEBUG.DAT     output   * DEBUG =             *
MASSFLX.DAT   output   * FLXDAT=             *
MASSBAL.DAT   output   * BALDAT=             *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=D:\CALMET\OKEF\MET0102.DAT     !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0304.DAT     !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0506.DAT     !  !END!
```

```
none          input    ! METDAT=D:\CALMET\OKEF\MET0708.DAT      !  !END!
none          input    ! METDAT=D:\CALMET\OKEF\MET0910.DAT      !  !END!
none          input    ! METDAT=D:\CALMET\OKEF\MET1112.DAT      !  !END!

-------------------------------------------------------------------------------

INPUT GROUP: 1 -- General run control parameters
--------------

    Option to run all periods found
    in the met. file     (METRUN)   Default: 0       ! METRUN =   0  !

         METRUN = 0 - Run period explicitly defined below
         METRUN = 1 - Run all periods in met. file

     Starting date:   Year (IBYR) -- No default       ! IBYR =  1990  !
     (used only if   Month (IBMO) -- No default       ! IBMO =  1  !
      METRUN = 0)      Day (IBDY) -- No default       ! IBDY =  6  !
                      Hour (IBHR) -- No default       ! IBHR =  0  !

     Length of run (hours) (IRLG) -- No default       ! IRLG =  8616  !

     Number of chemical species (NSPEC)
                                Default: 5       ! NSPEC =  6  !

     Number of chemical species
     to be emitted  (NSE)           Default: 3       ! NSE =  3  !

     Flag to stop run after
     SETUP phase (ITEST)            Default: 2       ! ITEST =  2   !
     (Used to allow checking
     of the model inputs, files, etc.)
           ITEST = 1 - STOPS program after SETUP phase
           ITEST = 2 - Continues with execution of program
                       after SETUP

     Restart Configuration:

        Control flag (MRESTART)     Default: 0       ! MRESTART =  0   !

           0 = Do not read or write a restart file
           1 = Read a restart file at the beginning of
               the run
           2 = Write a restart file during run
           3 = Read a restart file at beginning of run
               and write a restart file during run

        Number of periods in Restart
        output cycle (NRESPD)       Default: 0       ! NRESPD =  0   !

           0 = File written only at last period
          >0 = File updated every NRESPD periods

     Meteorological Data Format (METFM)
                                Default: 1       ! METFM =  1   !

           METFM = 1 - CALMET binary file (CALMET.MET)
           METFM = 2 - ISC ASCII file (ISCMET.MET)
           METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
           METFM = 4 - CTDM plus tower file (PROFILE.DAT) and
                       surface parameters file (SURFACE.DAT)

     PG sigma-y is adjusted by the factor (AVET/PGTIME)**0.2
     Averaging Time (minutes) (AVET)
                                Default: 60.0    ! AVET = 60. !
     PG Averaging Time (minutes) (PGTIME)
                                Default: 60.0    ! PGTIME = 60. !

!END!

-------------------------------------------------------------------------------
```

INPUT GROUP: 2 -- Technical options

```
     Vertical distribution used in the
     near field (MGAUSS)                    Default: 1     ! MGAUSS =  1   !
        0 = uniform
        1 = Gaussian

     Terrain adjustment method
     (MCTADJ)                               Default: 3     ! MCTADJ =  3   !
        0 = no adjustment
        1 = ISC-type of terrain adjustment
        2 = simple, CALPUFF-type of terrain
            adjustment
        3 = partial plume path adjustment

     Subgrid-scale complex terrain
     flag (MCTSG)                           Default: 0     ! MCTSG =  0   !
        0 = not modeled
        1 = modeled

     Near-field puffs modeled as
     elongated 0 (MSLUG)                    Default: 0     ! MSLUG =  0   !
        0 = no
        1 = yes (slug model used)

     Transitional plume rise modeled ?
     (MTRANS)                               Default: 1     ! MTRANS =  1   !
        0 = no  (i.e., final rise only)
        1 = yes (i.e., transitional rise computed)

     Stack tip downwash? (MTIP)             Default: 1     ! MTIP =  1  !
        0 = no  (i.e., no stack tip downwash)
        1 = yes (i.e., use stack tip downwash)

     Vertical wind shear modeled above
     stack top? (MSHEAR)                    Default: 0     ! MSHEAR =  1  !
        0 = no  (i.e., vertical wind shear not modeled)
        1 = yes (i.e., vertical wind shear modeled)

     Puff splitting allowed? (MSPLIT)       Default: 0     ! MSPLIT =  0  !
        0 = no (i.e., puffs not split)
        1 = yes (i.e., puffs are split)

     Chemical mechanism flag (MCHEM)        Default: 1     ! MCHEM =  1   !
        0 = chemical transformation not
            modeled
        1 = transformation rates computed
            internally (MESOPUFF II scheme)
        2 = user-specified transformation
            rates used
        3 = transformation rates computed
            internally (RIVAD/ARM3 scheme)

     Wet removal modeled ? (MWET)           Default: 1     ! MWET =  1   !
        0 = no
        1 = yes

     Dry deposition modeled ? (MDRY)        Default: 1     ! MDRY =  1   !
        0 = no
        1 = yes
        (dry deposition method specified
         for each species in Input Group 3)

     Method used to compute dispersion
     coefficients (MDISP)                   Default: 3     ! MDISP =  4   !

        1 = dispersion coefficients computed from measured values
            of turbulence, sigma v, sigma w
        2 = dispersion coefficients from internally calculated
            sigma v, sigma w using micrometeorological variables
            (u*, w*, L, etc.)
        3 = PG dispersion coefficients for RURAL areas (computed using
            the ISCST multi-segment approximation) and MP coefficients in
```

```
        urban areas
    4 = same as 3 except PG coefficients computed using
        the MESOPUFF II eqns.
    5 = CTDM sigmas used for stable and neutral conditions.
        For unstable conditions, sigmas are computed as in
        MDISP = 3, described above.  MDISP = 5 assumes that
        measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)
(Used only if MDISP = 1 or 5)        Default: 3     ! MTURBVW =  0  !
    1 = use sigma-v or sigma-theta measurements
        from PROFILE.DAT to compute sigma-y
        (valid for METFM = 1, 2, 3, 4)
    2 = use sigma-w measurements
        from PROFILE.DAT to compute sigma-z
        (valid for METFM = 1, 2, 3, 4)
    3 = use both sigma-(v/theta) and sigma-w
        from PROFILE.DAT to compute sigma-y and sigma-z
        (valid for METFM = 1, 2, 3, 4)
    4 = use sigma-theta measurements
        from PLMMET.DAT to compute sigma-y
        (valid only if METFM = 3)

Back-up method used to compute dispersion
when measured turbulence data are
missing (MDISP2)                     Default: 3     ! MDISP2 =  4  !
(used only if MDISP = 1 or 5)
    2 = dispersion coefficients from internally calculated
        sigma v, sigma w using micrometeorological variables
        (u*, w*, L, etc.)
    3 = PG dispersion coefficients for RURAL areas (computed using
        the ISCST multi-segment approximation) and MP coefficients in
        urban areas
    4 = same as 3 except PG coefficients computed using
        the MESOPUFF II eqns.

PG sigma-y,z adj. for roughness?     Default: 0     ! MROUGH =  0  !
(MROUGH)
    0 = no
    1 = yes

Partial plume penetration of         Default: 1     ! MPARTL =  1  !
elevated inversion?
(MPARTL)
    0 = no
    1 = yes

Strength of temperature inversion    Default: 0     ! MTINV =  0  !
provided in PROFILE.DAT extended records?
(MTINV)
    0 = no (computed from measured/default gradients)
    1 = yes

PDF used for dispersion under convective conditions?
                                     Default: 0     ! MPDF =  0  !
(MPDF)
    0 = no
    1 = yes

Sub-Grid TIBL module used for shore line?
                                     Default: 0     ! MSGTIBL = 0  !
(MSGTIBL)
    0 = no
    1 = yes

Test options specified to see if
they conform to regulatory
values? (MREG)                       Default: 1     ! MREG =  0  !

    0 = NO checks are made
    1 = Technical options must conform to USEPA values
                  METFM    1
                  AVET     60. (min)
                  MGAUSS   1
                  MCTADJ   3
```

```
                  MTRANS    1
                  MTIP      1
                  MCHEM     1 (if modeling SOx, NOx)
                  MWET      1
                  MDRY      1
                  MDISP     3
                  MROUGH    0
                  MPARTL    1
                  SYTDEP    550. (m)
                  MHFTSZ    0

!END!


-------------------------------------------------------------------------------

INPUT GROUP: 3a, 3b -- Species list
-------------------

------------
Subgroup (3a)
------------

  The following species are modeled:

! CSPEC =          SO2 !         !END!
! CSPEC =          SO4 !         !END!
! CSPEC =          NOX !         !END!
! CSPEC =         HNO3 !         !END!
! CSPEC =          NO3 !         !END!
! CSPEC =         PM10 !         !END!
                                                     Dry                OUTPUT GROUP
    SPECIES          MODELED            EMITTED    DEPOSITED               NUMBER
     NAME          (0=NO, 1=YES)     (0=NO, 1=YES)  (0=NO,                 (0=NONE,
   (Limit: 12                                        1=COMPUTED-GAS        1=1st CGRUP,
    Characters                                       2=COMPUTED-PARTICLE   2=2nd CGRUP,
    in length)                                       3=USER-SPECIFIED)     3= etc.)

!          SO2  =          1,              1,          1,                  0   !
!          SO4  =          1,              0,          2,                  0   !
!          NOX  =          1,              1,          1,                  0   !
!         HNO3  =          1,              0,          1,                  0   !
!          NO3  =          1,              0,          2,                  0   !
!         PM10  =          1,              1,          2,                  0   !

!END!

-------------
Subgroup (3b)
-------------
  The following names are used for Species-Groups in which results
  for certain species are combined (added) prior to output.  The
  CGRUP name will be used as the species name in output files.
  Use this feature to model specific particle-size distributions
  by treating each size-range as a separate species.
  Order must be consistent with 3(a) above.


-------------------------------------------------------------------------------


INPUT GROUP: 4 -- Grid control parameters
--------------


METEOROLOGICAL grid:

           No. X grid cells (NX)       No default     ! NX =  64    !
           No. Y grid cells (NY)       No default     ! NY =  83    !
        No. vertical layers (NZ)       No default     ! NZ =  10    !

          Grid spacing (DGRIDKM)       No default     ! DGRIDKM = 5. !
```

```
                                            Units: km

               Cell face heights
                   (ZFACE(nz+1))            No defaults
                                            Units: m
   ! ZFACE = 0.,20.,40.,80.,160.,300.,600.,1000.,1500.,2200.,3000. !

           Reference Coordinates
          of SOUTHWEST corner of
                grid cell(1, 1):

           X coordinate (XORIGKM)           No default     ! XORIGKM = 208.0 !
           Y coordinate (YORIGKM)           No default     ! YORIGKM = 3239.0 !
                                            Units: km

                UTM zone (IUTMZN)           No default     ! IUTMZN =  17   !

   Reference coordinates of CENTER
       of the domain (used in the
    calculation of solar elevation
                            angles)

          Latitude  (deg.) (XLAT)           No default     ! XLAT   = 29.25 !
         Longitude (deg.) (XLONG)           No default     ! XLONG = 84.0 !
           Time zone        (XTZ)           No default     ! XTZ    = 5.0  !
     (PST=8, MST=7, CST=6, EST=5)


Computational grid:

     The computational grid is identical to or a subset of the MET. grid.
     The lower left (LL) corner of the computational grid is at grid point
     (IBCOMP, JBCOMP) of the MET. grid.  The upper right (UR) corner of the
     computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.
     The grid spacing of the computational grid is the same as the MET. grid.

        X index of LL corner (IBCOMP)       No default     ! IBCOMP =  1    !
                  (1 <= IBCOMP <= NX)

        Y index of LL corner (JBCOMP)       No default     ! JBCOMP =  1    !
                  (1 <= JBCOMP <= NY)


        X index of UR corner (IECOMP)       No default     ! IECOMP =  64   !
                  (1 <= IECOMP <= NX)

        Y index of UR corner (JECOMP)       No default     ! JECOMP =  83   !
                  (1 <= JECOMP <= NY)


SAMPLING GRID (GRIDDED RECEPTORS):

     The lower left (LL) corner of the sampling grid is at grid point
     (IBSAMP, JBSAMP) of the MET. grid.  The upper right (UR) corner of the
     sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.
     The sampling grid must be identical to or a subset of the computational
     grid.  It may be a nested grid inside the computational grid.
     The grid spacing of the sampling grid is DGRIDKM/MESHDN.

        Logical flag indicating if gridded
        receptors are used (LSAMP)          Default: T     ! LSAMP = F !
        (T=yes, F=no)

        X index of LL corner (IBSAMP)       No default     ! IBSAMP =  0    !
         (IBCOMP <= IBSAMP <= IECOMP)

        Y index of LL corner (JBSAMP)       No default     ! JBSAMP =  0    !
         (JBCOMP <= JBSAMP <= JECOMP)


        X index of UR corner (IESAMP)       No default     ! IESAMP =  64   !
         (IBCOMP <= IESAMP <= IECOMP)
```

```
       Y index of UR corner (JESAMP)      No default      ! JESAMP =  83  !
        (JBCOMP <= JESAMP <= JECOMP)


      Nesting factor of the sampling
       grid (MESHDN)                      Default: 1      ! MESHDN =  1  !
       (MESHDN is an integer >= 1)

!END!

-------------------------------------------------------------------------------


INPUT GROUP: 5 -- Output Options
--------------
                                            *                          *
     FILE                         DEFAULT VALUE             VALUE THIS RUN
     ----                         -------------             --------------

   Concentrations (ICON)               1                    !  ICON =  1    !
   Dry Fluxes (IDRY)                   1                    !  IDRY =  0    !
   Wet Fluxes (IWET)                   1                    !  IWET =  0    !
   Relative Humidity (IVIS)            1                    !  IVIS =  1    !
    (relative humidity file is
     required for visibility
     analysis)
   Use data compression option in output file?
   (LCOMPRS)                            Default: T          ! LCOMPRS = F !

   *
    0 = Do not create file, 1 = create file


    DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

       Mass flux across specified boundaries
       for selected species reported hourly?
       (IMFLX)                          Default: 0          ! IMFLX =  0  !
         0 = no
         1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames
                  are specified in Input Group 0)

       Mass balance for each species
       reported hourly?
       (IMBAL)                          Default: 0          ! IMBAL =  0  !
         0 = no
         1 = yes (MASSBAL.DAT filename is
              specified in Input Group 0)


    LINE PRINTER OUTPUT OPTIONS:

       Print concentrations (ICPRT)     Default: 0          ! ICPRT =  0    !
       Print dry fluxes (IDPRT)         Default: 0          ! IDPRT =  0    !
       Print wet fluxes (IWPRT)         Default: 0          ! IWPRT =  0    !
       (0 = Do not print, 1 = Print)

       Concentration print interval
       (ICFRQ) in hours                 Default: 1          ! ICFRQ =  24    !
       Dry flux print interval
       (IDFRQ) in hours                 Default: 1          ! IDFRQ =  1    !
       Wet flux print interval
       (IWFRQ) in hours                 Default: 1          ! IWFRQ =  1    !

       Units for Line Printer Output
       (IPRTU)                          Default: 1          ! IPRTU =  3    !
                       for             for
                  Concentration    Deposition
           1 =        g/m**3        g/m**2/s
           2 =       mg/m**3       mg/m**2/s
           3 =       ug/m**3       ug/m**2/s
           4 =       ng/m**3       ng/m**2/s
           5 =      Odour Units
```

```
      Messages tracking progress of   Default: 1         ! IMESG =  1   !
      run written to the screen ?
      (IMESG) -- 0=no, 1=yes


    SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

                ---- CONCENTRATIONS ----   ------ DRY FLUXES ------   ------ WET FLUXES ------   -- MASS FLUX --
  SPECIES
  /GROUP        PRINTED?  SAVED ON DISK?   PRINTED?  SAVED ON DISK?   PRINTED?  SAVED ON DISK?   SAVED ON DISK?
  -------       ------------------------   ------------------------   ------------------------   ---------------
!       SO2 =     0,          1,             0,          0,             0,          0,             0   !
!       SO4 =     0,          1,             0,          0,             0,          0,             0   !
!       NOX =     0,          1,             0,          0,             0,          0,             0   !
!      HNO3 =     0,          1,             0,          0,             0,          0,             0   !
!       NO3 =     0,          1,             0,          0,             0,          0,             0   !
!      PM10 =     0,          1,             0,          0,             0,          0,             0   !
    OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

      Logical for debug output
      (LDEBUG)                                Default: F     ! LDEBUG = F !

      First puff to track
      (IPFDEB)                                Default: 1     ! IPFDEB =  1  !

      Number of puffs to track
      (NPFDEB)                                Default: 1     ! NPFDEB =  1  !

      Met. period to start output
      (NN1)                                   Default: 1     ! NN1 =  1   !

      Met. period to end output
      (NN2)                                   Default: 10    ! NN2 =  10  !

!END!


--------------------------------------------------------------------------------


INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs
-------------------------

---------------
Subgroup (6a)
---------------
      Number of terrain features (NHILL)      Default: 0     ! NHILL =  0   !

      Number of special complex terrain
      receptors  (NCTREC)                     Default: 0     ! NCTREC =  0   !

      Terrain and CTSG Receptor data for
      CTSG hills input in CTDM format ?
      (MHILL)                                 No Default     ! MHILL =  0   !
      1 = Hill and Receptor data created
          by CTDM processors & read from
          HILL.DAT and HILLRCT.DAT files
      2 = Hill data created by OPTHILL &
          input below in Subgroup (6b);
          Receptor data in Subgroup (6c)

      Factor to convert horizontal dimensions  Default: 1.0   ! XHILL2M = 1. !
      to meters (MHILL=1)

      Factor to convert vertical dimensions    Default: 1.0   ! ZHILL2M = 1. !
      to meters (MHILL=1)

      X-origin of CTDM system relative to      No Default     ! XCTDMKM = 0.0E00 !
      CALPUFF coordinate system, in Kilometers (MHILL=1)

      Y-origin of CTDM system relative to      No Default     ! YCTDMKM = 0.0E00 !
      CALPUFF coordinate system, in Kilometers (MHILL=1)

! END !
```

```
--------------
Subgroup (6b)
--------------

                      1 **
     HILL information


HILL           XC        YC       THETAH  ZGRID  RELIEF    EXPO 1    EXPO 2   SCALE 1    SCALE 2   AMAX1    AMAX2
 NO.          (km)      (km)      (deg.)   (m)     (m)      (m)       (m)       (m)        (m)      (m)      (m)
----          ----      ----      ------  -----  ------    ------    ------   -------    -------   -----    -----

--------------
Subgroup (6c)
--------------

    COMPLEX TERRAIN RECEPTOR INFORMATION

                      XRCT         YRCT        ZRCT          XHH
                      (km)         (km)         (m)
                     ------        -----      ------         ----


-------------------
1
     Description of Complex Terrain Variables:
          XC, YC  = Coordinates of center of hill
          THETAH  = Orientation of major axis of hill (clockwise from
                    North)
          ZGRID   = Height of the  0  of the grid above mean sea
                    level
          RELIEF  = Height of the crest of the hill above the grid elevation
          EXPO 1  = Hill-shape exponent for the major axis
          EXPO 2  = Hill-shape exponent for the major axis
          SCALE 1 = Horizontal length scale along the major axis
          SCALE 2 = Horizontal length scale along the minor axis
          AMAX    = Maximum allowed axis length for the major axis
          BMAX    = Maximum allowed axis length for the major axis

          XRCT, YRCT = Coordinates of the complex terrain receptors
          ZRCT    = Height of the ground (MSL) at the complex terrain
                    Receptor
          XHH     = Hill number associated with each complex terrain receptor
                    (NOTE: MUST BE ENTERED AS A REAL NUMBER)

   **
     NOTE: DATA for each hill and CTSG receptor are treated as a separate
           input subgroup and therefore must end with an input group terminator.

-------------------------------------------------------------------------------


INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases
--------------

      SPECIES    DIFFUSIVITY     ALPHA STAR     REACTIVITY    MESOPHYLL RESISTANCE     HENRY'S LAW COEFFICIENT
       NAME       (cm**2/s)                                          (s/cm)                (dimensionless)
      -------    -----------     ----------     ----------    --------------------     -----------------------

!          SO2 =    0.1509,        1000.,           8.,               0.,                       0.04 !
!          NOX =    0.1656,           1.,           8.,               5.,                        3.5 !
!         HNO3 =    0.1628,           1.,          18.,               0.,                 0.00000008 !

