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AMBIENT IMPACT ANALYSIS FOR THE NO. 2 MILL BROWN STOCK WASHING SYSTEM PROJECT BUCKEYE FLORIDA, LP FOLEY MILL

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1.0 INTRODUCTION

In October 2001, Buckeye Florida, Limited Partnership (Buckeye) received an air construction permit from the Florida Department of Environmental Protection (FDEP) to implement changes to the No. 2 Mill Brown Stock Washing (BSW) system (permit no. 1230001-011-AC) at its pulp mill located in Foley, Taylor County, Florida. Although approved at that time, Buckeye has not yet implemented this project. Buckeye is now in the final stages of designing the No. 2 Mill BSW project, and has submitted proposed changes to FDEP. In turn, FDEP has requested that Buckeye update the application submitted in 2000 for this project and address the modeling requirements under Florida's pollution control project (PCP) exclusion from new source review.

Buckeye is planning on replacement of the No. 2 Mill Brown Stock Washer and other changes to the No. 2 Mill BSW System, which will result in reduction in pulping liquor losses to the wastewater treatment system. Due to this project, a small increase in the permitted black liquor solids (BLS) throughput capacity is required for the No. 4 Recovery Boiler and the No. 4 Smelt Dissolving Tank. This in turn will affect other downstream emission units, i.e., the Multiple Effect Evaporators (MEEs), No. 4 Lime Kiln, the causticizing system, lime bins and lime slakers.

Based on a comparison of past actual emissions to future potential emissions from affected sources, the project will result in an increase of emissions of particulate matter (PM), PM less than 10 microns in diameter (PM_{10}), sulfur dioxide (SO_2), and nitrogen oxides (NO_x). To accommodate the request by the FDEP, atmospheric dispersion modeling analyses of the Buckeye Foley Mill have been conducted in support of the permit application. The air dispersion modeling analysis demonstrates that the project will be in compliance with ambient air quality standards (AAQS) and prevention of significant deterioration (PSD) Class II and Class I allowable increments. Air dispersion modeling for SO_2, PM_{10}, and NO_x emissions were conducted for the proposed changes to the No. 2 BSW System.

This report contains the technical information and analysis developed in accordance with the PSD regulations as promulgated by the Environmental Protection Agency (EPA) and implemented through delegation to the FDEP. It presents an assessment of air quality impacts associated with the Buckeye Foley Mill.

The existing applicable national and Florida AAQS are presented in Table 1-1. Primary national AAQS were promulgated to protect the public health, and 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, except in the case of SO_2. For SO_2, Florida has adopted the former 24-hour secondary standard of 260 $\mu g/m^3$, and former annual average secondary standard of 60 $\mu g/m^3$.

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, PM_{10}, and nitrogen dioxide (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 in which 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, and 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. The State of Florida has adopted the EPA class designations and allowable PSD increments for SO_2, PM_{10}, and NO_2.

EPA has also adopted significant impact levels for air quality modeling purposes. These are shown in Table 1-1. These levels establish threshold impact levels to determine if a proposed project causes an insignificant impact upon ambient air quality, and therefore can be exempted from a detailed air modeling analysis. EPA has proposed significant impact levels for Class I areas. These proposed impact levels have not yet been adopted into rule.

Taylor 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 nearest PSD Class I areas are the St. Marks National Wilderness Area (NWA), located about 41 km to the west of the Buckeye Foley Mill; Bradwell Bay NWA, located about 95 km to the west; Chassahowitzka NWA, located about 163 km south; and Okefenokee NWA, located about 116 km to the northeast.

The air quality impact analysis demonstrates that emissions from the proposed project at the Buckeye Foley Mill will not result in ambient concentrations above the AAQS or the PSD Class II or Class I increments.

This report is divided into four major sections, included after this introduction:

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

TABLE 1-1
NATIONAL AND STATE AAQS, ALLOWABLE PSD INCREMENTS, AND SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	AAQS ($\mu g/m^3$)			PSD Increments ($\mu g/m^3$)		Significant Impact Levels[d] ($\mu g/m^3$)	
		National Primary Standard	National Secondary Standard	State of Florida	Class I	Class II	Class I	Class II
Particulate Matter[a] (PM_{10})	Annual Arithmetic Mean	50	50	50	4	17	0.2	1
	24-Hour Maximum	150[b]	150[b]	150[b]	8	30	0.3	5
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	0.1	1
	24-Hour Maximum	365[b]	NA	260[b]	5	91	0.2	5
	3-Hour Maximum	NA	1,300[b]	1,300[b]	25	512	0.3	25
Carbon Monoxide	8-Hour Maximum	10,000[b]	10,000[b]	10,000[b]	NA	NA	NA	500
	1-Hour Maximum	40,000[b]	40,000[b]	40,000[b]	NA	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	0.1	1
Ozone[a]	1-Hour Maximum	235[c]	235[c]	235[c]	NA	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	1.5	NA	NA	NA	NA

Note: Particulate matter (PM_{10}) = particulate matter with 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 $\mu g/m^3$ (3-year average of 98th percentile) and an annual standard of 15 $\mu g/m^3$ (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 8-hour average; achieved when 3-year average of 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.

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

[d] Maximum concentrations. EPA has proposed Class I significant impact levels.

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 and Proposed Project

The Buckeye Foley Mill is located in Perry, Taylor County, Florida. A site map of the area, showing the Buckeye plant boundaries, is provided in Figure 2-1. The Buckeye Foley Mill is a kraft pulp mill which has two power boilers, two bark boilers, three recovery boilers, three smelt dissolving tanks, a lime kiln, two lime slakers, two lime storage bins, a tall oil plant, and other kraft pulping equipment. This document presents the air dispersion modeling analysis for an air construction permit application being submitted to FDEP by Buckeye for the No. 2 Mill BSW System project. This project is described briefly below.

The proposed project will change the No. 2 Mill BSW System in two ways. First, the existing 3-stage rotary drum washer will be replaced with a new low-flow vacuum type washer followed by a drum-displacement washer-stage. Second, the existing decker will be eliminated. The benefit to the environment will be to reduce generation of fiber solid waste, reduce fresh water consumption and eliminate VOC, TRS, and HAP air emissions from the old brown stock washing system.

With the new No. 2 Mill BSW System, there will be a reduction in the overall fugitive emissions of VOC, TRS, and HAP air emissions. Less fiber solids will be lost to the sewer, and instead will be recovered. Also, more black liquor solids will be retained in the process and sent to the recovery system. The improved chemical recovery will achieve environmental improvements, such as reduced chemical loss to the sewer; reduced organic loading to the effluent treatment system; and improved energy recovery.

As a result, a small increase in the permitted black liquor solids (BLS) throughput capacity is required for the No. 4 Recovery Boiler and the No. 4 Smelt Dissolving Tank. This in turn will affect other downstream emission units, i.e., the MEEs, the No. 4 Lime Kiln, the causticizing system, lime bins and lime slakers, although the current permitted capacities for these units are adequate. Therefore, this project will result in an increase of emissions of PM_{10}, SO_2, and NO_x that exceed the EPA PSD significant emission rates.

2.2 Buckeye Foley Emissions

2.2.1 Significant Impact Analysis

The first step in the modeling analysis is to determine whether the proposed projects' impacts are predicted to be greater than EPA's significant impact levels. In this significant impact analysis, the increases in emissions due to the proposed project only are modeled.

Buckeye Changes

		PM	SO_2 lb/hr
RB21	OB 1/6/75 BL	Ø	Ø
RB3	OB 1/6/75 BL	↓ add 2ND ESP	Ø
RB4	CB 6/1/75 BL	↑ BSW 2005 then ↓	↑ BSW 2005
SDT2	OB 1/6/75 BL	↓ BSW 2005	Ø
SDT3	OB 1/6/75 BL	↓	Ø
SDT4	6/1/75 BL	↑	↑ BSW 2005
E/W LB		IC	IC → Ø
12 LS		IC	IC → Ø
12 PB	OB 1/6/75	Ø	Ø
123 LK		↓ Shut Down	↓ Shut Down
1 BB	OB 1/75	↓ 1977 scrubber	Ø
3 PB → 2 BB	OB 1/6/75	Ø	Ø
LK4	After BL	IC	IC 20.1

SO_2

LK4	add	8.89 lb/hr	($1.12\ g\,s^{-1}$)
RB4	add	1.82 lb/hr	($0.23\ g\,s^{-1}$)
SDT4	add	0.08 lb/hr	($0.01\ g\,s^{-1}$)
COMBO	add	0.96 lb/hr	($0.12\ g\,s^{-1}$)

The increase in emissions due only to the No. 2 BSW project is presented in Table 2-1 through Table 2-3. Current actual emissions are presented in Table 2-1, while future maximum emissions from all affected sources are presented in Table 2-2. The net change in emissions is shown in Table 2-3. The background documentation for these two tables is presented in the permit application documents. These emissions are used in the significant impact analysis for the No. 2 Mill Brown Stock Washer project.

The significant impact analysis results, presented in Section 5.0, demonstrate that the No. 2 Mill BSW project's impacts due to PM_{10} emissions are predicted to be greater than the significant impact levels. Impacts due to SO_2 and NO_x emissions are predicted to be less than the significant impact levels.

2.2.2 AAQS Analysis

Future maximum PM_{10} emissions for all sources located at the Buckeye Foley Mill, used in the AAQS analysis, are presented in Table 2-4. These emissions were developed from current construction permits, the Title V permit renewal application, and from the Title V permit.

2.2.3 PSD Class II and Class I Increment Analysis

For PM_{10}, the major source PSD baseline date is January 6, 1975. To determine Buckeye Foley's air emissions and stack parameters representative of this date, available air permit applications and air construction and operating permits were reviewed. Based on review of these documents, and discussions with plant personnel, the following changes as they relate to the PSD increment consumption and expansion were identified:

- No. 2 Recovery Boiler. Operating prior to 1/6/75 and has had no modification since. BASELINE 13.29 g/s
- No. 3 Recovery Boiler. Before 1974 only one ESP was installed with a 92-percent efficiency. In mid-1975, a second ESP was added with 93.7-percent efficiency. This reduced actual PM_{10} emissions and resulted in increment expansion. This modification reduced PM_{10} emissions but did not alter SO_2 emissions levels; therefore there is no change in SO_2 emissions since the baseline date. BASELINE 11.29 g/s Baseline
- No. 4 Recovery Boiler. The original construction permit to build this new boiler was issued on 3/14/73, to be completed as of 6/1/75. Therefore, the potential emissions of this boiler at the time of initial construction are included in the PSD baseline. The proposed No. 2 Mill Brown Stock Washer project will result in an increase in emissions which consumes PSD increment for both PM_{10} and SO_2. However, based on the MACT rules for the pulp and paper industry, PM_{10} emissions will decrease. 22.26 g s⁻¹ from 01 permit

- No. 2 Smelt Dissolving Tank. Only a mesh pad for particulate control was in use as of 1/6/75. An application dated 3/15/74 was submitted for a new scrubber, with a compliance date of 7/1/75, and the new scrubber was installed after 1/6/75. This modification reduced PM_{10} emissions but did not alter SO_2 emissions levels; therefore there is no change in SO_2 emissions since the baseline date. BASELINE
- No. 3 Smelt Dissolving Tank. Only a mesh pad for particulate control was in use as of 1/6/75. An application dated 5/9/74 was submitted for a new scrubber, with a compliance date of 7/1/75. The new scrubber was installed after 1/6/75. This modification reduced PM_{10} emissions but did not alter SO_2 emissions levels; therefore there is no change in SO_2 emissions since the baseline date. BASELINE
- No. 4 Smelt Dissolving Tank. The original construction permit to build this source was issued on 3/14/73, to be completed as of 6/1/75. Therefore, the potential emissions of this source are included in the PSD baseline. The proposed Brown Stock Washer project will result in an increase in emissions which consumes PSD increment for both PM_{10} and SO_2, but the MACT rules result in a decrease in PM_{10} emissions. BASELINE BSW will incr PM_{10}, SO_2
- East/West Lime Bins. Not in operation prior to 1/6/75; source is increment consuming.
- Nos. 1 and 2 Lime Slakers. Not in operation prior to 1/6/75; source is increment consuming.
- No. 1 Bark Boiler (Combination Stack). An application was submitted to operate 1/6/71 with multi-cyclones and an operating application was submitted 5/18/73 which added a mechanical dust collector. This was the source configuration as of 1/6/75. A construction permit application dated 3/1/77 was submitted adding a scrubber, which still exists today. This modification reduced PM_{10} emissions and did not alter SO_2 emissions levels; therefore there is no change in SO_2 emissions since the baseline date.
- Nos. 1 and 2 Power Boilers (Combination Stack). Operating prior to 1/6/75 and has had no modification since.
- No. 3 Power Boiler (Combination Stack). This boiler is presently called No. 2 Bark Boiler and prior to 5/18/73 was operating as the No. 1 Recovery Boiler. This recovery boiler was converted to the No. 3 Power Boiler prior to 1/6/75, as documented by an operating permit issued 8/6/75. By 9/77 the conversion to No. 2 Bark Boiler was completed along with installation of a new scrubber and a mechanical dust collector.
- Nos. 1, 2, and 3 Lime Kilns. All three kilns were issued construction permits on 1/20/71 and by 1974 all three had operating permits. By 7/23/87 the No. 4 Lime Kiln was on-line, replacing the Nos. 1, 2, and 3 Lime Kilns which were shut down.

PM_{10} emissions that affect PSD increment consumption and expansion are presented in Table 2-5. The supporting information for these baseline emission calculations is presented in Appendix A.

2.3 Site Layout and Structures

A facility plot plan of the Buckeye Foley Mill facility is presented in Figure 2-2. A graphic representation of the stack locations and their relationship to building locations is presented in Figure 2-3. The dimensions of the major buildings at the facility are presented in Section 4.0, Table 4-5. A graphic representation of the buildings with their relationship to Buckeye Foley's property boundary, used in the modeling analysis, is presented in Figure 2-4.

2.4 Stack Parameters

Stack parameters for the future and PSD baseline case are presented in Tables 2-6 and 2-7, respectively.

TABLE 2-1
PAST ACTUAL EMISSIONS FOR NO. 2 BROWN STOCK WASHING PROJECT, BUCKEYE FLORIDA, FOLEY MILL

Source Description	Pollutant Emission Rates					
	PM_{10}		SO_2		NO_x	
	Past Actual Short-term Emissions					
	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
Brown Stock Washing System	0.00	0.00	0.00	0.00	0.00	0.00
BSW Pulp Decker	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Recovery Boiler	22.00	2.77	12.90	1.63	87.90	11.08
No. 4 Smelt Dissolving Tank	5.40	0.68	0.29	0.04	1.17	0.15
No. 4 Lime Kiln	1.70	0.21	22.40	2.82	43.05	5.42
Lime Slakers/Causticizer	0.36	0.05	0.00	0.00	0.00	0.00
Lime Storage Bins	0.34	0.04	0.00	0.00	0.00	0.00
White Liquor Pressure Filter	0.00	0.00	0.00	0.00	0.00	0.00
Lime Mud Filter	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Bark Boiler or No. 1 Power Boiler	0.00	0.00	0.00	0.00	0.00	0.00
	Past Actual Annual Emissions					
	TPY	g/s	TPY	g/s	TPY	g/s
Brown Stock Washing System	0.00	0.00	0.00	0.00	0.00	0.00
BSW Pulp Decker	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Recovery Boiler	84.40	2.43	52.60	1.51	358.60	10.32
No. 4 Smelt Dissolving Tank	20.90	0.60	1.20	0.03	4.78	0.14
No. 4 Lime Kiln	4.60	0.13	92.20	2.65	176.93	5.09
Lime Slakers/Causticizer	1.55	0.04	0.00	0.00	0.00	0.00
Lime Storage Bins	1.40	0.04	0.00	0.00	0.00	0.00
White Liquor Pressure Filter	0.00	0.00	0.00	0.00	0.00	0.00
Lime Mud Filter	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Bark Boiler or No. 1 Power Boiler	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2-2
FUTURE POTENTIAL EMISSIONS USED IN MODELING ANALYSIS FOR NO. 2 BROWN STOCK WASHING PROJECT

Source Description	Pollutant Emission Rates					
	PM_{10}		SO_2		NO_x	
	Future Short-Term Emissions					
	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
Brown Stock Washing System	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Recovery Boiler	50.20	6.33	14.70	1.85	100.40	12.65
No. 4 Smelt Dissolving Tank	12.02	1.51	0.33	0.04	1.34	0.17
No. 4 Lime Kiln	13.90	1.75	31.30	3.94	68.40	8.62
Lime Slakers/Causticizer	2.08	0.26	0.00	0.00	0.00	0.00
Lime Storage Bins	0.34	0.04	0.00	0.00	0.00	0.00
White Liquor Pressure Filter	0.00	0.00	0.00	0.00	0.00	0.00
Lime Mud Filter	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Bark Boiler or No. 1 Power Boiler[a]	0.00	0.00	0.94	0.12	0.00	0.00
	Future Maximum Annual Emissions					
	TPY	g/s	TPY	g/s	TPY	g/s
Brown Stock Washing System	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Recovery Boiler	219.80	6.32	64.50	1.86	439.50	12.64
No. 4 Smelt Dissolving Tank	52.63	1.51	1.47	0.04	5.86	0.17
No. 4 Lime Kiln	61.00	1.75	136.90	3.94	299.80	8.62
Lime Slakers/Causticizer	9.10	0.26	0.00	0.00	0.00	0.00
Lime Storage Bins	1.50	0.04	0.00	0.00	0.00	0.00
White Liquor Pressure Filter	0.00	0.00	0.00	0.00	0.00	0.00
Lime Mud Filter	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Bark Boiler or No. 1 Power Boiler[a]	0.00	0.00	4.10	0.12	0.00	0.00

[a] Represents increase in emissions due to project.

TABLE 2-3

CHANGE IN EMISSIONS USED IN MODELING ANALYSIS FOR NO. 2 BROWN STOCK WASHING PROJECT

Source Description	Pollutant Emission Rates					
	PM_{10}		SO_2		NO_x	
	Change in Short-Term Emissions					
	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
Brown Stock Washing System	0.00	0.00	0.00	0.00	0.00	0.00
BSW Pulp Decker	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Recovery Boiler	28.20	3.55	1.80	0.23	12.50	1.58
No. 4 Smelt Dissolving Tank	6.62	0.83	0.04	0.01	0.17	0.02
No. 4 Lime Kiln	12.20	1.54	8.90	1.12	25.35	3.19
Lime Slakers/Causticizer	1.72	0.22	0.00	0.00	0.00	0.00
Lime Storage Bins	0.00	0.00	0.00	0.00	0.00	0.00
White Liquor Pressure Filter	0.00	0.00	0.00	0.00	0.00	0.00
Lime Mud Filter	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Bark Boiler or No. 1 Power Boiler	0.00	0.00	0.94	0.12	0.00	0.00
	Change in Maximum Annual Emissions					
	TPY	g/s	TPY	g/s	TPY	g/s
Brown Stock Washing System	0.00	0.00	0.00	0.00	0.00	0.00
BSW Pulp Decker	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Recovery Boiler	135.40	3.90	11.90	0.34	80.90	2.33
No. 4 Smelt Dissolving Tank	31.73	0.91	0.27	0.01	1.08	0.03
No. 4 Lime Kiln	56.40	1.62	44.70	1.29	122.87	3.53
Lime Slakers/Causticizer	7.55	0.22	0.00	0.00	0.00	0.00
Lime Storage Bins	0.10	0.00	0.00	0.00	0.00	0.00
White Liquor Pressure Filter	0.00	0.00	0.00	0.00	0.00	0.00
Lime Mud Filter	0.00	0.00	0.00	0.00	0.00	0.00
No. 2 Bark Boiler or No. 1 Power Boiler	0.00	0.00	4.10	0.12	0.00	0.00

TABLE 2-4
MAXIMUM FUTURE PM_{10} EMISSIONS FOR BUCKEY FLORIDA, FOLEY MILL

Source Description	Plant Source ID	Model ID	PM (lb/hr)	PM_{10} Emission Factor	Ref.	PM_{10} Emissions lb/hr	PM_{10} Emissions g/s
No. 4 Lime Kiln	024	LK4	20.0 [e]	70%	1	13.9 OK	1.75
No. 2 Recovery Boiler	006	RB2	46.3 [b]	75.0%	2	34.7	4.38
No. 3 Recovery Boiler	007	RB3	45.0 [b]	75.0%	2	33.8	4.25
No. 4 Recovery Boiler	011	RB4	70.4 [b]	71.3%	3	50.2	6.33
No. 2 Smelt Dissolving Tank	021	SDT2	9.76 [c]	89.8%	4	8.8	1.10
No. 3 Smelt Dissolving Tank	027	SDT3	8.24 [c]	89.8%	4	7.4	0.93
No. 4 Smelt Dissolving Tank	023	SDT4	13.4 [c]	89.8%	4	12.0	1.51
E. & W. Lime Bins	026	EWLB	0.34 [a]	100%	5	0.34	0.04
No. 1 & 2 Lime Slakers	025	12LS	2.08 [a]	100%	5	2.08	0.26
Combined stack:							
No. 1 Bark Boiler	004		47.4 [a]	98%	6	46.5	5.85
No. 2 Bark Boiler	019		106.7 [a]	98%	6	104.6	13.18
No. 1 Power Boiler	002		47.9 [d]	86%	7	41.2	5.19
No. 2 Power Boiler	003		47.9 [d]	86%	7	41.2	5.19
Totals		COMBO				233.4	29.4

[a] Based on allowable emission rate from current permit (Permit No. 1230001-016-AV).
[b] Based on 40 CFR 63.862(a)(1)(i)(A). For No. 4 Recovery Boiler, maximum flow rate reflects 133,825 lb/hr BLS firing rate.
[c] Based on 40 CFR 63.862(a)(1)(i)(B).
[d] Based on AP-42, Table 1.3-1
[e] Based on permitted limits (Permit Nos. 1230001-017-AC and 1230001-004-AC).

References:
1. Based on median values from NCASI Technical Bulletin No. 884, Table 4.13, for lime kilns with an ESP; gas-fired and fuel oil-fired kilns combined.
2. Based on AP-42, Figure 10.2-2, for DCE recovery boilers with ESP.
3. Based on median values from NCASI Technical Bulletin No. 884, Table 4.12, for non-direct contact recovery boilers with an ESP.
4. Based on median values from NCASI Technical Bulletin No. 884, Table 4.15, for smelt dissolving tanks with scrubbers.