!END!


-------------------------------------------------------------------------------


INPUT GROUP: 8 -- Size parameters for dry deposition of particles
--------------

     For SINGLE SPECIES, the mean and standard deviation are used to
     compute a deposition velocity for NINT (see group 9) size-ranges,
     and these are then averaged to obtain a mean deposition velocity.
```

```
     For GROUPED SPECIES, the size distribution should be explicitly
     specified (by the 'species' in the group), and the standard deviation
     for each should be entered as 0.  The model will then use the
     deposition velocity for the stated mean diameter.

       SPECIES      GEOMETRIC MASS MEAN        GEOMETRIC STANDARD
        NAME             DIAMETER                  DEVIATION
                         (microns)                 (microns)
       -------      -------------------        ------------------
!         SO4 =           0.48,                       2.    !
!         NO3 =           0.48,                       2.    !
!        PM10 =           0.48,                       2.    !

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters
-------------

     Reference cuticle resistance (s/cm)
     (RCUTR)                           Default: 30    !  RCUTR = 30. !
     Reference ground resistance  (s/cm)
     (RGR)                             Default: 10    !    RGR = 10. !
     Reference pollutant reactivity
     (REACTR)                          Default: 8     ! REACTR = 8. !

     Number of particle-size intervals used to
     evaluate effective particle deposition velocity
     (NINT)                            Default: 9     !   NINT =  9  !

     Vegetation state in unirrigated areas
     (IVEG)                            Default: 1     !   IVEG =  1   !
        IVEG=1 for active and unstressed vegetation
        IVEG=2 for active and stressed vegetation
        IVEG=3 for inactive vegetation

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 10 -- Wet Deposition Parameters
---------------

                      Scavenging Coefficient -- Units: (sec)**(-1)

        Pollutant      Liquid Precip.       Frozen Precip.
        ---------      --------------       --------------
!         SO2 =           3.0E-05,             0.0E00 !
!         SO4 =           1.0E-04,             3.0E-05 !
!        HNO3 =           6.0E-05,             0.0E00 !
!         NO3 =           1.0E-04,             3.0E-05 !
!        PM10 =           1.0E-04,             3.0E-05 !

!END!

-------------------------------------------------------------------------------

INPUT GROUP: 11 -- Chemistry Parameters
---------------

     Ozone data input option (MOZ)     Default: 1            ! MOZ =  1   !
     (Used only if MCHEM = 1 or 3)
        0 = use a constant background ozone value
        1 = read hourly ozone concentrations from
            the OZONE.DAT data file
```

```
     Background ozone concentration
     (BCKO3) in ppb                     Default: 80.          ! BCKO3 = 80. !
     (Used only if MCHEM = 1 or 3 and
      MOZ = 0 or (MOZ = 1 and all hourly
      O3 data missing)

     Background ammonia concentration  (CHANGED TO 0.5 PPM)
     (BCKNH3) in ppb                    Default: 10.          ! BCKNH3 = 1.0 !

     Nighttime SO2 loss rate (RNITE1)
     in percent/hour                    Default: 0.2          ! RNITE1 = 0.2 !

     Nighttime NOx loss rate (RNITE2)
     in percent/hour                    Default: 2.0          ! RNITE2 = 2. !

     Nighttime HNO3 formation rate (RNITE3)
     in percent/hour                    Default: 2.0          ! RNITE3 = 2. !

!END!


-------------------------------------------------------------------------------


INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters
---------------

     Horizontal size of puff (m) beyond which
     time-dependent dispersion equations (Heffter)
     are used to determine sigma-y and
     sigma-z (SYTDEP)                           Default: 550.   ! SYTDEP = 5.5E02 !

     Switch for using Heffter equation for sigma z
     as above (0 = Not use Heffter; 1 = use Heffter
     (MHFTSZ)                                   Default: 0      ! MHFTSZ =  0   !

     Stability class used to determine plume
     growth rates for puffs above the boundary
     layer (JSUP)                               Default: 5      ! JSUP =  5   !

     Vertical dispersion constant for stable
     conditions (k1 in Eqn. 2.7-3)  (CONK1)     Default: 0.01   ! CONK1 = 0.01 !

     Vertical dispersion constant for neutral/
     unstable conditions (k2 in Eqn. 2.7-4)
     (CONK2)                                    Default: 0.1    ! CONK2 = 0.1 !

     Factor for determining Transition-point from
     Schulman-Scire to Huber-Snyder Building Downwash
     scheme (SS used for Hs < Hb + TBD * HL)
     (TBD)                                      Default: 0.5    ! TBD = 0.5 !
        TBD < 0   ==> always use Huber-Snyder
        TBD = 1.5 ==> always use Schulman-Scire
        TBD = 0.5 ==> ISC Transition-point

     Range of land use categories for which
     urban dispersion is assumed
     (IURB1, IURB2)                             Default: 10     ! IURB1 =  10  !
                                                         19     ! IURB2 =  19  !

     Site characterization parameters for single-point Met data files ---------
     (needed for METFM = 2,3,4)

        Land use category for modeling domain
        (ILANDUIN)                              Default: 20     ! ILANDUIN =  20  !

        Roughness length (m) for modeling domain
        (Z0IN)                                  Default: 0.25   ! Z0IN = 0.25 !

        Leaf area index for modeling domain
        (XLAIIN)                                Default: 3.0    ! XLAIIN = 3. !

        Elevation above sea level (m)
        (ELEVIN)                                Default: 0.0    ! ELEVIN = 0. !
```

```
   Latitude (degrees) for met location
   (XLATIN)                              Default: -999.  ! XLATIN = -999. !

   Longitude (degrees) for met location
   (XLONIN)                              Default: -999.  ! XLONIN = -999. !

Specialized information for interpreting single-point Met data files -----

   Anemometer height (m) (Used only if METFM = 2,3)
   (ANEMHT)                              Default: 10.    ! ANEMHT = 6.7 !

   Form of lateral turbulance data in PROFILE.DAT file
   (Used only if METFM = 4 or MTURBVW = 1 or 3)
   (ISIGMAV)                             Default: 1      ! ISIGMAV =  2  !
       0 = read sigma-theta
       1 = read sigma-v

   Choice of mixing heights (Used only if METFM = 4)
   (IMIXCTDM)                            Default: 0      ! IMIXCTDM =  0  !
       0 = read PREDICTED mixing heights
       1 = read OBSERVED mixing heights

Maximum length of a slug (met. grid units)
(XMXLEN)                                 Default: 1.0    ! XMXLEN = 1. !

Maximum travel distance of a puff/slug (in
grid units) during one sampling step
(XSAMLEN)                                Default: 1.0    ! XSAMLEN = 1. !

Maximum Number of slugs/puffs release from
one source during one time step
(MXNEW)                                  Default: 99     ! MXNEW =  99   !

Maximum Number of sampling steps for
one puff/slug during one time step
(MXSAM)                                  Default: 99     ! MXSAM =  99   !

Number of iterations used when computing
the transport wind for a sampling step
that includes gradual rise (for CALMET
and PROFILE winds)
(NCOUNT)                                 Default: 2      ! NCOUNT =  2   !

Minimum sigma y for a new puff/slug (m)
(SYMIN)                                  Default: 1.0    ! SYMIN = 1.  !

Minimum sigma z for a new puff/slug (m)
(SZMIN)                                  Default: 1.0    ! SZMIN = 1.  !

Default minimum turbulence velocities
sigma-v and sigma-w for each
stability class (m/s)
(SVMIN(6) and SWMIN(6))     Default SVMIN : .50,  .50,  .50,  .50,  .50,  .50
                            Default SWMIN : .20,  .12,  .08,  .06,  .03,  .016

                          Stability Class :  A     B     C     D     E     F
                                            ---   ---   ---   ---   ---   ---
                                  ! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500!
                                  ! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff
used to initiate adjustment for horizontal
convergence (1/s)
Partial adjustment starts at CDIV(1), and
full adjustment is reached at CDIV(2)
(CDIV(2))                                Default: 0.0,0.0  ! CDIV = 0., 0. !

Minimum wind speed (m/s) allowed for
non-calm conditions. Also used as minimum
speed returned when using power-law
extrapolation toward surface
(WSCALM)                                 Default: 0.5    ! WSCALM = 0.5 !

Maximum mixing height (m)
(XMAXZI)                                 Default: 3000.  ! XMAXZI = 3000. !
```

```
Minimum mixing height (m)
(XMINZI)                                  Default: 50.    ! XMINZI = 50. !

Default wind speed classes --
5 upper bounds (m/s) are entered;
the 6th class has no upper limit
(WSCAT(5))                     Default    :
                               ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10,8 (10.8+)

                         Wind Speed Class :  1     2     3     4     5     6
                                            ---   ---   ---   ---   ---   ---
                                 ! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.80 !

Default wind speed profile power-law
exponents for stabilities 1-6
(PLX0(6))                      Default    : ISC RURAL values
                               ISC RURAL : .07, .07, .10, .15, .35, .55
                               ISC URBAN : .15, .15, .20, .25, .30, .30

                          Stability Class :  A     B     C     D     E     F
                                            ---   ---   ---   ---   ---   ---
                                  ! PLX0 = 0.07, 0.07, 0.10, 0.15, 0.35, 0.55 !

Default potential temperature gradient
for stable classes E, F (degK/m)
(PTG0(2))                      Default: 0.020, 0.035
                                  ! PTG0 = 0.020,   0.035 !

Default plume path coefficients for
each stability class (used when option
for partial plume height terrain adjustment
is selected -- MCTADJ=3)
(PPC(6))                  Stability Class :  A     B     C     D     E     F
                             Default  PPC : .50,  .50,  .50,  .50,  .35,  .35
                                            ---   ---   ---   ---   ---   ---
                                  !  PPC = 0.50, 0.50, 0.50, 0.50, 0.35, 0.35 !

Slug-to-puff transition criterion factor
equal to sigma-y/length of slug
(SL2PF)                             Default: 10.       ! SL2PF = 10. !

Puff-splitting control variables ------------------------

  Number of puffs that result every time a puff
  is split - nsplit=2 means that 1 puff splits
  into 2
  (NSPLIT)                          Default:   3       ! NSPLIT =  3  !

  Time(s) of a day when split puffs are eligible to
  be split once again; this is typically set once
  per day, around sunset before nocturnal shear develops.
  24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)
  0=do not re-split    1=eligible for re-split
  (IRESPLIT(24))                    Default:  Hour 17 = 1
  !  IRESPLIT = 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0 !

  Split is allowed only if last hour's mixing
  height (m) exceeds a minimum value
  (ZISPLIT)                         Default: 100.      ! ZISPLIT = 100. !

  Split is allowed only if ratio of last hour's
  mixing ht to the maximum mixing ht experienced
  by the puff is less than a maximum value (this
  postpones a split until a nocturnal layer develops)
  (ROLDMAX)                         Default: 0.25      ! ROLDMAX = 0.25 !

Integration control variables -----------------------

  Fractional convergence criterion for numerical SLUG
  sampling integration
  (EPSSLUG)                         Default:   1.0e-04  ! EPSSLUG = 1.0E-04 !

  Fractional convergence criterion for numerical AREA
  source integration
```

```
      (EPSAREA)                          Default:   1.0e-06  ! EPSAREA = 1.0E-06 !

      Trajectory step-length (m) used for numerical rise
      integration
      (DSRISE)                           Default:   1.0      ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------


INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below      (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)        (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file      (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                      a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                           b          c
  Source     X UTM      Y UTM     Stack   Base     Stack    Exit  Exit    Bldg.  Emission
   No.   Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.   Dwash   Rates
            (km)       (km)       (m)     (m)       (m)   (m/s) (deg. K)
  ------  ---------- ---------- ------  ------   -------- ----- -------- ----- --------
      2  ! SRCNAM = TO         !
      2  ! X =   434.0000,  3283.400,   76.20,    0.00,    1.10,   4.09,  344, 1.0, 0.0E00, 0.00E00, 5.44,
           0.0E00, 0.0E00, 0.0E00 !
  !END!
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     0. = No building downwash modeled, 1. = downwash modeled
     NOTE: must be entered as a REAL number (i.e., with decimal point)

    c
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IPTU
     (e.g. 1 for g/s).
```

```
---------------
Subgroup (13c)
---------------
           BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
           -------------------------------------------------------
       2  ! SRCNAM = TO          !
       2  !  HEIGHT =  32.80,    0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   25.91,
                59.04,   59.04,   59.04,   59.04,   59.04,   32.80,
                32.80,    0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   25.91,
                59.04,    0.00,    0.00,    0.00,   59.04,   25.91 !
       2  !  WIDTH =   78.64,    0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   33.53,
                38.03,   34.39,   33.54,   37.39,   38.03,   38.93,
                39.65,    0.00,    0.00,    0.00,    0.00,    0.00,
                 0.00,    0.00,    0.00,    0.00,    0.00,   95.50,
                38.03,    0.00,    0.00,    0.00,   38.03,  104.49 !
!END!

Source                                                                  a
 No.      Effective building width and height (in meters) every 10 degrees
------    ------------------------------------------------------------


--------

    a
     Each pair of width and height values is treated as a separate input
     subgroup and therefore must end with an input group terminator.

---------------
Subgroup (13d)
---------------
                                                    a
          POINT SOURCE: VARIABLE EMISSIONS DATA
          -------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 13b.  Factors entered multiply the rates in 13b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                              Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.


-------------------------------------------------------------------------------


INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters
--------------------------------

---------------
```

```
Subgroup (14a)
---------------

     Number of polygon area sources with
     parameters specified below (NAR1)       No default  !  NAR1 =  0   !

     Units used for area source
     emissions below            (IARU)       Default: 1  !  IARU =   1  !
           1 =        g/m**2/s
           2 =       kg/m**2/hr
           3 =       lb/m**2/hr
           4 =     tons/m**2/yr
           5 =     Odour Unit * m/s  (vol. flux/m**2 of odour compound)
           6 =     Odour Unit * m/min
           7 =     metric tons/m**2/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (14d)        (NSAR1) Default: 0  !  NSAR1 =  0  !

     Number of buoyant polygon area sources
     with variable location and emission
     parameters (NAR2)                      No default  !  NAR2 =  0   !
     (If NAR2 > 0, ALL parameter data for
     these sources are read from the file: BAEMARB.DAT)

!END!

---------------
Subgroup (14b)
---------------
                                            a
          AREA SOURCE: CONSTANT DATA
          ----------------------------
                                                                b
Source           Effect.    Base      Initial    Emission
 No.             Height   Elevation   Sigma z     Rates
                   (m)       (m)        (m)
-------          ------    ------     --------   ---------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.
    b
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IARU
     (e.g. 1 for g/m**2/s).

---------------
Subgroup (14c)
---------------

           COORDINATES (UTM-km) FOR EACH VERTEX(4) OF EACH POLYGON
           --------------------------------------------------------
Source                                                                a
 No.       Ordered list of X followed by list of Y, grouped by source
------     ------------------------------------------------------------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.


---------------
Subgroup (14d)
---------------
                                                     a
          AREA SOURCE: VARIABLE EMISSIONS DATA
          -------------------------------------

     Use this subgroup to describe temporal variations in the emission
```

```
     rates given in 14b.  Factors entered multiply the rates in 14b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use BAEMARB.DAT and NAR2 > 0.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                                Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.


--------------------------------------------------------------------------------

INPUT GROUPS: 15a, 15b, 15c -- Line source parameters
---------------------------

---------------
Subgroup (15a)
---------------

     Number of buoyant line sources
     with variable location and emission
     parameters (NLN2)                           No default  !  NLN2 =  0   !

     (If NLN2 > 0, ALL parameter data for
      these sources are read from the file: LNEMARB.DAT)

     Number of buoyant line sources (NLINES)     No default   ! NLINES =  0  !

     Units used for line source
     emissions below              (ILNU)         Default: 1  !  ILNU =    1  !
           1 =         g/s
           2 =        kg/hr
           3 =        lb/hr
           4 =      tons/yr
           5 =      Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =      Odour Unit * m**3/min
           7 =      metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (15c)        (NSLN1) Default: 0  !  NSLN1 =  0  !

     Maximum number of segments used to model
     each line (MXNSEG)                          Default: 7   ! MXNSEG =  7  !

     The following variables are required only if NLINES > 0.  They are
     used in the buoyant line source plume rise calculations.

        Number of distances at which             Default: 6   ! NLRISE =  6  !
        transitional rise is computed

        Average building length (XL)             No default   ! XL = 0. !
                                                 (in meters)

        Average building height (HBL)            No default   ! HBL = 0. !
                                                 (in meters)
```

```
     Average building width (WBL)              No default   ! WBL = 0. !
                                               (in meters)

     Average line source width (WML)           No default   ! WML = 0. !
                                               (in meters)

     Average separation between buildings (DXL) No default  ! DXL = 0. !
                                               (in meters)

     Average buoyancy parameter (FPRIMEL)      No default   ! FPRIMEL = 0. !
                                               (in m**4/s**3)

!END!

---------------
Subgroup (15b)
---------------

        BUOYANT LINE SOURCE: CONSTANT DATA
        ----------------------------------
                                                                                a
Source    Beg. X     Beg. Y     End. X    End. Y    Release   Base      Emission
 No.   Coordinate Coordinate Coordinate Coordinate  Height  Elevation    Rates
          (km)       (km)       (km)      (km)       (m)       (m)
------ ---------- ---------- --------- ---------- ------- ---------  ---------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by ILNTU
     (e.g. 1 for g/s).

---------------
Subgroup (15c)
---------------
                                                      a
        BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA
        ---------------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 15b.  Factors entered multiply the rates in 15b.
     Skip sources here that have constant emissions.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                              Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.

-------------------------------------------------------------------------------
```

```
INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters
--------------------------

---------------
Subgroup (16a)
---------------

     Number of volume sources with
     parameters provided in 16b,c (NVL1)     No default  !  NVL1 =  0   !

     Units used for volume source
     emissions below in 16b       (IVLU)     Default: 1  !  IVLU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (16c)      (NSVL1)    Default: 0  !  NSVL1 =  0  !

     Gridded volume source data
     used ? (IGRDVL)                         No default  ! IGRDVL =  0   !
        0 = no
        1 = yes (gridded volume source
            emissions read from the file:
            VOLEM.DAT)

     The following parameters apply to the data in the
     gridded volume source emissions file (VOLEM.DAT)

       -  Effective height of emissions
          (VEFFHT) in meters                 No default  ! VEFFHT =  0. !

       -  Initial sigma y (VSIGYI) in
          meters                             No default  ! VSIGYI =  0. !

       -  Initial sigma z (VSIGZI) in
          meters                             No default  ! VSIGZI =  0. !

!END!

---------------
Subgroup (16b)
---------------
                                                 a
           VOLUME SOURCE: CONSTANT DATA
           ------------------------------
                                                                              b

        X UTM      Y UTM     Effect.   Base     Initial    Initial    Emission
     Coordinate Coordinate   Height  Elevation  Sigma y    Sigma z     Rates
        (km)       (km)       (m)      (m)        (m)        (m)
     ---------- ----------   ------   ------    --------   --------   --------

--------
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IVLU
     (e.g. 1 for g/s).

---------------
Subgroup (16c)
---------------
```

```
                                                 a
        VOLUME SOURCE: VARIABLE EMISSIONS DATA
        --------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 16b.  Factors entered multiply the rates in 16b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use VOLEM.DAT and IGRDVL = 1.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                              Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.


-------------------------------------------------------------------------------

INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information
----------------------

---------------
Subgroup (17a)
---------------

     Number of non-gridded receptors (NREC)  No default  !  NREC = 161 !

!END!

---------------
Subgroup (17b)
---------------
                                               a
          NON-GRIDDED (DISCRETE) RECEPTOR DATA
          ------------------------------------

                   X UTM      Y UTM        Ground       Height   b
Receptor         Coordinate  Coordinate   Elevation   Above Ground
  No.              (km)        (km)          (m)          (m)
--------         ----------  ----------   ---------   ------------
     1   ! X =   388.7500,  3430.0000,    38.000 !   !END!
     2   ! X =   390.3000,  3429.1499,    40.000 !   !END!
     3   ! X =   391.7000,  3428.0000,    42.000 !   !END!
     4   ! X =   391.9000,  3426.2500,    42.000 !   !END!
     5   ! X =   391.2500,  3423.7500,    38.000 !   !END!
     6   ! X =   391.6000,  3422.0000,    41.000 !   !END!
     7   ! X =   391.1500,  3420.0000,    38.000 !   !END!
     8   ! X =   391.8000,  3418.6499,    40.000 !   !END!
     9   ! X =   391.6500,  3416.5000,    38.000 !   !END!
    10   ! X =   391.7000,  3414.8999,    38.000 !   !END!
    11   ! X =   391.5000,  3412.8501,    38.000 !   !END!
    12   ! X =   391.5500,  3413.0000,    38.000 !   !END!
    13   ! X =   391.5000,  3410.0000,    41.000 !   !END!
    14   ! X =   391.1000,  3408.5000,    38.000 !   !END!
    15   ! X =   390.8000,  3407.0000,    38.000 !   !END!
    16   ! X =   390.9000,  3406.0000,    38.000 !   !END!
    17   ! X =   391.4000,  3406.0500,    41.000 !   !END!
    18   ! X =   391.1000,  3403.3999,    39.000 !   !END!
```

```
19  ! X =  391.0500,  3401.8000,    40.000 !   !END!
20  ! X =  391.3500,  3400.2000,    42.000 !   !END!
21  ! X =  390.8500,  3398.3000,    39.000 !   !END!
22  ! X =  390.3000,  3396.3999,    38.000 !   !END!
23  ! X =  389.8000,  3394.8000,    38.000 !   !END!
24  ! X =  391.2000,  3394.3999,    40.000 !   !END!
25  ! X =  390.8000,  3393.0500,    38.000 !   !END!
26  ! X =  389.5000,  3393.3999,    38.000 !   !END!
27  ! X =  389.1500,  3392.0000,    38.000 !   !END!
28  ! X =  391.8000,  3391.2500,    40.000 !   !END!
29  ! X =  391.4500,  3389.8999,    38.000 !   !END!
30  ! X =  388.7000,  3390.6001,    38.000 !   !END!
31  ! X =  388.3500,  3389.2500,    38.000 !   !END!
32  ! X =  389.7000,  3388.8999,    38.000 !   !END!
33  ! X =  389.3000,  3387.5000,    37.000 !   !END!
34  ! X =  388.9000,  3386.1499,    37.000 !   !END!
35  ! X =  390.3500,  3385.8000,    37.000 !   !END!
36  ! X =  389.8000,  3383.8999,    37.000 !   !END!
37  ! X =  389.2000,  3381.7000,    37.000 !   !END!
38  ! X =  387.7500,  3382.0500,    36.000 !   !END!
39  ! X =  387.5000,  3380.7000,    36.000 !   !END!
40  ! X =  386.0500,  3381.0500,    35.000 !   !END!
41  ! X =  385.7000,  3379.7000,    36.000 !   !END!
42  ! X =  384.4000,  3380.0000,    37.000 !   !END!
43  ! X =  384.8000,  3381.3999,    35.000 !   !END!
44  ! X =  383.5500,  3381.7000,    34.000 !   !END!
45  ! X =  383.4500,  3382.2000,    35.000 !   !END!
46  ! X =  381.3000,  3382.3999,    35.000 !   !END!
47  ! X =  378.5000,  3382.6499,    35.000 !   !END!
48  ! X =  376.5000,  3382.8000,    35.000 !   !END!
49  ! X =  376.3000,  3381.6001,    35.000 !   !END!
50  ! X =  374.7500,  3381.6001,    35.000 !   !END!
51  ! X =  373.3500,  3381.6001,    35.000 !   !END!
52  ! X =  371.5000,  3381.6001,    36.000 !   !END!
53  ! X =  371.5000,  3380.7000,    37.000 !   !END!
54  ! X =  370.6500,  3380.3999,    37.000 !   !END!
55  ! X =  369.8500,  3380.5000,    38.000 !   !END!
56  ! X =  369.8500,  3381.8000,    36.000 !   !END!
57  ! X =  369.8500,  3383.0000,    36.000 !   !END!
58  ! X =  367.9000,  3383.1499,    37.000 !   !END!
59  ! X =  365.9000,  3383.3999,    37.000 !   !END!
60  ! X =  363.9000,  3383.5000,    37.000 !   !END!
61  ! X =  363.9000,  3385.3999,    36.000 !   !END!
62  ! X =  363.9000,  3387.3999,    36.000 !   !END!
63  ! X =  362.8000,  3387.3000,    36.000 !   !END!
64  ! X =  362.8000,  3385.3000,    36.000 !   !END!
65  ! X =  362.8000,  3384.0000,    37.000 !   !END!
66  ! X =  360.8500,  3384.1499,    39.000 !   !END!
67  ! X =  358.8500,  3384.3000,    37.000 !   !END!
68  ! X =  359.5500,  3385.8501,    36.000 !   !END!
69  ! X =  359.3500,  3387.8999,    36.000 !   !END!
70  ! X =  358.6000,  3387.8999,    36.000 !   !END!
71  ! X =  358.4500,  3389.3999,    35.000 !   !END!
72  ! X =  356.9500,  3388.7000,    35.000 !   !END!
73  ! X =  356.9500,  3387.5000,    36.000 !   !END!
74  ! X =  356.5000,  3387.5000,    35.000 !   !END!
75  ! X =  356.4500,  3389.0000,    35.000 !   !END!
76  ! X =  355.7500,  3389.5500,    35.000 !   !END!
77  ! X =  357.2000,  3390.3999,    37.000 !   !END!
78  ! X =  357.2500,  3391.7000,    35.000 !   !END!
79  ! X =  356.8000,  3391.7000,    35.000 !   !END!
80  ! X =  357.2000,  3393.1001,    35.000 !   !END!
81  ! X =  358.6000,  3392.0000,    35.000 !   !END!
82  ! X =  360.0000,  3392.2000,    36.000 !   !END!
83  ! X =  359.2500,  3394.1001,    36.000 !   !END!
84  ! X =  359.8000,  3394.4500,    37.000 !   !END!
85  ! X =  361.1500,  3394.4500,    36.000 !   !END!
86  ! X =  361.2500,  3395.8000,    37.000 !   !END!
87  ! X =  360.4000,  3396.3000,    36.000 !   !END!
88  ! X =  358.3000,  3396.3000,    36.000 !   !END!
89  ! X =  357.6500,  3398.1001,    35.000 !   !END!
90  ! X =  359.0000,  3398.1001,    36.000 !   !END!
91  ! X =  359.0000,  3398.8501,    36.000 !   !END!
92  ! X =  360.0000,  3398.8501,    37.000 !   !END!
93  ! X =  361.3000,  3398.8000,    37.000 !   !END!
```

```
94  ! X =   362.5000,  3398.8000,    37.000 !   !END!
95  ! X =   362.5000,  3400.3000,    38.000 !   !END!
96  ! X =   362.5000,  3401.5500,    37.000 !   !END!
97  ! X =   361.5000,  3402.1001,    36.000 !   !END!
98  ! X =   361.2000,  3403.3501,    36.000 !   !END!
99  ! X =   362.5500,  3403.8501,    37.000 !   !END!
100 ! X =   363.4000,  3404.4500,    37.000 !   !END!
101 ! X =   362.5500,  3404.9500,    37.000 !   !END!
102  ! X =   362.6000,  3406.4500,    37.000 !   !END!
103  ! X =   362.6000,  3408.8000,    34.000 !   !END!
104  ! X =   359.8000,  3408.8501,    35.000 !   !END!
105  ! X =   359.8000,  3413.0000,    36.000 !   !END!
106  ! X =   358.0000,  3413.0000,    36.000 !   !END!
107  ! X =   355.7000,  3413.5000,    36.000 !   !END!
108  ! X =   353.8000,  3413.5000,    36.000 !   !END!
109  ! X =   351.6500,  3414.0000,    36.000 !   !END!
110  ! X =   351.6500,  3412.4500,    36.000 !   !END!
111  ! X =   351.6500,  3414.3999,    37.000 !   !END!
112  ! X =   351.6500,  3416.1001,    38.000 !   !END!
113  ! X =   353.0000,  3416.1499,    36.000 !   !END!
114  ! X =   352.9500,  3417.6499,    38.000 !   !END!
115  ! X =   354.4500,  3417.6499,    36.000 !   !END!
116  ! X =   354.5500,  3419.0000,    37.000 !   !END!
117  ! X =   356.0500,  3419.0500,    36.000 !   !END!
118  ! X =   356.1000,  3420.6001,    37.000 !   !END!
119  ! X =   356.1000,  3421.8999,    38.000 !   !END!
120  ! X =   357.4500,  3421.8999,    37.000 !   !END!
121  ! X =   357.5000,  3423.3000,    37.000 !   !END!
122  ! X =   359.0000,  3423.3000,    37.000 !   !END!
123  ! X =   360.4500,  3423.3000,    37.000 !   !END!
124  ! X =   360.4500,  3424.2000,    37.000 !   !END!
125  ! X =   360.7000,  3424.7500,    37.000 !   !END!
126  ! X =   363.3500,  3424.7500,    37.000 !   !END!
127  ! X =   364.8000,  3425.1001,    37.000 !   !END!
128  ! X =   364.8000,  3427.0000,    38.000 !   !END!
129  ! X =   365.5000,  3427.7000,    38.000 !   !END!
130  ! X =   366.2500,  3427.7000,    38.000 !   !END!
131  ! X =   366.2500,  3427.0000,    38.000 !   !END!
132  ! X =   367.6500,  3427.0000,    37.000 !   !END!
133  ! X =   367.6500,  3428.3501,    37.000 !   !END!
134  ! X =   366.2500,  3428.3501,    38.000 !   !END!
135  ! X =   366.2500,  3429.1001,    38.000 !   !END!
136  ! X =   367.7000,  3429.1001,    38.000 !   !END!
137  ! X =   367.6000,  3430.2000,    38.000 !   !END!
138  ! X =   367.5000,  3430.4500,    39.000 !   !END!
139  ! X =   368.8500,  3430.3501,    38.000 !   !END!
140  ! X =   368.8500,  3431.7000,    38.000 !   !END!
141  ! X =   369.7000,  3431.7000,    38.000 !   !END!
142  ! X =   369.7000,  3433.1001,    38.000 !   !END!
143  ! X =   371.3000,  3433.1001,    38.000 !   !END!
144  ! X =   372.7000,  3433.1001,    38.000 !   !END!
145  ! X =   372.7000,  3434.6001,    38.000 !   !END!
146  ! X =   372.7000,  3436.1001,    38.000 !   !END!
147  ! X =   374.2000,  3436.1001,    38.000 !   !END!
148  ! X =   375.4500,  3436.1001,    38.000 !   !END!
149  ! X =   375.4500,  3437.5000,    38.000 !   !END!
150  ! X =   377.4500,  3437.5000,    38.000 !   !END!
151  ! X =   378.9000,  3437.2000,    39.000 !   !END!
152  ! X =   380.6000,  3437.1499,    38.000 !   !END!
153  ! X =   382.0000,  3437.1001,    38.000 !   !END!
154  ! X =   381.9500,  3435.5000,    38.000 !   !END!
155  ! X =   383.9500,  3434.3501,    38.000 !   !END!
156  ! X =   383.9000,  3433.5000,    38.000 !   !END!
157  ! X =   384.7000,  3433.7000,    38.000 !   !END!
158  ! X =   386.3500,  3433.0000,    38.000 !   !END!
159  ! X =   387.5000,  3431.5000,    38.000 !   !END!
160  ! X =   388.5500,  3431.2000,    39.000 !   !END!
161  ! X =   389.4000,  3430.6001,    38.000 !   !END!
```

----

a
Data for each receptor are treated as a separate input subgroup and therefore must end with an input group terminator.

b
Receptor height above ground is optional. If no value is entered,

the receptor is placed on the ground.

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT OKEFENOKEE NWR, PROJECT ONLY SOURCES, FINAL SCENARIO 11/15/01
CURRENT ACTUAL EMISSION RATES, TRS STACK ONLY
--------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                    Default: 1       ! NMETDAT =   6   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =            *
    or
ISCMET.DAT    input    * ISCDAT =            *
    or
PLMMET.DAT    input    * PLMDAT =            *
    or
PROFILE.DAT   input    * PRFDAT =            *
SURFACE.DAT   input    * SFCDAT =            *
RESTARTB.DAT  input    * RSTARTB=            *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFCUR2.LST   !
CONC.DAT      output   ! CONDAT =PUFFCUR2.CON   !
DFLX.DAT      output   * DFDAT  =            *
WFLX.DAT      output   * WFDAT  =            *

VISB.DAT      output   ! VISDAT =VISB2.DAT    !
RESTARTE.DAT  output   * RSTARTE=            *
--------------------------------------------------------------------------------
Emission Files                      3
--------------
PTEMARB.DAT   input    * PTDAT  =            *
VOLEM.DAT     input    * VOLDAT =            *
BAEMARB.DAT   input    * ARDAT  =            *
LNEMARB.DAT   input    * LNDAT  =            *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =03OWR90.DAT  !
VD.DAT        input    * VDDAT  =             *
CHEM.DAT      input    * CHEMDAT=             *
HILL.DAT      input    * HILDAT=            *
HILLRCT.DAT   input    * RCTDAT=            *
COASTLN.DAT   input    * CSTDAT=            *
FLUXBDY.DAT   input    * BDYDAT=            *
DEBUG.DAT     output   * DEBUG =            *
MASSFLX.DAT   output   * FLXDAT=            *
MASSBAL.DAT   output   * BALDAT=            *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=D:\CALMET\OKEF\MET0102.DAT     !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0304.DAT     !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0506.DAT     !  !END!
```

```
      source integration
      (EPSAREA)                         Default:   1.0e-06  ! EPSAREA = 1.0E-06 !

      Trajectory step-length (m) used for numerical rise
      integration
      (DSRISE)                          Default:   1.0      ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below      (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =        lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)        (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file      (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                             a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                b          c
  Source       X UTM      Y UTM      Stack   Base      Stack    Exit  Exit    Bldg.  Emission
   No.     Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.   Dwash   Rates
              (km)       (km)       (m)      (m)       (m)   (m/s) (deg. K)
  ------   ---------- ---------- ------  ------   -------- ----- -------- ----- --------
       1  ! SRCNAM = TRS          !
       1  ! X =   434.0000,  3283.400,   76.20,  0.0,  0.94,    28.25,  533.0, 1.0, 0.00E00, 0.00E00, 1.42,
             0.0E00, 0.0E00, 0.0E00 !
  !END!

    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     0. = No building downwash modeled, 1. = downwash modeled
     NOTE: must be entered as a REAL number (i.e., with decimal point)

    c
     An emission rate must be entered for every pollutant modeled.
```

```
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IPTU
     (e.g. 1 for g/s).

---------------
Subgroup (13c)
---------------
           BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
           ---------------------------------------------------

      1  ! SRCNAM = TRS        !
       1  !  HEIGHT =    0.00,  18.96,    0.00,   0.00,   0.00,    0.00,
                  0.00,   0.00,  18.96,  18.96,   0.00,  59.04,
                 59.04,  59.04,  32.80,   0.00,   0.00,   0.00,
                  0.00,  18.96,  18.96,  18.96,  18.96,  18.96,
                 18.96,  18.96,  18.96,  18.96,   0.00,   0.00,
                  0.00,   0.00,   0.00,   0.00,   0.00,   0.00 !
       1  !  WIDTH =     0.00, 471.02,    0.00,   0.00,   0.00,    0.00,
                  0.00,   0.00, 339.41, 382.73,   0.00,  39.61,
                 38.03,  34.39,  74.74,   0.00,   0.00,   0.00,
                  0.00,  55.19,  44.04,  31.56, 100.16,  86.21,
                 88.62, 285.77, 339.41, 382.73,   0.00,   0.00,
                  0.00,   0.00,   0.00,   0.00,   0.00,   0.00 !

!END!

Source                                                                  a
 No.       Effective building width and height (in meters) every 10 degrees
------     --------------------------------------------------------------


--------
    a
     Each pair of width and height values is treated as a separate input
     subgroup and therefore must end with an input group terminator.

---------------
Subgroup (13d)
---------------
                                                          a
          POINT SOURCE: VARIABLE EMISSIONS DATA
          --------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 13b.  Factors entered multiply the rates in 13b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                               Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.


-------------------------------------------------------------------------------
```

INTERIM COMPLIANCE SCENARIO

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :SO2SIGIR.084
ISCST3 OUTPUT FILE NUMBER 2 :SO2SIGIR.085
ISCST3 OUTPUT FILE NUMBER 3 :SO2SIGIR.087
ISCST3 OUTPUT FILE NUMBER 4 :SO2SIGIR.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY SO2 SIG ANALYSIS, INTERIM SCENARIO, REFINEMENT

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	1.03	96.	1900.	84123124
	1985	1.13	96.	1900.	85123124
	1987	1.29	106.5	559.9	87123124
	1988	1.06	306.	2100.	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :SO2SIGI.084
ISCST3 OUTPUT FILE NUMBER 2 :SO2SIGI.085
ISCST3 OUTPUT FILE NUMBER 3 :SO2SIGI.086
ISCST3 OUTPUT FILE NUMBER 4 :SO2SIGI.087
ISCST3 OUTPUT FILE NUMBER 5 :SO2SIGI.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY SO2 SIG ANALYSIS, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.96	100.	2000.	84123124
	1985	1.10	100.	2000.	85123124
	1986	0.86	100.	2000.	86123124
	1987	1.29	106.5	559.9	87123124
	1988	1.05	106.5	559.9	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I                              11/12/01
CO TITLETWO PROJECT ONLY SO2 SIG ANALYSIS, INTERIM SCENARIO
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME PERIOD
CO POLLUTID SO2
CO DCAYCOEF     .000000
CO RUNORNOT RUN
CO FINISHED


SO STARTING
** NO. 4 COMBINATION BOILER BURNING LVHC NCGS AND SOGS 100%
** Source Location Cards:
**          SRCID SRCTYP        XS            YS            ZS
** OLD TRS INCINERATOR STACK IS ORIGIN ONLY
SO LOCATION   TRS POINT          0             0             0
SO LOCATION   CB4 POINT        -95           104             0

** Source Parameter Cards:
** POINT:   SRCID             QS          HS          TS          VS          DS
SO SRCPARAM   TRS           -21.57        76.2        533         32.03        0.94
SO SRCPARAM   CB4            78.93        72.2        500         21.88        2.44


SO BUILDHGT TRS           0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS           0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS          59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS           0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS          18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS           0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS           0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS           0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS          38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS           0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS          88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS           0.00    0.00    0.00    0.00    0.00    0.00


**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4        25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4        59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4        25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDWID RB4        38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4        34.29   37.95   38.11   38.11   37.84   33.53
**SO BUILDWID RB4        28.21    0.00    0.00   27.03   32.55   37.07
**SO BUILDWID RB4        38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4        34.29   37.95   38.11   38.11   37.84   33.53
**SO BUILDWID RB4        28.21    0.00    0.00   27.03   32.55   37.07


**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4       59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDWID SDT4       41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID SDT4       38.03   34.39   33.54   37.39   40.12   41.62
**SO BUILDWID SDT4       41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4       34.29   37.95   40.47   41.75   41.77   40.52
**SO BUILDWID SDT4       38.03   34.39   33.54   37.39   40.12   41.62


**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID LK4         0.00    0.00    0.00    0.00    0.00    0.00
```

```
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00

**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    59.04
**SO BUILDHGT PB4       59.04    59.04    59.04    59.04    59.04    32.80
**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    59.04
**SO BUILDHGT PB4       59.04    59.04    59.04    59.04    59.04    32.80
**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDWID PB4       39.65    39.17    37.50    34.68    45.75    29.58
**SO BUILDWID PB4       34.29    37.95    40.47    41.75    41.77    37.50
**SO BUILDWID PB4       34.68    73.63    74.74    33.99    37.02    38.93
**SO BUILDWID PB4       39.65    39.17    37.50    34.68    45.75    29.58
**SO BUILDWID PB4       34.29    37.95    40.47    41.75    41.77    37.50
**SO BUILDWID PB4       34.68    73.63    74.74    33.99    37.02    38.93

**SO BUILDHGT PB5       32.80    32.80    32.80    32.80     0.00     0.00
**SO BUILDHGT PB5       25.91    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB5       59.04    59.04    59.04    59.04    32.80    32.80
**SO BUILDHGT PB5       32.80    32.80    32.80    32.80    21.69    21.69
**SO BUILDHGT PB5       25.91    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB5       59.04    59.04    59.04    59.04    32.80    32.80
**SO BUILDWID PB5       39.65    39.17    37.50    34.68     0.00     0.00
**SO BUILDWID PB5       42.80    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB5       38.03    34.39    33.54    37.39    37.02    38.93
**SO BUILDWID PB5       39.65    39.17    37.50    34.68   132.28   130.20
**SO BUILDWID PB5       44.92    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB5       38.03    34.39    33.54    37.39    37.02    38.93