FUTURE – CURRENT

RB4 50.2

TABLE 2-5
PM_{10} PSD EMISSIONS FOR BUCKEYE FLORIDA, FOLEY MILL

Source Description	Plant Source ID	Model ID	Short-term PM_{10} Emissions lb/hr	Short-term PM_{10} Emissions g/s	Annual PM_{10} Emissions[a] TPY	Annual PM_{10} Emissions[a] g/s
PSD Increment Consuming Sources[b]						
No. 4 Lime Kiln	024	LK4	13.9	1.75	61.0	1.75
No. 3 Recovery Boiler	007	RB3	33.8	4.25	147.8	7.78
No. 4 Recovery Boiler	011	RB4	50.2	6.33	50.2	1.44
No. 2 Smelt Dissolving Tank	021	SDT2	8.8	1.10	37.5	3.01
No. 3 Smelt Dissolving Tank	027	SDT3	7.4	0.93	31.7	2.71
No. 4 Smelt Dissolving Tank	023	SDT4	12.0	1.51	12.0	0.35
E. & W. Lime Bins	026	EWLB	0.34	0.04	0.34	0.01
No. 1 & 2 Lime Slakers	025	12LS	2.08	0.26	2.08	0.06
Combined stack						
No. 1 Bark Boiler	004		46.5	5.85	198.8	5.84
No. 2 Bark Boiler	019		104.6	13.18	447.7	13.18
Totals:		COMBO	151.0	19.02	661.2	19.02
PSD Increment Expanding sources[c]						
No. 3 Recovery Boiler	007	RB3B	294.75	37.14	986.1	28.37
No. 4 Recovery Boiler	011	RB4B	84.88	10.69	314.3	9.04
No. 2 Smelt Dissolving Tank	021	SDT2B	27.60	3.48	76.4	2.20
No. 3 Smelt Dissolving Tank	027	SDT3B	24.43	3.08	81.1	2.33
No. 4 Smelt Dissolving Tank	023	SDT4B	26.69	3.36	28.8	0.83
Combination Stack						
No. 1 Bark Boiler	004		118.7	14.95	505.5	14.54
No. 3 Power Boiler	019		10.8	1.35	37.0	1.07
Totals:	004, 019	COMBOB	129.4	16.31	542.5	15.61
No. 1 Lime Kiln		LK1B	8.62	1.09	25.46	0.73
No. 2 Lime Kiln		LK2B	11.11	1.40	32.98	0.95
No. 3 Lime Kiln		LK3B	7.23	0.91	24.53	0.71

34.7 ?

[a] For increment consuming sources, TPY based on 8,760 hr/yr permitted operation.

[b] See Table 2-3 for basis of emissions.

[c] See Appendix B for the basis of emissions.

g/s
RB 2 9.22 is in baseline

TABLE 2-6
FUTURE STACK PARAMETERS AND LOCATIONS USED IN THE MODELING ANALYSIS, BUCKEYE FLORIDA, FOLEY MILL

Emission Unit	Plant Source ID	Model ID	Relative Location [a] X ft	X m	Y ft	Y m	Stack Data [b] Height ft	Height m	Diameter ft	Diameter m	Operating Data [b] Temperature °F	Temperature K	Flow acfm	Velocity ft/s	Velocity m/s
No. 4 Lime Kiln	024	LK4	879.5	268.1	320.7	97.8	125	38.10	7.3	2.23	460	510.9	125,000	49.8	15.17
No. 2 Recovery Boiler	006	RB2	258.2	78.7	102.9	31.4	225	68.58	10.0	3.05	340	444.3	225,000	47.7	14.55
No. 3 Recovery Boiler	007	RB3	0.0	0.0	0.0	0.0	225	68.58	9.5	2.90	350	449.8	190,000	44.7	13.62
No. 4 Recovery Boiler	011	RB4	-248.5	-75.8	-39.6	-12.1	225	68.58	9.5	2.90	440	499.8	389,000 [d]	91.5	27.88
No. 2 Smelt Dissolving Tank	021	SDT2	129.8	39.6	219.3	66.8	142	43.28	3.0	0.91	160	344.3	19,000	44.8	13.65
No. 3 Smelt Dissolving Tank	027	SDT3	-147.7	-45.0	41.8	12.7	140	42.67	4.0	1.22	165	347.0	21,800	28.9	8.81
No. 4 Smelt Dissolving Tank	023	SDT4	-202.7	-61.8	-18.9	-5.8	162	49.38	4.0	1.22	155	341.5	32,000	42.4	12.94
E. & W. Lime Bins	026	EWLB	725.1	221.0	534.1	162.8	124	37.80	1.0	0.30	77	298.2	2,000	0.03	0.01 [c]
No. 1 & 2 Lime Slakers	025	12LS	762.1	232.3	500.0	152.4	133	40.54	1.94	0.59	141	333.7	676	3.8	1.16
Combined Stack:		COMBO	58.5	17.8	62.7	19.1	225	68.58	13.0	3.96	200	366.5	495,073	62.2	18.95
No. 1 Bark Boiler	004										160	344.3	115,073		
No. 2 Bark Boiler	019										150	338.7	220,000		
No. 1 Power Boiler	002										325	435.9	80,000		
No. 2 Power Boiler	003										325	435.9	80,000		

[a] Relative to No. 3 Recovery Boiler, oriented to true north.

[b] Data obtained from Title V application

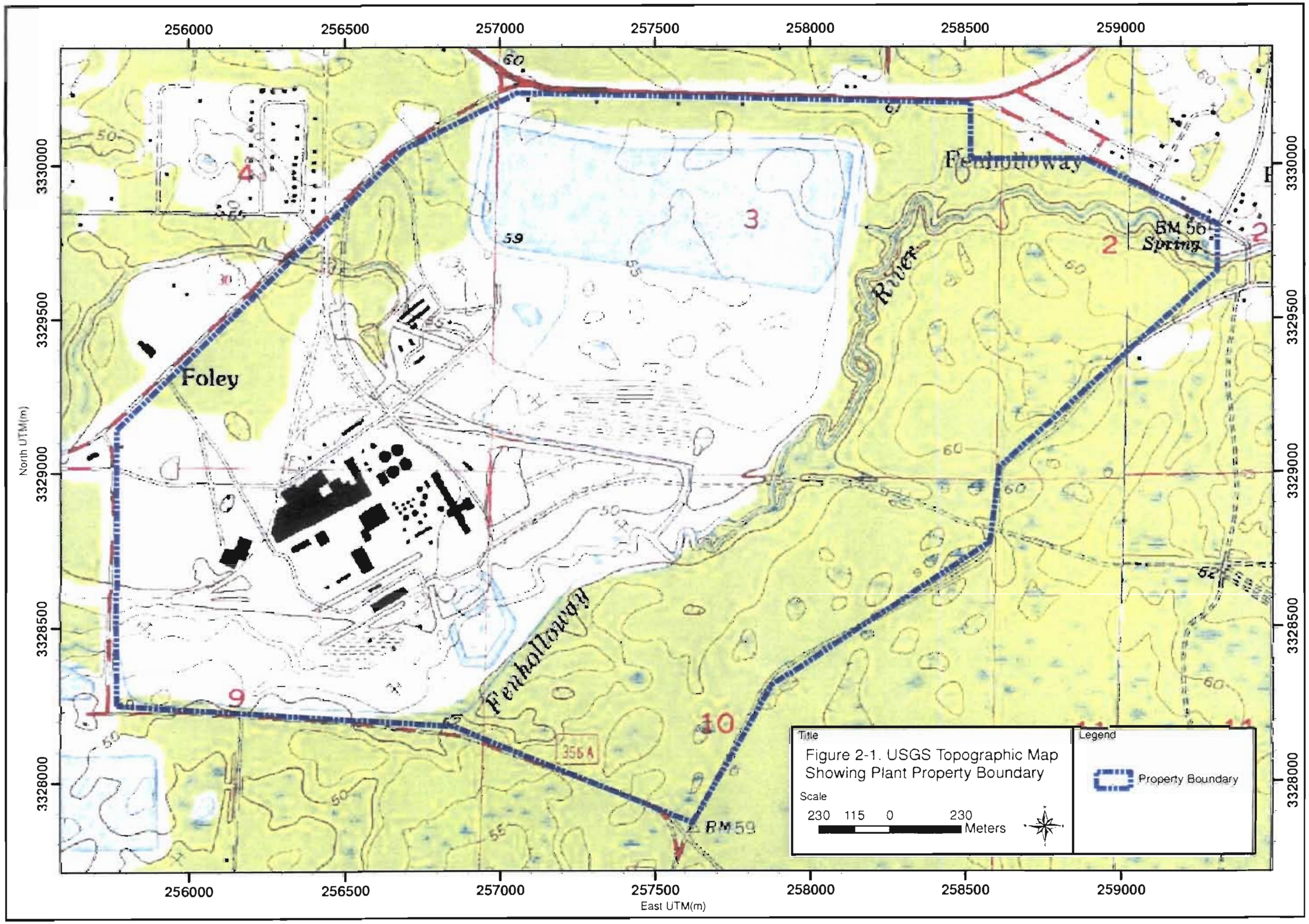
[c] Source with horizontal stack modeled with 0.01 m/s velocity.

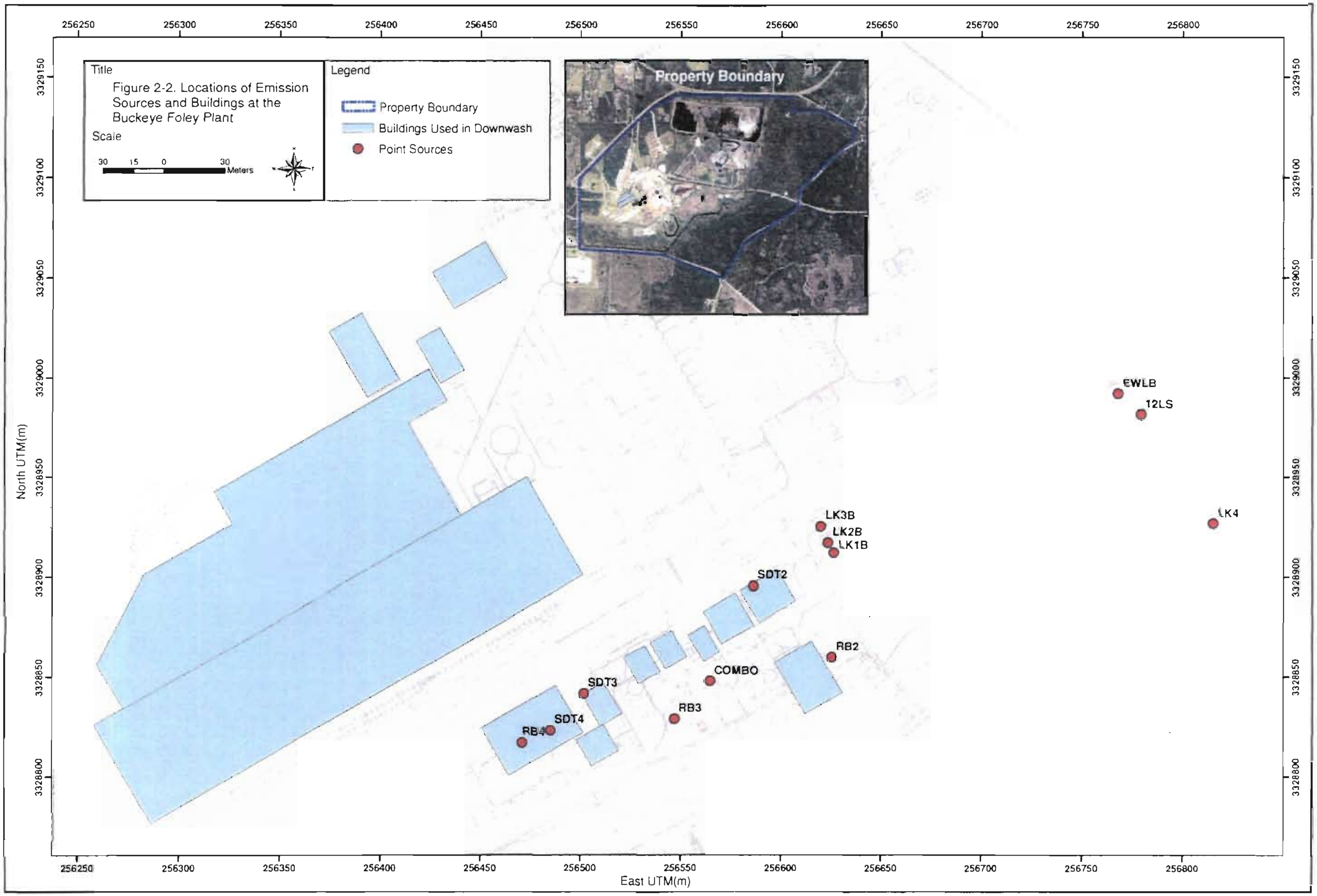
[d] As a conservative assumption, the current and future flow rates were modeled at the current flow rate and velocity of: 360,000 acfm; 84.6 ft/s; 25.8 m/s

TABLE 2-7
BASELINE (1974) STACK PARAMETERS AND LOCATIONS USED IN THE MODELING ANALYSIS BUCKEYE FLORIDA, FOLEY MILL

	Plant		Relative Location [a]				Stack Data				Operating Data [c]				
	Source	Model	X		Y		Height		Diameter		Temperature		Flow	Velocity	
Emission Unit	ID	ID	ft	m	ft	m	ft	m	ft	m	°F	°K	acfm	ft/s	m/s
No. 3 Recovery Boiler [b]	007	RB3B	0	0.0	0	0.0	225	68.6	9.0	2.74	300	422	220,000	57.6	17.57
No. 4 Recovery Boiler [c]	011	RB4B	-249	-75.8	-40	-12.1	225	68.6	9.5	2.90	380	466	303,000	71.2	21.72
No. 2 Smelt Dissolving Tank [d]	021	SDT2B	130	39.6	219	66.8	142	43.3	3.0	0.91	170	350	21,800	51.4	15.67
No. 3 Smelt Dissolving Tank [e]	027	SDT3B	-148	-45.0	42	12.7	140	42.7	4.0	1.22	170	350	21,800	28.9	8.81
No. 4 Smelt Dissolving Tank [c]	023	SDT4B	-203	-61.8	-19	-5.8	162	49.4	4.0	1.22	170	350	25,600	34.0	10.35
Combined Stack:		COMBOB	58.5	17.8	63	19.1	225	68.6	13.0	3.96	435	497	385,300	48.4	14.75
No. 1 Bark Boiler [f]	004										450	505	79,300		
No. 3 Power Boiler [g]	019										585	580	146,000		
No. 1 Power Boiler [h]	002										325	436	80,000		
No. 2 Power Boiler [h]	003										325	436	80,000		
No. 1 Lime Kiln [i]		LK1B	261	79.7	273	83.3	96	29.3	4.0	1.22	150	339	18,500	24.5	7.48
No. 2 Lime Kiln [j]		LK2B	252	76.8	290	88.3	96	29.3	4.0	1.22	150	339	37,600	49.9	15.20
No. 3 Lime Kiln [k]		LK3B	236	72.0	317	96.5	96	29.3	4.0	1.22	150	339	24,000	31.8	9.70

[a] Relative to No. 3 Recovery Boiler, oriented to true north.
[b] Air Construction Permit Application, 3/15/74.
[c] Air Construction Permit Application, 3/15/74.
[d] Air Construction Permit Application, 4/15/74. Flow data from 9/4/75 stack test.
[e] Air Operating Permit Application, 6/22/76. Flow data from 6/25/75 stack test.
[f] Air Operating Permit Application, 1/6/71
[g] Air Operating Permit Application, 6/25/75.
[h] Air Operating Permit Application, 5/25/83.
[i] Air Operating Permit Application, 8/7/81, flow data from 10/28/80 stack test.
[j] Air Operating Permit Application, 6/22/76 and 12/9/75 test data.
[k] Air Operating Permit Application, 8/3/81 and 11/4/80 test data.


256000
256500
257000
257500
258000
258500
259000
3330000
3329500
3329000
3328500
3328000
North UTM(m)
East UTM(m)
Foley
Fenholloway
Fenholloway
River
BM 56
Spring
BM59
Title
Figure 2-1. USGS Topographic Map Showing Plant Property Boundary
Scale
230 115 0 230
Meters
Legend
Property Boundary



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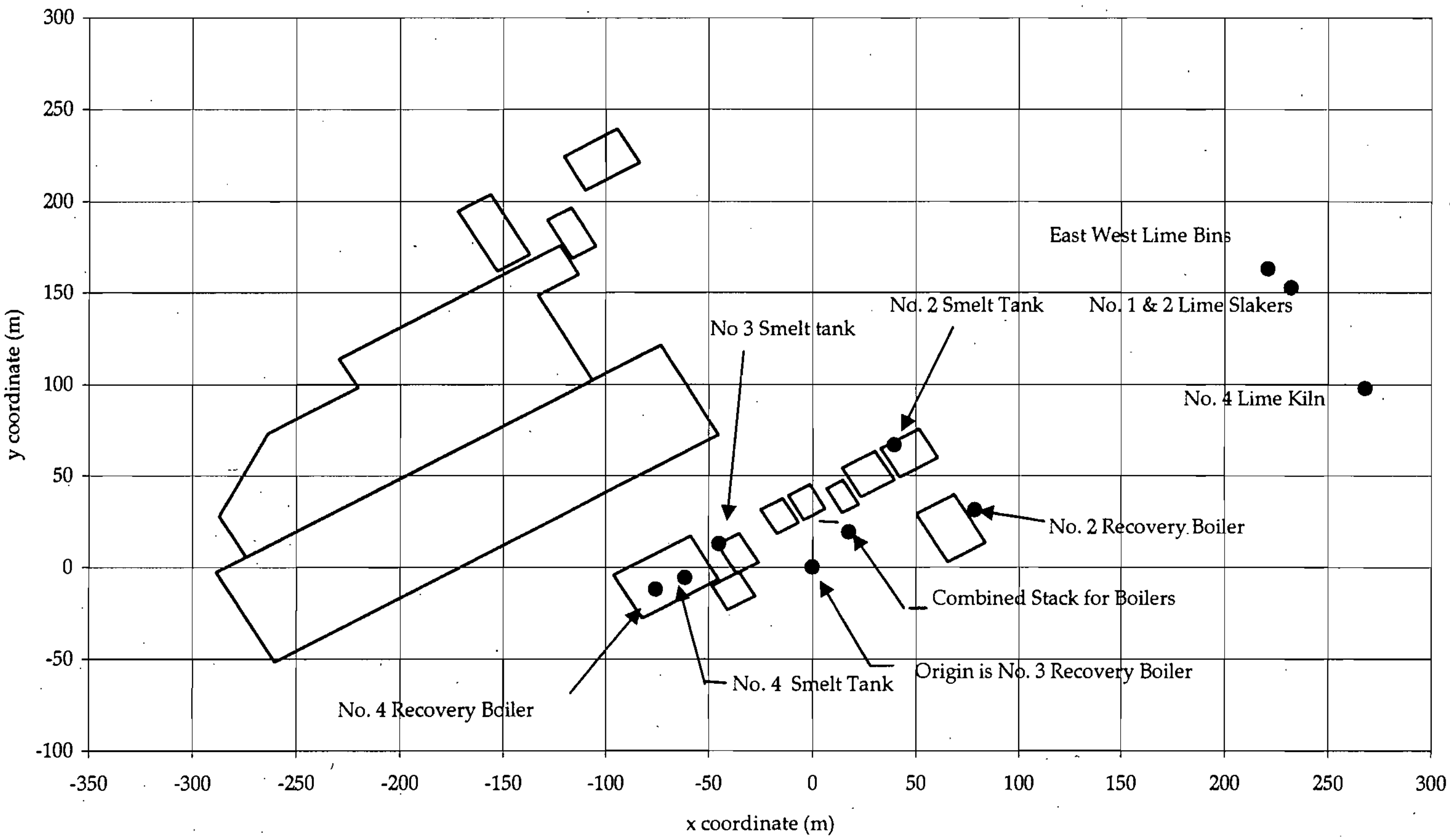


Figure 2-3
Buildings with Stack Locations, Buckeye Foley Mill

Source: Golder, 2005.

Golder Associates

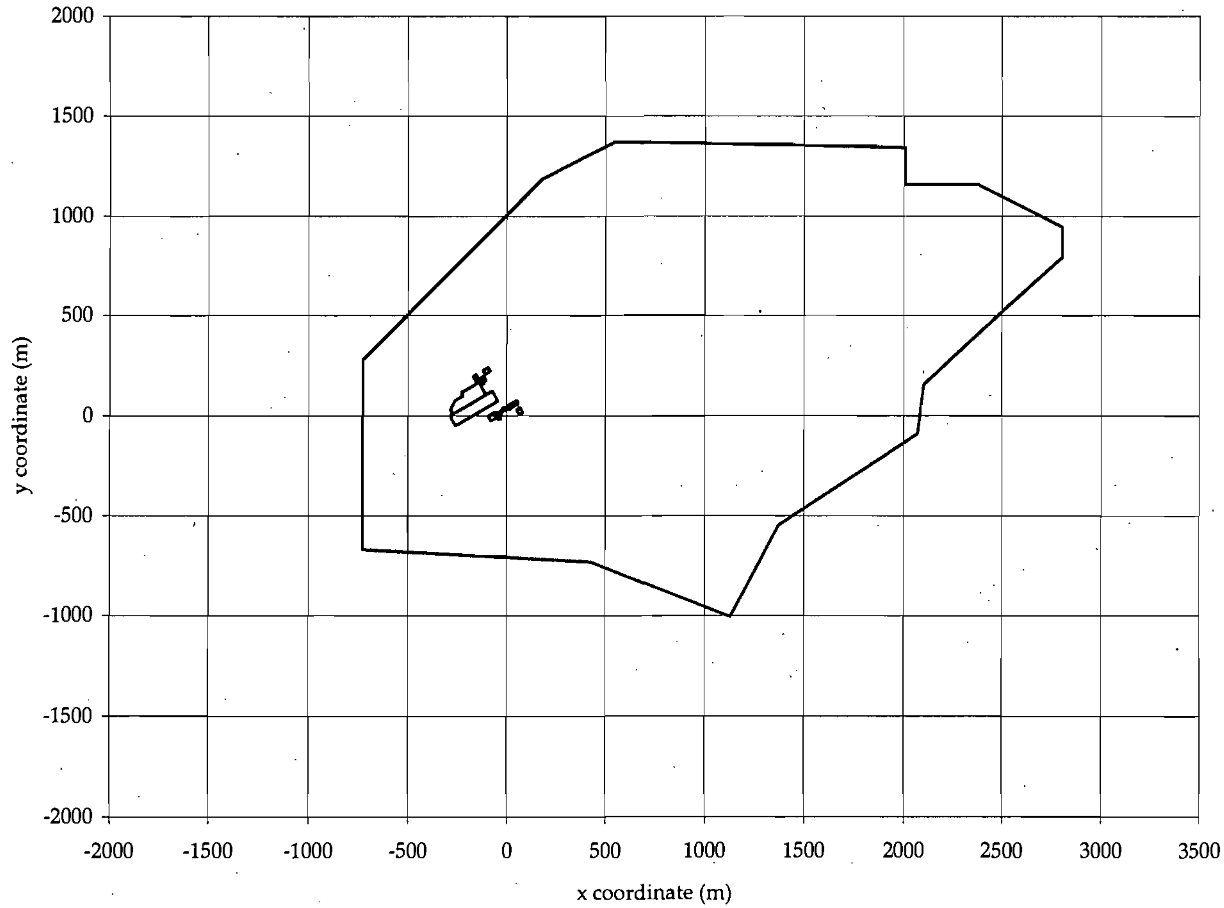


Figure 2-4
Plant Boundary and Buildings, Buckeye Foley Mill

Source: Golder, 2005.

Golder Associates

3.0 AMBIENT BACKGROUND CONCENTRATIONS

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 PM_{10} Concentrations

A summary of ambient PM_{10} data for the ambient monitor located nearest to the Buckeye Foley Mill, is presented in Table 3-1. This monitor is located in Gainesville, about 110 km to the southeast of the Mill. Data are presented from 2002 through mid-2005. The monitoring data show that ambient PM_{10} concentrations were well below the 24-hour average AAQS of 150 $\mu g/m^3$ and annual average AAQS of 50 $\mu g/m^3$. The highest, second-highest 24-hour average concentration is 54 $\mu g/m^3$, based on 2005 data; the maximum annual average concentration is 18.3 $\mu g/m^3$, based on 2004 data when monitoring was conducted over the entire year. For purposes of the modeling analysis, these values were selected to represent ambient PM_{10} background concentration for the respective averaging times.