SO BUILDHGT CB4       32.80    32.80    32.80    32.80     0.00     0.00
SO BUILDHGT CB4       25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT CB4       59.04    59.04    32.80    32.80    32.80    32.80
SO BUILDHGT CB4       32.80    32.80    32.80    32.80    21.69    21.69
SO BUILDHGT CB4       25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT CB4       59.04    59.04    32.80    32.80    32.80    32.80
SO BUILDWID CB4       39.65    39.17    37.50    34.68     0.00     0.00
SO BUILDWID CB4       42.80    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4       38.03    34.39    74.74    33.99    37.02    38.93
SO BUILDWID CB4       39.65    39.17    37.50    34.68   132.28   130.20
SO BUILDWID CB4       44.92    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4       38.03    34.39    74.74    33.99    37.02    38.93

**SO BUILDHGT PB6       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB6       59.04    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB6       59.04    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB6       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB6       59.04    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB6       59.04    32.80    32.80    32.80    32.80    32.80
**SO BUILDWID PB6       39.65    39.17    37.50    34.68    45.75    37.44
**SO BUILDWID PB6       34.29    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB6       38.03    73.63    74.74    33.99    37.02    38.93
**SO BUILDWID PB6       39.65    39.17    37.50    34.68    45.75    37.44
**SO BUILDWID PB6       34.29    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB6       38.03    73.63    74.74    33.99    37.02    38.93

**SO BUILDHGT Bleach    25.76    25.76    18.96    18.96    18.96    21.49
**SO BUILDHGT Bleach    21.49    25.76    25.76    25.76    25.76    25.76
**SO BUILDHGT Bleach    25.76    25.76    25.76    25.76    25.76    25.76
**SO BUILDHGT Bleach    25.76    25.76    18.96    18.96    18.96    21.49
**SO BUILDHGT Bleach    22.25    25.76    25.76    25.76    25.76    25.76
**SO BUILDHGT Bleach    25.76    25.76    25.76    25.76    25.76    25.76
**SO BUILDWID Bleach    87.92    91.19    44.04    31.56   100.16    99.31
**SO BUILDWID Bleach   112.25    91.46    91.51    88.79    83.37    75.41
**SO BUILDWID Bleach    65.17    52.94    50.29    62.87    73.54    81.97
**SO BUILDWID Bleach    87.92    91.19    44.04    31.56   100.16    95.06
**SO BUILDWID Bleach    80.94    91.46    91.51    88.79    83.37    75.41
**SO BUILDWID Bleach    65.17    52.94    50.29    62.87    73.54    81.97
```

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**SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
**SO BUILDHGT TO         59.04   59.04   59.04   59.04   59.04   32.80
**SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
**SO BUILDHGT TO         59.04    0.00    0.00    0.00   59.04   25.91
**SO BUILDWID TO         78.64    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   33.53
**SO BUILDWID TO         38.03   34.39   33.54   37.39   38.03   38.93
**SO BUILDWID TO         39.65    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   95.50
**SO BUILDWID TO         38.03    0.00    0.00    0.00   38.03  104.49

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 6600 6700 6800 6900 7000 7500 8000 8500 9000 9200 9400 9600 9800 10000
RE GRIDPOLR POL GDIR 180 2.00 2.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS     5000.         10
RE DISCPOLR TRS     5500.         10
RE DISCPOLR TRS     6000.         10
RE DISCPOLR TRS     6100.         10
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     3000.         40
RE DISCPOLR TRS     3500.         40
RE DISCPOLR TRS     4000.         40
RE DISCPOLR TRS     4500.         40
RE DISCPOLR TRS     5000.         40
RE DISCPOLR TRS     5500.         40
RE DISCPOLR TRS     6000.         40
RE DISCPOLR TRS     6100.         40
RE DISCPOLR TRS     2500.         50
RE DISCPOLR TRS     3000.         50
RE DISCPOLR TRS     3500.         50
RE DISCPOLR TRS     4000.         50
RE DISCPOLR TRS     4500.         50
RE DISCPOLR TRS     5000.         50
RE DISCPOLR TRS     5500.         50
RE DISCPOLR TRS     6000.         50
RE DISCPOLR TRS     6100.         50
RE DISCPOLR TRS     2000.         60
```

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :NSIGIR.084
ISCST3 OUTPUT FILE NUMBER 2 :NSIGIR.085
ISCST3 OUTPUT FILE NUMBER 3 :NSIGIR.086
ISCST3 OUTPUT FILE NUMBER 4 :NSIGIR.087
ISCST3 OUTPUT FILE NUMBER 5 :NSIGIR.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY NOX REFINED SIG ANALYSIS, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.07	96.	1900.	84123124
	1985	0.08	96.	1900.	85123124
	1986	0.06	98.	1900.	86123124
	1987	0.09	108.	550.	87123124
	1988	0.08	108.	550.	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

ISCST3 OUTPUT FILE NUMBER 1 :NSIGI.084
ISCST3 OUTPUT FILE NUMBER 2 :NSIGI.085
ISCST3 OUTPUT FILE NUMBER 3 :NSIGI.086
ISCST3 OUTPUT FILE NUMBER 4 :NSIGI.087
ISCST3 OUTPUT FILE NUMBER 5 :NSIGI.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: PROJECT ONLY NOX SIG ANALYSIS, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	0.07	100.	2000.	84123124
	1985	0.08	100.	2000.	85123124
	1986	0.06	100.	2000.	86123124
	1987	0.09	106.5	559.9	87123124
	1988	0.07	106.5	559.9	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I                        11/12/01
CO TITLETWO PROJECT ONLY NOX SIG ANALYSIS, INTERIM SCENARIO
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME PERIOD
CO POLLUTID NOX
CO DCAYCOEF     .000000
CO RUNORNOT RUN
CO FINISHED


SO STARTING
** NO. 4 COMBINATION BOILER BURNING LVHC NCGS AND SOGS 100%
** Source Location Cards:
**         SRCID SRCTYP         XS            YS            ZS
** OLD TRS INCINERATOR STACK IS ORIGIN ONLY
SO LOCATION   TRS POINT          0             0             0
SO LOCATION   CB4 POINT        -95           104             0

** Source Parameter Cards:
** POINT:   SRCID           QS         HS         TS          VS          DS
SO SRCPARAM   TRS          -1.42       76.2       533         32.03       0.94
SO SRCPARAM   CB4           5.44       72.2       500         21.88       2.44


SO BUILDHGT TRS          0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS          0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS         59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS          0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS         18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS         38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS          0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS         88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS          0.00    0.00    0.00    0.00    0.00    0.00


**SO BUILDHGT RB4         59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT RB4         59.04   59.04   59.04   59.04   25.91   25.91
*SO BUILDHGT RB4          25.91    0.00    0.00   25.91   25.91   25.91
*SO BUILDHGT RB4          59.04   59.04   59.04   59.04   59.04   59.04
*SO BUILDHGT RB4          59.04   59.04   59.04   59.04   25.91   25.91
**SO BUILDHGT RB4         25.91    0.00    0.00   25.91   25.91   25.91
**SO BUILDWID RB4         38.11   38.11   38.11   35.11   30.60   29.58
*SO BUILDWID RB4          34.29   37.95   38.11   38.11   37.84   33.53
*SO BUILDWID RB4          28.21    0.00    0.00   27.03   32.55   37.07
**SO BUILDWID RB4         38.11   38.11   38.11   35.11   30.60   29.58
**SO BUILDWID RB4         34.29   37.95   38.11   38.11   37.84   33.53
*SO BUILDWID RB4          28.21    0.00    0.00   27.03   32.55   37.07


**SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4          59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4          59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
**SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDWID SDT4          41.86   40.83   38.55   35.11   30.60   29.58
SO BUILDWID SDT4          34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID SDT4          38.03   34.39   33.54   37.39   40.12   41.62
**SO BUILDWID SDT4        41.86   40.83   38.55   35.11   30.60   29.58
**SO BUILDWID SDT4        34.29   37.95   40.47   41.75   41.77   40.52
O BUILDWID SDT4           38.03   34.39   33.54   37.39   40.12   41.62


*SO BUILDHGT LK4           0.00    0.00    0.00    0.00    0.00    0.00
O BUILDHGT LK4             0.00    0.00    0.00    0.00    0.00    0.00
O BUILDHGT LK4             0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4            0.00    0.00    0.00    0.00    0.00    0.00
*SO BUILDHGT LK4           0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4            0.00    0.00    0.00    0.00    0.00    0.00
O BUILDWID LK4             0.00    0.00    0.00    0.00    0.00    0.00
O BUILDWID LK4             0.00    0.00    0.00    0.00    0.00    0.00
```

```
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00
**SO BUILDWID LK4        0.00     0.00     0.00     0.00     0.00     0.00

**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    59.04
**SO BUILDHGT PB4       59.04    59.04    59.04    59.04    59.04    32.80
**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    59.04
**SO BUILDHGT PB4       59.04    59.04    59.04    59.04    59.04    32.80
**SO BUILDHGT PB4       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDWID PB4       39.65    39.17    37.50    34.68    45.75    29.58
**SO BUILDWID PB4       34.29    37.95    40.47    41.75    41.77    37.50
**SO BUILDWID PB4       34.68    73.63    74.74    33.99    37.02    38.93
**SO BUILDWID PB4       39.65    39.17    37.50    34.68    45.75    29.58
**SO BUILDWID PB4       34.29    37.95    40.47    41.75    41.77    37.50
**SO BUILDWID PB4       34.68    73.63    74.74    33.99    37.02    38.93

**SO BUILDHGT PB5       32.80    32.80    32.80    32.80     0.00     0.00
**SO BUILDHGT PB5       25.91    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB5       59.04    59.04    59.04    59.04    32.80    32.80
**SO BUILDHGT PB5       32.80    32.80    32.80    32.80    21.69    21.69
**SO BUILDHGT PB5       25.91    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB5       59.04    59.04    59.04    59.04    32.80    32.80
**SO BUILDWID PB5       39.65    39.17    37.50    34.68     0.00     0.00
**SO BUILDWID PB5       42.80    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB5       38.03    34.39    33.54    37.39    37.02    38.93
**SO BUILDWID PB5       39.65    39.17    37.50    34.68   132.28   130.20
**SO BUILDWID PB5       44.92    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB5       38.03    34.39    33.54    37.39    37.02    38.93

SO BUILDHGT CB4       32.80    32.80    32.80    32.80     0.00     0.00
SO BUILDHGT CB4       25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT CB4       59.04    59.04    32.80    32.80    32.80    32.80
SO BUILDHGT CB4       32.80    32.80    32.80    32.80    21.69    21.69
SO BUILDHGT CB4       25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT CB4       59.04    59.04    32.80    32.80    32.80    32.80
SO BUILDWID CB4       39.65    39.17    37.50    34.68     0.00     0.00
SO BUILDWID CB4       42.80    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4       38.03    34.39    74.74    33.99    37.02    38.93
SO BUILDWID CB4       39.65    39.17    37.50    34.68   132.28   130.20
SO BUILDWID CB4       44.92    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4       38.03    34.39    74.74    33.99    37.02    38.93

**SO BUILDHGT PB6       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB6       59.04    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB6       59.04    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB6       32.80    32.80    32.80    32.80    32.80    32.80
**SO BUILDHGT PB6       59.04    59.04    59.04    59.04    59.04    59.04
**SO BUILDHGT PB6       59.04    32.80    32.80    32.80    32.80    32.80
**SO BUILDWID PB6       39.65    39.17    37.50    34.68    45.75    37.44
**SO BUILDWID PB6       34.29    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB6       38.03    73.63    74.74    33.99    37.02    38.93
**SO BUILDWID PB6       39.65    39.17    37.50    34.68    45.75    37.44
**SO BUILDWID PB6       34.29    37.95    40.47    41.75    41.77    40.52
**SO BUILDWID PB6       38.03    73.63    74.74    33.99    37.02    38.93

**SO BUILDHGT Bleach    25.76    25.76    18.96    18.96    18.96    21.49
**SO BUILDHGT Bleach    21.49    25.76    25.76    25.76    25.76    25.76
**SO BUILDHGT Bleach    25.76    25.76    25.76    25.76    25.76    25.76
**SO BUILDHGT Bleach    25.76    25.76    18.96    18.96    18.96    21.49
**SO BUILDHGT Bleach    22.25    25.76    25.76    25.76    25.76    25.76
**SO BUILDHGT Bleach    25.76    25.76    25.76    25.76    25.76    25.76
**SO BUILDWID Bleach    87.92    91.19    44.04    31.56   100.16    99.31
**SO BUILDWID Bleach   112.25    91.46    91.51    88.79    83.37    75.41
**SO BUILDWID Bleach    65.17    52.94    50.29    62.87    73.54    81.97
**SO BUILDWID Bleach    87.92    91.19    44.04    31.56   100.16    95.06
**SO BUILDWID Bleach    80.94    91.46    91.51    88.79    83.37    75.41
**SO BUILDWID Bleach    65.17    52.94    50.29    62.87    73.54    81.97
```

```
**SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
**SO BUILDHGT TO         59.04   59.04   59.04   59.04   59.04   32.80
**SO BUILDHGT TO         32.80    0.00    0.00    0.00    0.00    0.00
**SO BUILDHGT TO          0.00    0.00    0.00    0.00    0.00   25.91
**SO BUILDHGT TO         59.04    0.00    0.00    0.00   59.04   25.91
**SO BUILDWID TO         78.64    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   33.53
**SO BUILDWID TO         38.03   34.39   33.54   37.39   38.03   38.93
**SO BUILDWID TO         39.65    0.00    0.00    0.00    0.00    0.00
**SO BUILDWID TO          0.00    0.00    0.00    0.00    0.00   95.50
**SO BUILDWID TO         38.03    0.00    0.00    0.00   38.03  104.49

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 6600 6700 6800 6900 7000 7500 8000 8500 9000 9200 9400 9600 9800 10000
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS     5000.         10
RE DISCPOLR TRS     5500.         10
RE DISCPOLR TRS     6000.         10
RE DISCPOLR TRS     6100.         10
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     3000.         40
RE DISCPOLR TRS     3500.         40
RE DISCPOLR TRS     4000.         40
RE DISCPOLR TRS     4500.         40
RE DISCPOLR TRS     5000.         40
RE DISCPOLR TRS     5500.         40
RE DISCPOLR TRS     6000.         40
RE DISCPOLR TRS     6100.         40
RE DISCPOLR TRS     2500.         50
RE DISCPOLR TRS     3000.         50
RE DISCPOLR TRS     3500.         50
RE DISCPOLR TRS     4000.         50
RE DISCPOLR TRS     4500.         50
RE DISCPOLR TRS     5000.         50
RE DISCPOLR TRS     5500.         50
RE DISCPOLR TRS     6000.         50
RE DISCPOLR TRS     6100.         50
RE DISCPOLR TRS     2000.         60
```

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :SAQSIR.084
ISCST3 OUTPUT FILE NUMBER 2 :SAQSIR.085
ISCST3 OUTPUT FILE NUMBER 3 :SAQSIR.087
ISCST3 OUTPUT FILE NUMBER 4 :SAQSIR.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: SO2 AAQS, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	19.25	93.2	698.0	84123124
	1985	20.91	93.2	698.0	85123124
	1987	21.93	102.	600.	87123124
	1988	19.90	102.	600.	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :SAQSI.084
ISCST3 OUTPUT FILE NUMBER 2 :SAQSI.085
ISCST3 OUTPUT FILE NUMBER 3 :SAQSI.086
ISCST3 OUTPUT FILE NUMBER 4 :SAQSI.087
ISCST3 OUTPUT FILE NUMBER 5 :SAQSI.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT I 11/12/01
Second title for last output file is: SO2 AAQS, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	19.25	93.2	698.0	84123124
	1985	20.91	93.2	698.0	85123124
	1986	18.04	93.2	698.0	86123124
	1987	21.70	106.5	559.9	87123124
	1988	19.72	99.1	624.8	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT I          11/12/01
CO TITLETWO SO2 AAQS, INTERIM SCENARIO
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME PERIOD
CO POLLUTID SO2
CO DCAYCOEF    .000000
CO EVENTFIL EVSAQS1.I84 SOCONT
CO RUNORNOT RUN
CO FINISHED


SO STARTING
** NO. 4 CB BURNING LVHCS/SOGS 100%
** Source Location Cards:
**          SRCID SRCTYP        XS              YS          ZS
** GP FACILITY SOURCES
** OLD TRS INCINERATOR STACK IS ORIGIN ONLY
SO LOCATION   TRS  POINT         0               0           0
SO LOCATION   TO   POINT      -101              38           0
SO LOCATION   RB4  POINT      -192              91           0
SO LOCATION   SDT4 POINT      -145             126           0
SO LOCATION   LK4  POINT        21             -98           0
SO LOCATION   PB4  POINT       -81             133           0
SO LOCATION   PB5  POINT      -101             101           0
SO LOCATION   CB4  POINT       -95             104           0
SO LOCATION   PB6  POINT       -91             119           0
** OTHER SO2 SOURCES LOCATED IN PUTNAM COUNTY
SO LOCATION   SEMELECT POINT        4800          5800           0
SO LOCATION   FPLPUTNM POINT        9300         -5800           0
**SO LOCATION   FPLPALAT POINT        8800          -5800           0

** Source Parameter Cards:
** POINT:   SRCID            QS         HS          TS            VS          DS
** GP FACILITY SOURCES
SO SRCPARAM   TRS           0.00       76.2         533          32.03        0.94
SO SRCPARAM   TO            0.00       76.2         344           4.09        3.60
SO SRCPARAM   RB4          13.85       70.1         478          19.42        3.66
SO SRCPARAM   SDT4          1.00       62.8         344           6.46        1.52
SO SRCPARAM   LK4           1.37       39.9         339          18.53        1.35
SO SRCPARAM   PB4          45.23       61.0         475          21.82        1.22
SO SRCPARAM   PB5         197.13       70.7         503          18.47        2.74
SO SRCPARAM   CB4         223.95       72.2         500          21.88        2.44
SO SRCPARAM   PB6           1.40       18.3         622          17.43        1.83
** OTHER SO2 SOURCES LOCATED IN PUTNAM COUNTY
SO SRCPARAM SEMELECT     2168.80      205.7        326.5          7.99       10.97
SO SRCPARAM FPLPUTNM      431.68       22.3        437.4         58.60        3.15
**SO SRCPARAM FPLPALAT     -257.03      45.7        408.1          9.50        3.96

SO BUILDHGT TRS          0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS          0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS         59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS          0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS         18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS         38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS          0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS         88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS          0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT TO          32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO           0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO          59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT TO          32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO           0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO          59.04    0.00    0.00    0.00   59.04   25.91
SO BUILDWID TO          78.64    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO           0.00    0.00    0.00    0.00    0.00   33.53
SO BUILDWID TO          38.03   34.39   33.54   37.39   38.03   38.93
SO BUILDWID TO          39.65    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO           0.00    0.00    0.00    0.00    0.00   95.50
SO BUILDWID TO          38.03    0.00    0.00    0.00   38.03  104.49
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SO BUILDHGT RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT RB4	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDWID RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDWID RB4	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4	28.21	0.00	0.00	27.03	32.55	37.07

SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDWID SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDWID SDT4	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4	38.03	34.39	33.54	37.39	40.12	41.62

SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4	0.00	0.00	0.00	0.00	0.00	0.00

SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDWID PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID PB4	34.68	73.63	74.74	33.99	37.02	38.93
SO BUILDWID PB4	39.65	39.17	37.50	34.68	45.75	29.58
SO BUILDWID PB4	34.29	37.95	40.47	41.75	41.77	37.50
SO BUILDWID PB4	34.68	73.63	74.74	33.99	37.02	38.93

SO BUILDHGT PB5	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDHGT PB5	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT PB5	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT PB5	59.04	59.04	59.04	59.04	32.80	32.80
SO BUILDWID PB5	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID PB5	42.80	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB5	38.03	34.39	33.54	37.39	37.02	38.93
SO BUILDWID PB5	39.65	39.17	37.50	34.68	132.28	130.20
SO BUILDWID PB5	44.92	37.95	40.47	41.75	41.77	40.52
SO BUILDWID PB5	38.03	34.39	33.54	37.39	37.02	38.93

SO BUILDHGT CB4	32.80	32.80	32.80	32.80	0.00	0.00
SO BUILDHGT CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDHGT CB4	32.80	32.80	32.80	32.80	21.69	21.69
SO BUILDHGT CB4	25.91	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT CB4	59.04	59.04	32.80	32.80	32.80	32.80
SO BUILDWID CB4	39.65	39.17	37.50	34.68	0.00	0.00
SO BUILDWID CB4	42.80	37.95	40.47	41.75	41.77	40.52
SO BUILDWID CB4	38.03	34.39	74.74	33.99	37.02	38.93
SO BUILDWID CB4	39.65	39.17	37.50	34.68	132.28	130.20

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SO BUILDWID CB4         44.92    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4         38.03    34.39    74.74    33.99    37.02    38.93

SO BUILDHGT PB6         32.80    32.80    32.80    32.80    32.80    32.80
SO BUILDHGT PB6         59.04    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT PB6         59.04    32.80    32.80    32.80    32.80    32.80
SO BUILDHGT PB6         32.80    32.80    32.80    32.80    32.80    32.80
SO BUILDHGT PB6         59.04    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT PB6         59.04    32.80    32.80    32.80    32.80    32.80
SO BUILDWID PB6         39.65    39.17    37.50    34.68    45.75    37.44
SO BUILDWID PB6         34.29    37.95    40.47    41.75    41.77    40.52
SO BUILDWID PB6         38.03    73.63    74.74    33.99    37.02    38.93
SO BUILDWID PB6         39.65    39.17    37.50    34.68    45.75    37.44
SO BUILDWID PB6         34.29    37.95    40.47    41.75    41.77    40.52
SO BUILDWID PB6         38.03    73.63    74.74    33.99    37.02    38.93

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 6500 6600 6700 6800 6900 7000 7500 8000 8500 9000 9200 9400 9600 9800 10000
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS      5000.          10
RE DISCPOLR TRS      5500.          10
RE DISCPOLR TRS      6000.          10
RE DISCPOLR TRS      5500.          20
RE DISCPOLR TRS      6000.          20
RE DISCPOLR TRS      5500.          20
RE DISCPOLR TRS      6000.          20
RE DISCPOLR TRS      5500.          20
RE DISCPOLR TRS      6000.          20
RE DISCPOLR TRS      4000.          30
RE DISCPOLR TRS      4500.          30
RE DISCPOLR TRS      5000.          30
RE DISCPOLR TRS      5500.          30
RE DISCPOLR TRS      6000.          30
RE DISCPOLR TRS      4000.          30
RE DISCPOLR TRS      4500.          30
RE DISCPOLR TRS      5000.          30
RE DISCPOLR TRS      5500.          30
RE DISCPOLR TRS      6000.          30
RE DISCPOLR TRS      4000.          30
RE DISCPOLR TRS      4500.          30
RE DISCPOLR TRS      5000.          30
RE DISCPOLR TRS      5500.          30
RE DISCPOLR TRS      6000.          30
RE DISCPOLR TRS      3000.          40
RE DISCPOLR TRS      3500.          40
RE DISCPOLR TRS      4000.          40
RE DISCPOLR TRS      4500.          40
RE DISCPOLR TRS      5000.          40
RE DISCPOLR TRS      5500.          40
RE DISCPOLR TRS      6000.          40
RE DISCPOLR TRS      2500.          50
RE DISCPOLR TRS      3000.          50
RE DISCPOLR TRS      3500.          50
RE DISCPOLR TRS      4000.          50
RE DISCPOLR TRS      4500.          50
RE DISCPOLR TRS      5000.          50
RE DISCPOLR TRS      5500.          50
RE DISCPOLR TRS      6000.          50
RE DISCPOLR TRS      2000.          60
RE DISCPOLR TRS      2500.          60
RE DISCPOLR TRS      3000.          60
RE DISCPOLR TRS      3500.          60
RE DISCPOLR TRS      4000.          60
RE DISCPOLR TRS      4500.          60
RE DISCPOLR TRS      5000.          60
RE DISCPOLR TRS      5500.          60
RE DISCPOLR TRS      6000.          60
```

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :SCL2Ia.084
ISCST3 OUTPUT FILE NUMBER 2 :SCL2Ia.085
First title for last output file is: 1984 GEORGIA-PACIFIC MACT 1 11/12/01
Second title for last output file is: SO2 PSD CLASS II, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	6.21	58.	10000.	84123124
	1985	5.49	50.	10500.	85123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

ISCBOB3R RELEASE 00285

ISCST3 OUTPUT FILE NUMBER 1 :SCL2I.084
ISCST3 OUTPUT FILE NUMBER 2 :SCL2I.085
ISCST3 OUTPUT FILE NUMBER 3 :SCL2I.086
ISCST3 OUTPUT FILE NUMBER 4 :SCL2I.087
ISCST3 OUTPUT FILE NUMBER 5 :SCL2I.088
First title for last output file is: 1984 GEORGIA-PACIFIC MACT 1 11/12/01
Second title for last output file is: SO2 PSD CLASS II, INTERIM SCENARIO

AVERAGING TIME	YEAR	CONC (ug/m3)	DIRECTION (degree)	DISTANCE (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: ALL					
Annual					
	1984	5.95	60.	10000.	84123124
	1985	5.48	50.	10000.	85123124
	1986	6.12	60.	9000.	86123124
	1987	6.80	60.	8500.	87123124
	1988	6.48	10.	8500.	88123124

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	-101.00	38.00

```
CO STARTING
CO TITLEONE 1984 GEORGIA-PACIFIC MACT 1          11/12/01
CO TITLETWO SO2 PSD CLASS II, INTERIM SCENARIO
CO MODELOPT DFAULT CONC RURAL NOCMPL
CO AVERTIME  PERIOD
CO POLLUTID SO2
CO DCAYCOEF    .000000
CO EVENTFIL EVSCL1I.I84 SOCONT
CO RUNORNOT RUN
CO FINISHED


SO STARTING
**NO. 4 COMBINATION BOILER BURNING LVHC NCGS AND SOGS 100%
** Source Location Cards:
**           SRCID     SRCTYP        XS           YS            ZS
** TRS INCINERATOR STACK IS ORIGIN LOCATION
SO LOCATION  TRS       POINT          0            0            0
SO LOCATION  TO        POINT       -101           38            0
SO LOCATION  RB4       POINT       -192           91            0
SO LOCATION  SDT4      POINT       -145          126            0
SO LOCATION  LK4       POINT         21          -98            0
SO LOCATION  PB4       POINT        -81          133            0
SO LOCATION  PB5       POINT       -101          101            0
SO LOCATION  CB4       POINT        -95          104            0
SO LOCATION  PB6       POINT        -91          119            0
** G-P 1974 BASELINE
SO LOCATION  RB1B      POINT        -21           58            0
SO LOCATION  RB2B      POINT        -21           58            0
SO LOCATION  RB3B      POINT        -56           36            0
SO LOCATION  RB4B      POINT       -192           91            0
SO LOCATION  SDT1B     POINT        -21           58            0
SO LOCATION  SDT2B     POINT        -21           58            0
SO LOCATION  SDT3B     POINT        -56           36            0
SO LOCATION  SDT4B     POINT       -145          126            0
SO LOCATION  LK1B      POINT         37          -44            0
SO LOCATION  LK2B      POINT         32          -46            0
SO LOCATION  LK3B      POINT         33          -74            0
SO LOCATION  LK4B      POINT         20          -97            0
SO LOCATION  PB4B      POINT        -81          133            0
SO LOCATION  PB5B      POINT       -101          101            0
SO LOCATION  CB4B      POINT        -95          104            0
** OTHER SOURCES
SO LOCATION SEMELECT   POINT        4800.        5800.           .0
SO LOCATION FPLPUTNM   POINT        9300.       -5800.           .0
SO LOCATION FPLPALAT   POINT        8800.       -5800.           .0

** Source Parameter Cards:
** POINT:   SRCID        QS          HS         TS          VS          DS
** TRS REMOVED, STACK USED AS ORIGIN ONLY
SO SRCPARAM   TRS       0.00        76.2       533        32.03       0.94
SO SRCPARAM   TO        0.00        76.2       344         4.09       1.10
SO SRCPARAM   RB4      13.85        70.1       478        19.42       3.66
SO SRCPARAM   SDT4      1.00        62.8       344         6.46       1.52
SO SRCPARAM   LK4       1.37        39.9       339        18.53       1.35
SO SRCPARAM   PB4      45.23        61.0       475        21.82       1.22
SO SRCPARAM   PB5     197.13        70.7       503        18.47       2.74
SO SRCPARAM   CB4     223.95        72.2       500        21.88       2.44
SO SRCPARAM   PB6       1.40        18.3       622        17.43       1.83


** G-P 1974 BASELINE
SO SRCPARAM   RB1B     -6.21        76.2       360.0       8.80       3.66
SO SRCPARAM   RB2B     -8.89        76.2       372.0       8.80       3.66
SO SRCPARAM   RB3B     -8.57        40.5       372.0       7.28       3.41
SO SRCPARAM   RB4B    -34.95        70.1       474.0      16.86       3.66
SO SRCPARAM   SDT1B    -0.12        30.5       366.0       7.53       0.76
SO SRCPARAM   SDT2B    -0.17        30.5       375.0       9.51       0.91
SO SRCPARAM   SDT3B    -0.17        33.2       369.0       3.57       0.76
SO SRCPARAM   SDT4B    -0.72        62.8       346.0       8.26       1.52
SO SRCPARAM   LK1B     -0.23        15.2       401.0       5.24       1.28
SO SRCPARAM   LK2B     -0.23        15.9       341.0      10.67       1.71
SO SRCPARAM   LK3B     -0.49        15.9       342.0       8.47       1.71
SO SRCPARAM   LK4B     -1.40        45.4       351.0      16.46       1.31
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SO SRCPARAM    PB4B    -34.29        37.2      477.0      14.54       1.22
SO SRCPARAM    PB5B   -134.00        72.9      520.0      15.97       2.74
SO SRCPARAM    CB4B    -29.00        72.9      477.0      10.52       3.05
SO SRCPARAM SEMELECT   2168.8       205.7      326.5       7.99      10.97
** 2 OF FPL PUTNAM'S 4 CTS CONSUME PSD INCREMENT
SO SRCPARAM FPLPUTNM   215.84        22.3      437.4      58.60       3.15
SO SRCPARAM FPLPALAT  -257.03        45.7      408.1       9.50       3.96


SO BUILDHGT TRS          0.00   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TRS          0.00    0.00   18.96   18.96    0.00   59.04
SO BUILDHGT TRS         59.04   59.04   32.80    0.00    0.00    0.00
SO BUILDHGT TRS          0.00   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TRS         18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TRS          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS          0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS         38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS          0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS         88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS          0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT TO          32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO           0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO          59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT TO          32.80    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT TO           0.00    0.00    0.00    0.00    0.00   25.91
SO BUILDHGT TO          59.04    0.00    0.00    0.00   59.04   25.91
SO BUILDWID TO          78.64    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO           0.00    0.00    0.00    0.00    0.00   33.53
SO BUILDWID TO          38.03   34.39   33.54   37.39   38.03   38.93
SO BUILDWID TO          39.65    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TO           0.00    0.00    0.00    0.00    0.00   95.50
SO BUILDWID TO          38.03    0.00    0.00    0.00   38.03  104.49

SO BUILDHGT RB4         59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4         59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4         25.91    0.00    0.00   25.91   25.91   25.91
SO BUILDHGT RB4         59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4         59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4         25.91    0.00    0.00   25.91   25.91   25.91
SO BUILDWID RB4         38.11   38.11   38.11   35.11   30.60   29.58
SO BUILDWID RB4         34.29   37.95   38.11   38.11   37.84   33.53
SO BUILDWID RB4         28.21    0.00    0.00   27.03   32.55   37.07
SO BUILDWID RB4         38.11   38.11   38.11   35.11   30.60   29.58
SO BUILDWID RB4         34.29   37.95   38.11   38.11   37.84   33.53
SO BUILDWID RB4         28.21    0.00    0.00   27.03   32.55   37.07

SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDWID SDT4        41.86   40.83   38.55   35.11   30.60   29.58
SO BUILDWID SDT4        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID SDT4        38.03   34.39   33.54   37.39   40.12   41.62
SO BUILDWID SDT4        41.86   40.83   38.55   35.11   30.60   29.58
SO BUILDWID SDT4        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID SDT4        38.03   34.39   33.54   37.39   40.12   41.62

SO BUILDHGT LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4          0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4          0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT PB4         32.80   32.80   32.80   32.80   32.80   59.04
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SO BUILDHGT PB4        59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   59.04
SO BUILDHGT PB4        59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT PB4        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB4        39.65   39.17   37.50   34.68   45.75   29.58
SO BUILDWID PB4        34.29   37.95   40.47   41.75   41.77   37.50
SO BUILDWID PB4        34.68   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB4        39.65   39.17   37.50   34.68   45.75   29.58
SO BUILDWID PB4        34.29   37.95   40.47   41.75   41.77   37.50
SO BUILDWID PB4        34.68   73.63   74.74   33.99   37.02   38.93

SO BUILDHGT PB5        32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT PB5        25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB5        59.04   59.04   59.04   59.04   32.80   32.80
SO BUILDHGT PB5        32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT PB5        25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB5        59.04   59.04   59.04   59.04   32.80   32.80
SO BUILDWID PB5        39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID PB5        42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB5        38.03   34.39   33.54   37.39   37.02   38.93
SO BUILDWID PB5        39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID PB5        44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB5        38.03   34.39   33.54   37.39   37.02   38.93

SO BUILDHGT CB4        32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT CB4        25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4        59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDHGT CB4        32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT CB4        25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4        59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDWID CB4        39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID CB4        42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4        38.03   34.39   74.74   33.99   37.02   38.93
SO BUILDWID CB4        39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID CB4        44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4        38.03   34.39   74.74   33.99   37.02   38.93

SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6        59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6        59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB6        39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6        34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6        38.03   73.63   74.74   33.99   37.02   38.93


** 1974 BASELINE BUILDING
SO BUILDHGT RB1B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDHGT RB1B       30.48   30.48   30.48   30.48   59.04   59.04
SO BUILDHGT RB1B       59.04   32.80   30.48   30.48   30.48   30.48
SO BUILDHGT RB1B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDHGT RB1B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDHGT RB1B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDWID RB1B       56.38   52.18   46.39   39.19   23.98   23.43
SO BUILDWID RB1B       25.87   36.14   43.06   48.66   41.77   40.52
SO BUILDWID RB1B       38.03   73.63   19.19   22.54   25.20   58.87
SO BUILDWID RB1B       56.38   52.18   46.39   39.19   23.98   23.43
SO BUILDWID RB1B       25.87   36.14   43.06   48.66   52.78   25.64
SO BUILDWID RB1B       23.13   19.91   19.19   22.54   25.20   58.87


SO BUILDHGT RB2B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDHGT RB2B       30.48   30.48   30.48   30.48   59.04   59.04
SO BUILDHGT RB2B       59.04   32.80   30.48   30.48   30.48   30.48
SO BUILDHGT RB2B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDHGT RB2B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDHGT RB2B       30.48   30.48   30.48   30.48   30.48   30.48
SO BUILDWID RB2B       56.38   52.18   46.39   39.19   23.98   23.43
SO BUILDWID RB2B       25.87   36.14   43.06   48.66   41.77   40.52
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SO BUILDWID RB2B	38.03	73.63	19.19	22.54	25.20	58.87
SO BUILDWID RB2B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID RB2B	25.87	36.14	43.06	48.66	52.78	25.64
SO BUILDWID RB2B	23.13	19.91	19.19	22.54	25.20	58.87

SO BUILDHGT RB3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT RB3B	30.48	30.48	30.48	30.48	30.48	59.04
SO BUILDHGT RB3B	59.04	59.04	32.80	32.80	32.80	30.48
SO BUILDHGT RB3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT RB3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT RB3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDWID RB3B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID RB3B	25.87	36.14	43.06	48.66	52.78	39.42
SO BUILDWID RB3B	38.03	34.39	74.74	33.99	37.02	58.87
SO BUILDWID RB3B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID RB3B	25.87	36.14	43.06	48.66	52.78	17.46
SO BUILDWID RB3B	15.09	12.25	11.63	14.55	17.03	58.87

SO BUILDHGT RB4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4B	59.04	59.04	59.04	59.04	25.91	25.91
SO BUILDHGT RB4B	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDHGT RB4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT RB4B	59.04	59.04	59.04	59.04	30.48	25.91
SO BUILDHGT RB4B	25.91	0.00	0.00	25.91	25.91	25.91
SO BUILDWID RB4B	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4B	34.29	37.95	38.11	38.11	37.84	33.53
SO BUILDWID RB4B	28.21	0.00	0.00	27.03	32.55	37.07
SO BUILDWID RB4B	38.11	38.11	38.11	35.11	30.60	29.58
SO BUILDWID RB4B	34.29	37.95	38.11	38.11	52.78	33.53
SO BUILDWID RB4B	28.21	0.00	0.00	27.03	32.55	37.07

SO BUILDHGT SDT1B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT1B	30.48	30.48	30.48	30.48	59.04	59.04
SO BUILDHGT SDT1B	59.04	32.80	30.48	30.48	30.48	30.48
SO BUILDHGT SDT1B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT1B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT1B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDWID SDT1B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID SDT1B	25.87	36.14	43.06	48.66	41.77	40.52
SO BUILDWID SDT1B	38.03	73.63	19.19	22.54	25.20	58.87
SO BUILDWID SDT1B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID SDT1B	25.87	36.14	43.06	48.66	52.78	25.64
SO BUILDWID SDT1B	23.13	19.91	19.19	22.54	25.20	58.87

SO BUILDHGT SDT2B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT2B	30.48	30.48	30.48	30.48	59.04	59.04
SO BUILDHGT SDT2B	59.04	32.80	30.48	30.48	30.48	30.48
SO BUILDHGT SDT2B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT2B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT2B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDWID SDT2B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID SDT2B	25.87	36.14	43.06	48.66	41.77	40.52
SO BUILDWID SDT2B	38.03	73.63	19.19	22.54	25.20	58.87
SO BUILDWID SDT2B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID SDT2B	25.87	36.14	43.06	48.66	52.78	25.64
SO BUILDWID SDT2B	23.13	19.91	19.19	22.54	25.20	58.87

SO BUILDHGT SDT3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT3B	30.48	30.48	30.48	30.48	30.48	59.04
SO BUILDHGT SDT3B	59.04	59.04	32.80	32.80	32.80	30.48
SO BUILDHGT SDT3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDHGT SDT3B	30.48	30.48	30.48	30.48	30.48	30.48
SO BUILDWID SDT3B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID SDT3B	25.87	36.14	43.06	48.66	52.78	39.42
SO BUILDWID SDT3B	38.03	34.39	74.74	33.99	37.02	58.87
SO BUILDWID SDT3B	56.38	52.18	46.39	39.19	23.98	23.43
SO BUILDWID SDT3B	25.87	36.14	43.06	48.66	52.78	17.46
SO BUILDWID SDT3B	15.09	12.25	11.63	14.55	17.03	58.87

SO BUILDHGT SDT4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDHGT SDT4B	59.04	59.04	59.04	59.04	59.04	59.04
SO BUILDWID SDT4B	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4B	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4B	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDWID SDT4B	41.86	40.83	38.55	35.11	30.60	29.58
SO BUILDWID SDT4B	34.29	37.95	40.47	41.75	41.77	40.52
SO BUILDWID SDT4B	38.03	34.39	33.54	37.39	40.12	41.62
SO BUILDHGT LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK1B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK2B	0.00	0.00	30.48	30.48	0.00	0.00
SO BUILDHGT LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK2B	0.00	0.00	19.19	22.00	0.00	0.00
SO BUILDWID LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK2B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK3B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID LK4B	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT PB4B	32.80	32.80	32.80	32.80	32.80	59.04
SO BUILDHGT PB4B	59.04	59.04	59.04	59.04	59.04	32.80
SO BUILDHGT PB4B	32.80	32.80	32.80	32.80	32.80	32.80
SO BUILDHGT PB4B	32.80	32.80	32.80	32.80	32.80	59.04

```
SO BUILDHGT PB4B        59.04    59.04    59.04    59.04    59.04    32.80
SO BUILDHGT PB4B        32.80    32.80    32.80    32.80    32.80    32.80
SO BUILDWID PB4B        39.65    39.17    37.50    34.68    45.75    29.58
SO BUILDWID PB4B        34.29    37.95    40.47    41.75    41.77    37.50
SO BUILDWID PB4B        34.68    73.63    74.74    33.99    37.02    38.93
SO BUILDWID PB4B        39.65    39.17    37.50    34.68    45.75    29.58
SO BUILDWID PB4B        34.29    37.95    40.47    41.75    41.77    37.50
SO BUILDWID PB4B        34.68    73.63    74.74    33.99    37.02    38.93