TABLE 3-1
SUMMARY OF PM_{10} AMBIENT MONITORING DATA USED TO ESTIMATE BACKGROUND CONCENTRAITONS

County	Monitor Location	Station ID	Year	No. of Observations	Measured Concentration (µg/m3)[a] 24-Hour Average Maximum	2nd-Highest	3rd-Highest	Annual Average
Alachua	Gainesville - NW 53rd Avenue & NW 43rd Stre	12-001-0023	2005	3,247	59	54	50	18.7
			2004	8,244	63	48	48	18.3
			2003	8,374	46	44	43	16.4
			2002	5,455	38	37	35	15

Note: $\mu g/m^3$ = micrograms per cubic meter.

[a] From EPA Aerometric Information Retrieval System (AIRS), 2002 to 2005

4.0 AIR QUALITY IMPACT ANALYSIS METHODOLOGY

4.1 Significant Impact Analysis Approach

Air quality impact analyses were conducted for SO_2, PM_{10}, and NO_x emission sources for the changes to the No. 2 Mill BSW project at the Buckeye Foley Mill. These analyses were initially performed to determine whether the impacts from the project are predicted to exceed the EPA Class II significant impact levels in any areas beyond the Mill's property boundaries. If the project's impacts are predicted to be above the significant impact levels, then a more detailed air modeling analysis that includes background sources is required. If the project's impacts are below the significant impact levels, no further air modeling analysis is required.

Air quality impacts were predicted using 5 years of meteorological data. The highest ground-level concentrations predicted for each project were then compared to the significant impact levels. The air quality modeling approach followed EPA and FDEP modeling guidelines for determining compliance with AAQS and PSD increments.

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 this report. Nevertheless, the proposed project's impacts on the Class I areas were compared to the proposed significant impact levels.

The nearest PSD Class I areas are the St. Marks NWA, located about 41 km to the west and the Buckeye Foley Mill; Bradwell Bay NWA, located about 95 km to the west; Chassahowitzka NWA, located about 163 km south; and Okefenokee NWA, located about 116 km to the northeast. Because these PSD Class I areas are within 200 km of the mill, significant impact modeling analyses were performed at each PSD Class I area. Air impact analyses were not performed for other PSD Class I areas since they are located more than 200 km from the Buckeye Foley Mill.

As shown in Section 5.0, the maximum SO_2 and NO_2 impacts for the No. 2 Mill BSW project are predicted to be less than the PSD Class II significant impact levels. The maximum SO_2, PM_{10}, and NO_2 impacts are also predicted to be less than the PSD Class I significant impact levels. As a result, no further air modeling analyses for these pollutants at the PSD Class I areas are required for this project. Because the project's maximum PM_{10} were predicted to be greater than the PSD Class II significant impact levels, further air modeling analyses were performed to address compliance with the PM_{10} AAQS and PSD Class II increments.

Descriptions of the methods and assumptions used in the air quality impact analyses, including selection of dispersion models, development of emission inventories, and processing of meteorological data, are presented in the following sections.

4.2 AAQS and PSD Class II Increment Analyses

In general, when 5 years of meteorological data are used, the highest annual and the H2H short-term concentrations are compared to the applicable AAQS and allowable PSD Class II increments. The H2H short-term concentration is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor,
2. Identifying the second-highest concentration at each receptor, and
3. Selecting the highest concentration among these second-highest concentrations.

This approach is consistent with most air quality standards and all allowable PSD increments, which permit a short-term average concentration to be exceeded once per year at each receptor.

For determining compliance with the PM_{10} 24-hour average AAQS, the sixth highest predicted concentration in 5 years (i.e., H6H), instead of the HSH, is used to compare to the applicable 24-hour AAQS.

For the AAQS analysis, the future emissions of the mill are modeled together with background emission facilities. The total air quality concentration is estimated by adding the maximum concentrations from all modeled sources to a non-modeled background concentration. The maximum annual and short-term total air quality concentrations are then compared to the AAQS.

For the PSD Class II increment analysis, the PSD increment consuming and expanding sources at the Buckeye Foley Mill site were modeled with background PSD consuming or expanding sources. The maximum annual and short-term concentrations are compared to the allowable PSD Class II increments.

For addressing compliance with the AAQS and PSD Class II increments, these analyses used screening and refinement phases to determine the maximum pollutant impacts associated with the Buckeye Foley Mill. The difference between the two modeling phases is the density of the receptor grid spacing used when predicting concentrations.

For the screening phase, concentrations are predicted in a receptor grid that extends over a large area centered on the mill, using a 5-year meteorological data record. The receptor grid consisted of receptors located at varying distances from the mill with a denser grid spacing in areas near the property boundary.

For the refinement phase, concentrations are predicted in a receptor grid with receptor spacing of 100 meters (m) or less. The location of the refined receptor grid is determined from the location at which the maximum concentration is predicted from the screening phase. The area of a refined receptor grid extends to adjacent screening grid receptors, surrounding the receptor at which the maximum concentration is predicted. If the maximum concentration in the screening phase is predicted in an area in which the receptor spacing is 100 m or less, additional modeling for the refinement phase is not needed.

Concentrations are predicted for all receptors in the refined grid, for the entire year of meteorology during which the maximum concentration was predicted in the screening phase.

4.3 PSD Class I Increment Analysis

As discussed previously, the maximum SO_2, PM_{10}, and NO_2 impacts for the No. 2 Mill BSW project are predicted to be less than the PSD Class I significant impact levels at all the PSD Class I areas within 200 km of the Mill. As a result, no further air modeling analyses for these pollutants at the PSD Class I areas are required for this project to address compliance with the PSD Class I increment.

4.4 Model Selection

The selection of an air quality model to predict air quality impacts for the proposed projects was based on the ability of the model to simulate impacts in areas surrounding the projects as well as at the PSD Class I areas. Two air quality dispersion models were selected and used in these analyses to address air quality impacts for these projects. These models were:

- The American Meteorological Society and EPA Regulatory Model (AERMOD) dispersion model, and
- The California Puff model (CALPUFF).

The AERMOD dispersion model (Version 04300) is available on the EPA's Internet web site, Support Center for Regulatory Air Models (SCRAM), within the Technical Transfer Network (TTN). A listing of AERMOD model features is presented in Table 4-1.

On November 9, 2005, the EPA implemented AERMOD into its *Guideline of Air Quality Models (Appendix W to 40 CFR Part 51)* as the recommended model for regulatory modeling applications. The

FDEP is allowing the use of AERMOD for air permitting projects as a replacement for the Industrial Source Complex Short-Term Model (ISCST3) which will no longer be in effect as of December 2006.

The EPA and FDEP recommend that the AERMOD model be used to predict pollutant concentrations at receptors located within 50 km from a source. The AERMOD model calculates hourly concentrations based on hourly meteorological data. The AERMOD model is applicable for most applications since it is recognized as containing the latest scientific algorithms for simulating plume behavior in all types of terrain. For evaluating plume behavior within the building wake of structures, the AERMOD model incorporates the Plume Rise Model Enhancement (PRIME) downwash algorithm developed by the Electric Power Research Institute (EPRI). AERMOD can predict pollutant concentrations for averaging times of annual and 24-, 8-, 3-, and 1-hours.

The AERMOD model was used to predict the maximum pollutant concentrations for the project in nearby areas surrounding the Buckeye Foley Mill and at the PSD Class I area located within 50 km from the mill (i.e., St. Marks NWA). The predicted concentrations were then compared to applicable PSD Class II significant impact levels. The AERMOD model was also used to predict the maximum pollutant concentrations due to each project's emissions together with appropriate background sources. The predicted concentrations were then compared to the applicable AAQS and PSD Class II increments.

For this analysis, the EPA regulatory default options were used to predict all maximum impacts. These options include:

- Final plume rise at all receptor locations
- Stack-tip downwash
- Buoyancy-induced dispersion
- Default wind speed profile coefficients
- Default vertical potential temperature gradients
- Calm wind processing

At distances beyond 50 km from a source, the CALPUFF model, Version 5.711a (EPA, 2004), is recommended for use by the EPA and FDEP. The CALPUFF model is a long-range transport Lagrangian puff model applicable for estimating the air quality impacts. 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. This model is also maintained by the EPA on the SCRAM website. A listing of CALPUFF model features is presented in Table 4-2.

The CALPUFF model was used to assess impacts from the project at each of the PSD Class I areas located beyond 50 km from the Mill. 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 B.

4.5 Meteorological Data

Meteorological data used in the AERMOD 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 Tallahassee Regional Airport and in Waycross, Georgia, respectively. Concentrations were predicted using 5 years of hourly meteorological data from 1987 through 1991. The NWS office at Tallahassee is located approximately 77 km (48 miles) west of the site and is the closest primary weather station to the study area considered to have surface meteorological data representative of the project site.

The data for these stations were processed into a format that can be input to the AERMOD model using the meteorological preprocessor program AERMET. The data were processed using the Lakes Environmental graphical interface using the latest version of AERMET (04300). The hourly surface data were obtained from the Solar and Meteorological Observation Network (SAMSON) CD. Upper air sounding data were obtained in the required NCDC TD-6201 format from the Lakes website (www.webmet.com).

A unique feature of AERMOD is its incorporation of land use parameters for the processing of boundary layer parameters used for the dispersion. Based on the most recent regulatory guidance, the land use parameters should be representative of the data measurement site (i.e., Tallahassee). Land use data, representing the average surface roughness, albedo, and Bowen ratio that exist within a 3-km radius of the NWS station at Tallahassee were extracted from 1-degree land use files from the US Geographical Survey (USGS) using the AERSURFACE program. AERSURFACE currently extracts land use data in 12 wind direction sectors covering 360 degrees. The land use values for each wind direction sector were input into Stage 3 of the AERMET preprocessor program to create the surface and profile meteorological files that AERMOD requires.

CALMET, the meteorological preprocessor to CALPUFF, was used to develop a 3-dimensional wind field necessary to perform the air modeling analysis to evaluate pollutant impacts at each PSD Class I area. The modeling domain consisted of a rectangular 3-dimensional grid that extends approximately 448 km east from 85.0 degrees longitude and 648 km north from 26.25 degrees latitude. The modeling domain includes the following meteorological and land use parameters:

- Surface weather data,
- Upper air data,
- A 1-degree land use data,
- A 1-degree Digital Elevation Model (DEM) terrain data,
- Mesoscale Model - Generations 4 and 5 (MM4 and MM5) data (for initializing the wind field), and
- Hourly precipitation data.

These data were obtained and processed for 1990, 1992, and 1996, the years for which MM4 and MM5 data are available. It should be noted that MM4 data are available for 1990 while MM5 data are available for 1992 and 1996. The CALMET wind field and the CALPUFF model options used were consistent with the suggestions of the FLMs. Meteorological data used with the CALPUFF model consist of a CALMET-developed wind field covering North-Central Florida. More detailed descriptions of the assumptions and methods used for processing the meteorological data and establishing the model domain are presented in Appendix B.

4.6 Emission Inventory

4.6.1 Buckeye Foley Mill

The past actual, future maximum, and change in future SO_2, NO_x, and PM_{10} emissions for sources affected by the No. 2 Mill BSW Project are shown in Tables 2-1 through 2-3. The maximum PM_{10} emissions for all sources at the Buckeye Foley Mill for the future operating condition are shown in Table 2-4. The Buckeye Foley Mill PSD increment consuming and expanding emissions for PM_{10} are presented in Table 2-5. Future and baseline PSD stack parameters and sources locations are presented in Tables 2-6 and 2-7.

Based on the modeling results presented in Section 5.0, the project's maximum impacts were predicted to exceed only the PSD Class II significant impact levels for PM_{10} concentrations. Therefore, AAQS and PSD Class II increment analyses were performed for PM_{10}.

4.6.2 Other Emissions Sources

The PM_{10} emission inventories for background facilities were developed from databases obtained from the FDEP, from previous air modeling studies performed by Golder Associates, and from air permit data. In addition, the Georgia Department of Natural Resources provided an emission inventory of sources located within 100 km of the mill. All background sources in these inventories and located within each project's modeling area (defined as the PSD Class II significant impact area for each project) were included in the modeling.

Based on the results presented in Section 5.0, the significant impact distance estimated for PM_{10} concentrations predicted for the No. 2 Mill BSW project in the PSD Class II area is about 1.3 km.

For sources located in the screening area (defined as 50 km beyond the modeling area), a technique was used for eliminating sources in the modeling analyses if the source's emissions are below a specified criterion. This technique, which is approved for use by the DEP and the USEPA, is the *Screening Threshold* method, developed by the North Carolina Department of Natural Resources and Community Development. The method is designed to objectively eliminate from the emission inventory those sources that are unlikely to have a significant interaction with the source undergoing evaluation. In general, sources that should be considered in the modeling analyses are those with emissions greater than a screening threshold value (in TPY) that is calculated by the following criteria:

$$Q = 20 \times D$$

where Q = the screening threshold value (TPY), and

D = the distance (km) from the source or project undergoing evaluation to the background source for short-term analysis, or
the distance (km) from the edge of the project's significant impact area to the background source for long-term (annual) analysis.

For this analysis, the long-term criterion was used since fewer facilities would be eliminated than with the short-term criterion. Also, the total emissions from a facility were used rather than emissions from individual sources for comparison to the screening threshold value. These methods result in a more conservative approach to produce higher-than-expected concentrations. Those facilities with maximum or allowable emissions that are below the calculated *screening threshold* were eliminated from further consideration in the AAQS and PSD increment modeling analyses.

A summary of all PM_{10} emitting facilities considered for inclusion in the AAQS and PSD Class II increment modeling analysis is provided in Table 4-3. This summary identifies those facilities located within the project's modeling area (1.3 km) and screening area (1.3 to 51.3 km). The facilities that were not included in the modeling analyses because their emissions were less than the *screening threshold* criteria are also identified.

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. Each source listed in Table 4-4 includes a description of the source, the identification name of the source used in the air modeling analysis, and a determination of whether the source consumes or expands PSD increment. It should be noted that facilities with PSD-affecting sources may have baseline sources. Baseline sources may no longer operate but did operate during the PM_{10} PSD baseline period of 1974 to 1975. These sources expand PSD increment and are represented in the PSD increment air modeling analyses as negative emission sources.

4.7 Building Downwash Effects for Buckeye Foley Mill

Based on the building dimensions associated with buildings and structures at the plant, all stacks at the Buckeye Foley 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 (H_b) or projected width (l_b). The ISCST3 model uses 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 Buckeye Foley Mill are presented in Table 4-5. The location of the buildings and stacks can be found on the site plot plan (Figure 2-3). At the Buckeye Foley Mill, one or more buildings can cause building downwash effects at several stacks. 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 00101. The BPIP program was used to generate building data for the ISCST3 model input.

A detailed listing of direction-specific building data used in the air modeling analysis is provided in Appendix C.

4.8 Receptor Locations

The property boundaries for the Buckeye Foley Mill are shown in Figures 2-1 through 2-4. Public access to the Buckeye Foley Mill property is restricted by a fence that surrounds the majority of the property boundary line. The areas that are not fenced are those heavily wooded areas located about 800 m to the northeast and 2000 m to the west of the mill. These areas are posted with "No Trespassing" signs. The access road and the railroad line to Buckeye Foley Mill are not fenced, but also are posted. This restricts public access to that section of Buckeye Foley property.

For predicting maximum concentrations in the vicinity of the Buckeye Foley Mill, an array of discrete Cartesian receptors was used. The origin of the receptor grids was assumed to be at the stack location for the existing No. 3 Recovery Boiler. The origin was assigned X and Y coordinates of 0.0 m each and east and north Universal Transverse Mercator (UTM) coordinates of 256,546.38 and 3,328,828.49 km, respectively.

The modeling analysis used UTM coordinates from zone 17, North American Datum 1927 (NAD27). Nested Cartesian receptor grids were used in addition to discrete Cartesian receptors along the Mill fenceline. The significant impact analysis used the following receptor spacing:

- 50-m intervals along the fenceline;
- 100-m intervals beyond the fenceline to 2 km from the Mill;
- 250-m intervals from 2 to 5 km from the Mill;
- 500-m intervals from 5 to 10 km from the Mill; and

- 1,000-m intervals from 10 to 20 km from the Mill.

The receptor grid used for the significant impact analysis is presented in Appendix C. Receptor elevations and hill scale heights for all receptors were obtained from 7.5 minute USGS Digital Elevation Model (DEM) data using the AERMOD terrain preprocessor program AERMAP, Version 03107.

To determine the distance at which the project's impacts are below the significant impact levels, concentrations were written to a plot file and imported in a spreadsheet. The concentrations were sorted by decreasing values and the maximum distance at which the project's impacts was identified.

SO_2, PM_{10}, and NO_2 concentrations were also predicted at receptors located at the PSD Class I areas of the St. Marks NWA, Bradwell Bay NWA, Okefenokee NWA, and Chassahowitzka NWA. Listings of the Class I receptors are presented in Appendix C. Due to the large distance from the Buckeye Foley Mill to these PSD Class I areas, additional receptor refinements were not performed for these areas.

4.9 Background Concentrations

Total air quality impacts were predicted for the AAQS analysis by adding the maximum annual and H2H short-term 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 assumed to be as follows:

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)
PM_{10}	24-hour	54
	Annual	18.3

These background concentrations were obtained from air quality monitoring data, as described in Section 3.0.

TABLE 4-1
MAJOR FEATURES OF THE AERMOD MODEL, VERSION 04300

AERMOD Model Features
• Plume dispersion/growth rates are determined by the profile of vertical and horizontal turbulence, vary with height, and use a continuous growth function.
• In a convective atmosphere, uses three separate algorithms to describe plume behavior as it comes in contact with the mixed layer lid; in a stable atmosphere uses a mechanically mixed layer near the surface.
• Polar or Cartesian coordinate systems for receptor locations can be included directly or by an external file reference.
• Urban model dispersion is input as a function of city size and population density; sources can also be modeled individually as urban sources.
• Stable plume rise: uses Briggs equations with winds and temperature gradients at stack top up to half-way up to plume rise. Convective plume rise: plume superimposed on random convective velocities.
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash.
• Has capability of simulating point, volume, area, and multi-sized area sources.
• Accounts for the effects of vertical variations in wind and turbulence (Brower *et al.*, 1998).
• Uses measured and computed boundary layer parameters and similarity relationships to develop vertical profiles of wind, temperature, and turbulence (Brower *et al.*, 1998).
• Concentration estimates for 1-hour to annual average times.
• Creates vertical profiles of wind, temperature, and turbulence using all available measurement levels.
• Terrain features are depicted by use of a controlling hill elevation and a receptor point elevation.
• Modeling domain surface characteristics are determined by selected direction and month/season values of surface roughness length, Albedo, and Bowen ratio.
• Contains both a mechanical and convective mixed layer height, the latter based on the hourly accumulation of sensible heat flux.
• The method of Pasquill (1976) to account for buoyancy-induced dispersion.
• A default regulatory option to set various model options and parameters to EPA-recommended values.
• Contains procedures for calm-wind and missing data for the processing of short term averages.

Note: AERMOD = The American Meteorological Society and Environmental Protection Agency Regulatory Model.

Source: Paine *et al.*, 2004.

TABLE 4-2
MAJOR FEATURES OF THE CALPUFF MODEL, VERSION 5.711A

CALPUFF Model Features

- Source types: Point, line (including buoyancy effects), volume, area (buoyant, non-buoyant)
- Non-steady-state emissions and meteorological conditions (time-dependent source and emission data; gridded 3-dimensional wind and temperature fields; spatially-variable fields of mixing heights, friction velocity, precipitation, Monin-Obukhov length; vertically and horizontally-varying turbulence and dispersion rates; time-dependent source and emission data for point, area, and volume sources; temporal or wind-dependent scaling factors for emission rates)
- Efficient sampling function (integrated puff formulation; elongated puff (slug) formation)
- Dispersion coefficient options (Pasquill-Gifford (PG) values for rural areas; McElroy-Pooler values (MP) for urban areas; CTDM values for neutral/stable; direct measurements or estimated values)
- Vertical wind shear (puff splitting; differential advection and dispersion)
- Plume rise (buoyant and momentum rise; stack-tip effects; building downwash effects; partial plume penetration above mixing layer)
- Building downwash effects (Huber-Snyder method; Schulman-Scire method)
- Complex terrain effects (steering effects in CALMET wind field; puff height adjustments using ISC model method or plume path coefficient; enhanced vertical dispersion used in CTDMPLUS)
- Subgrid scale complex terrain (CTSG option) (CTDM flow module; dividing streamline as in CTDMPLUS)
- Dry deposition (gases and particles; options for diurnal cycle per pollutant, space and time variations with a resistance model, or none)
- Overwater and coastal interaction effects (overwater boundary layer parameters; abrupt change in meteorological conditions, plume dispersion at coastal boundary; fumigation; option to use Thermal Internal Boundary Layers (TIBL) into coastal grid cells)
- Chemical transformation options (Pseudo-first-order chemical mechanisms for SO_2, SO_4, HNO_3, and NO_3; Pseudo-first-order chemical mechanisms for SO_2, SO_4, NO, NO_2, HNO_3, and NO_3 (RIVAD/ARM3 method); user-specified diurnal cycles of transformation rates; no chemical conversions)
- Wet removal (scavenging coefficient approach; removal rate as a function of precipitation intensity and type)
- Graphical user interface
- Interface utilities (scan ISC-PRIME and AUSPLUME meteorological data files for problems; translate ISC-PRIME and AUSPLUME input files to CALPUFF input files)

Note: CALPUFF = California Puff Model

Source: EPA, 2004.