SO BUILDHGT PB5B        32.80    32.80    32.80    32.80     0.00     0.00
SO BUILDHGT PB5B        25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT PB5B        59.04    59.04    59.04    59.04    32.80    32.80
SO BUILDHGT PB5B        32.80    32.80    32.80    32.80    21.69    21.69
SO BUILDHGT PB5B        25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT PB5B        59.04    59.04    59.04    59.04    32.80    32.80
SO BUILDWID PB5B        39.65    39.17    37.50    34.68     0.00     0.00
SO BUILDWID PB5B        42.80    37.95    40.47    41.75    41.77    40.52
SO BUILDWID PB5B        38.03    34.39    33.54    37.39    37.02    38.93
SO BUILDWID PB5B        39.65    39.17    37.50    34.68   132.28   130.20
SO BUILDWID PB5B        44.92    37.95    40.47    41.75    41.77    40.52
SO BUILDWID PB5B        38.03    34.39    33.54    37.39    37.02    38.93


SO BUILDHGT CB4B        32.80    32.80    32.80    32.80     0.00     0.00
SO BUILDHGT CB4B        25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT CB4B        59.04    59.04    32.80    32.80    32.80    32.80
SO BUILDHGT CB4B        32.80    32.80    32.80    32.80    21.69    21.69
SO BUILDHGT CB4B        25.91    59.04    59.04    59.04    59.04    59.04
SO BUILDHGT CB4B        59.04    59.04    32.80    32.80    32.80    32.80
SO BUILDWID CB4B        39.65    39.17    37.50    34.68     0.00     0.00
SO BUILDWID CB4B        42.80    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4B        38.03    34.39    74.74    33.99    37.02    38.93
SO BUILDWID CB4B        39.65    39.17    37.50    34.68   132.28   130.20
SO BUILDWID CB4B        44.92    37.95    40.47    41.75    41.77    40.52
SO BUILDWID CB4B        38.03    34.39    74.74    33.99    37.02    38.93

SO EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG 0.0 0.0
RE GRIDPOLR POL DIST 9800 10000 10500
RE GRIDPOLR POL GDIR 36 10.00 10.00
RE GRIDPOLR END
**BEYOND FENCELINE RECEPTORS
RE DISCPOLR TRS     5000.         10
RE DISCPOLR TRS     5500.         10
RE DISCPOLR TRS     6000.         10
RE DISCPOLR TRS     6100.         10
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     5500.         20
RE DISCPOLR TRS     6000.         20
RE DISCPOLR TRS     6100.         20
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
RE DISCPOLR TRS     5000.         30
RE DISCPOLR TRS     5500.         30
RE DISCPOLR TRS     6000.         30
RE DISCPOLR TRS     6100.         30
RE DISCPOLR TRS     4000.         30
RE DISCPOLR TRS     4500.         30
```

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT CHASSAHOWITZKA NWA, PROJECT ONLY SOURCES, FINAL SCENARIO     11/15/01
FUTURE MAXIMUM EMISSION RATES, TRS STACK ONLY
--------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                    Default: 1       ! NMETDAT =   4   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input     * METDAT =             *
    or
ISCMET.DAT    input     * ISCDAT =             *
    or
PLMMET.DAT    input     * PLMDAT =             *
    or
PROFILE.DAT   input     * PRFDAT =             *
SURFACE.DAT   input     * SFCDAT =             *
RESTARTB.DAT  input     * RSTARTB=             *
--------------------------------------------------------------------------------
CALPUFF.LST   output    ! PUFLST =PUFFFUT3.LST    !
CONC.DAT      output    ! CONDAT =PUFFFUT3.CON    !
DFLX.DAT      output    * DFDAT  =             *
WFLX.DAT      output    * WFDAT  =             *

VISB.DAT      output    ! VISDAT =VISB3.DAT   !
RESTARTE.DAT  output    * RSTARTE=             *
--------------------------------------------------------------------------------
Emission Files                     3
--------------
PTEMARB.DAT   input     * PTDAT  =             *
VOLEM.DAT     input     * VOLDAT =             *
BAEMARB.DAT   input     * ARDAT  =             *
LNEMARB.DAT   input     * LNDAT  =             *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input     ! OZDAT  =03OWR90.DAT  !
VD.DAT        input     * VDDAT  =             *
CHEM.DAT      input     * CHEMDAT=             *
HILL.DAT      input     * HILDAT=             *
HILLRCT.DAT   input     * RCTDAT=             *
COASTLN.DAT   input     * CSTDAT=             *
FLUXBDY.DAT   input     * BDYDAT=             *
DEBUG.DAT     output    * DEBUG =             *
MASSFLX.DAT   output    * FLXDAT=             *
MASSBAL.DAT   output    * BALDAT=             *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
        T = lower case       ! LCFILES = T !
        F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input     ! METDAT=C:\CALMET\CHASS\METQ1.DAT     !  !END!
 none         input     ! METDAT=C:\CALMET\CHASS\METQ2.DAT     !  !END!
 none         input     ! METDAT=C:\CALMET\CHASS\METQ3.DAT     !  !END!
```

```
       Trajectory step-length (m) used for numerical rise
       integration
       (DSRISE)                          Default:   1.0      ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below      (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)        (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file      (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                             a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                      b           c
  Source       X UTM      Y UTM     Stack   Base      Stack     Exit  Exit     Bldg.  Emission
   No.     Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.    Dwash   Rates
               (km)       (km)      (m)      (m)       (m)   (m/s) (deg. K)
  ------   ---------- ---------- ------   ------    -------- ----- -------- ----- --------
       2  ! SRCNAM = CB4           !
       2  ! X =    434.0000,  3283.400,   72.20,    0.00,     2.44,    21.88,  500.0, 1.0, 78.93, 0.00E00, 5.44,
             0.0E00, 0.0E00, 0.0E00, 3.16 !
  !END!
    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     0. = No building downwash modeled, 1. = downwash modeled
     NOTE: must be entered as a REAL number (i.e., with decimal point)

    c
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IPTU
     (e.g. 1 for g/s).
```

```
---------------
Subgroup (13c)
---------------
          BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
          ------------------------------------------------------

      2  ! SRCNAM = CB4        !
      2  !  HEIGHT =  32.80,  32.80,  32.80,  32.80,   0.00,   0.00,
              25.91,  59.04,  59.04,  59.04,  59.04,  59.04,
              59.04,  59.04,  32.80,  32.80,  32.80,  32.80,
              32.80,  32.80,  32.80,  32.80,  21.69,  21.69,
              25.91,  59.04,  59.04,  59.04,  59.04,  59.04,
              59.04,  59.04,  32.80,  32.80,  32.80,  32.80 !
      2  !  WIDTH =   39.65,  39.17,  37.50,  34.68,   0.00,   0.00,
              42.80,  37.95,  40.47,  41.75,  41.77,  40.52,
              38.03,  34.39,  74.74,  33.99,  37.02,  38.93,
              39.65,  39.17,  37.50,  34.68, 132.28, 130.20,
              44.92,  37.95,  40.47,  41.75,  41.77,  40.52,
              38.03,  34.39,  74.74,  33.99,  37.02,  38.93 !

!END!

Source                                                            a
 No.      Effective building width and height (in meters) every 10 degrees
------    ----------------------------------------------------------------


--------

    a
     Each pair of width and height values is treated as a separate input
     subgroup and therefore must end with an input group terminator.

---------------
Subgroup (13d)
---------------
                                                     a
         POINT SOURCE: VARIABLE EMISSIONS DATA
         -------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 13b.  Factors entered multiply the rates in 13b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                              Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.


--------------------------------------------------------------------------------


INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters
--------------------------------

---------------
```

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT CHASSAHOWITZKA NWA, PROJECT ONLY SOURCES, INTERIM SCENARIO 11/28/01
CURRENT ACTUAL EMISSION RATES, TRS STACK ONLY
---------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                Default: 1       ! NMETDAT =   4   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =             *
    or
ISCMET.DAT    input    * ISCDAT =             *
    or
PLMMET.DAT    input    * PLMDAT =             *
    or
PROFILE.DAT   input    * PRFDAT =             *
SURFACE.DAT   input    * SFCDAT =             *
RESTARTB.DAT  input    * RSTARTB=             *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFCUR3.LST   !
CONC.DAT      output   ! CONDAT =PUFFCUR3.CON   !
DFLX.DAT      output   * DFDAT  =             *
WFLX.DAT      output   * WFDAT  =             *

VISB.DAT      output   ! VISDAT =VISB3.DAT    !
RESTARTE.DAT  output   * RSTARTE=             *
--------------------------------------------------------------------------------
Emission Files                   3
--------------
PTEMARB.DAT   input    * PTDAT  =             *
VOLEM.DAT     input    * VOLDAT =             *
BAEMARB.DAT   input    * ARDAT  =             *
LNEMARB.DAT   input    * LNDAT  =             *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =O3OWR90.DAT  !
VD.DAT        input    * VDDAT  =             *
CHEM.DAT      input    * CHEMDAT=             *
HILL.DAT      input    * HILDAT=             *
HILLRCT.DAT   input    * RCTDAT=             *
COASTLN.DAT   input    * CSTDAT=             *
FLUXBDY.DAT   input    * BDYDAT=             *
DEBUG.DAT     output   * DEBUG =             *
MASSFLX.DAT   output   * FLXDAT=             *
MASSBAL.DAT   output   * BALDAT=             *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=C:\CALMET\CHASS\METQ1.DAT     !  !END!
 none         input    ! METDAT=C:\CALMET\CHASS\METQ2.DAT     !  !END!
 none         input    ! METDAT=C:\CALMET\CHASS\METQ3.DAT     !  !END!
```

```
       (EPSAREA)                          Default:   1.0e-06  ! EPSAREA = 1.0E-06 !

       Trajectory step-length (m) used for numerical rise
       integration
       (DSRISE)                           Default:   1.0      ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below       (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                 (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)         (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file       (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                          a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                     b            c
  Source      X UTM      Y UTM     Stack    Base     Stack    Exit  Exit     Bldg.  Emission
   No.     Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.    Dwash   Rates
              (km)       (km)       (m)      (m)       (m)  (m/s) (deg. K)
  ------   ---------- ---------- ------   ------   -------- ----- -------- ----- --------
       1  ! SRCNAME = TRS          !
       1  ! X =    434.0000,  3283.400,   76.20,    0.00,     0.94,    28.25,  533.0, 1.0, 21.57, 0.00E00, 1.42,
            0.0E00, 0.0E00, 0.0E00, 0.77!
  !END!

    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     0. = No building downwash modeled, 1. = downwash modeled
     NOTE: must be entered as a REAL number (i.e., with decimal point)

    c
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
```

```
     modeled, but not emitted.  Units are specified by IPTU
     (e.g. 1 for g/s).

---------------
Subgroup (13c)
---------------
           BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
           -------------------------------------------------------
       1  ! SRCNAM = TRS         !
        1  !  HEIGHT =   0.00,  18.96,   0.00,   0.00,   0.00,   0.00,
                   0.00,   0.00,  18.96,  18.96,   0.00,  59.04,
                  59.04,  59.04,  32.80,   0.00,   0.00,   0.00,
                   0.00,  18.96,  18.96,  18.96,  18.96,  18.96,
                  18.96,  18.96,  18.96,  18.96,   0.00,   0.00,
                   0.00,   0.00,   0.00,   0.00,   0.00,   0.00 !
        1  !  WIDTH =    0.00, 471.02,   0.00,   0.00,   0.00,   0.00,
                   0.00,   0.00, 339.41, 382.73,   0.00,  39.61,
                  38.03,  34.39,  74.74,   0.00,   0.00,   0.00,
                   0.00,  55.19,  44.04,  31.56, 100.16,  86.21,
                  88.62, 285.77, 339.41, 382.73,   0.00,   0.00,
                   0.00,   0.00,   0.00,   0.00,   0.00,   0.00 !

!END!

Source                                                               a
 No.       Effective building width and height (in meters) every 10 degrees
------     ----------------------------------------------------------------


--------

    a
    Each pair of width and height values is treated as a separate input
    subgroup and therefore must end with an input group terminator.

---------------
Subgroup (13d)
---------------
                                                         a
          POINT SOURCE: VARIABLE EMISSIONS DATA
          ---------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 13b.  Factors entered multiply the rates in 13b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                           Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
    a
    Data for each species are treated as a separate input subgroup
    and therefore must end with an input group terminator.


--------------------------------------------------------------------------------


INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters
```

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT OKEFENOKEE NWR, PROJECT ONLY SOURCES, INTERIM SCENARIO    11/15/01
FUTURE MAXIMUM EMISSION RATES, CB4 STACK ONLY
---------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                Default: 1       ! NMETDAT =   6  !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =             *
    or
ISCMET.DAT    input    * ISCDAT =             *
    or
PLMMET.DAT    input    * PLMDAT =             *
    or
PROFILE.DAT   input    * PRFDAT =             *
SURFACE.DAT   input    * SFCDAT =             *
RESTARTB.DAT  input    * RSTARTB=             *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFFUT1.LST   !
CONC.DAT      output   ! CONDAT =PUFFFUT1.CON   !
DFLX.DAT      output   * DFDAT  =             *
WFLX.DAT      output   * WFDAT  =             *

VISB.DAT      output   ! VISDAT =VISB1.DAT    !
RESTARTE.DAT  output   * RSTARTE=             *
--------------------------------------------------------------------------------
Emission Files                    3
--------------
PTEMARB.DAT   input    * PTDAT  =             *
VOLEM.DAT     input    * VOLDAT =             *
BAEMARB.DAT   input    * ARDAT  =             *
LNEMARB.DAT   input    * LNDAT  =             *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =O3OWR90.DAT  !
VD.DAT        input    * VDDAT  =             *
CHEM.DAT      input    * CHEMDAT=             *
HILL.DAT      input    * HILDAT=             *
HILLRCT.DAT   input    * RCTDAT=             *
COASTLN.DAT   input    * CSTDAT=             *
FLUXBDY.DAT   input    * BDYDAT=             *
DEBUG.DAT     output   * DEBUG =             *
MASSFLX.DAT   output   * FLXDAT=             *
MASSBAL.DAT   output   * BALDAT=             *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=D:\CALMET\OKEF\MET0102.DAT      !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0304.DAT      !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0506.DAT      !  !END!
```

```
      Fractional convergence criterion for numerical AREA
      source integration
      (EPSAREA)                          Default:   1.0e-06  ! EPSAREA = 1.0E-06 !

      Trajectory step-length (m) used for numerical rise
      integration
      (DSRISE)                           Default:   1.0      ! DSRISE = 1. !

!END!

-------------------------------------------------------------------------------

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below       (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                 (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)         (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file       (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                               a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                        b          c
  Source      X UTM      Y UTM      Stack   Base      Stack     Exit  Exit      Bldg.  Emission
   No.     Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.     Dwash   Rates
              (km)       (km)       (m)      (m)        (m)   (m/s) (deg. K)
  ------   ---------- ---------- ------  ------   --------  -----  -------- -----  --------
      2  ! SRCNAME = CB4          !
      2  ! X =   434.0000,  3283.400,   72.20,    0.00,    2.44,    21.88,  500.0, 1.0, 78.93, 0.00E00, 5.44,
            0.0E00, 0.0E00, 0.0E00, 3.16 !
  !END!
   a
    Data for each source are treated as a separate input subgroup
    and therefore must end with an input group terminator.

   b
    0. = No building downwash modeled, 1. = downwash modeled
    NOTE: must be entered as a REAL number (i.e., with decimal point)

   c
    An emission rate must be entered for every pollutant modeled.
```

Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IPTU (e.g. 1 for g/s).

Subgroup (13c)

BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH

```
 2  ! SRCNAM = CB4        !
 2  !  HEIGHT =  32.80,  32.80,  32.80,  32.80,   0.00,   0.00,
         25.91,  59.04,  59.04,  59.04,  59.04,  59.04,
         59.04,  59.04,  32.80,  32.80,  32.80,  32.80,
         32.80,  32.80,  32.80,  32.80,  21.69,  21.69,
         25.91,  59.04,  59.04,  59.04,  59.04,  59.04,
         59.04,  59.04,  32.80,  32.80,  32.80,  32.80 !
 2  !  WIDTH =   39.65,  39.17,  37.50,  34.68,   0.00,   0.00,
         42.80,  37.95,  40.47,  41.75,  41.77,  40.52,
         38.03,  34.39,  74.74,  33.99,  37.02,  38.93,
         39.65,  39.17,  37.50,  34.68, 132.28, 130.20,
         44.92,  37.95,  40.47,  41.75,  41.77,  40.52,
         38.03,  34.39,  74.74,  33.99,  37.02,  38.93 !
```

!END!

Source No.	Effective building width and height (in meters) every 10 degrees[a]

----

[a] Each pair of width and height values is treated as a separate input subgroup and therefore must end with an input group terminator.

Subgroup (13d)

POINT SOURCE: VARIABLE EMISSIONS DATA[a]

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:

```
(IVARY)                              Default: 0
      0 =       Constant
      1 =       Diurnal cycle (24 scaling factors: hours 1-24)
      2 =       Monthly cycle (12 scaling factors: months 1-12)
      3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                               where first group is DEC-JAN-FEB)
      4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                               first group is Stability Class A,
                               and the speed classes have upper
                               bounds (m/s) defined in Group 12
      5 =       Temperature   (12 scaling factors, where temperature
                               classes have upper bounds (C) of:
                               0, 5, 10, 15, 20, 25, 30, 35, 40,
                               45, 50, 50+)
```

----

[a] Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

```
GP PALATKA CLASS I SIGNIFICANT IMPACT/VISIB ANALYSIS, CALPUFF
RECEPTORS AT OKEFENOKEE NWR, PROJECT ONLY SOURCES, INTERIM SCENARIO 11/15/01
CURRENT ACTUAL EMISSION RATES, TRS STACK ONLY
---------------- Run title (3 lines) ------------------------------------------

                    CALPUFF MODEL CONTROL FILE
                    --------------------------

-------------------------------------------------------------------------------

INPUT GROUP: 0 -- Input and Output File Names

     Number of CALMET.DAT files for run (NMETDAT)
                                Default: 1       ! NMETDAT =   6   !

--------------
Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    * METDAT =             *
    or
ISCMET.DAT    input    * ISCDAT =             *
    or
PLMMET.DAT    input    * PLMDAT =             *
    or
PROFILE.DAT   input    * PRFDAT =             *
SURFACE.DAT   input    * SFCDAT =             *
RESTARTB.DAT  input    * RSTARTB=             *
--------------------------------------------------------------------------------
CALPUFF.LST   output   ! PUFLST =PUFFCUR1.LST   !
CONC.DAT      output   ! CONDAT =PUFFCUR1.CON   !
DFLX.DAT      output   * DFDAT  =             *
WFLX.DAT      output   * WFDAT  =             *

VISB.DAT      output   ! VISDAT =VISB1.DAT   !
RESTARTE.DAT  output   * RSTARTE=             *
--------------------------------------------------------------------------------
Emission Files                       3
--------------
PTEMARB.DAT   input    * PTDAT  =             *
VOLEM.DAT     input    * VOLDAT =             *
BAEMARB.DAT   input    * ARDAT  =             *
LNEMARB.DAT   input    * LNDAT  =             *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    ! OZDAT  =O3OWR90.DAT  !
VD.DAT        input    * VDDAT  =             *
CHEM.DAT      input    * CHEMDAT=             *
HILL.DAT      input    * HILDAT=             *
HILLRCT.DAT   input    * RCTDAT=             *
COASTLN.DAT   input    * CSTDAT=             *
FLUXBDY.DAT   input    * BDYDAT=             *
DEBUG.DAT     output   * DEBUG =             *
MASSFLX.DAT   output   * FLXDAT=             *
MASSBAL.DAT   output   * BALDAT=             *
--------------------------------------------------------------------------------
All file names will be converted to lower case if LCFILES = T
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
         T = lower case      ! LCFILES = T !
         F = UPPER CASE
NOTE: (1) file/path names can be up to 70 characters in length

!END!

-------------
Subgroup (0a)
-------------

  The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name  Type          File Name
------------  ----          ---------
 none         input    ! METDAT=D:\CALMET\OKEF\MET0102.DAT     !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0304.DAT     !  !END!
 none         input    ! METDAT=D:\CALMET\OKEF\MET0506.DAT     !  !END!
```

```
     Fractional convergence criterion for numerical AREA
     source integration
     (EPSAREA)                         Default:   1.0e-06   ! EPSAREA = 1.0E-06 !

     Trajectory step-length (m) used for numerical rise
     integration
     (DSRISE)                          Default:   1.0       ! DSRISE = 1. !

!END!


-------------------------------------------------------------------------------


INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters
--------------------------------

---------------
Subgroup (13a)
---------------

     Number of point sources with
     parameters provided below      (NPT1)  No default  !  NPT1 = 1 !

     Units used for point source
     emissions below                (IPTU)  Default: 1  !  IPTU =   1  !
           1 =        g/s
           2 =       kg/hr
           3 =       lb/hr
           4 =     tons/yr
           5 =     Odour Unit * m**3/s  (vol. flux of odour compound)
           6 =     Odour Unit * m**3/min
           7 =     metric tons/yr

     Number of source-species
     combinations with variable
     emissions scaling factors
     provided below in (13d)        (NSPT1) Default: 0  !  NSPT1 =  0  !

     Number of point sources with
     variable emission parameters
     provided in external file      (NPT2)  No default  !  NPT2 =  0  !

     (If NPT2 > 0, these point
     source emissions are read from
     the file: PTEMARB.DAT)

!END!

---------------
Subgroup (13b)
---------------
                                            a
          POINT SOURCE: CONSTANT DATA
          -----------------------------
                                                                                  b         c
  Source     X UTM      Y UTM     Stack   Base     Stack    Exit  Exit    Bldg.  Emission
   No.    Coordinate Coordinate Height Elevation Diameter  Vel.  Temp.   Dwash   Rates
             (km)       (km)      (m)      (m)       (m)   (m/s) (deg. K)
  ------  ---------- ---------- ------  ------   -------- ----- -------- ----- --------
      1  ! SRCNAM = TRS             !
      1  ! X =   434.0000, 3283.400,   76.20,    0.00,     0.94,    28.25,  533.0, 1.0, 21.57, 0.00E00, 1.42,
           0.0E00, 0.0E00, 0.0E00, 0.77!
  !END!


    a
     Data for each source are treated as a separate input subgroup
     and therefore must end with an input group terminator.

    b
     0. = No building downwash modeled, 1. = downwash modeled
     NOTE: must be entered as a REAL number (i.e., with decimal point)
```

```
     c
     An emission rate must be entered for every pollutant modeled.
     Enter emission rate of zero for secondary pollutants that are
     modeled, but not emitted.  Units are specified by IPTU
     (e.g. 1 for g/s).

---------------
Subgroup (13c)
---------------
           BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH
           -------------------------------------------------------

      1  ! SRCNAM = TRS         !
       1  !  HEIGHT =   0.00,  18.96,   0.00,   0.00,   0.00,   0.00,
                0.00,   0.00,  18.96,  18.96,   0.00,  59.04,
               59.04,  59.04,  32.80,   0.00,   0.00,   0.00,
                0.00,  18.96,  18.96,  18.96,  18.96,  18.96,
               18.96,  18.96,  18.96,  18.96,   0.00,   0.00,
                0.00,   0.00,   0.00,   0.00,   0.00,   0.00 !
       1  !  WIDTH =    0.00, 471.02,   0.00,   0.00,   0.00,   0.00,
                0.00,   0.00, 339.41, 382.73,   0.00,  39.61,
               38.03,  34.39,  74.74,   0.00,   0.00,   0.00,
                0.00,  55.19,  44.04,  31.56, 100.16,  86.21,
               88.62, 285.77, 339.41, 382.73,   0.00,   0.00,
                0.00,   0.00,   0.00,   0.00,   0.00,   0.00 !

!END!

Source                                                                 a
 No.       Effective building width and height (in meters) every 10 degrees
------     ----------------------------------------------------------------

--------

     a
     Each pair of width and height values is treated as a separate input
     subgroup and therefore must end with an input group terminator.

---------------
Subgroup (13d)
---------------
                                                          a
          POINT SOURCE: VARIABLE EMISSIONS DATA
          ---------------------------------------

     Use this subgroup to describe temporal variations in the emission
     rates given in 13b.  Factors entered multiply the rates in 13b.
     Skip sources here that have constant emissions.  For more elaborate
     variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

     IVARY determines the type of variation, and is source-specific:
     (IVARY)                                Default: 0
           0 =       Constant
           1 =       Diurnal cycle (24 scaling factors: hours 1-24)
           2 =       Monthly cycle (12 scaling factors: months 1-12)
           3 =       Hour & Season (4 groups of 24 hourly scaling factors,
                                    where first group is DEC-JAN-FEB)
           4 =       Speed & Stab. (6 groups of 6 scaling factors, where
                                    first group is Stability Class A,
                                    and the speed classes have upper
                                    bounds (m/s) defined in Group 12
           5 =       Temperature   (12 scaling factors, where temperature
                                    classes have upper bounds (C) of:
                                    0, 5, 10, 15, 20, 25, 30, 35, 40,
                                    45, 50, 50+)


--------
     a
     Data for each species are treated as a separate input subgroup
     and therefore must end with an input group terminator.

--------------------------------------------------------------------------------
```

July 1, 1994

MEMORANDUM

SUBJECT: Pollution Control Projects and New Source Review (NSR) Applicability

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Director, Air, Pesticides and Toxics Management Division, Regions I and IV
Director, Air and Waste Management Division, Region II
Director, Air, Radiation and Toxics Division, Region III
Director, Air and Radiation Division, Region V
Director, Air, Pesticides and Toxics Division, Region VI
Director, Air and Toxics Division, Regions VII, VIII, IX and X

This memorandum and attachment address issues involving the Environmental Protection Agency's (EPA's) NSR rules and guidance concerning the exclusion from major NSR of pollution control projects at existing sources. The attachment provides a full discussion of the issues and this policy, including illustrative examples.

For several years, EPA has had a policy of excluding certain pollution control projects from the NSR requirements of parts C and D of title I of the Clean Air Act (Act) on a case-by-case basis. In 1992, EPA adopted an explicit pollution control project exclusion for electric utility generating units [see 57 FR 32314 (the "WEPCO rule" or the "WEPCO rulemaking")]. At the time, EPA indicated that it would, in a subsequent rulemaking, consider adopting a formal pollution control project exclusion for other source categories [see 57 FR 32332]. In the interim, EPA stated that individual pollution control projects involving source categories other than utilities could continue to be excluded from NSR by permitting authorities on a case-by-case basis [see 57 FR at 32320]. At this time, EPA expects to complete a rulemaking on a pollution control project exclusion for other source categories in early 1996. This memorandum and attachment provide interim guidance for permitting authorities on the approvability of these projects pending EPA's final action on a formal regulatory exclusion.

The attachment to this memorandum outlines in greater detail the type of projects that may qualify for a conditional exclusion from NSR as a pollution control project, the safeguards that are to be met, and the procedural steps that permitting authorities should follow in issuing an exclusion. Projects that do not meet these safeguards and procedural steps do not qualify for an exclusion from NSR under this policy. Pollution control projects potentially eligible for an exclusion (provided all applicable safeguards are met) include the installation of conventional or innovative emissions control equipment and projects undertaken to accommodate switching to an inherently less-polluting fuel, such as natural gas. Under this guidance, States may also exclude as pollution control projects some material and process changes (e.g., the switch to a less polluting coating, solvent, or refrigerant) and some other types of pollution prevention projects undertaken to reduce emissions of air pollutants subject to regulation under the Act.

The replacement of an existing emissions unit with a newer or different one (albeit more efficient and less polluting) or the reconstruction of an existing emissions unit does not qualify as a pollution control project. Furthermore, this guidance only applies to physical or operational changes whose primary function is the reduction of air pollutants subject to regulation under the Act at existing major sources. This policy does not apply to air pollution controls and emissions associated with a proposed new source. Similarly, the fabrication, manufacture or production of pollution control/prevention equipment and inherently less-polluting fuels or raw materials are not pollution control projects under this policy (e.g., a physical or operational change for the purpose of producing reformulated gasoline at a refinery is not a pollution control project).

It is EPA's experience that many bona fide pollution control projects are not subject to major NSR requirements for the simple reason that they result in a reduction in annual emissions at the source. In this way, these pollution control projects are outside major NSR coverage in accordance with the general rules for determining applicability of NSR to modifications at existing sources. However, some pollution control projects could result in significant potential or actual increases of some pollutants. These latter projects comprise the subcategory of pollution control projects that can benefit from this guidance.

A pollution control project must be, on balance, "environmentally beneficial" to be eligible for an exclusion. Further, an environmentally-beneficial pollution control project may be excluded from otherwise applicable major NSR requirements only under conditions that ensure that the project will not cause or contribute to a violation of a national ambient air quality standard (NAAQS), prevention of significant deterioration (PSD) increment, or adversely affect visibility or other air quality related value (AQRV). In order to assure that air quality concerns with these projects are adequately addressed, there are two substantive and two procedural safeguards which are to be followed by permitting authorities reviewing projects proposed for exclusion.

First, the permitting authority must determine that the proposed pollution control project, after consideration of the reduction in the targeted pollutant and any collateral effects, will be environmentally beneficial. Second, nothing in this guidance authorizes any pollution control project which would cause or contribute to a violation of a NAAQS, or PSD increment, or adversely impact an AQRV in a class I area. Consequently, in addition to this "environmentally-beneficial" standard, the permitting authority must ensure that adverse collateral environmental impacts from the project are identified, minimized, and, where appropriate, mitigated. For example, the source or the State must secure offsetting reductions in the case of a project which will result in a significant increase in a nonattainment pollutant. Where a significant collateral increase in actual emissions is expected to result from a pollution control project, the permitting authority must also assess whether the increase could adversely affect any national ambient air quality standard, PSD increment, or class I AQRV.

In addition to these substantive safeguards, EPA is specifying two procedural safeguards which are to be followed. First, since the exclusion under this interim guidance is only available on a case-by-case basis, sources seeking exclusion from major NSR requirements prior to the forthcoming EPA rulemaking on a pollution control project exclusion must, before beginning construction, obtain a determination by the permitting authority that a proposed project qualifies for an exclusion from major NSR requirements as a pollution control project. Second, in considering this request, the permitting authority must afford the public an opportunity to review and comment on the source's application for this exclusion. It is also important to note that any project excluded from major new source review as a pollution control project must still comply with all otherwise applicable requirements under the Act and the State implementation plan (SIP), including minor source permitting.

This guidance document does not supersede existing Federal or State regulations or approved SIP's. The policies set out in this memorandum and attachment are intended as guidance to be applied only prospectively (including those projects currently under evaluation for an exclusion) during the interim period until EPA takes action to revise its NSR rules, and do not represent final Agency action. This policy statement is not ripe for judicial review. Moreover, it is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. Agency officials may decide to follow the guidance provided in this memorandum, or to act at variance with the guidance, based on an analysis of specific circumstances. The EPA also may change this guidance at any time without public notice. The EPA presently intends to address the matters discussed in this document in a forthcoming NSR rulemaking regarding proposed changes to the program resulting from the NSR Reform process and will take comment on these matters as part of that rulemaking.

As noted above, a detailed discussion of the types of projects potentially eligible for an exclusion from major NSR as a pollution control project, as well as the safeguards such projects must meet to qualify for the exclusion, is contained in the attachment to this memorandum. The Regional Offices should send this memorandum with the attachment to States within their jurisdiction. Questions concerning specific issues and cases should be directed to the appropriate EPA Regional Office. Regional Office staff may contact David Solomon, Chief, New Source Review Section, at (919) 541-5375, if they have any questions.

Attachment

cc: Air Branch Chief, Regions I-X
NSR Reform Subcommittee Members

Attachment

GUIDANCE ON EXCLUDING POLLUTION CONTROL PROJECTS FROM MAJOR NEW SOURCE REVIEW (NSR)

I. Purpose

The Environmental Protection Agency (EPA) presently expects to complete a rulemaking on an exclusion from major NSR for pollution control projects by early 1996. In the interim, certain types of projects (involving source categories other than utilities) may qualify on a case-by-case basis for an exclusion from major NSR as pollution control projects. Prior to EPA's final action on a regulatory exclusion, this attachment provides interim guidance for permitting authorities on the types of projects that may qualify on a case-by-case basis from major NSR as pollution control projects, including the substantive and procedural safeguards which apply.

II. Background

The NSR provisions of part C [prevention of significant deterioration (PSD)] and part D (nonattainment requirements) of title I of the Clean Air Act (Act) apply to both the construction of major new sources and the modification of existing major sources.[1] The modification provisions of the NSR programs in parts C and D are based on the broad definition of modification in section 111(a)(4) of the Act. That section contemplates a two-step test for determining whether activities at an existing major facility constitute a modification subject to new source requirements. In the first step, the reviewing authority determines whether a physical or operational change will occur. In the second step, the question is whether the physical or operational change will result in any increase in emissions of any regulated pollutant.

The definition of physical or operational change in section 111(a)(4) could, standing alone, encompass the most mundane activities at an industrial facility (even the repair or replacement of a single leaky pipe, or a insignificant change in the way that pipe is utilized). However, EPA has recognized that Congress did not intend to make every activity at a source subject to new source requirements under parts C and D. As a result, EPA has by regulation limited the reach of the modification provisions of parts C and D to only major modifications. Under NSR, a "major modification" is generally a physical change or change in the method of operation of a major stationary source which would result in a significant net emissions increase in the emissions of any regulated pollutant

[1]The EPA's NSR regulations for nonattainment areas are set forth at 40 CFR 51.165, 52.24 and part 51, Appendix S. The PSD program is set forth in 40 CFR 52.21 and 51.166.

[see, e.g., 40 CFR 52.21(b)(2)(i)]. A "net emissions increase" is defined as the increase in "actual emissions" from the particular physical or operational change together with any other contemporaneous increases or decreases in actual emissions [see, e.g., 40 CFR 52.21(b)(3)(i)]. In order to trigger major new source review, the net emissions increase must exceed specified "significance" levels [see, e.g., 40 CFR 52.21(b)(2)(i) and 40 CFR 52.21(b)(23)]. The EPA has also adopted common-sense exclusions from the "physical or operational change" component of the definition of "major modification." For example, EPA's regulations contain exclusions for routine maintenance, repair, and replacement; for certain increases in the hours of operation or in the production rate; and for certain types of fuel switches [see, e.g., 40 CFR 52.21(b)(2)(iii)].

In the 1992 "WEPCO" rulemaking [57 FR 32314], EPA amended its PSD and nonattainment NSR regulations as they pertain to utilities by adding certain pollution control projects to the list of activities excluded from the definition of physical or operational changes. In taking that action, EPA stated it was largely formalizing an existing policy under which it had been excluding individual pollution control projects where it was found that the project "would be environmentally beneficial, taking into account ambient air quality" [57 FR at 32320; see also id., n. 15].[2]

The EPA has provided exclusions for pollution control projects in the form of "no action assurances" prior to November 15, 1990 and nonapplicability determinations based on Act changes as of November 15, 1990 (1990 Amendments). Generally, these exclusions addressed clean coal technology projects and fuel switches at electric utilities.

Because the WEPCO rulemaking was directed at the utility industry which faced "massive industry-wide undertakings of pollution control projects" to comply with the acid rain provisions of the Act [57 FR 32314], EPA limited the types of projects eligible for the exclusion to add-on controls and fuel switches at utilities. Thus, pollution control projects under the WEPCO rule are defined as:

> any activity or project undertaken at an existing electric utility steam generating unit for purposes of reducing emissions from such unit. Such activities or projects are <u>limited to</u>:

[2]This guidance pertains only to source categories other than electric utilities, and EPA does not intend for this guidance to affect the WEPCO rulemaking in any way.

> (A) The installation of conventional or innovative pollution control technology, including but not limited to advanced flue gas desulfurization, sorbent injection for sulfur dioxide (SO_2) and nitrogen oxides (NO_x) controls and electrostatic precipitators;
>
> (B) An activity or project to accommodate switching to a fuel which is less polluting than the fuel in use prior to the activity or project . . .

[40 CFR 51.165(a)(1)(xxv) (emphasis added)]. The definition also includes certain clean coal technology demonstration projects. Id.

The EPA built two safeguards into the exclusion in the rulemaking. First, a project that meets the definition of pollution control project will not qualify for the exclusion where the "reviewing authority determines that (the proposed project) renders the unit less environmentally beneficial . . ." [see, e.g., 51.165(a)(1)(v)(C)(8)]. In the WEPCO rule, EPA did not provide any specific definition of the environmentally-beneficial standard, although it did indicate that the pollution control project provision "provides for a case-by-case assessment of the pollution control project's net emissions and overall impact on the environment" [57 FR 32321]. This provision is buttressed by a second safeguard that directs permitting authorities to evaluate the air quality impacts of pollution control projects that could--through collateral emissions increases or changes in utilization patterns--adversely impact local air quality [see 57 FR 32322]. This provision generally authorizes, as appropriate, a permitting authority to require modelling of emissions increases associated with a pollution control project. Id. More fundamentally, it explicitly states that no pollution control project under any circumstances may cause or contribute to violation of a national ambient air quality standard (NAAQS), PSD increment, or air quality related value (AQRV) in a class I area. Id.[3]

[3]The WEPCO rule refers specifically to "visibility limitation" rather than "air quality related values." However, EPA clearly stated in the preamble to the final rule that permitting agencies have the authority to "solicit the views of others in taking any other appropriate remedial steps deemed necessary to protect class I areas. . .. The EPA emphasizes that all environmental impacts, including those on class I areas, can be considered. . .." [57 FR 32322]. Further, the statutory protections in section 165(d) plainly are intended to protect against any "adverse impact on the AQRV of such [class I] lands (including visibility)." Based on this statutory provision, EPA believes that the proper focus of

As noted, the WEPCO rulemaking was expressly limited to existing electric utility steam generating units [see, e.g., 40 CFR 51.165(a)(1)(v)(C)(8) and 51.165(a)(1)(xx)]. The EPA limited the rulemaking to utilities because of the impending acid rain requirements under title IV of the Act, EPA's extensive experience with new source applicability issues for electric utilities, the general similarity of equipment, and the public availability of utility operating projections. The EPA indicated it would consider adopting a formal NSR pollution control project exclusion for other source categories as part of a separate NSR rulemaking. The rulemaking in question is now expected to be finalized by early 1996. On the other hand, the WEPCO rulemaking also noted that EPA's existing policy was, and would continue to be, to allow permitting authorities to exclude pollution control projects in other source categories on a case-by-case basis.

III. Case-By-Case Pollution Control Project Determinations

The following sections describe the type of projects that may be considered by permitting authorities for exclusion from major NSR as pollution control projects and two safeguards that permitting authorities are to use in evaluating such projects--the environmentally-beneficial test and an air quality impact assessment. To a large extent, these requirements are drawn from the WEPCO rulemaking. However, because the WEPCO rule was designed for a single source category, electric utilities, it cannot and does not serve as a complete template for this guidance. Therefore, the following descriptions expand upon the WEPCO rule in the scope of qualifying projects and in the specific elements inherent in the safeguards. These changes reflect the far more complicated task of evaluating pollution control projects at a wide variety of sources facing a myriad of Federal, State, and local clean air requirements.

Since the safeguards are an integral component of the exclusion, States must have the authority to impose the safeguards in approving an exclusion from major NSR under this policy. Thus, State or local permitting authorities in order to use this policy should provide statements to EPA describing and affirming the basis for its authority to impose these safeguards absent major NSR. Sources that obtain exclusions from permitting authorities that have not provided this affirmation of authority are at risk in seeking to rely on the exclusion issued by the

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any air quality assessment for a pollution control project should be on visibility and any other relevant AQRV's for any class I areas that may be affected by the proposed project. Permitting authorities should notify Federal Land Managers where appropriate concerning pollution control projects which may adversely affect AQRV's in class I areas.

permitting agency, because EPA may subsequently determine that the project does not qualify as a pollution control project under this policy.

A. Types of Projects Covered

1. Add-On Controls and Fuel Switches

In the WEPCO rulemaking, EPA found that both add-on emissions control projects and fuel switches to less-polluting fuels could be considered to be pollution control projects. For the purposes of today's guidance, EPA affirms that these types of projects are appropriate candidates for a case-by-case exclusion as well. These types of projects include:

- the installation of conventional and advanced flue gas desulfurization and sorbent injection for SO_2;

- electrostatic precipitators, baghouses, high efficiency multiclones, and scrubbers for particulate or other pollutants;

- flue gas recirculation, low-NO_x burners, selective non-catalytic reduction and selective catalytic reduction for NO_x; and

- regenerative thermal oxidizers (RTO), catalytic oxidizers, condensers, thermal incinerators, flares and carbon adsorbers for volatile organic compounds (VOC) and toxic air pollutants.