TABLE 4-3
SUMMARY OF PM10 FACILITIES CONSIDERED FOR INCLUSION IN THE BUCKEYE FOLEY AAQS
AND PSD CLASS II AIR MODELING ANALYSES (Rev. 9/18/2000)

Facility ID Number	Facility	UTM Coordinates [a] East (km)	North (km)	Relative to Buckeye Foley Mill [b] X (km)	Y (km)	Distance (km)	Direction[a] (deg)	Maximum PM_{10} Emissions (TPY)	Q, Emission Threshold [c] (Dist- SID) x 20	Include in Modeling Analysis ?
Modeling Area [d]										
1230001	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	256.70	3328.70	0.00	0.00	NA	NA	--	NA	YES
Screening Area [d]										
1230033	GILMAN PAPER PRODUCTS	250.70	3332.50	-6.00	3.80	7	302	40.5	116	NO
1230020	ROBERTS LUMBER CO, INC.	251.00	3333.00	-5.70	4.30	7	307	3.0	117	NO
1230028	TOM'S FOODS INC.	251.10	3333.40	-5.60	4.70	7	310	8.1	120	NO
1230034	FLORIDA GAS TRANSMISSION CO. TAYLOR CO.	249.00	3339.60	-7.70	10.90	13	325	3.4	241	NO
0670001	MAYO READY-MIX CONCRETE, INC - MAYO	291.00	3326.40	34.30	-2.30	34	94	6.4	662	NO
1230030	WHITE CONSTRUCTION COMPANY	218.30	3340.70	-38.40	12.00	40	287	57.4	779	NO
7774805	APAC OF FLORIDA, INC.-TAMPA DIVISION	249.88	3371.57	-6.82	42.87	43	351	11.9	842	NO
7774812	ANDERSON COLUMBIA, INC #11 PLANT	280.24	3367.55	23.54	38.85	45	31	10.3	883	NO
0730010	FLORIDA STATE UNIVERSITY	283.00	3367.00	26.30	38.30	46	34	7.5	903	NO
1210003	FLORIDA POWER CORPORATION, SUWANNEE RVR PLAN	290.50	3362.20	33.80	33.50	48	45	1127.9	926	YES
1210018	GOLD KIST INC. POULTRY PLANT- LIVE OAK	292.20	3361.40	35.50	32.70	48	47	7.1	939	NO
0790011	PERPETUAL ENERGY CORP OF FLORIDA	270.10	3376.50	13.40	47.80	50	16	155.4	967	NO
Beyond Screening Area out to 75 km [d]										
1210008	GOLD KIST INC. FEED MILL	307.50	3354.00	50.80	25.30	57	64	17.6	1,109	NO
1210019	FL DEPT OF AGRICULTURE - LIVE OAK DIV.	308.88	3354.38	52.18	25.68	58	64	1.6	1,137	NO
0650001	JEFFERSON POWER LC	223.90	3377.60	-32.80	48.90	59	326	155.4	1,152	NO
0290004	SUWANNEE LUMBER COMPANY	292.43	3279.74	35.73	-48.96	61	144	5.0	1,186	NO
0290008	CROSS CITY VENEER COMPANY, INC.	295.20	3279.60	38.50	-49.10	62	142	27.5	1,222	NO
0290013	FL DEPT OF CORRECTIONS - CROSS CITY	296.08	3279.99	39.38	-48.71	63	141	0.9	1,227	NO
7774804	LANE CONSTRUCTION CORP.	301.50	3376.80	44.80	48.10	66	43	23.2	1,289	NO
0290003	GEORGIA-PACIFIC CORP. CHIP/SAW	300.30	3278.80	43.60	-49.90	66	139	47.6	1,299	NO
1210011	ANDERSON COLUMBIA, INC. #4	322.20	3315.00	65.50	-13.70	67	102	8.6	1,312	NO
1290005	MCKENZIE SERVICE CO	189.30	3338.40	-67.40	9.70	68	278	5.6	1,336	NO
1290001	TALLAHASSEE CITY PURDOM GENERATING STA.	189.50	3339.97	-67.20	11.27	68	280	688.9	1,337	NO
0650004	FLORIDA ROCK INDUSTRIES, INC.	205.50	3376.00	-51.20	47.30	70	313	0.8	1,368	NO
7770007	ANDERSON COLUMBIA, INC. #9	302.96	3275.86	46.26	-52.84	70	139	10.1	1,379	NO
7775031	JENSEN CIVIL CONSTRUCTION, INC.	320.11	3366.26	63.41	37.56	74	59	1.9	1,448	NO

[a] UTM coordinates relative to Zone 17

[b] Buckeye's Foley Mill East and North Coordinates (km) 256.7 3328.7

[b] "SID" is the significant impact distance. The project's SID is estimated to be 1.3 km from the facility.

[c] Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is beyond the modeling area and its emission rate is greater than the product of (Distance-SID) x 20.

[d] "Modeling Area" is the area in which the Project is predicted to have a significant impact. EPA recommends that all sources within this area be modeled.
"Screening Area" is the area that is 50 km beyond the modeling area. EPA recommends that sources be modeled that are expected to have a significant impact in the modeling area.
"Beyond Screening Area out to 75 km" is the area beyond the screening area and out to 75 km in which only large sources are included in the modeling.

TABLE 4-4

SUMMARY OF PM10 SOURCES INCLUDED IN THE AIR MODELING ANALYSES (Rev. 9/19/2000)

Facility ID Number	Facility	Units	Model ID Name	Stack Parameters Height (m)	Diameter (m)	Temperature (K)	Velocity (m/s)	Emission Rate Houly (g/s)	Annual (g/s)	PSD source? (EXP/CON)	Modeled in AAQS	Class II
1210003	FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT											
	#1 POWER UNIT	1	FPLSWR1	33.5	2.13	432	18.9	17.0	5.67	No	Yes	No
	#2 POWER UNIT	2	FPLSWR2	33.5	2.13	444	25.9	16.8	5.59	No	Yes	No
	#3 UNIT	3	FPLSWR3	41.1	2.35	422	33.2	33.3	11.1	No	Yes	No
	#1, 2, 3 PEAKING UNIT	4,5,6	FPLSWR4	6.71	3.44	659	63.7	10.1	10.1	CON	Yes	Yes

TABLE 4-5
BUILDINGS AND STRUCTURES CONSIDERED IN THE BUILDING DOWNWASH ANALYSIS AT THE BUCKEYE FLORIDA FOLEY MILL

	Building Dimensions					
	Height		Length		Width	
Structure	ft	m	ft	m	ft	m
No. 4 Recovery Boiler	150	45.7	140	42.7	90	27.4
No. 3 Recovery Boiler ESP	125	38.1	50	15.2	50	15.2
No. 3 Recovery Boiler	120	36.6	40	12.2	60	18.3
No. 2 Power Boiler	70	21.3	40	12.2	50	15.2
No. 1 Power Boiler	70	21.3	40	12.2	50	15.2
No. 1 Bark Boiler	70	21.3	30	9.1	50	15.2
No. 2 Bark Boiler	115	35.1	60	18.3	60	18.3
No. 2 Recovery Boiler	120	36.6	70	21.3	60	18.3
No 2 Recovery Boiler ESP	100	30.5	70	21.3	100	30.5
Sidestream	43	13.1	125	38.1	60	18.3
Bleach Chest	36.5	11.1	80	24.4	45	13.7
Pulping Bldg	55	16.8	100	30.5	70	21.3
Pulp Machine	64	19.5	815	248.4	185	56.4
Buildings No. 40 and 42	25	7.6	710	216.4	235	71.6

5.0 AIR MODELING ANALYSIS RESULTS

5.1 Significant Impact Analysis

PSD Class II Area

The maximum SO_2, PM_{10}, and NO_2 concentrations predicted for the No. 2 Mill BSW project for each year modeled in the analysis are presented in Table 5-1. A summary of the SO_2, PM_{10}, and NO_2 concentrations predicted for the project for comparison to the PSD Class II significant impact levels is presented in Table 5-2.

The modeling results indicated that maximum concentrations due to the project are predicted to be less than the significant impact levels for all pollutants, except PM_{10} for the 24-hour and annual averaging periods. The project's PM_{10} impacts were predicted to be significant out to a distance of 1.3 km. As a result, additional modeling analyses are required only to demonstrate compliance with the 24-hour and annual average PM_{10} AAQS and PSD Class II increments.

PSD Class I Areas

The maximum SO_2, PM_{10}, and NO_2 concentrations for the No. 2 Mill BSW project at the PSD Class I areas are presented in Tables 5-3 through 5-5. A summary of the maximum pollutant impacts predicted at the St. Marks NWA with the AERMOD model are presented in Table 5-3. These results are based on receptors located at the St. Marks NWA that are within 50 km of the Mill. A summary of the maximum pollutant impacts predicted at the St. Marks NWA and Bradwell Bay NWA with CALPUFF are presented in Table 5-4. A summary of the maximum pollutant impacts predicted at the Okefenokee NWA and Chassahowitzka NWA with CALPUFF are presented in Table 5-5.

As shown in these tables, the maximum SO_2, PM_{10}, and NO_2 impacts are predicted to be less than the PSD Class I significant impact levels at each of the PSD Class I areas. As a result, no further air modeling analyses to demonstrate compliance with the PSD Class I increments for these pollutants at the PSD Class I areas are required for this project.

< PSD Significant Levels

5.2 AAQS Analyses

The maximum PM_{10} concentrations predicted for all sources from the screening and refined analyses are presented in Tables 5-6 and 5-7, respectively. The refined modeling results are added to a non-modeled background concentration to produce a total air quality concentration that can be compared with the AAQS. All maximum impacts occurred at or near the Buckeye Foley Mill property boundary.

As shown in Table 5-7, the maximum total PM_{10} concentrations are predicted to be 32.0 and 90 µg/m^3 for the annual and 24-hour averaging periods, respectively. These concentrations are all below the respective AAQS of 50 and 150 µg/m^3 for these averaging periods.

5.3 PSD Class II Increment Analyses

The maximum PM_{10} concentrations predicted for the PSD sources from the screening and refined analyses are presented in Tables 5-8 and 5-9, respectively. Based on the results of the screening analyses, refined modeling analyses were performed for PM_{10}. The refined modeling results are compared to the allowable PSD Class II increments in Tables 5-9.

As presented in Table 5-9, the maximum PM_{10} Class II increment consumption concentrations are predicted to be 0.01 and 0.17 µg/m^3 for the annual and 24-hour averaging periods, respectively. These concentrations are below the respective allowable PSD Class II increments of 17 and 30 µg/m^3 for these averaging periods.

TABLE 5-1

MAXIMUM PREDICTED POLLUTANT IMPACTS DUE TO THE NO. 2 MILL BROWN STOCK WASHING PROJECT ONLY

SCREENING ANALYSES

Pollutant / Averaging Time	Highest Concentration[a] ($\mu g/m^3$)	Receptor Location UTM Coordinates (m) East	North	Local Coordinates (m)[b] x	y	Time Period (YYMMDDHH)
SO_2						
Annual	0.74	256,644	3,328,146	97.6	-682.5	86123124
	1.25	256,644	3,328,146	97.6	-682.5	87123124
	1.05	256,692	3,328,143	145.6	-685.5	88123124
	0.67	256,789	3,328,138	242.6	-690.5	89123124
	0.63	256,837	3,328,136	290.6	-692.5	90123124
24-Hour						
	1.84	256,499	3,328,154	-47.4	-674.5	86122224
	2.00	256,451	3,328,156	-95.4	-672.5	87110324
	1.95	256,644	3,328,146	97.6	-682.5	88020524
	1.6	256,596	3,328,148	49.6	-680.5	89012124
	1.89	256,789	3,328,138	242.6	-690.5	90101024
3-Hour						
	2.86	256,692	3,328,143	145.6	-685.5	86123121
	2.94	256,692	3,328,143	145.6	-685.5	87011621
	2.82	256,644	3,328,146	97.6	-682.5	88112221
	2.83	256,692	3,328,143	145.6	-685.5	89012109
	2.86	256,741	3,328,141	194.6	-687.5	90101024
PM_{10}						
Annual	1.69	256,403	3,328,159	-143.4	-669.5	86123124
	2.68	256,451	3,328,156	-95.4	-672.5	87123124
	2.34	256,451	3,328,156	-95.4	-672.5	88123124
	1.48	256,499	3,328,154	-47.4	-674.5	89123124
	1.26	256,499	3,328,154	-47.4	-674.5	90123124
24-Hour	7.84	256,499	3,328,154	-47.4	-674.5	86120424
	7.65	256,499	3,328,154	-47.4	-674.5	87030224
	8.36	256,355	3,328,161	-191.4	-667.5	88010824
	6.65	256,499	3,328,154	-47.4	-674.5	89012024
	5.84	256,451	3,328,156	-95.4	-672.5	90101024
NO_2						
Annual	0.76	256,596	3,328,148	49.6	-680.5	86123124
	1.28	256,596	3,328,148	49.6	-680.5	87123124
	1.07	256,644	3,328,146	97.6	-682.5	88123124
	0.70	256,741	3,328,141	194.6	-687.5	89123124
	0.65	256,789	3,328,138	242.6	-690.5	90123124

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.

[b] Relative to No. 3 Recovery Boiler stack location.

TABLE 5-2
MAXIMUM PREDICTED POLLUTANT IMPACTS
FOR COMPARISON TO EPA SIGNIFICANT IMPACT, REFINED ANALYSES

Averaging Time	Highest Concentration[a] ($\mu g/m^3$)	Receptor Location[b] Local Coordinates (m) x	y	Time Period (YYMMDDHH)	EPA Significant Impact Levels ($\mu g/m^3$)
SO_2					
Annual	1.25	98	-682	87123124	1
24-Hour	2.00	-95	-672	87110324	5
High 3-Hour	2.94	146	-685	87011621	25
PM_{10}					
Annual	2.68	-95	-672	87123124	1
24-Hour	8.36	-191	-667	88123124	5
NO_x					
Annual	0.96 [c]	50	-680	87123124	1

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.

[b] Relative to No. 3 Recovery Boiler stack location.

[c] NO_x to NO_2 conversion factor of 75% applied based on recommendations in EPA' s Guideline on Air Quality

TABLE 5-3
MAXIMUM POLLUTANT IMPACTS PREDICTED FOR THE NO. 2 MILL BROWN STOCK WASHER PROJECT ONLY, PSD CLASS I SIGNIFICANT IMPACT ANALYSES WITHIN 50 KM AT THE ST. MARKS NWA (AERMOD)

Pollutant / Averaging Time	Highest Concentration (µg/m^3)	Receptor Location UTM Coordinates (m) East	North	Time Period (YYMMDDHH)	Proposed EPA Class I Significant Impact Level (µg/m^3)
St. Marks NWA					
SO_2					
Annual	0.0033	212,945	3,335,742	86123124	0.1
	0.0024	212,872	3,332,970	87123124	
	0.0026	212,824	3,331,122	88123124	
	0.0022	212,824	3,331,122	89123124	
	0.0025	212,824	3,331,122	90123124	
24-Hour	0.092	212,872	3,332,970	86093024	0.2
	0.054	212,872	3,332,970	87051424	
	0.067	212,093	3,333,915	88070324	
	0.067	212,824	3,331,122	89070224	
	0.062	212,969	3,336,666	90042124	
3-Hour	0.421	212,969	3,336,666	86062306	1.0
	0.342	212,872	3,332,970	87051403	
	0.353	212,945	3,335,742	88031206	
	0.352	212,872	3,332,970	89093003	
	0.356	212,969	3,336,666	90042103	
PM_{10}					
Annual	0.0044	212,945	3,335,742	86123124	0.2
	0.0033	212,872	3,332,970	87123124	
	0.0034	212,824	3,331,122	88123124	
	0.0030	212,824	3,331,122	89123124	
	0.0034	212,824	3,331,122	90123124	
24-Hour	0.081	212,872	3,332,970	86093024	0.3
	0.047	212,872	3,332,970	87051424	
	0.063	212,093	3,333,915	88070324	
	0.061	212,824	3,331,122	89070224	
	0.051	212,969	3,336,666	90042124	
NO_2					
Annual	0.0040	212,945	3,335,742	86123124	
	0.0030	212,872	3,332,970	87123124	0.1
	0.0031	212,824	3,331,122	88123124	
	0.0027	212,824	3,331,122	89123124	
	0.0031	212,824	3,331,122	90123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending
UTM = Universal Transverse Mercator: Zone 17.

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.

TABLE 5-4
MAXIMUM POLLUTANT IMPACTS PREDICTED FOR THE NO. 2 MILL BROWN STOCK WASHER PROJECT ONLY PSD CLASS I SIGNIFICANT IMPACT ANALYSES AT THE ST. MARKS AND BRADWELL BAY NWA (CALPUFF)

Pollutant / Averaging Time	Highest Concentration (μg/m³)	Receptor Location UTM Coordinates (km) East	North	Time Period (YYMMDDHH)	Proposed EPA Class I Significant Impact Level (μg/m³)
St. Marks NWA					
SO_2					
Annual	0.0048	206.490	3334.980	90123124	0.1
	0.0039	206.460	3334.060	92123124	
	0.0057	206.460	3334.060	96123124	
24-Hour	0.070	206.460	3334.060	90071924	0.2
	0.026	206.490	3334.980	92012824	
	0.033	206.490	3334.980	96010624	
3-Hour	0.259	206.490	3334.980	90121509	1.0
	0.103	206.460	3334.060	92120409	
	0.094	206.460	3334.060	96122803	
PM_{10}					
Annual	0.0089	206.460	3334.060	90123124	0.2
	0.0069	206.460	3334.060	92123124	
	0.0099	206.460	3334.060	96123124	
24-Hour	0.083	206.490	3334.980	90042124	0.3
	0.075	206.460	3334.060	92080824	
	0.103	203.220	3333.220	96122824	
NO_2					
Annual	0.0034	206.490	3334.980	90123124	
	0.0025	206.460	3334.060	92123124	0.1
	0.0045	206.460	3334.060	96123124	
Bradwell Bay NWA					
SO_2					
Annual	0.0019	162.557	3344.574	90123124	0.1
	0.0013	162.557	3344.574	92123124	
	0.0022	162.500	3342.726	96123124	
24-Hour	0.032	160.234	3347.421	90042124	0.2
	0.012	158.312	3337.304	92091724	
	0.017	160.234	3347.421	96010624	
3-Hour	0.097	161.008	3346.472	90042103	1.0
	0.038	162.557	3344.574	92040909	
	0.052	162.500	3342.726	96091009	
PM_{10}					
Annual	0.0034	162.500	3342.726	90123124	0.2
	0.0025	158.312	3337.304	92123124	
	0.004	158.312	3337.304	96123124	
24-Hour	0.046	161.782	3345.523	90042124	0.3
	0.032	160.033	3340.952	92091724	
	0.050	159.489	3349.295	96010624	
NO_2					
Annual	0.0012	162.557	3344.574	90123124	
	0.0007	162.500	3342.726	92123124	0.1
	0.0015	162.557	3344.574	96123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending
UTM = Universal Transverse Mercator: Zone 16.

[a] Based on the CALPUFF model using 3 years of CALMET meteorological data for 1990, 1992, and 1996 for North Central Florida.

TABLE 5-5
MAXIMUM POLLUTANT IMPACTS PREDICTED FOR THE NO. 2 MILL BROWN STOCK WASHER PROJECT ONLY
PSD CLASS I SIGNIFICANT IMPACT ANALYSES AT THE OKEFENOKEE AND CHASSAHOWITZKA NWA (CALPUFF)

Pollutant / Averaging Time	Concentration ($\mu g/m^3$)	Receptor Location UTM Coordinates (km) East	North	Time Period (YYMMDDHH)	Proposed EPA Class I Significant Impact Level ($\mu g/m^3$)
Okefenokee NWA [a]					
SO_2					
Annual	0.0010	364.579	3385.479	90123124	0.1
	0.0012	363.005	3387.346	92123124	
	0.0014	367.753	3383.592	96123124	
24-Hour	0.026	361.431	3389.214	90083024	0.2
	0.009	364.603	3387.326	92060524	
	0.011	352.151	3411.509	96022324	
3-Hour	0.081	361.478	3392.908	90062106	1.0
	0.029	369.441	3390.961	92060503	
	0.035	361.502	3394.755	96080306	
PM_{10}					
Annual	0.0021	364.579	3385.479	90123124	0.2
	0.0021	364.579	3385.479	92123124	
	0.0026	364:579	3385.479	96123124	
24-Hour	0.040	364.579	3385.479	90083024	0.3
	0.030	361.478	3392.908	92062724	
	0.039	352.151	3411.509	96022324	
NO_2					
Annual	0.0006	361.478	3392.908	90123124	
	0.0008	363.005	3387.346	92123124	0.1
	0.0010	367.753	3383.592	96123124	
Chassahowitzka NWA					
SO_2					
Annual	0.0006	334.450	3183.600	90123124	0.1
	0.0008	334.450	3183.600	92123124	
	0.0006	334.450	3183.600	96123124	
24-Hour	0.017	334.450	3183.600	90111224	0.2
	0.005	331.930	3178.100	92101024	
	0.004	331.930	3178.100	96020424	
3-Hour	0.049	334.450	3183.600	90111212	1.0
	0.014	334.450	3183.600	92011512	
	0.014	331.930	3178.100	96090418	
PM_{10}					
Annual	0.0013	334.450	3183.600	90123124	0.2
	0.0018	331.930	3178.100	92123124	
	0.0013	334.450	3183.600	96123124	
24-Hour	0.028	331.930	3178.100	90111224	0.3
	0.027	334.450	3183.600	92100924	
	0.021	331.930	3178.100	96102924	
NO_2					
Annual	0.0002	334.450	3183.600	90123124	
	0.0003	334.450	3183.600	92123124	0.1
	0.0003	334.450	3183.600	96123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending
UTM = Universal Transverse Mercator: Zone 16.

[a] Based on the CALPUFF model using 3 years of CALMET meteorological data for 1990, 1992, and 1996 for North Central Florida.

TABLE 5-6

MAXIMUM PM_{10} PREDICTED FOR ALL SOURCES, AAQS SCREENING ANALYSES

Rank/ Averaging Time	Concentration[a] (µg/m³)	Receptor Location: UTM Coordinates (m) East	Receptor Location: UTM Coordinates (m) North	Receptor Location: Local Coordinates (m)[b] x	Receptor Location: Local Coordinates (m)[b] y	Time Period (YYMMDDHH)
Highest Annual	13.7	256,451.00	3,328,156.00	-95.38	-672.49	87123124
H6H 24-Hour	35.7	256,499.38	3,328,153.50	-47	-674.99	87020924

Note: YYMMDDHH = Year, Month, Day, Hour Ending
H6H= Highest, sixth-highest

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.
[b] Relative to No. 3 Recovery Boiler stack location.

TABLE 5-7
MAXIMUM PM_{10} IMPACTS PREDICTED FOR ALL SOURCES, AAQS REFINED ANALYSES

Rank/ Averaging Time	Concentration (μg/m³)[a] Total (C= A + B)	Modeled (A)	Background[c] (B)	Receptor Location[b] Local Coordinates (m) x	y	Time Period (YYMMDDHH)	Florida AAQS (μg/m³)
Annual	32.0	13.7	18.3	-95.4	-672.5	87123124	50
H6H 24-Hour	90	35.7	54	-47.0	-675.0	87020924	150

Note: YYMMDDHH = Year, Month, Day, Hour Ending
H6H= Highest, sixth-highest

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.

[b] Relative to No. 3 Recovery Boiler stack location.

[c] Based on monitoring data (see Section 3.0); highest annual and second-highest 24-hour average concentrations.

TABLE 5-8
MAXIMUM PM_{10} CONCENTRATIONS DUE TO PSD SOURCES, PSD CLASS II INCREMENT SCREENING ANALYSES

Rank/ Averaging Time	Concentration[a] (µg/m³)	Receptor Location: UTM Coordinates (m) East	UTM Coordinates (m) North	Local Coordinates (m)[b] x	Local Coordinates (m)[b] y	Time Period (YYMMDDHH)
Highest Annual	0.00	NA	NA	NA	NA	NA
	0.01	256,934	3,330,173	387.62	1344.51	87123124
	0.00	NA	NA	NA	NA	88123124
	0.00	NA	NA	NA	NA	NA
	0.00	NA	NA	NA	NA	NA
H2H 24-Hour	0.12	256,934	3,328,131	387.62	-697.49	86120624
	0.17	256,789	3,328,138	242.62	-690.49	87030724
	0.14	256,934	3,328,131	387.62	-697.49	88020524
	0.01	NA	NA	NA	NA	NA
	0.00	NA	NA	NA	NA	NA

Note: YYMMDDHH = Year, Month, Day, Hour Ending
H2H= Highest, second-highest
NA= Not applicable

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.
Predicted concentration of zero indicates concentration was predicted to be zero or less.

[b] Relative to No. 3 Recovery Boiler stack location.

TABLE 5-9

MAXIMUM PM_{10} CONCENTRATIONS DUE TO PSD SOURCES, PSD CLASS II INCREMENT REFINED ANALYSES

Rank/ Averaging Time	Concentration[a] ($\mu g/m^3$)	Receptor Location[b] Local Coordinates (m) x	y	Time Period (YYMMDDHH)	Allowable PSD Class II Increment ($\mu g/m^3$)
Highest Annual	0.01	387.62	1344.51	87123124	17
H2H 24-Hour	0.17	242.62	-690.49	87030724	30

Note: YYMMDDHH = Year, Month, Day, Hour Ending
H2H= Highest, second-highest

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 1986 to 1990 from the NWS stations atTallahassee and Waycross, Georgia, respectively.

[b] Relative to No. 3 Recovery Boiler stack location.