Projects undertaken to accommodate switching to an inherently less-polluting fuel such as natural gas can also qualify for the exclusion. Any activity that is necessary to accommodate switching to a inherently less-polluting fuel is considered to be part of the pollution control project. In some instances, where the emissions unit's capability would otherwise be impaired as a result of the fuel switch, this may involve certain necessary changes to the pollution generating equipment (e.g., boiler) in order to maintain the normal operating capability of the unit at the time of the project.

2. Pollution Prevention Projects

It is EPA's policy to promote pollution prevention approaches and to remove regulatory barriers to sources seeking to develop and implement pollution prevention solutions to the extent allowed under the Act.. For this reason, permitting authorities may also apply this exclusion to switches to inherently less-polluting raw materials and processes and certain other types of "pollution prevention" projects.[4] For instance, many VOC users will be making switches to water-based or powder-paint application systems as a strategy for meeting reasonably available control technology (RACT) or switching to a non-toxic VOC to comply with maximum achievable control technology (MACT) requirements.

Accordingly, under today's guidance, permitting authorities may consider excluding raw material substitutions, process changes and other pollution prevention strategies where the pollution control aspects of the project are clearly evident and will result in substantial emissions reductions per unit of output for one or more pollutants. In judging whether a pollution prevention project can be considered for exclusion as a pollution control project, permitting authorities may also consider as a relevant factor whether a project is being undertaken to bring a source into compliance with a MACT, RACT, or other Act requirement.

Although EPA is supportive of pollution control and prevention projects and strategies, special care must be taken in classifying a project as a pollution control project and in evaluating a project under a pollution control project exclusion. Virtually every modernization or upgrade project at an existing industrial facility which reduces inputs and lowers unit costs has the concurrent effect of lowering an emissions rate per unit of fuel, raw material or output. Nevertheless, it is clear that these major capital investments in industrial equipment are the very types of projects that Congress intended to address in the new source modification provisions [see Wisconsin Electric Power Co. v. Reilly, 893 F.2d 901, 907-10 (7th Cir. 1990) (rejecting contention that utility life extension project was not a physical or operational change); Puerto Rican Cement Co., Inc. v. EPA, 889 F.2d 292, 296-98 (1st Cir. 1989) (NSR applies to modernization project that decreases emissions per unit of output, but increases economic efficiency such that utilization may increase and result in net increase in actual emissions)]. Likewise, the replacement of an existing emissions unit with a newer or different one (albeit more efficient and less polluting) or the

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[4]For purposes of this guidance, pollution prevention means any activity that through process changes, product reformulation or redesign, or substitution of less polluting raw materials, eliminates or reduces the release of air pollutants and other pollutants to the environment (including fugitive emissions) prior to recycling, treatment, or disposal; it does not mean recycling (other than certain "in-process recycling" practices), energy recovery, treatment, or disposal [see Pollution Prevention Act of 1990 section 6602(b) and section 6603(5)(A) and (B); see also "EPA Definition of 'Pollution Prevention,'" memorandum from F. Henry Habicht II, May 28, 1992].

reconstruction of an existing emissions unit would not qualify as a pollution control project. Adopting a policy that automatically excludes from NSR any project that, while lowering operating costs or improving performance, coincidentally lowers a unit's emissions rate, would improperly exclude almost all modifications to existing emissions units, including those that are likely to increase utilization and therefore result in overall higher levels of emissions.

In order to limit this exclusion to the subset of pollution prevention projects that will in fact lower annual emissions at a source, permitting authorities should not exclude as pollution control projects any pollution prevention project that can be reasonably expected to result in an increase in the utilization of the affected emissions unit(s). For example, projects which significantly increase capacity, decrease production costs, or improve product marketability can be expected to affect utilization patterns. With these changes, the environment may or may not see a reduction in overall source emissions; it depends on the source's operations after the change, which cannot be predicted with any certainty.[5] This is not to say that these types of projects are necessarily subject to major NSR requirements, only that they should not be excluded as pollution control projects under this guidance. The EPA may consider different approaches to excluding pollution prevention projects from major NSR requirements in the upcoming NSR rulemaking. Under this guidance, however, permitting authorities should carefully review proposed pollution prevention projects to evaluate whether utilization of the source will increase as a result of the project.

Furthermore, permitting authorities should have the authority to monitor utilization of an affected emissions unit or source for a reasonable period of time subsequent to the project to verify what effect, if any, the project has on utilization. In cases where the project has clearly caused an increase in utilization, the permitting authority may need to reevaluate the basis for the original exclusion to verify that an exclusion is still appropriate and to ensure that all applicable safeguards are being met.

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[5]This is in marked contrast to the addition of pollution control equipment which typically does not, in EPA's experience, result in any increase in the source's utilization of the emission unit in question. In the few instances where this presumption is not true, the safeguards discussed in the next section should provide adequate environmental protections for these additions of pollution control equipment.

B. Safeguards

The following safeguards are necessary to assure that projects being considered for an exclusion qualify as environmentally beneficial pollution control projects and do not have air quality impacts which would preclude the exclusion. Consequently, a project that does not meet these safeguards does not qualify for an exclusion under this policy.

1. Environmentally-Beneficial Test

Projects that meet the definition of a pollution control project outlined above may nonetheless cause collateral emissions increases or have other adverse impacts. For instance, a large VOC incinerator, while substantially eliminating VOC emissions, may generate sizeable NO_x emissions well in excess of significance levels. To protect against these sorts of problems, EPA in the WEPCO rule provided for an assessment of the overall environmental impact of a project and the specific impact, if any, on air quality. The EPA believes that this safeguard is appropriate in this policy as well.

Unless information regarding a specific case indicates otherwise, the types of pollution control projects listed in III. A. 1. above can be presumed, by their nature, to be environmentally beneficial. This presumption arises from EPA's experience that historically these are the very types of pollution controls applied to new and modified emissions units. The presumption does not apply, however, where there is reason to believe that 1) the controls will not be designed, operated or maintained in a manner consistent with standard and reasonable practices; or 2) collateral emissions increases have not been adequately addressed as discussed below.

In making a determination as to whether a project is environmentally beneficial, the permitting authority must consider the types and quantity of air pollutants emitted before and after the project, as well as other relevant environmental factors. While because of the case-by-case nature of projects it is not possible to list all factors which should be considered in any particular case, several concerns can be noted.

First, pollution control projects which result in an increase in non-targeted pollutants should be reviewed to determine that the collateral increase has been minimized and will not result in environmental harm. Minimization here does not mean that the permitting agency should conduct a BACT-type review or necessarily prescribe add-on control equipment to treat the collateral increase. Rather, minimization means that, within the physical configuration and operational standards usually associated with such a control device or strategy, the source has taken reasonable measures to keep any collateral increase to a minimum. For instance, the permitting authority could require that a low-NO_x burner project be subject to temperature and other appropriate combustion standards so that carbon monoxide (CO) emissions are kept to a minimum, but would not review the project for a CO catalyst or other add-on type options. In addition, a State's RACT or MACT rule may have explicitly considered measures for minimizing a collateral increase for a class or category of pollution control projects and requires a standard of best practices to minimize such collateral increases. In such cases, the need to minimize collateral increase from the covered class or category of pollution control projects can be presumed to have been adequately addressed in the rule.

In addition, a project which would result in an unacceptable increased risk due to the release of air toxics should not be considered environmentally beneficial. It is EPA's experience, however, that most projects undertaken to reduce emissions, especially add-on controls and fuel switches, result in concurrent reductions in air toxics. The EPA expects that many pollution control projects seeking an exclusion under this guidance will be for the purpose of complying with MACT requirements for reductions in air toxics. Consequently, unless there is reason to believe otherwise, permitting agencies may presume that such projects by their nature will result in reduced risks from air toxics.

2. Additional Air Quality Impacts Assessments

(a) General

Nothing in the Act or EPA's implementing regulations would allow a permitting authority to approve a pollution control project resulting in an emissions increase that would cause or contribute to a violation of a NAAQS or PSD increment, or adversely impact visibility or other AQRV in a class I area [see, e.g., Act sections 110(a)(2)(C), 165, 169A(b), 173]. Accordingly, this guidance is not intended to allow any project to violate any of these air quality standards.

As discussed above, it is possible that a pollution control project--either through an increase in an emissions rate of a collateral pollutant or through a change in utilization--will cause an increase in actual emissions, which in turn could cause or contribute to a violation of a NAAQS or increment or adversely impact AQRV's. For this reason, in the WEPCO rule the EPA required sources to address whenever 1) the proposed change would result in a significant net increase in actual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis; and 2) the permitting authority has reason to believe that such an increase would cause or contribute to a violation of a NAAQS, increment or visibility limitation. If an air quality impact analysis indicates that the increase in emissions will cause or contribute to a violation of any ambient standard, PSD increment, or AQRV, the pollution control exclusion does not apply.

The EPA believes that this safeguard needs to be applied here as well. Thus, where a pollution control project will result in a significant increase in emissions and that increased level has not been previously analyzed for its air quality impact and raises the possibility of a NAAQS, increment, or AQRV violation, the permitting authority is to require the source to provide an air quality analysis sufficient to demonstrate the impact of the project. The EPA will not necessarily require that the increase be modeled, but the source must provide sufficient data to satisfy the permitting authority that the new levels of emissions will not cause a NAAQS or increment violation and will not adversely impact the AQRV's of nearby potentially affected class I areas.

In the case of nonattainment areas, the State or the source must provide offsetting emissions reductions for any significant increase in a nonattainment pollutant from the pollution control project. In other words, if a significant collateral increase of a nonattainment pollutant resulting from a pollution control project is not offset on at least a one-to-one ratio then the pollution control project would not qualify as environmentally beneficial.[6] However, rather than having to apply offsets on a case-by-case basis, States may consider adopting (as part of their attainment plans) specific control measures or strategies for the purpose of generating offsets to mitigate the projected collateral emissions increases from a class or category of pollution control projects.

(b) Determination of Increase in Emissions

The question of whether a proposed project will result in an emissions increase over pre-modification levels of actual emissions is both complicated and contentious. It is a question that has been debated by the New Source Review Reform Subcommittee of the Clean Air Act Advisory Committee and is expected to be revisited by EPA in the same upcoming rulemaking that will consider adopting a pollution control project exclusion. In the interim, EPA is adopting a simplified approach to determining whether a pollution control project will result in increased emissions.

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[6]Regardless of the severity of the classification of the nonattainment area, a one-to-one offset ratio will be considered sufficient under this policy to mitigate a collateral increase from a pollution control project. States may, however, require offset ratios that are greater than one-to-one.

The approach in this policy is premised on the fact that EPA does not expect the vast majority of these pollution control projects to change established utilization patterns at the source. As discussed in the previous section, it is EPA's experience that add-on controls do not impact utilization, and pollution prevention projects that could increase utilization may not be excluded under this guidance. Therefore, in most cases it will be very easy to calculate the emissions after the change: the product of the new emissions rate times the existing utilization rate. In the case of a pollution control project that collaterally increases a non-targeted pollutant, the actual increase (calculated using the new emissions rate and current utilization pattern) would need to be analyzed to determine its air quality impact.

The permitting authority may presume that projects meeting the definition outlined in section III(A)(1) will not change utilization patterns. However, the permitting authority is to reject this presumption where there is reason to believe that the project will result in debottlenecking, loadshifting to take advantage of the control equipment, or other meaningful increase in the use of the unit above current levels. Where the project will increase utilization and emissions, the associated emissions increases are calculated based on the post-modification potential to emit of the unit considering the application of the proposed controls. In such cases the permitting agency should consider the projected increase in emissions as collateral to the project and determine whether, notwithstanding the emissions increases, the project is still environmentally beneficial and meets all applicable safeguards.

In certain limited circumstances, a permitting agency may take action to impose federally-enforceable limits on the magnitude of a projected collateral emissions increase to ensure that all safeguards are met. For example, where the data used to assess a projected collateral emissions increase is questionable and there is reason to believe that emissions in excess of the projected increase would violate an applicable air quality standard or significantly exceed the quantity of offsets provided, restrictions on the magnitude of the collateral increase may be necessary to ensure compliance with the applicable safeguards.

IV. Procedural Safeguards

Because EPA has not yet promulgated regulations governing a generally applicable pollution control project exclusion from major NSR (other than for electric utilities), permitting authorities must consider and approve requests for an exclusion on a case-by-case basis, and the exclusion is not self-executing. Instead, sources must receive case-by-case approval from the permitting authority pursuant to a minor NSR permitting process, State nonapplicability determination or similar process. [Nothing in this guidance voids or creates an exclusion from any applicable minor source preconstruction review requirement in any SIP that has been approved pursuant to section 110(a)(2)(C) and 40 CFR 51.160-164.] This process should also provide that the application for the exclusion and the permitting agency's proposed decision thereon be subject to public notice and the opportunity for public and EPA written comment. In those limited cases where the applicable SIP already exempts a class or category of pollution controls project from the minor source permitting public notice and comment requirements, and where no collateral increases are expected (e.g., the installation of a baghouse) and all otherwise applicable environmental safeguards are complied with, public notice and comment need not be provided for such projects. However, even in such circumstances, the permitting agency should provide advance notice to EPA when it applies this policy to provide an exclusion. For standard-wide applications to groups of sources (e.g., RACT or MACT), the notice may be provided to EPA at the time the permitting authority intends to issue a pollution control exclusion for the class or category of sources and thereafter notice need not be given to EPA on an individual basis for sources within the noticed group.

V. Emission Reduction Credits

In general, certain pollution control projects which have been approved for an exclusion from major NSR may result in emission reductions which can serve as NSR offsets or netting credits. All or part of the emission reductions equal to the difference between the pre-modification actual and post-modification potential emissions for the decreased pollutant may serve as credits provided that 1) the project will not result in a significant collateral increase in actual emissions of any criteria pollutant, 2) the project is still considered environmentally beneficial, and 3) all otherwise applicable criteria for the crediting of such reductions are met (e.g., quantifiable, surplus, permanent, and enforceable). Where an excluded pollution control project results in a significant collateral increase of a criteria pollutant, emissions reduction credits from the pollution control project for the controlled pollutant may still be granted provided, in addition to 2) and 3) above, the actual collateral increase is reduced below the applicable significance level, either through contemporaneous reductions at the source or external offsets. However, neither the exclusion from major NSR nor any credit (full or partial) for emission reductions should be granted by the permitting authority where the type or amount of the emissions increase which would result from the use of such credits would lessen the environmental benefit associated with the pollution control project to the point where the project would not have initially qualified for an exclusion.

IV. Illustrative Examples

The following examples illustrate some of the guiding principles and safeguards discussed above in reviewing proposed pollution control projects for an exclusion from major NSR.

Example 1

PROJECT DESCRIPTION: A chemical manufacturing facility in an attainment area for all pollutants is proposing to install a RTO to reduce VOC emissions (including emissions of some hazardous pollutants) at the plant by about 3000 tons per year (tpy). The emissions reductions from the RTO are currently voluntary, but may be necessary in the future for title III MACT compliance. Although the RTO has been designed to minimize NO_x emissions, it will produce 200 tpy of new NO_x emissions due to the unique composition of the emissions stream. There is no information about the project to rebut a presumption that the project will not change utilization of the source. Aside from the NO_x increase there are no other environmental impacts known to be associated with the project.

EVALUATION: As a qualifying add-on control device, the project may be considered a pollution control project and may be considered for an exclusion. The permitting agency should: 1) verify that the NO_x increase has been minimized to the extent practicable, 2) confirm (through modeling or other appropriate means) that the actual significant increase in NO_x emissions does not violate the applicable NAAQS,[7] PSD increment, or adversely impact any Class I area AQRV, and 3) apply all otherwise applicable SIP and minor source permitting requirements, including opportunity for public notice and comment.

Example 2

PROJECT DESCRIPTION: A source proposes to replace an existing coal-fired boiler with a gas-fired turbine as part of a cogeneration project. The new turbine is an exact replacement for the energy needs supplied by the existing boiler and will emit less of each pollutant on an hourly basis than the boiler did.

EVALUATION: The replacement of an existing emissions unit with a new unit (albeit more efficient and less polluting) does

[7] If the source were located in an area in which nonattainment NSR applied to NO_x emissions increases, 200 tons of NO_x offset credits would be required for the project to be eligible for an exclusion.

not qualify for an exclusion as a pollution control project. The company can, however, use any otherwise applicable netting credits from the removal of the existing boiler to seek to net the new unit out of major NSR.

Example 3

PROJECT DESCRIPTION: A source plans to physically renovate and upgrade an existing process line by making certain changes to the existing process, including extensive modifications to emissions units. Following the changes, the source will expand production and manufacture and market a new product line. The project will cause an increase in the economic efficiency of the line. The renovated line will also be less polluting on a per-product basis than the original configuration.

EVALUATION: The change is not eligible for an exclusion as a pollution control project. On balance, the project does not have clearly evident pollution control aspects, and the resultant decrease in the per-product emissions rate (or factor) is incidental to the project. The project is a physical change or change in the method of operation that will increase efficiency and productivity.

Example 4

PROJECT DESCRIPTION: In response to the phaseout of chlorofluorocarbons (CFC) under title VI of the Act, a major source is proposing to substitute a less ozone-depleting substance (e.g., HCFC-141b) for one it currently uses that has a greater ozone depleting potential (e.g., CFC-11). A larger amount of the less-ozone depleting substance will have to be used. No other changes are proposed.

EVALUATION: The project may be considered a pollution control project and may be considered for an exclusion. The permitting agency should verify that 1) actual annual emissions of HCFC-141b after the proposed switch will cause less stratospheric ozone depletion than current annual emissions of CFC-11; 2) the proposed switch will not change utilization patterns or increase emissions of any other pollutant which would impact a NAAQS, PSD increment, or AQRV and will not cause any cross-media harm, including any unacceptable increased risk associated with toxic air pollutants; and 3) apply all otherwise applicable SIP and minor source permitting requirements, including opportunity for public notice and comment.

Example 5

PROJECT DESCRIPTION: An existing landfill proposes to install either flares or energy recovery equipment [i.e., turbines or internal combustion (IC) engines]. The reductions from the project are estimated at over 1000 tpy of VOC and are currently not necessary to meet Act requirements, but may be necessary some time in the future. In case A the project is the replacement of an existing flare or energy system and no increase in NO_x emissions will occur. In case B, the equipment is a first time installation and will result in a 100 tpy increase in NO_x. In case C, the equipment is an addition to existing equipment which will accommodate additional landfill gas (resulting from increased gas generation and/or capture consistent with the current permitted limits for growth at the landfill) and will result in a 50 tpy increase in NO_x.

EVALUATION: Projects A, B, and C may be considered pollution control projects and may be considered for an exclusion; however, in cases B and C, if the landfill is located in an area required to satisfy nonattainment NSR for NO_x emissions, the source would be required to obtain NO_x offsets at a ratio of at least 1:1 for the project to be considered for an exclusion. [NOTE: VOC-NO_x netting and trading for NSR purposes may be discussed in the upcoming NSR rulemaking, but it is beyond the scope of this guidance.] Although neither turbines or IC engines are listed in section III.A.1 as add-on control devices and would normally not be considered pollution control projects, in this specific application they serve the same function as a flare, namely to reduce VOC emissions at the landfill with the added incidental benefit of producing useful energy in the process.[8]

The permitting agency should: 1) verify that the NO_x increase has been minimized to the extent practicable; 2) confirm (through modeling or other appropriate means) that the actual significant increase in NO_x emissions will not violate the applicable NAAQS, PSD increment, or adversely impact any AQRV;

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[8]The production of energy here is incidental to the project and is not a factor in qualifying the project for an exclusion as a pollution control project. In addition, any supplemental or co-firing of non-landfill gas fuels (e.g., natural gas, oil) would disqualify the project from being considered a pollution control project. The fuels would be used to maximize any economic benefit from the project and not for the purpose of pollution control at the landfill. However, the use of an alternative fuel solely as a backup fuel to be used only during brief and infrequent start-up or emergency situations would not necessarily disqualify an energy recovery project from being considered a pollution control project.

and 3) apply all otherwise applicable SIP and minor source and, as noted above, in cases B and C ensures that NO_x offsets are provided in an area in which nonattainment review applies to NO_x emissions increases. permitting requirements, including opportunity for public notice and comment.