APPENDIX A

BASELINE EMISSIONS TABLES

TABLE A-1
BASELINE (1974) LONG-TERM PM10 EMISSIONS FOR BUCKEYE FLORIDA, FOLEY MILL

Source Description	Plant Source ID	Model ID	PM Emission Factors			Activity Factors [f]		Percentage as PM10 %	Ref.	PM10 Emissions TPY	g/s
No. 3 Recovery Boiler	007	RB3B	4.80E-03	lb/lb BLS	a	548	MM lb/yr BLS	75.0%	1	986.1	28.37
No. 4 Recovery Boiler	011	RB4B	1.25E-03	lb/lb BLS	b	670	MM lb/yr BLS	75.0%	1	314.3	9.04
No. 2 Smelt Dissolving Tank	021	SDT2B	3.33E-04	lb/lb BLS	c	512	MM lb/yr BLS	89.5%	2	76.4	2.20
No. 3 Smelt Dissolving Tank	027	SDT3B	3.31E-04	lb/lb BLS	d	548	MM lb/yr BLS	89.5%	2	81.1	2.33
No. 4 Smelt Dissolving Tank Combined stack	023	SDT4B	9.62E-05	lb/lb BLS	e	670	MM lb/yr BLS	89.5%	2	28.8	0.83
No. 1 Bark Boiler	004		8,900	lb/day	g	355	day/yr	32%	3	505.5	14.54
No. 3 Power Boiler	019		8.57	lb/1000 gal	h	10,045.6	1000 gal/yr [l]	86%	4	37.03	1.07
Totals:	004, 019	COMBOB								542.5	15.61
No. 1 Lime Kiln		LK1B	6.19E-01	lb/ton lime mud	i	83,690	ton/yr lime mud	98.3%	5	25.46	0.73
No. 2 Lime Kiln		LK2B	7.25E-01	lb/ton lime mud	j	92,526	ton/yr lime mud	98.3%	5	32.98	0.95
No. 3 Lime Kiln		LK3B	4.67E-01	lb/ton lime mud	k	106,928	ton/yr lime mud	98.3%	5	24.53	0.71

[a] Air construction application 5/15/74, stack test 6/20/76.
[b] Air construction application 3/14/73, stack test 6/20/76.
[c] Air construction application 3/15/74, stack test 11/9/75.
[d] Air construction application 5/9/74, stack test 6/19/75.
[e] Air construction application 6/22/76, stack test 7/24/75.
[f] KBN report "Sulfur Dioxide Air Quality Impact Evaluation of TRS Burning", 2/86.
[g] Air operating permit application 1/6/1971
[h] Air operating permit application 6/24/75
[i] Test data 10/28/80
[j] Test data 12/9/75
[k] Test data 11/4/80
[l] 1977 actual operating data for No. 2 Bark Boiler, converted bark usage to equivalent oil usage.

References:
1. Based on AP-42, Figure 10.2-2, for DCE recovery boilers with ESP.
2. Based on AP-42, Table 10.2-7, for SDT with a venturi scrubber.
3. AP-42, Table 1.6-7 for bark/wood boiler with mechanical collector.
4. Based on AP-42, Table 1.3-5, for industrial boilers (SCC code 1-02-004-01) with no control.
5. Based on AP-42, Table 10.2-4 for lime kiln with venturi scrubber

TABLE A-2
BASELINE (1974) SHORT-TERM PM10 EMISSIONS FOR BUCKEYE FLORIDA, FOLEY MILL

Source Description	Plant Source ID	Model ID	PM (lb/hr)	PM10 Emission Factor	Ref.	PM10 Emissions lb/hr	PM10 Emissions g/s	PM emissions based on:
No. 3 Recovery Boiler	007	RB3B	393	75.0%	1	294.75	37.14	Air construction application 5/15/74.
No. 4 Recovery Boiler	011	RB4B	113.17	75.0%	1	84.88	10.69	Air construction application 3/14/73.
No. 2 Smelt Dissolving Tank	021	SDT2B	30.8333	89.5%	2	27.60	3.48	Test data 3/15/74, AP-42, Table 10.2-1.
No. 3 Smelt Dissolving Tank	027	SDT3B	27.3	89.5%	2	24.43	3.08	Test data 5/9/74, AP-42, Table 10.2-1.
No. 4 Smelt Dissolving Tank	023	SDT4B	30.16	88.5%	3	26.69	3.36	Test data 7/27/75.
Combined stack								
No. 1 Bark Boiler	004		370.83	32%	4	118.7	14.95	Operating permit, application date 1/6/1971.
No. 3 Power Boiler	019		12.50	86%	5	10.8	1.35	Air operating permit application date 6/24/75.
Totals:	004, 019	COMBOB				129.4	16.31	
No. 1 Lime Kiln		LK1B	8.77	98.3%	6	8.62	1.09	Test data 10/28/80.
No. 2 Lime Kiln		LK2B	11.30	98.3%	6	11.11	1.40	Test data 12/9/75 .
No. 3 Lime Kiln		LK3B	7.36	98.3%	6	7.23	0.91	Test data 11/4/80.

References:
1. AP-42, Figure 10.2-2, for DCE recovery boilers with ESP.
2. Conservative assumption for mesh pad.
3. AP-42, Table 10.2-7 for smelt desolving tanks with a venturi scubber.
4. AP-42, Table 1.6-7 for bark/wood boiler with mechanical collector.
5. Based on AP-42, Table 1.3-5, for industrial boilers (SCC code 1-02-004-01) with no control.
6. Based on AP-42, Table 10.2-4 for lime kiln with venturi scrubber

APPENDIX B

CALPUFF/CALMET MODELING INFORMATION

CALPUFF MODEL DESCRIPTION AND METHODOLOGY

B.1 INTRODUCTION

As part of the new source review requirements under Prevention of Significant Deterioration (PSD) regulations, new major sources or major modifications to those sources are required to address air quality impacts at PSD Class I areas. As part of the air construction permit revision application submitted to the Florida Department of Environmental Protection (FDEP) for the No. 2 Mill Brown Stock Washing (BSW) system project at the Buckeye Florida, Limited Partnership (Buckeye) pulp mill located in Foley, Taylor County, the air quality impacts due to the potential changes for this project are required to be addressed at the PSD Class I areas within 200 kilometers (km) of the mill. These PSD Class I areas include the St. Marks National Wilderness Area (NWA), located about 41 km to the west of the Buckeye Foley Mill; Bradwell Bay NWA, located about 95 km to the west; Chassahowitzka NWA, located about 163 km south; and Okefenokee NWA, located about 116 km to the northeast.

The evaluation of air quality impacts are only concerned with determining compliance with PSD Class I increments and not assessing a source's impact on Air Quality Related Values (AQRVs), such as regional haze. Further, compliance with PSD Class I increments can be evaluated by determining if the source's impacts are less than the proposed 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 or modified 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 who 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* (12/00), referred to as the FLAG document.

For the Buckeye Foley Mill, air quality analyses were performed that assess the facility's impacts in the PSD Class I areas using the refined modeling approach from the IWAQM Phase 2 report for SO_2, PM_{10} and NO_2 PSD Class I increment analyses.

The refined analysis approach was used instead of the screening analysis approach since the air quality impacts are based on generally more realistic assumptions, include more detailed meteorological data, and are estimated at locations at the Class I areas.

B.2 GENERAL AIR MODELING APPROACH

The general modeling approach was based on using the long-range transport model, California Puff model Version 5.711a (CALPUFF). The CALPUFF model is the recommended model to use by the FDEP and EPA for addressing impacts at locations located more than 50 km from a source (40 CFR 51, Appendix W).

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 documents.

The following sections present the methods and assumptions used to assess the refined significant impact analyses performed for the proposed project. The results of these analyses are presented in Section 5.0 of the Air Impact Analyses Report for the air dispersion modeling analysis.

B.3 MODEL SELECTION AND SETTINGS

The CALPUFF air modeling system was used to assess the Buckeye Foley Mill'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 5.53a), 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 report and FLAG document.

B.3.1 CALPUFF MODEL APPROACHES AND SETTINGS

The IWAQM recommended approaches for performing refined air modeling analysis are summarized in Table B-1. These approaches involve the use of meteorological data, hourly ozone data, selection of receptors, dispersion conditions, and the post-processing of model output. The specific settings used in the CALPUFF model are presented in Table B-2.

B.3.2 EMISSION INVENTORY AND BUILDING WAKE EFFECTS

The CALPUFF model included the Buckeye Foley Mill'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 (BPIP), Version 95086, and were included in the CALPUFF model input. The Air Impact Analyses Report presents a listing of the facility's emissions and structures included in the analysis.

B.4 RECEPTOR LOCATIONS

Pollutant concentrations were predicted at the PSD Class I areas using receptor locations developed by the NPS. For the analyses, the number of receptors modeled at each PSD Class I area is as follows:

- St. Marks NWA, 69 receptors;
- Bradwell Bay NWA, 132 receptors;
- Chassahowitzka NWA, 58 receptors; and
- Okefenokee NWA, 180 receptors.

For St. Marks NWA, pollutant concentrations were predicted with the CALPUFF model for receptors located more than 50 km from the Buckeye Foley Mill. For receptors located 50 km or less from the mill, pollutant concentrations were predicted with the AERMOD model.

Elevations for all receptor locations were included in the analysis.

B.5 METEOROLOGICAL DATA

B.5.1 REFINED ANALYSIS

The CALPUFF meteorological and geophysical data preprocessor (CALMET, Version 5.53a), a preprocessor to CALPUFF, is a diagnostic meteorological model that produces a 3-dimensional field of wind and temperature and a 2-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 convert 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 report and FLAG document.

The wind domain used for air modeling analysis is shown in Figure B-1. The domain covers the Mill site and the two evaluated PSD Class I areas.

B.5.2 MODELING DOMAIN

A CALMET-developed rectangular modeling domain extending 448 km in the east-west (x) direction and 684 km in the north-south (y) direction was used for the air modeling analysis. The southwest corner of the domain is the origin and is located at 26.25 degrees north latitude and 85.0 degrees west longitude [East and North Universal Transverse Mercator (UTM) coordinates of 77 km and 2,966.0 km, respectively, Zone 17 equivalent]. This location is in the Gulf of Mexico, approximately 250 km west of Naples, Florida. For the processing of meteorological and geophysical data, the domain contains 112 grid cells in the x-direction and 171 grid cells in the y-direction. The domain grid resolution is 4 km. The air modeling analysis was developed in the UTM coordinate system, Zone 17.

A summary of the model domain description is presented Table B-3.

B.5.3 MESOSCALE MODEL – GENERATION 4 AND 5 (MM4/MM5) DATA

Pennsylvania State University, in conjunction with the National Center for Atmospheric Research (NCAR) Assessment Laboratory developed the MM4 and MM5 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 8 standard levels and up to

15 significant levels) are extensive and are available for 1990, 1992, and 1996. The analysis used the MM4 and MM5 data to initialize the CALMET wind field. The MM4 and MM5 data available for 1990 and 1992, respectively, have a horizontal spacing of 80 km and are used to simulate atmospheric variables within the modeling domain. The MM5 data are also available for 1996 and have a horizontal spacing of 36 km.

The MM4 and MM5 data 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.

B.5.4 SURFACE DATA STATIONS AND PROCESSING

The surface station data processed for the CALPUFF analyses consisted of data from up to 16 National Weather Service (NWS) stations or Federal Aviation Administration (FAA) Flight Service stations for Charleston in South Carolina; Columbus, Macon, Savannah, Augusta, Athens, and Atlanta in Georgia; and Tampa, Jacksonville, Daytona Beach, Tallahassee, Vero Beach, Fort Myers, Orlando, Pensacola and Gainesville in Florida. 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, up to 10 sea surface stations were incorporated in the analysis. Data were obtained from C-Man stations and National Oceanic and Atmospheric Administration (NOAA) buoys. 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 summary of the surface, over water, and upper air station information and locations is presented in Table B-4.

B.5.5 UPPER AIR DATA STATIONS AND PROCESSING

Upper air data from the following NWS stations, based on the availability of the upper air data, were used in the modeling analysis:

- Waycross, Georgia (1990, 1992);
- Athens, Georgia (1990, 1992);

- Charleston, South Carolina (1990, 1992, 1996);
- Cape Canaveral, Florida (1996)
- Miami, Florida (1996)
- Apalachicola, Florida (1990);
- Ruskin, Florida (1990, 1992, 1996);
- Tallahassee, Florida (1992, 1996);
- West Palm Beach, Florida (1990, 1992)
- Jacksonville, Florida (1996); and
- Peachtree City, Georgia (1996).

B.5.6 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 82 stations in Alabama, Georgia, and 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

B.5.7 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.

TABLE B-1

CALPUFF 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 are resolved for the situation.	
Receptors	Within Class I area(s) of concern; digitized by the National Park Service	
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 visibility: 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 B-2
CALPUFF MODEL SETTINGS

Parameter	Setting
Pollutant Species	SO_2, SO_4, NO_x, 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.
Visiblity Model Processing for BART Rule	98 percentile (8th-highest) 24-hour extinction change (%) for a year.
Background Values	Ozone: 50 ppb; Ammonia: 1 ppb.

Notes:
ISC = Industrial Source Complex.
PG/MP = Pasquill-Gifford/McAlroy-Pooler
ppb = parts per billion.

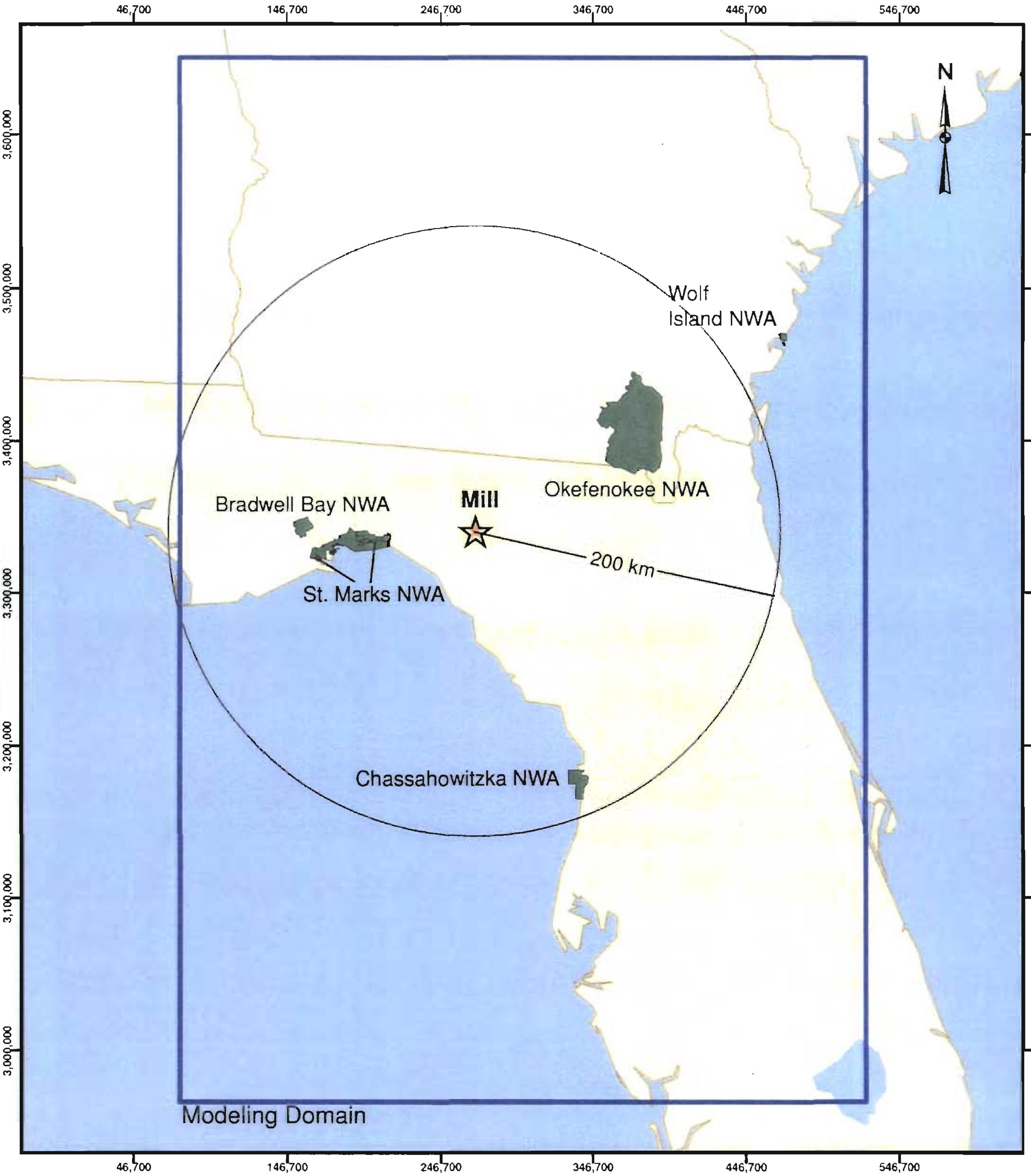
TABLE B-3
CALMET SETTINGS AND MODEL DOMAIN

Parameter	Setting
Horizontal Grid Dimensions	448 by 684 km, 4 km grid resolution
Vertical Grid	10 layers
Weather Station Data Inputs	16 surface, 11 upper air, 82 precipitation stations
Wind model options	Diagnostic wind model, no kinematic effects
Prognostic wind field model	1990 MM4 data and 1992 MM5 data, 80 km resolution; 1996 MM5 data, 36 km resolution; used for wind field initialization
Output	Binary hourly gridded meteorological data file for CALPUFF input

TABLE B-4
SURFACE AND UPPER AIR STATIONS USED IN THE NORTH CENTRAL FLORIDA AND SOUTH GEORGIA CALMET DOMAIN

Station Name	Station Symbol	WBAN Number	UTM Coordinates Easting (km)	UTM Coordinates Northing (km)	UTM Zone	Anemometer Height (m)
Surface Stations						
Tampa, FL	TPA	12842	349.195	3094.289	17	10
Jacksonville, FL	JAX	13889	432.809	3374.192	17	10
Daytona Beach, FL	DAB	12834	495.118	3228.056	17	10
Tallahassee, FL	TLH	93805	176.408[a]	3365.835	16	10
Fort Myers. F L	FMY	12835	413.644	2940.405	17	10
Orlando, FL	MCO	12815	468.942	3146.889	17	10
Pensacola, FL	PNS	13899	-95.74	3386.714	16	10
Vero Beach, FL	VRB	12843	557.487	3058.363	17	10
Columbus, GA	CSG	93842	128.871[a]	3604.422	16	10
Charleston, SC	CHS	13880	590.422	3640.405	17	10
Macon, GA	MCN	3813	251.562	3620.929	17	10
Savannah, GA	SAV	3822	481.12	3554.985	17	10
Gainesville, FL	GNV	12816	377.39	3284.126	17	10
Augusta, GA	AGS	3820	410.024	3692.184	17	10
Athens, GA	AHN	13873	285.867	3758.824	17	10
Atlanta, GA	ATL	13874	181.588[a]	3728.434	16	10
Sea Surface Stations						
Venice, FL	VENF1	-	356.24	2995.05	17	--
Cape Canaveral, FL	41009	-	380.25	3152.87	17	--
Tampa West, FL	42036	-	156.41	3158.73	16	--
Cedar Key, FL	CDRF1	-	302.52	3225.2	17	--
Cape San Blas, FL	CSBF1	-	77.89	3290.18	16	--
Folly Island, SC	FBIS1	-	604.09	3616.38	17	--
Keaton Beach, FL	KTNF1	-	249.71	3301.66	17	--
Lake Worth, FL	LKWF1	-	596.57	2943.61	17	--
Savannah, GA	SVLS1	-	530.24	3534.94	17	--
St. Augustine, FL	SAUF1	-	474.89	3303.3	17	--
Upper Air Stations						
Ruskin, FL	TPA	12842	361.961	3064.616	17	NA
Waycross, GA	AYS	13861	366.674	3457.945	17	NA
Athens, GA	AHN	13873	285.866	3758.824	17	NA
Charleston, SC	CHS	13880	590.421	3640.405	17	NA
Cape Canaveral	XMR	12868	544.048	3150.459	17	NA
Miami -FIU	MFL	92803	562.181	2847.983	17	NA
Apalachicola, FL	AQQ	12832	109.807[a]	3295.816	16	NA
Tallahassee, FL	TLH	93805	176.4072	3365.835	16	NA
Jacksonville, FL	JAX	13889	432.808	3374.192	17	NA
Peachtree, GA	FFC	53819	155.6372	3696.207	16	NA

[a] Equivalent coordinate for Zone 17.



REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 17

50 25 0 50 100 Kilometers

Golder Associates, Gainesville, Florida	DATE 14 Dec. 2005	TITLE	
	GIS AB	**Location of the Buckeye Foley Mill Relative to the Nearest PSD Class I Areas**	
PROJECT No. 043-7653		PROJECT Buckeye Foley Mill	**FIGURE B-1**
SCALE AS SHOWN	REV. 0		

APPENDIX C

DIRECTION-SPECIFIC BUILDING INFORMATION
FOR THE AIR MODELING ANALYSIS
AND AIR MODEL INPUTS

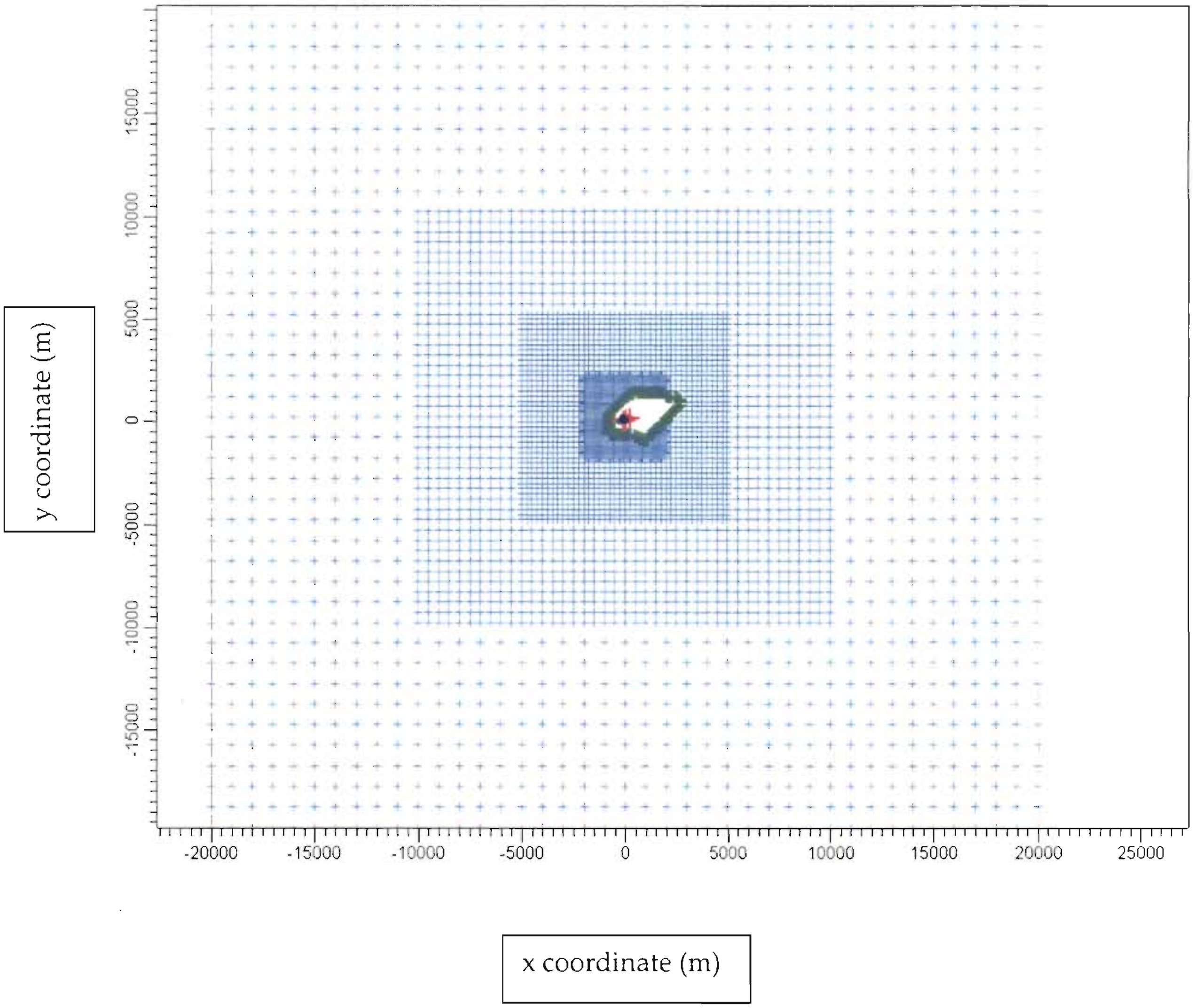


FIGURE C-1
RECEPTOR LOCATIONS USED IN AIR IMPACT ANALYSES FOR BUCKEYE FOLEY MILL

Source: Golder, 2005.
0437653/4.2/FigC-1 reclocal.doc

Golder Associates

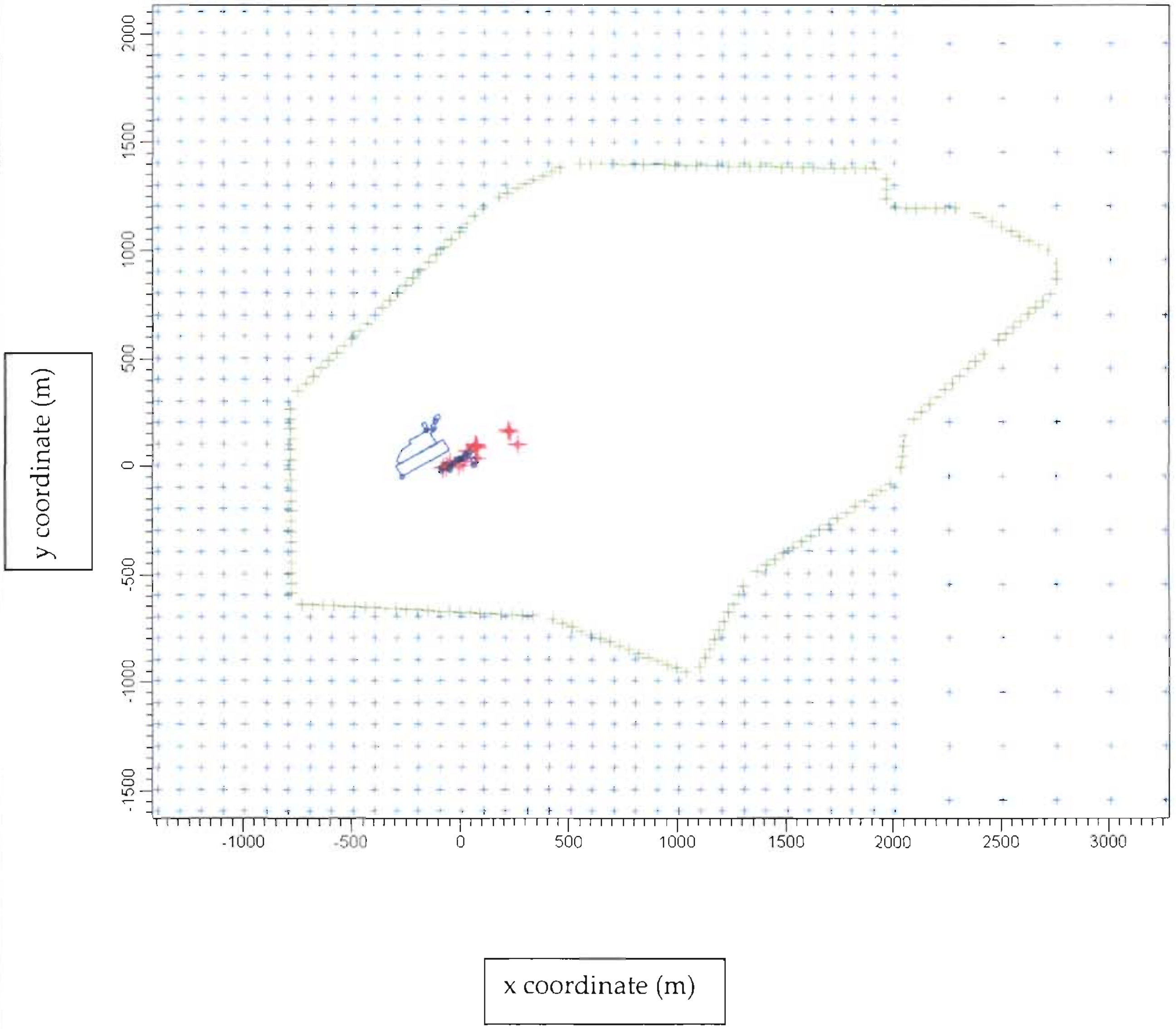


FIGURE C-2
PLANT BOUNDARY RECEPTOR USED IN AIR IMPACT ANALYSES FOR BUCKEYE FOLEY MILL

Source: Golder, 2005.
0437653/4.2/FigC-2 plantboundary.doc

Golder Associates

```
'V:\Projects\BUCKEYE\LAKES\buck1.isc'
'P'
'METERS'  1.00000000
'UTMY'  0.0000
14
'RB4'  1          16.150
   4           45.700
            256482.248      3329004.036
            256468.532      3329027.793
            256505.487      3329049.129
            256519.203      3329025.372
'RB3 ESP'  1          16.150
   4           38.100
            256523.625      3329008.568
            256516.005      3329021.766
            256529.204      3329029.386
            256536.824      3329016.188
'RB3'  1          16.150
   4           36.600
            256527.884      3329028.624
            256518.740      3329044.462
            256529.298      3329050.558
            256538.442      3329034.720
'PB2'  1          16.180
   4           21.300
            256547.069      3329050.259
            256539.449      3329063.457
            256550.007      3329069.553
            256557.627      3329056.355
'PB1'  1          16.190
   4           21.300
            256560.267      3329057.879
            256552.647      3329071.077
            256563.206      3329077.173
            256570.826      3329063.975
'BB1'  1          16.160
   4           21.300
            256579.153      3329061.744
            256571.533      3329074.942
            256579.452      3329079.514
            256587.072      3329066.316
'BB2'  1          16.210
   4           35.100
            256588.187      3329070.480
            256579.043      3329086.317
            256594.881      3329095.461
            256604.025      3329079.624
'RB2'  1          16.240
   4           36.600
            256606.665      3329081.148
            256597.521      3329096.985
            256615.998      3329107.653
            256625.142      3329091.816
'PRECIPIT'  1          16.460
   4           30.500
            256629.933      3329034.750
            256614.693      3329061.146
            256633.171      3329071.814
            256648.411      3329045.418
'SIDESTRE'  1          16.680
   4           13.100
            256411.462      3329193.697
            256392.412      3329226.692
            256408.250      3329235.836
            256427.300      3329202.841
'BLEACH C'  1          16.630
   4           11.300
            256447.914      3329200.664
            256435.722      3329221.781
            256447.600      3329228.639
            256459.792      3329207.522
'PULP BLD'  1          16.760
   4           16.800
            256454.553      3329237.933
            256443.885      3329256.410
            256470.282      3329271.650
            256480.950      3329253.173
'PULP MAC'  1          15.850
   4           19.500
            256304.097      3328980.370
            256275.903      3329029.204
            256491.034      3329153.410
```

```
          256519.228      3329104.576
'40_42'  1          16.500
   9          7.600
          256290.421      3329037.586
          256277.467      3329060.022
          256300.706      3329105.115
          256344.260      3329130.261
          256335.116      3329146.099
          256442.022      3329207.821
          256451.166      3329191.983
          256431.369      3329180.553
          256458.039      3329134.360
13
'LK4'        16.000       38.100      256832.604     3329129.941
'RB2'        16.000       68.600      256643.226     3329063.541
'RB3'        16.000       68.600      256564.580     3329032.190
'RB4'        16.000       68.600      256488.792     3329020.133
'SDT2'        16.000       43.300      256604.090     3329099.018
'SDT3'        16.000       42.700      256519.532     3329044.919
'SDT4'        16.000       49.400      256502.753     3329026.433
'EWLB'        16.000       37.800      256785.548     3329194.984
'12LS'        16.000       40.500      256796.823     3329184.600
'COMBO'        16.000       68.600      256582.375     3329051.286
'LK1B'        16.000       29.300      256644.280     3329115.490  'LK1 BASELINE'
'LK2B'        16.000       29.300      256641.380     3329120.490  'LK2 BASELINE'
'LK3B'        16.000       29.300      256637.580     3329128.690  'LK3 BASELINE'
```

```
V:\Projects\BUCKEYE\LAKES\buck1.isc

                              BPIP (Dated: 04274)
DATE : 12/ 5/2005
TIME : 15:42:43
V:\Projects\BUCKEYE\LAKES\buck1.isc

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

  The P  flag has been set for preparing downwash related data
         for a model run utilizing the PRIME algorithm.

  Inputs entered in METERS     will be converted to meters using
   a conversion factor of    1.0000.  Output will be in meters.

  The UTMP variable is set to UTMY.  The input is assumed to be in
    UTM coordinates.  BPIP will move the UTM origin to the first pair of
    UTM coordinates read.  The UTM coordinates of the new origin will
    be subtracted from all the other UTM coordinates entered to form
    this new local coordinate system.

  The new local coordinates will be displayed in parentheses just below
    the UTM coordinates they represent.

  Plant north is set to   0.00 degrees with respect to True North.



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


Number of buildings to be processed :  14


RB4      has 1 tier(s) with a base elevation of   16.15 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS       X            Y

RB4         1         1    45.70    4
                                              256482.25  3329004.04 meters
                                          (        0.00        0.00) meters
                                              256468.53  3329027.79 meters
                                          (      -13.72       23.76) meters
                                              256505.49  3329049.13 meters
                                          (       23.24       45.09) meters
                                              256519.20  3329025.37 meters
                                          (       36.96       21.34) meters


RB3 ESP  has 1 tier(s) with a base elevation of   16.15 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS       X            Y

RB3 ESP     1         2    38.10    4
                                              256523.62  3329008.57 meters
                                          (       41.38        4.53) meters
                                              256516.01  3329021.77 meters
                                          (       33.76       17.73) meters
                                              256529.20  3329029.39 meters
                                          (       46.96       25.35) meters
                                              256536.82  3329016.19 meters
                                          (       54.58       12.15) meters


RB3      has 1 tier(s) with a base elevation of   16.15 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS       X            Y

RB3         1         3    36.60    4
                                              256527.88  3329028.62 meters
                                          (       45.64       24.59) meters
                                              256518.74  3329044.46 meters
                                          (       36.49       40.43) meters
                                              256529.30  3329050.56 meters
                                          (       47.05       46.52) meters
                                              256538.44  3329034.72 meters
                                          (       56.19       30.68) meters
```

```
PB2      has 1 tier(s) with a base elevation of   16.18 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF       CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

PB2         1        4     21.30     4
                                               256547.07  3329050.26 meters
                                            (      64.82        46.22) meters
                                               256539.45  3329063.46 meters
                                            (      57.20        59.42) meters
                                               256550.01  3329069.55 meters
                                            (      67.76        65.52) meters
                                               256557.63  3329056.35 meters
                                            (      75.38        52.32) meters

PB1      has 1 tier(s) with a base elevation of   16.19 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF       CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

PB1         1        5     21.30     4
                                               256560.27  3329057.88 meters
                                            (      78.02        53.84) meters
                                               256552.65  3329071.08 meters
                                            (      70.40        67.04) meters
                                               256563.21  3329077.17 meters
                                            (      80.96        73.14) meters
                                               256570.83  3329063.98 meters
                                            (      88.58        59.94) meters

BB1      has 1 tier(s) with a base elevation of   16.16 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF       CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

BB1         1        6     21.30     4
                                               256579.15  3329061.74 meters
                                            (      96.90        57.71) meters
                                               256571.53  3329074.94 meters
                                            (      89.29        70.91) meters
                                               256579.45  3329079.51 meters
                                            (      97.20        75.48) meters
                                               256587.07  3329066.32 meters
                                            (     104.82        62.28) meters

BB2      has 1 tier(s) with a base elevation of   16.21 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF       CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

BB2         1        7     35.10     4
                                               256588.19  3329070.48 meters
                                            (     105.94        66.44) meters
                                               256579.04  3329086.32 meters
                                            (      96.79        82.28) meters
                                               256594.88  3329095.46 meters
                                            (     112.63        91.43) meters
                                               256604.02  3329079.62 meters
                                            (     121.78        75.59) meters

RB2      has 1 tier(s) with a base elevation of   16.24 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF       CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

RB2         1        8     36.60     4
                                               256606.67  3329081.15 meters
                                            (     124.42        77.11) meters
                                               256597.52  3329096.98 meters
                                            (     115.27        92.95) meters
                                               256616.00  3329107.65 meters
                                            (     133.75       103.62) meters
                                               256625.14  3329091.82 meters
                                            (     142.89        87.78) meters

PRECIPIT has 1 tier(s) with a base elevation of   16.46 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF       CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

PRECIPIT    1        9     30.50     4
```

```
                                    256629.93  3329034.75 meters
                               (       147.68       30.71) meters
                                    256614.69  3329061.15 meters
                               (       132.45       57.11) meters
                                    256633.17  3329071.81 meters
                               (       150.92       67.78) meters
                                    256648.41  3329045.42 meters
                               (       166.16       41.38) meters


SIDESTRE has 1 tier(s) with a base elevation of   16.68 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

SIDESTRE    1       10     13.10     4
                                    256411.46  3329193.70 meters
                               (       -70.79      189.66) meters
                                    256392.41  3329226.69 meters
                               (       -89.84      222.66) meters
                                    256408.25  3329235.84 meters
                               (       -74.00      231.80) meters
                                    256427.30  3329202.84 meters
                               (       -54.95      198.80) meters


BLEACH C has 1 tier(s) with a base elevation of   16.63 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

BLEACH C    1       11     11.30     4
                                    256447.91  3329200.66 meters
                               (       -34.33      196.63) meters
                                    256435.72  3329221.78 meters
                               (       -46.53      217.74) meters
                                    256447.60  3329228.64 meters
                               (       -34.65      224.60) meters
                                    256459.79  3329207.52 meters
                               (       -22.46      203.49) meters


PULP BLD has 1 tier(s) with a base elevation of   16.76 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

PULP BLD    1       12     16.80     4
                                    256454.55  3329237.93 meters
                               (       -27.69      233.90) meters
                                    256443.89  3329256.41 meters
                               (       -38.36      252.37) meters
                                    256470.28  3329271.65 meters
                               (       -11.97      267.61) meters
                                    256480.95  3329253.17 meters
                               (        -1.30      249.14) meters


PULP MAC has 1 tier(s) with a base elevation of   15.85 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

PULP MAC    1       13     19.50     4
                                    256304.10  3328980.37 meters
                               (      -178.15      -23.67) meters
                                    256275.90  3329029.20 meters
                               (      -206.35       25.17) meters
                                    256491.03  3329153.41 meters
                               (         8.79      149.37) meters
                                    256519.23  3329104.58 meters
                               (        36.98      100.54) meters


40_42    has 1 tier(s) with a base elevation of   16.50 METERS
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X           Y

40_42       1       14      7.60     9
                                    256290.42  3329037.59 meters
                               (      -191.83       33.55) meters
                                    256277.47  3329060.02 meters
                               (      -204.78       55.99) meters
                                    256300.71  3329105.12 meters
                               (      -181.54      101.08) meters
                                    256344.26  3329130.26 meters
```

(	-137.99	126.22) meters
	256335.12	3329146.10 meters
(	-147.13	142.06) meters
	256442.02	3329207.82 meters
(	-40.23	203.79) meters
	256451.17	3329191.98 meters
(	-31.08	187.95) meters
	256431.37	3329180.55 meters
(	-50.88	176.52) meters
	256458.04	3329134.36 meters
(	-24.21	130.32) meters

Number of stacks to be processed : 13

STACK NAME	STACK BASE	STACK HEIGHT	STACK COORDINATES X	Y
LK4	16.00	38.10 METERS		
			256832.60	3329129.94 meters
			(350.36	125.90) meters
RB2	16.00	68.60 METERS		
			256643.23	3329063.54 meters
			(160.98	59.51) meters
RB3	16.00	68.60 METERS		
			256564.58	3329032.19 meters
			(82.33	28.15) meters
RB4	16.00	68.60 METERS		
			256488.79	3329020.13 meters
			(6.54	16.10) meters
SDT2	16.00	43.30 METERS		
			256604.09	3329099.02 meters
			(121.84	94.98) meters
SDT3	16.00	42.70 METERS		
			256519.53	3329044.92 meters
			(37.28	40.88) meters
SDT4	16.00	49.40 METERS		
			256502.75	3329026.43 meters
			(20.50	22.40) meters
EWLB	16.00	37.80 METERS		
			256785.55	3329194.98 meters
			(303.30	190.95) meters
12LS	16.00	40.50 METERS		
			256796.82	3329184.60 meters
			(314.58	180.56) meters
COMBO	16.00	68.60 METERS		
			256582.38	3329051.29 meters
			(100.13	47.25) meters
LK1B	16.00	29.30 METERS		
			256644.28	3329115.49 meters
			(162.03	111.45) meters
LK2B	16.00	29.30 METERS		
			256641.38	3329120.49 meters
			(159.13	116.45) meters
LK3B	16.00	29.30 METERS		
			256637.58	3329128.69 meters
			(155.33	124.65) 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.
RB4	4	RB4	1	1
SDT2	5	RB2	8	1
SDT3	6	RB3	3	1
SDT4	7	RB4	1	1

Overall GEP Summary Table
(Units: meters)

StkNo: 1 Stk Name:LK4 Stk Ht: 38.10 Prelim. GEP Stk.Ht: 65.00
GEP: BH: 0.00 PBW: 0.00 *Eqn1 Ht: 0.00
No tiers affect this stack.

StkNo: 2 Stk Name:RB2 Stk Ht: 68.60 Prelim. GEP Stk.Ht: 109.48
GEP: BH: 45.70 PBW: 42.42 *Eqn1 Ht: 109.48
*adjusted for a Stack-Building elevation difference of -0.15
No. of Tiers affecting Stk: 1 Direction occurred: 84.00

```
  Bldg-Tier nos. contributing to GEP:   1

StkNo:  3  Stk Name:RB3      Stk Ht:  68.60 Prelim. GEP Stk.Ht:  114.40
           GEP:  BH:  45.70  PBW:   45.78              *Eqn1 Ht:  114.40
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:   91.75
  Bldg-Tier nos. contributing to GEP:   1

StkNo:  4  Stk Name:RB4      Stk Ht:  68.60 Prelim. GEP Stk.Ht:  114.40
           GEP:  BH:  45.70  PBW:   45.78              *Eqn1 Ht:  114.40
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:  208.25
  Bldg-Tier nos. contributing to GEP:   1

StkNo:  5  Stk Name:SDT2     Stk Ht:  43.30 Prelim. GEP Stk.Ht:   98.22
           GEP:  BH:  45.70  PBW:   34.91              *Eqn1 Ht:   98.22
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:   49.25
  Bldg-Tier nos. contributing to GEP:   1

StkNo:  6  Stk Name:SDT3     Stk Ht:  42.70 Prelim. GEP Stk.Ht:  114.40
           GEP:  BH:  45.70  PBW:   45.78              *Eqn1 Ht:  114.40
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:   28.25
  Bldg-Tier nos. contributing to GEP:   1

StkNo:  7  Stk Name:SDT4     Stk Ht:  49.40 Prelim. GEP Stk.Ht:  114.40
           GEP:  BH:  45.70  PBW:   45.78              *Eqn1 Ht:  114.40
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:  208.25
  Bldg-Tier nos. contributing to GEP:   1

StkNo:  8  Stk Name:EWLB     Stk Ht:  37.80 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:   0.00  PBW:    0.00              *Eqn1 Ht:    0.00
     No tiers affect this stack.

StkNo:  9  Stk Name:12LS     Stk Ht:  40.50 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:   0.00  PBW:    0.00              *Eqn1 Ht:    0.00
     No tiers affect this stack.

StkNo: 10  Stk Name:COMBO    Stk Ht:  68.60 Prelim. GEP Stk.Ht:  112.39
           GEP:  BH:  45.70  PBW:   44.36              *Eqn1 Ht:  112.39
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:   88.25
  Bldg-Tier nos. contributing to GEP:   1

StkNo: 11  Stk Name:LK1B     Stk Ht:  29.30 Prelim. GEP Stk.Ht:   95.40
           GEP:  BH:  38.10  PBW:   44.20              *Eqn1 Ht:   95.40
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  2  Direction occurred:   60.00
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo: 12  Stk Name:LK2B     Stk Ht:  29.30 Prelim. GEP Stk.Ht:   95.40
           GEP:  BH:  38.10  PBW:   44.20              *Eqn1 Ht:   95.40
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  2  Direction occurred:   60.00
  Bldg-Tier nos. contributing to GEP:   1   2

StkNo: 13  Stk Name:LK3B     Stk Ht:  29.30 Prelim. GEP Stk.Ht:   98.46
           GEP:  BH:  45.70  PBW:   35.07              *Eqn1 Ht:   98.46
         *adjusted for a Stack-Building elevation difference of   -0.15
 No. of Tiers affecting Stk:  1  Direction occurred:   49.00
  Bldg-Tier nos. contributing to GEP:   1
```

PM10

```
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE 1986 BUCKEYE PM10 SIG IMPACT SHORT-TERM  12/07/05
   TITLETWO 1986-90 TALL/WAYCROSS
   MODELOPT DFAULT CONC NOWARN
   AVERTIME 24
   POLLUTID PM
   RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION LK4    POINT 256814.404 3328926.241 16.000
   LOCATION RB4    POINT 256470.592 3328816.433 16.000
   LOCATION SDT4   POINT 256484.553 3328822.733 16.000
   LOCATION 12LS   POINT 256778.623 3328980.900 16.000
```

lbs/hr

```
** Source Parameters **
** CHANGE IN EMISSIONS

   SRCPARAM LK4   1.54    38.100  511.000  15.2    2.230
   SRCPARAM RB4   3.55    68.600  500.000  25.8    2.900
   SRCPARAM SDT4  0.83    49.400  342.000  12.9    1.220
   SRCPARAM 12LS  0.22    40.500  334.000   1.16   0.590
```

12.2
28.2
6.59
1.75

```
** Building Downwash **
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 BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00


SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   38.10
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   38.10
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDWID RB4       50.32   48.44   45.09   40.37   34.43   44.20
SO BUILDWID RB4       34.43   40.37   45.09   48.44   50.32   50.67
SO BUILDWID RB4       49.48   46.79   42.67   46.79   49.48   50.67
SO BUILDWID RB4       50.32   48.44   45.09   40.37   34.43   44.20
SO BUILDWID RB4       34.43   40.37   45.09   48.44   50.32   50.67
SO BUILDWID RB4       49.48   46.79   42.67   46.79   49.48   50.67
SO BUILDLEN RB4       48.44   50.32   50.67   49.48   46.79   53.34
SO BUILDLEN RB4       46.79   49.48   50.67   50.32   48.44   45.09
```

SO BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO BUILDLEN	RB4	48.44	50.32	50.67	49.48	46.79	53.34
SO BUILDLEN	RB4	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO XBADJ	RB4	-16.99	-17.36	-17.21	-16.54	-15.36	-13.72
SO XBADJ	RB4	-16.42	-18.62	-20.26	-21.28	-21.66	-21.38
SO XBADJ	RB4	-20.44	-18.89	-16.76	-21.54	-25.66	-29.00
SO XBADJ	RB4	-31.45	-32.96	-33.46	-32.94	-31.43	-39.62
SO XBADJ	RB4	-30.37	-30.86	-30.41	-29.04	-26.79	-23.72
SO XBADJ	RB4	-19.93	-15.53	-10.67	-12.89	-14.72	-16.10
SO YBADJ	RB4	-3.88	-2.56	-1.17	0.26	1.68	-5.33
SO YBADJ	RB4	4.32	5.47	6.45	7.23	7.80	8.12
SO YBADJ	RB4	8.20	8.03	7.62	6.98	6.12	5.08
SO YBADJ	RB4	3.88	2.56	1.17	-0.26	-1.68	5.33
SO YBADJ	RB4	-4.32	-5.47	-6.45	-7.23	-7.80	-8.12
SO YBADJ	RB4	-8.20	-8.03	-7.62	-6.98	-6.12	-5.08

SO BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO XBADJ	SDT4	-25.62	-28.06	-29.65	-30.34	-30.10	-28.96
SO XBADJ	SDT4	-31.69	-33.46	-34.22	-33.94	-32.62	-30.32
SO XBADJ	SDT4	-27.09	-23.04	-18.29	-20.39	-21.88	-22.70
SO XBADJ	SDT4	-22.83	-22.26	-21.02	-19.14	-16.68	-24.38
SO XBADJ	SDT4	-15.10	-16.02	-16.45	-16.38	-15.82	-14.78
SO XBADJ	SDT4	-13.28	-11.39	-9.14	-14.03	-18.50	-22.40
SO YBADJ	SDT4	8.78	8.40	7.77	6.90	5.83	-3.81
SO YBADJ	SDT4	3.18	1.69	0.15	-1.40	-2.90	-4.31
SO YBADJ	SDT4	-5.60	-6.71	-7.62	-8.30	-8.72	-8.89
SO YBADJ	SDT4	-8.78	-8.40	-7.77	-6.90	-5.83	3.81
SO YBADJ	SDT4	-3.18	-1.69	-0.15	1.40	2.90	4.31
SO YBADJ	SDT4	5.60	6.71	7.62	8.30	8.72	8.89

SO BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00

SRCGROUP ALL

```
SO FINISHED
**
*****************************************
** AERMOD Receptor Pathway
*****************************************
**
**
RE STARTING
   INCLUDED REC20KM.rou
RE FINISHED
**
*****************************************
** AERMOD Meteorology Pathway
*****************************************
**
**
ME STARTING
   SURFFILE ..\..\aermet\TLHAYS86.SFC
   PROFFILE ..\..\aermet\TLHAYS86.PFL
   SURFDATA 93805 1986 TALLAHASSEE/MUNICIPAL_ARPT
   UAIRDATA 13861 1986 WAYCROSS/WSMO
   PROFBASE 25 FEET
ME FINISHED
**
*****************************************
** AERMOD Output Pathway
*****************************************
**
**
OU STARTING

   RECTABLE ALLAVE FIRST

** Auto-Generated Plotfiles

   PLOTFILE 24 ALL 1ST PM24ALL.P86
** PLOTFILE PERIOD ALL SO2ANALL.P86

OU FINISHED
```

```
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE 1986 BUCKEYE CLASS I PM10 SIG IMPACT SHORT-TERM  12/07/05
   TITLETWO 1986-90 TALL/WAYCROSS
   MODELOPT DFAULT CONC NOWARN
   AVERTIME 24
   POLLUTID PM
   RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION LK4   POINT 256814.404 3328926.241 16.000
   LOCATION RB4   POINT 256470.592 3328816.433 16.000
   LOCATION SDT4  POINT 256484.553 3328822.733 16.000
   LOCATION 12LS  POINT 256778.623 3328980.900 16.000

** Source Parameters **
** CHANGE IN EMISSIONS

   SRCPARAM LK4   1.54   38.100  511.000  15.2   2.230
   SRCPARAM RB4   3.55   68.600  500.000  25.8   2.900
   SRCPARAM SDT4  0.83   49.400  342.000  12.9   1.220
   SRCPARAM 12LS  0.22   40.500  334.000   1.16  0.590

** Building Downwash **
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 BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK4        0.00    0.00    0.00    0.00    0.00    0.00


SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   38.10
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   38.10
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDHGT RB4       45.70   45.70   45.70   45.70   45.70   45.70
SO BUILDWID RB4       50.32   48.44   45.09   40.37   34.43   44.20
SO BUILDWID RB4       34.43   40.37   45.09   48.44   50.32   50.67
SO BUILDWID RB4       49.48   46.79   42.67   46.79   49.48   50.67
SO BUILDWID RB4       50.32   48.44   45.09   40.37   34.43   44.20
SO BUILDWID RB4       34.43   40.37   45.09   48.44   50.32   50.67
SO BUILDWID RB4       49.48   46.79   42.67   46.79   49.48   50.67
SO BUILDLEN RB4       48.44   50.32   50.67   49.48   46.79   53.34
SO BUILDLEN RB4       46.79   49.48   50.67   50.32   48.44   45.09
```

SO	BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	RB4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	RB4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	RB4	-16.99	-17.36	-17.21	-16.54	-15.36	-13.72
SO	XBADJ	RB4	-16.42	-18.62	-20.26	-21.28	-21.66	-21.38
SO	XBADJ	RB4	-20.44	-18.89	-16.76	-21.54	-25.66	-29.00
SO	XBADJ	RB4	-31.45	-32.96	-33.46	-32.94	-31.43	-39.62
SO	XBADJ	RB4	-30.37	-30.86	-30.41	-29.04	-26.79	-23.72
SO	XBADJ	RB4	-19.93	-15.53	-10.67	-12.89	-14.72	-16.10
SO	YBADJ	RB4	-3.88	-2.56	-1.17	0.26	1.68	-5.33
SO	YBADJ	RB4	4.32	5.47	6.45	7.23	7.80	8.12
SO	YBADJ	RB4	8.20	8.03	7.62	6.98	6.12	5.08
SO	YBADJ	RB4	3.88	2.56	1.17	-0.26	-1.68	5.33
SO	YBADJ	RB4	-4.32	-5.47	-6.45	-7.23	-7.80	-8.12
SO	YBADJ	RB4	-8.20	-8.03	-7.62	-6.98	-6.12	-5.08

SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT4	-25.62	-28.06	-29.65	-30.34	-30.10	-28.96
SO	XBADJ	SDT4	-31.69	-33.46	-34.22	-33.94	-32.62	-30.32
SO	XBADJ	SDT4	-27.09	-23.04	-18.29	-20.39	-21.88	-22.70
SO	XBADJ	SDT4	-22.83	-22.26	-21.02	-19.14	-16.68	-24.38
SO	XBADJ	SDT4	-15.10	-16.02	-16.45	-16.38	-15.82	-14.78
SO	XBADJ	SDT4	-13.28	-11.39	-9.14	-14.03	-18.50	-22.40
SO	YBADJ	SDT4	8.78	8.40	7.77	6.90	5.83	-3.81
SO	YBADJ	SDT4	3.18	1.69	0.15	-1.40	-2.90	-4.31
SO	YBADJ	SDT4	-5.60	-6.71	-7.62	-8.30	-8.72	-8.89
SO	YBADJ	SDT4	-8.78	-8.40	-7.77	-6.90	-5.83	3.81
SO	YBADJ	SDT4	-3.18	-1.69	-0.15	1.40	2.90	4.31
SO	YBADJ	SDT4	5.60	6.71	7.62	8.30	8.72	8.89

SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00

SRCGROUP ALL

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SO FINISHED
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*****************************************
** AERMOD Receptor Pathway
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**
RE STARTING
   INCLUDED STMAR50.rou
RE FINISHED
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** AERMOD Meteorology Pathway
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**
**
ME STARTING
   SURFFILE ..\..\aermet\TLHAYS86.SFC
   PROFFILE ..\..\aermet\TLHAYS86.PFL
   SURFDATA 93805 1986 TALLAHASSEE/MUNICIPAL_ARPT
   UAIRDATA 13861 1986 WAYCROSS/WSMO
   PROFBASE 25 FEET
ME FINISHED
**
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** AERMOD Output Pathway
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**
**
OU STARTING

   RECTABLE ALLAVE FIRST

OU FINISHED
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*****************************************
** AERMOD Control Pathway
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**
CO STARTING
   TITLEONE 1986 BUCKEYE PM10 AAQS SHORT-TERM  12/09/05
   TITLETWO 1986-90 TALL/WAYCROSS
   MODELOPT DFAULT CONC NOWARN
   AVERTIME PERIOD 24
   POLLUTID PM10
   MULTYEAR H6H YEAR1.SAV
   RUNORNOT RUN
CO FINISHED
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** AERMOD Source Pathway
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**
** SOURCE DESCRIPTIONS
** BUCKEYE FLORIDA, LIMITED PARTNERSHIP
**      LK4             Lime Kiln No. 4
**      RB2             Recovery Boiler 2
**      RB3             Recovery Boiler 3
**      RB4             Recovery Boiler 4
**      SDT2            Smelt Tank 2
**      SDT3            Smelt Tank 3
**      SDT4            Smelt Tank 4
**      EWLB            East / West Lime Bins
**      12LS            Lime Slaker 1 & 2
**      COMBO           No. 1 & 2 Bark Blrs, No. 1 & 2 Power Blrs

** FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT
**      FPLSWR1         #1 POWER UNIT
**      FPLSWR2         #2 POWER UNIT
**      FPLSWR3         #3 UNIT
**      FPLSWR4         #1, 2, 3 PEAKING UNIT

SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION LK4    POINT  256814.404  3328926.241  16.000
   LOCATION RB2    POINT  256625.026  3328859.841  16.000
   LOCATION RB3    POINT  256546.380  3328828.490  16.000
   LOCATION RB4    POINT  256470.592  3328816.433  16.000
   LOCATION SDT2   POINT  256585.890  3328895.318  16.000
   LOCATION SDT3   POINT  256501.332  3328841.219  16.000
   LOCATION SDT4   POINT  256484.553  3328822.733  16.000
   LOCATION EWLB   POINT  256767.348  3328991.284  16.000
   LOCATION 12LS   POINT  256778.623  3328980.900  16.000
   LOCATION COMBO POINT  256564.175  3328847.586  16.000

** FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT
SO LOCATION FPLSWR1 POINT   295000.0  3362200.0   20.0
SO LOCATION FPLSWR2 POINT   295000.0  3362200.0   20.0
SO LOCATION FPLSWR3 POINT   295000.0  3362200.0   20.0
SO LOCATION FPLSWR4 POINT   295000.0  3362200.0   20.0

** Source Parameters **
** PM10 EMISSIONS

   SRCPARAM LK4   1.75   38.100  511.000  15.2   2.230
   SRCPARAM RB2   4.38   68.600  444.000  14.6   3.050
   SRCPARAM RB3   4.25   68.600  450.000  13.6   2.900
   SRCPARAM RB4   6.33   68.600  500.000  25.8   2.900
   SRCPARAM SDT2  1.10   43.300  344.000  13.7   0.910
   SRCPARAM SDT3  0.93   42.700  347.000  8.81   1.230
   SRCPARAM SDT4  1.51   49.400  342.000  12.9   1.220
   SRCPARAM EWLB  0.04   37.800  298.000  0.01   0.300
   SRCPARAM 12LS  0.26   40.500  334.000  1.16   0.590
   SRCPARAM COMBO 29.4   68.600  367.000  19.0   3.960

** FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT
SO SRCPARAM FPLSWR1      17.01     33.5     432.0    18.90    2.13
SO SRCPARAM FPLSWR2      16.78     33.5     444.3    25.91    2.13
SO SRCPARAM FPLSWR3      33.30     41.1     422.0    33.22    2.35
SO SRCPARAM FPLSWR4      10.08      6.7     658.7    63.70    3.44


** Building Downwash **
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	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	BUILDLEN	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	LK4	0.00	0.00	0.00	0.00	0.00	0.00

SO	BUILDHGT	RB2	30.50	30.50	30.50	30.50	30.50	38.10
SO	BUILDHGT	RB2	45.70	45.70	45.70	35.10	35.10	35.10
SO	BUILDHGT	RB2	35.10	35.10	35.10	35.10	35.10	30.50
SO	BUILDHGT	RB2	30.50	30.50	30.50	30.50	30.50	30.50
SO	BUILDHGT	RB2	30.50	30.50	35.10	35.10	35.10	35.10
SO	BUILDHGT	RB2	35.10	35.10	35.10	35.10	35.10	30.50
SO	BUILDWID	RB2	35.94	37.06	37.06	35.94	33.72	44.20
SO	BUILDWID	RB2	34.43	40.37	42.42	41.44	44.44	46.10
SO	BUILDWID	RB2	46.35	45.20	42.67	45.20	46.35	33.72
SO	BUILDWID	RB2	35.94	37.06	37.06	35.94	33.72	70.10
SO	BUILDWID	RB2	33.72	35.94	37.17	41.44	44.44	46.10
SO	BUILDWID	RB2	46.35	45.20	42.67	45.20	46.35	33.72
SO	BUILDLEN	RB2	37.06	35.94	33.72	30.47	26.30	53.34
SO	BUILDLEN	RB2	46.79	49.48	50.67	44.44	41.44	37.17
SO	BUILDLEN	RB2	31.78	25.42	18.29	25.42	31.78	37.06
SO	BUILDLEN	RB2	37.06	35.94	33.72	30.47	26.30	42.67
SO	BUILDLEN	RB2	26.31	30.47	46.10	44.44	41.44	37.17
SO	BUILDLEN	RB2	31.78	25.42	18.29	25.42	31.78	37.06
SO	XBADJ	RB2	-30.66	-31.60	-31.58	-30.60	-28.69	-169.16
SO	XBADJ	RB2	-176.39	-178.25	-174.69	-67.16	-68.10	-66.97
SO	XBADJ	RB2	-63.81	-58.70	-51.82	-50.76	-48.17	-8.27
SO	XBADJ	RB2	-6.40	-4.34	-2.14	0.13	2.38	1.52
SO	XBADJ	RB2	1.33	-1.96	18.08	22.72	26.66	29.80
SO	XBADJ	RB2	32.03	33.28	33.53	25.34	16.39	-28.79
SO	YBADJ	RB2	9.72	7.46	4.98	2.35	-0.35	34.29
SO	YBADJ	RB2	16.35	-10.46	-36.96	17.99	9.92	1.54
SO	YBADJ	RB2	-6.89	-15.10	-22.86	-29.92	-36.08	-11.67
SO	YBADJ	RB2	-9.72	-7.46	-4.98	-2.35	0.35	-16.76
SO	YBADJ	RB2	5.65	8.08	-25.53	-17.99	-9.92	-1.54
SO	YBADJ	RB2	6.89	15.10	22.86	29.92	36.08	11.67

SO	BUILDHGT	RB3	35.10	35.10	38.10	38.10	38.10	38.10
SO	BUILDHGT	RB3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB3	36.60	36.60	21.30	21.30	21.30	35.10
SO	BUILDHGT	RB3	35.10	35.10	38.10	38.10	38.10	38.10
SO	BUILDHGT	RB3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB3	36.60	36.60	21.30	21.30	21.30	35.10
SO	BUILDWID	RB3	44.44	41.44	64.95	59.77	52.79	44.20
SO	BUILDWID	RB3	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB3	65.88	65.95	73.15	75.22	74.99	46.10
SO	BUILDWID	RB3	44.44	41.44	64.95	59.77	52.79	44.20
SO	BUILDWID	RB3	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB3	65.88	65.95	73.15	75.22	74.99	46.10
SO	BUILDLEN	RB3	41.44	44.44	50.67	49.60	52.27	53.34
SO	BUILDLEN	RB3	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB3	59.77	52.79	21.34	30.54	39.34	37.17
SO	BUILDLEN	RB3	41.44	44.44	50.67	49.60	52.27	53.34
SO	BUILDLEN	RB3	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB3	59.77	52.79	21.34	30.54	39.34	37.17
SO	XBADJ	RB3	41.81	44.05	-65.55	-74.49	-81.17	-85.38

SO	XBADJ	RB3	-91.76	-95.35	-96.05	-93.83	-88.75	-80.98
SO	XBADJ	RB3	-70.75	-58.37	-39.64	-53.33	-65.39	-75.46
SO	XBADJ	RB3	-83.25	-88.50	14.88	24.89	28.90	32.04
SO	XBADJ	RB3	44.97	45.87	45.38	43.50	40.31	35.89
SO	XBADJ	RB3	10.98	5.58	18.31	22.79	26.05	38.29
SO	YBADJ	RB3	-27.07	-15.80	48.51	40.86	31.98	22.12
SO	YBADJ	RB3	18.92	6.76	-5.61	-17.80	-29.45	-40.21
SO	YBADJ	RB3	-41.55	-48.19	45.69	39.69	32.50	37.51
SO	YBADJ	RB3	27.07	15.80	-48.51	-40.86	-31.98	-22.12
SO	YBADJ	RB3	-18.92	-6.76	5.61	17.80	29.45	40.21
SO	YBADJ	RB3	41.55	48.19	-45.69	-39.69	-32.50	-37.51

SO	BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	RB4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	RB4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	RB4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	RB4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	RB4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	RB4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	RB4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	RB4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	RB4	-16.99	-17.36	-17.21	-16.54	-15.36	-13.72
SO	XBADJ	RB4	-16.42	-18.62	-20.26	-21.28	-21.66	-21.38
SO	XBADJ	RB4	-20.44	-18.89	-16.76	-21.54	-25.66	-29.00
SO	XBADJ	RB4	-31.45	-32.96	-33.46	-32.94	-31.43	-39.62
SO	XBADJ	RB4	-30.37	-30.86	-30.41	-29.04	-26.79	-23.72
SO	XBADJ	RB4	-19.93	-15.53	-10.67	-12.89	-14.72	-16.10
SO	YBADJ	RB4	-3.88	-2.56	-1.17	0.26	1.68	-5.33
SO	YBADJ	RB4	4.32	5.47	6.45	7.23	7.80	8.12
SO	YBADJ	RB4	8.20	8.03	7.62	6.98	6.12	5.08
SO	YBADJ	RB4	3.88	2.56	1.17	-0.26	-1.68	5.33
SO	YBADJ	RB4	-4.32	-5.47	-6.45	-7.23	-7.80	-8.12
SO	YBADJ	RB4	-8.20	-8.03	-7.62	-6.98	-6.12	-5.08

SO	BUILDHGT	SDT2	35.10	35.10	38.10	45.70	45.70	38.10
SO	BUILDHGT	SDT2	45.70	35.10	35.10	35.10	35.10	35.10
SO	BUILDHGT	SDT2	35.10	35.10	35.10	35.10	35.10	35.10
SO	BUILDHGT	SDT2	35.10	35.10	35.10	35.10	30.50	30.50
SO	BUILDHGT	SDT2	30.50	35.10	35.10	35.10	35.10	35.10
SO	BUILDHGT	SDT2	35.10	35.10	35.10	35.10	35.10	35.10
SO	BUILDWID	SDT2	44.44	41.44	64.95	34.91	34.43	44.20
SO	BUILDWID	SDT2	34.43	31.78	37.17	41.44	44.44	46.10
SO	BUILDWID	SDT2	46.35	45.20	42.67	45.20	46.35	46.10
SO	BUILDWID	SDT2	44.44	41.44	37.17	31.78	75.92	70.10
SO	BUILDWID	SDT2	73.27	31.78	37.17	41.44	44.44	46.10
SO	BUILDWID	SDT2	46.35	45.20	42.67	45.20	46.35	46.10
SO	BUILDLEN	SDT2	41.44	44.44	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT2	46.79	46.35	46.10	44.44	41.44	37.17
SO	BUILDLEN	SDT2	31.78	25.42	18.29	25.42	31.78	37.17
SO	BUILDLEN	SDT2	41.44	44.44	46.10	46.35	45.20	42.67
SO	BUILDLEN	SDT2	51.20	46.35	46.10	44.44	41.44	37.17
SO	BUILDLEN	SDT2	31.78	25.42	18.29	25.42	31.78	37.17
SO	XBADJ	SDT2	-30.87	-32.26	-143.18	-151.08	-154.39	-153.01
SO	XBADJ	SDT2	-151.74	-26.87	-25.05	-22.46	-19.19	-15.34
SO	XBADJ	SDT2	-11.02	-6.37	-1.52	-4.04	-6.44	-8.64
SO	XBADJ	SDT2	-10.57	-12.19	-13.43	-14.27	-14.67	-14.63
SO	XBADJ	SDT2	-23.32	-19.48	-21.05	-21.98	-22.25	-21.83
SO	XBADJ	SDT2	-20.76	-19.05	-16.76	-21.38	-25.34	-28.54
SO	YBADJ	SDT2	0.24	-1.53	49.31	37.87	15.36	-16.00
SO	YBADJ	SDT2	-30.37	-9.45	-9.95	-10.15	-10.03	-9.62
SO	YBADJ	SDT2	-8.91	-7.93	-6.71	-5.28	-3.70	-2.00
SO	YBADJ	SDT2	-0.24	1.53	3.25	4.87	31.59	33.53
SO	YBADJ	SDT2	32.59	9.45	9.95	10.15	10.03	9.62
SO	YBADJ	SDT2	8.91	7.93	6.71	5.28	3.70	2.00

SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70

SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT3	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT3	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT3	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT3	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT3	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT3	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT3	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT3	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT3	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT3	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT3	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT3	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT3	-46.74	-51.17	-54.05	-55.28	-54.84	-52.73
SO	XBADJ	SDT3	-53.78	-53.20	-51.00	-47.25	-42.07	-35.60
SO	XBADJ	SDT3	-28.06	-19.66	-10.67	-8.76	-6.58	-4.21
SO	XBADJ	SDT3	-1.71	0.85	3.38	5.80	8.05	-0.61
SO	XBADJ	SDT3	6.99	3.72	0.33	-3.07	-6.38	-9.49
SO	XBADJ	SDT3	-12.31	-14.76	-16.76	-25.67	-33.79	-40.88
SO	YBADJ	SDT3	22.09	17.85	13.06	7.87	2.45	-11.43
SO	YBADJ	SDT3	-8.45	-13.60	-18.34	-22.51	-26.01	-28.71
SO	YBADJ	SDT3	-30.54	-31.45	-31.39	-30.39	-28.46	-25.66
SO	YBADJ	SDT3	-22.09	-17.85	-13.06	-7.87	-2.45	11.43
SO	YBADJ	SDT3	8.45	13.60	18.34	22.51	26.01	28.71
SO	YBADJ	SDT3	30.54	31.45	31.39	30.39	28.46	25.66

SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT4	-25.62	-28.06	-29.65	-30.34	-30.10	-28.96
SO	XBADJ	SDT4	-31.69	-33.46	-34.22	-33.94	-32.62	-30.32
SO	XBADJ	SDT4	-27.09	-23.04	-18.29	-20.39	-21.88	-22.70
SO	XBADJ	SDT4	-22.83	-22.26	-21.02	-19.14	-16.68	-24.38
SO	XBADJ	SDT4	-15.10	-16.02	-16.45	-16.38	-15.82	-14.78
SO	XBADJ	SDT4	-13.28	-11.39	-9.14	-14.03	-18.50	-22.40
SO	YBADJ	SDT4	8.78	8.40	7.77	6.90	5.83	-3.81
SO	YBADJ	SDT4	3.18	1.69	0.15	-1.40	-2.90	-4.31
SO	YBADJ	SDT4	-5.60	-6.71	-7.62	-8.30	-8.72	-8.89
SO	YBADJ	SDT4	-8.78	-8.40	-7.77	-6.90	-5.83	3.81
SO	YBADJ	SDT4	-3.18	-1.69	-0.15	1.40	2.90	4.31
SO	YBADJ	SDT4	5.60	6.71	7.62	8.30	8.72	8.89

SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00

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SO XBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    EWLB        0.00    0.00    0.00    0.00    0.00    0.00


SO BUILDHGT 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN 12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO XBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00
SO YBADJ    12LS        0.00    0.00    0.00    0.00    0.00    0.00


SO BUILDHGT COMBO      35.10   35.10   35.10   38.10   38.10   38.10
SO BUILDHGT COMBO      45.70   45.70   45.70   45.70   30.50   30.50
SO BUILDHGT COMBO      21.30   35.10   35.10   35.10   35.10   35.10
SO BUILDHGT COMBO      35.10   35.10   35.10   38.10   38.10   38.10
SO BUILDHGT COMBO      45.70   45.70   45.70   45.70   30.50   30.50
SO BUILDHGT COMBO      21.30   35.10   35.10   35.10   35.10   35.10
SO BUILDWID COMBO      44.44   41.44   37.17   59.77   52.79   44.20
SO BUILDWID COMBO      34.43   40.37   44.36   44.36   35.94   33.72
SO BUILDWID COMBO      73.95   45.20   42.67   45.20   46.35   46.10
SO BUILDWID COMBO      44.44   41.44   37.17   59.77   52.79   44.20
SO BUILDWID COMBO      34.43   40.37   44.36   44.36   35.94   33.72
SO BUILDWID COMBO      73.95   45.20   42.67   45.20   46.35   46.10
SO BUILDLEN COMBO      41.44   44.44   46.10   49.60   52.27   53.34
SO BUILDLEN COMBO      46.79   49.48   50.67   50.32   37.06   37.06
SO BUILDLEN COMBO      42.20   25.42   18.29   25.42   31.78   37.17
SO BUILDLEN COMBO      41.44   44.44   46.10   49.60   52.27   53.34
SO BUILDLEN COMBO      46.79   49.48   50.67   50.32   37.06   37.06
SO BUILDLEN COMBO      42.20   25.42   18.29   25.42   31.78   37.17
SO XBADJ    COMBO      19.91   20.02   19.53 -100.56 -107.07 -110.34
SO XBADJ    COMBO    -115.01 -116.19 -113.84 -108.03  27.00   23.06
SO XBADJ    COMBO     -35.49  -28.98  -32.00  -41.47  -49.67  -56.37
SO XBADJ    COMBO     -61.35  -64.47  -65.63   50.95   54.81   57.00
SO XBADJ    COMBO      68.23   66.71   63.17   57.71  -64.06  -60.12
SO XBADJ    COMBO      -6.71    3.56   13.72   16.05   17.89   19.19
SO YBADJ    COMBO     -12.86   -5.61    1.81   42.22   28.79   14.48
SO YBADJ    COMBO       7.06   -8.96  -24.70  -39.70   18.70   26.32
SO YBADJ    COMBO      27.82   39.39   35.97   31.45   25.98   19.72
SO YBADJ    COMBO      12.86    5.61   -1.81  -42.22  -28.79  -14.48
SO YBADJ    COMBO      -7.06    8.96   24.70   39.70  -18.70  -26.32
SO YBADJ    COMBO     -27.82  -39.39  -35.97  -31.45  -25.98  -19.72


   SRCGROUP ALL

SO FINISHED
**
*****************************************
** AERMOD Receptor Pathway
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RE STARTING
   INCLUDED RECPM.rou
RE FINISHED
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*****************************************
** AERMOD Meteorology Pathway
*****************************************
**
**
ME STARTING
   SURFFILE ..\..\aermet\TLHAYS86.SFC
   PROFFILE ..\..\aermet\TLHAYS86.PFL
   SURFDATA 93805 1986 TALLAHASSEE/MUNICIPAL_ARPT
   UAIRDATA 13861 1986 WAYCROSS/WSMO
   PROFBASE 25 FEET
ME FINISHED
**
*****************************************
** AERMOD Output Pathway
*****************************************
**
**
OU STARTING

   RECTABLE ALLAVE FIRST SIXTH

** Auto-Generated Plotfiles

** PLOTFILE 24 ALL 1ST PM24AQS.P86
** PLOTFILE PERIOD ALL SO2ANALL.P86

OU FINISHED
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****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE 1986 BUCKEYE PM10 PSD CLASS II SHORT-TERM  12/09/05
   TITLETWO 1986-90 TALL/WAYCROSS
   MODELOPT DFAULT CONC NOWARN
   AVERTIME PERIOD 24
   POLLUTID PM
   RUNORNOT RUN
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
** SOURCE DESCRIPTIONS
** BUCKEYE FLORIDA, LIMITED PARTNERSHIP
**      LK4             Lime Kiln No. 4
**      RB2             Recovery Boiler 2
**      RB3             Recovery Boiler 3
**      RB4             Recovery Boiler 4
**      SDT2            Smelt Tank 2
**      SDT3            Smelt Tank 3
**      SDT4            Smelt Tank 4
**      EWLB            East / West Lime Bins
**      12LS            Lime Slaker 1`& 2
**      COMBO           No. 1 & 2 Bark Blrs, No. 1 & 2 Power Blrs

** FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT
**      FPLSWR4         #1, 2, 3 PEAKING UNIT

**    PSD Increment Expanding sources
**      RB3B    No. 3 Recovery Boiler
**      RB4B    No. 4 Recovery Boiler
**      SDT2B   No.2 Smelt Dissolving Tank
**      SDT3B   No. 3 Smelt Dissolving Tank
**      SDT4B   No. 4 Smelt Dissolving Tank
**      COMBOB  No. 1 Bark Boiler & No. 3 Power Boiler
**      LK1B    No. 1 Lime Kiln
**      LK2B    No. 2 Lime Kiln
**      LK3B    No. 3 Lime Kiln


SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION LK4    POINT  256814.404  3328926.241  16.000
**   LOCATION RB2    POINT  256625.026  3328859.841  16.000
   LOCATION RB3    POINT  256546.380  3328828.490  16.000
   LOCATION RB4    POINT  256470.592  3328816.433  16.000
   LOCATION SDT2   POINT  256585.890  3328895.318  16.000
   LOCATION SDT3   POINT  256501.332  3328841.219  16.000
   LOCATION SDT4   POINT  256484.553  3328822.733  16.000
   LOCATION EWLB   POINT  256767.348  3328991.284  16.000
   LOCATION 12LS   POINT  256778.623  3328980.900  16.000
   LOCATION COMBO  POINT  256564.175  3328847.586  16.000

SO LOCATION RB3B    POINT   256546.380  3328828.490  16.000
SO LOCATION RB4B    POINT   256470.592  3328816.433  16.000
SO LOCATION SDT2B   POINT   256585.890  3328895.318  16.000
SO LOCATION SDT3B   POINT   256501.332  3328841.219  16.000
SO LOCATION SDT4B   POINT   256484.553  3328822.733  16.000
SO LOCATION COMBOB  POINT   256564.175  3328847.586  16.000
SO LOCATION LK1B    POINT   256626.080  3328911.790  16.000
SO LOCATION LK2B    POINT   256623.180  3328916.790  16.000
SO LOCATION LK3B    POINT   256619.380  3328924.990  16.000


** FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT
SO LOCATION FPLSWR4 POINT   295000.0  3362200.0   20.0


** Source Parameters **
** PM10 EMISSIONS

   SRCPARAM LK4    1.75   38.100  511.000  15.2   2.230
**   SRCPARAM RB2    9.22   68.600  444.000  14.6   3.050
   SRCPARAM RB3    4.25   68.600  450.000  13.6   2.900
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256.5859 3328.8953
256.5013 3328.8412
256.7673 3328.9913

RB#2?

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SRCPARAM RB4    6.33    68.600  500.000  25.8   2.900
SRCPARAM SDT2   1.10    43.300  344.000  13.7   0.910
SRCPARAM SDT3   0.93    42.700  347.000  8.81   1.230
SRCPARAM SDT4   1.51    49.400  342.000  12.9   1.220
SRCPARAM EWLB   0.04    37.800  298.000  0.01   0.300
SRCPARAM 12LS   0.26    40.500  334.000  1.16   0.590
SRCPARAM COMBO  19.0    68.600  367.000  19.0   3.960

SO SRCPARAM RB3B   -37.14   68.6    422     17.57   2.74
SO SRCPARAM RB4B   -10.69   68.6    466     21.72   2.90
SO SRCPARAM SDT2B  -3.48    43.3    350     15.67   0.91
SO SRCPARAM SDT3B  -3.08    42.7    350     8.81    1.22
SO SRCPARAM SDT4B  -3.36    49.4    350     10.35   1.22
SO SRCPARAM COMBOB -16.31   68.6    497     14.75   3.96
SO SRCPARAM LK1B   -1.09    29.3    339     7.48    1.22
SO SRCPARAM LK2B   -1.40    29.3    339     15.20   1.22
SO SRCPARAM LK3B   -0.91    29.3    339     9.70    1.22


** FLORIDA POWER CORPORATION, SUWANNEE RVR PLANT
SO SRCPARAM FPLSWR4     10.08     6.7    658.7    63.70    3.44


** Building Downwash **
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 BUILDLEN LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDLEN LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDLEN LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDLEN LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDLEN LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO BUILDLEN LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO XBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO XBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO XBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO XBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO XBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO XBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO YBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO YBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO YBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO YBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO YBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00
SO YBADJ    LK4        0.00     0.00     0.00     0.00     0.00     0.00


** SO BUILDHGT RB2        30.50    30.50    30.50    30.50    30.50    38.10
** SO BUILDHGT RB2        45.70    45.70    45.70    35.10    35.10    35.10
** SO BUILDHGT RB2        35.10    35.10    35.10    35.10    35.10    30.50
** SO BUILDHGT RB2        30.50    30.50    30.50    30.50    30.50    30.50
** SO BUILDHGT RB2        30.50    30.50    35.10    35.10    35.10    35.10
** SO BUILDHGT RB2        35.10    35.10    35.10    35.10    35.10    30.50
** SO BUILDWID RB2        35.94    37.06    37.06    35.94    33.72    44.20
** SO BUILDWID RB2        34.43    40.37    42.42    41.44    44.44    46.10
** SO BUILDWID RB2        46.35    45.20    42.67    45.20    46.35    33.72
** SO BUILDWID RB2        35.94    37.06    37.06    35.94    33.72    70.10
** SO BUILDWID RB2        33.72    35.94    37.17    41.44    44.44    46.10
** SO BUILDWID RB2        46.35    45.20    42.67    45.20    46.35    33.72
** SO BUILDLEN RB2        37.06    35.94    33.72    30.47    26.30    53.34
** SO BUILDLEN RB2        46.79    49.48    50.67    44.44    41.44    37.17
** SO BUILDLEN RB2        31.78    25.42    18.29    25.42    31.78    37.06
** SO BUILDLEN RB2        37.06    35.94    33.72    30.47    26.30    42.67
** SO BUILDLEN RB2        26.31    30.47    46.10    44.44    41.44    37.17
** SO BUILDLEN RB2        31.78    25.42    18.29    25.42    31.78    37.06
** SO XBADJ    RB2       -30.66   -31.60   -31.58   -30.60   -28.69  -169.16
** SO XBADJ    RB2      -176.39  -178.25  -174.69   -67.16   -68.10   -66.97
** SO XBADJ    RB2       -63.81   -58.70   -51.82   -50.76   -48.17    -8.27
** SO XBADJ    RB2        -6.40    -4.34    -2.14     0.13     2.38     1.52
** SO XBADJ    RB2         1.33    -1.96    18.08    22.72    26.66    29.80
** SO XBADJ    RB2        32.03    33.28    33.53    25.34    16.39   -28.79
** SO YBADJ    RB2         9.72     7.46     4.98     2.35    -0.35    34.29
** SO YBADJ    RB2        16.35   -10.46   -36.96    17.99     9.92     1.54
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** SO YBADJ	RB2	-6.89	-15.10	-22.86	-29.92	-36.08	-11.67
** SO YBADJ	RB2	-9.72	-7.46	-4.98	-2.35	0.35	-16.76
** SO YBADJ	RB2	5.65	8.08	-25.53	-17.99	-9.92	-1.54
** SO YBADJ	RB2	6.89	15.10	22.86	29.92	36.08	11.67

SO BUILDHGT	RB3	35.10	35.10	38.10	38.10	38.10	38.10
SO BUILDHGT	RB3	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	RB3	36.60	36.60	21.30	21.30	21.30	35.10
SO BUILDHGT	RB3	35.10	35.10	38.10	38.10	38.10	38.10
SO BUILDHGT	RB3	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	RB3	36.60	36.60	21.30	21.30	21.30	35.10
SO BUILDWID	RB3	44.44	41.44	64.95	59.77	52.79	44.20
SO BUILDWID	RB3	34.43	40.37	45.09	48.44	50.32	50.67
SO BUILDWID	RB3	65.88	65.95	73.15	75.22	74.99	46.10
SO BUILDWID	RB3	44.44	41.44	64.95	59.77	52.79	44.20
SO BUILDWID	RB3	34.43	40.37	45.09	48.44	50.32	50.67
SO BUILDWID	RB3	65.88	65.95	73.15	75.22	74.99	46.10
SO BUILDLEN	RB3	41.44	44.44	50.67	49.60	52.27	53.34
SO BUILDLEN	RB3	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	RB3	59.77	52.79	21.34	30.54	39.34	37.17
SO BUILDLEN	RB3	41.44	44.44	50.67	49.60	52.27	53.34
SO BUILDLEN	RB3	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	RB3	59.77	52.79	21.34	30.54	39.34	37.17
SO XBADJ	RB3	41.81	44.05	-65.55	-74.49	-81.17	-85.38
SO XBADJ	RB3	-91.76	-95.35	-96.05	-93.83	-88.75	-80.98
SO XBADJ	RB3	-70.75	-58.37	-39.64	-53.33	-65.39	-75.46
SO XBADJ	RB3	-83.25	-88.50	14.88	24.89	28.90	32.04
SO XBADJ	RB3	44.97	45.87	45.38	43.50	40.31	35.89
SO XBADJ	RB3	10.98	5.58	18.31	22.79	26.05	38.29
SO YBADJ	RB3	-27.07	-15.80	48.51	40.86	31.98	22.12
SO YBADJ	RB3	18.92	6.76	-5.61	-17.80	-29.45	-40.21
SO YBADJ	RB3	-41.55	-48.19	45.69	39.69	32.50	37.51
SO YBADJ	RB3	27.07	15.80	-48.51	-40.86	-31.98	-22.12
SO YBADJ	RB3	-18.92	-6.76	5.61	17.80	29.45	40.21
SO YBADJ	RB3	41.55	48.19	-45.69	-39.69	-32.50	-37.51

SO BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	38.10
SO BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	38.10
SO BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDHGT	RB4	45.70	45.70	45.70	45.70	45.70	45.70
SO BUILDWID	RB4	50.32	48.44	45.09	40.37	34.43	44.20
SO BUILDWID	RB4	34.43	40.37	45.09	48.44	50.32	50.67
SO BUILDWID	RB4	49.48	46.79	42.67	46.79	49.48	50.67
SO BUILDWID	RB4	50.32	48.44	45.09	40.37	34.43	44.20
SO BUILDWID	RB4	34.43	40.37	45.09	48.44	50.32	50.67
SO BUILDWID	RB4	49.48	46.79	42.67	46.79	49.48	50.67
SO BUILDLEN	RB4	48.44	50.32	50.67	49.48	46.79	53.34
SO BUILDLEN	RB4	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO BUILDLEN	RB4	48.44	50.32	50.67	49.48	46.79	53.34
SO BUILDLEN	RB4	46.79	49.48	50.67	50.32	48.44	45.09
SO BUILDLEN	RB4	40.37	34.43	27.43	34.43	40.37	45.09
SO XBADJ	RB4	-16.99	-17.36	-17.21	-16.54	-15.36	-13.72
SO XBADJ	RB4	-16.42	-18.62	-20.26	-21.28	-21.66	-21.38
SO XBADJ	RB4	-20.44	-18.89	-16.76	-21.54	-25.66	-29.00
SO XBADJ	RB4	-31.45	-32.96	-33.46	-32.94	-31.43	-39.62
SO XBADJ	RB4	-30.37	-30.86	-30.41	-29.04	-26.79	-23.72
SO XBADJ	RB4	-19.93	-15.53	-10.67	-12.89	-14.72	-16.10
SO YBADJ	RB4	-3.88	-2.56	-1.17	0.26	1.68	-5.33
SO YBADJ	RB4	4.32	5.47	6.45	7.23	7.80	8.12
SO YBADJ	RB4	8.20	8.03	7.62	6.98	6.12	5.08
SO YBADJ	RB4	3.88	2.56	1.17	-0.26	-1.68	5.33
SO YBADJ	RB4	-4.32	-5.47	-6.45	-7.23	-7.80	-8.12
SO YBADJ	RB4	-8.20	-8.03	-7.62	-6.98	-6.12	-5.08

SO BUILDHGT	SDT2	35.10	35.10	38.10	45.70	45.70	38.10
SO BUILDHGT	SDT2	45.70	35.10	35.10	35.10	35.10	35.10
SO BUILDHGT	SDT2	35.10	35.10	35.10	35.10	35.10	35.10
SO BUILDHGT	SDT2	35.10	35.10	35.10	35.10	30.50	30.50
SO BUILDHGT	SDT2	30.50	35.10	35.10	35.10	35.10	35.10
SO BUILDHGT	SDT2	35.10	35.10	35.10	35.10	35.10	35.10
SO BUILDWID	SDT2	44.44	41.44	64.95	34.91	34.43	44.20
SO BUILDWID	SDT2	34.43	31.78	37.17	41.44	44.44	46.10
SO BUILDWID	SDT2	46.35	45.20	42.67	45.20	46.35	46.10
SO BUILDWID	SDT2	44.44	41.44	37.17	31.78	75.92	70.10
SO BUILDWID	SDT2	73.27	31.78	37.17	41.44	44.44	46.10
SO BUILDWID	SDT2	46.35	45.20	42.67	45.20	46.35	46.10

SO	BUILDLEN	SDT2	41.44	44.44	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT2	46.79	46.35	46.10	44.44	41.44	37.17
SO	BUILDLEN	SDT2	31.78	25.42	18.29	25.42	31.78	37.17
SO	BUILDLEN	SDT2	41.44	44.44	46.10	46.35	45.20	42.67
SO	BUILDLEN	SDT2	51.20	46.35	46.10	44.44	41.44	37.17
SO	BUILDLEN	SDT2	31.78	25.42	18.29	25.42	31.78	37.17
SO	XBADJ	SDT2	-30.87	-32.26	-143.18	-151.08	-154.39	-153.01
SO	XBADJ	SDT2	-151.74	-26.87	-25.05	-22.46	-19.19	-15.34
SO	XBADJ	SDT2	-11.02	-6.37	-1.52	-4.04	-6.44	-8.64
SO	XBADJ	SDT2	-10.57	-12.19	-13.43	-14.27	-14.67	-14.63
SO	XBADJ	SDT2	-23.32	-19.48	-21.05	-21.98	-22.25	-21.83
SO	XBADJ	SDT2	-20.76	-19.05	-16.76	-21.38	-25.34	-28.54
SO	YBADJ	SDT2	0.24	-1.53	49.31	37.87	15.36	-16.00
SO	YBADJ	SDT2	-30.37	-9.45	-9.95	-10.15	-10.03	-9.62
SO	YBADJ	SDT2	-8.91	-7.93	-6.71	-5.28	-3.70	-2.00
SO	YBADJ	SDT2	-0.24	1.53	3.25	4.87	31.59	33.53
SO	YBADJ	SDT2	32.59	9.45	9.95	10.15	10.03	9.62
SO	YBADJ	SDT2	8.91	7.93	6.71	5.28	3.70	2.00

SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT3	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT3	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT3	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT3	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT3	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT3	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT3	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT3	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT3	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT3	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT3	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT3	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT3	-46.74	-51.17	-54.05	-55.28	-54.84	-52.73
SO	XBADJ	SDT3	-53.78	-53.20	-51.00	-47.25	-42.07	-35.60
SO	XBADJ	SDT3	-28.06	-19.66	-10.67	-8.76	-6.58	-4.21
SO	XBADJ	SDT3	-1.71	0.85	3.38	5.80	8.05	-0.61
SO	XBADJ	SDT3	6.99	3.72	0.33	-3.07	-6.38	-9.49
SO	XBADJ	SDT3	-12.31	-14.76	-16.76	-25.67	-33.79	-40.88
SO	YBADJ	SDT3	22.09	17.85	13.06	7.87	2.45	-11.43
SO	YBADJ	SDT3	-8.45	-13.60	-18.34	-22.51	-26.01	-28.71
SO	YBADJ	SDT3	-30.54	-31.45	-31.39	-30.39	-28.46	-25.66
SO	YBADJ	SDT3	-22.09	-17.85	-13.06	-7.87	-2.45	11.43
SO	YBADJ	SDT3	8.45	13.60	18.34	22.51	26.01	28.71
SO	YBADJ	SDT3	30.54	31.45	31.39	30.39	28.46	25.66

SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT4	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT4	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT4	-25.62	-28.06	-29.65	-30.34	-30.10	-28.96
SO	XBADJ	SDT4	-31.69	-33.46	-34.22	-33.94	-32.62	-30.32
SO	XBADJ	SDT4	-27.09	-23.04	-18.29	-20.39	-21.88	-22.70
SO	XBADJ	SDT4	-22.83	-22.26	-21.02	-19.14	-16.68	-24.38
SO	XBADJ	SDT4	-15.10	-16.02	-16.45	-16.38	-15.82	-14.78
SO	XBADJ	SDT4	-13.28	-11.39	-9.14	-14.03	-18.50	-22.40
SO	YBADJ	SDT4	8.78	8.40	7.77	6.90	5.83	-3.81
SO	YBADJ	SDT4	3.18	1.69	0.15	-1.40	-2.90	-4.31
SO	YBADJ	SDT4	-5.60	-6.71	-7.62	-8.30	-8.72	-8.89
SO	YBADJ	SDT4	-8.78	-8.40	-7.77	-6.90	-5.83	3.81
SO	YBADJ	SDT4	-3.18	-1.69	-0.15	1.40	2.90	4.31
SO	YBADJ	SDT4	5.60	6.71	7.62	8.30	8.72	8.89

SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	EWLB	0.00	0.00	0.00	0.00	0.00	0.00

SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDHGT	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDWID	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	BUILDLEN	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	XBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00
SO	YBADJ	12LS	0.00	0.00	0.00	0.00	0.00	0.00

SO	BUILDHGT	COMBO	35.10	35.10	35.10	38.10	38.10	38.10
SO	BUILDHGT	COMBO	45.70	45.70	45.70	45.70	30.50	30.50
SO	BUILDHGT	COMBO	21.30	35.10	35.10	35.10	35.10	35.10
SO	BUILDHGT	COMBO	35.10	35.10	35.10	38.10	38.10	38.10
SO	BUILDHGT	COMBO	45.70	45.70	45.70	45.70	30.50	30.50
SO	BUILDHGT	COMBO	21.30	35.10	35.10	35.10	35.10	35.10
SO	BUILDWID	COMBO	44.44	41.44	37.17	59.77	52.79	44.20
SO	BUILDWID	COMBO	34.43	40.37	44.36	44.36	35.94	33.72
SO	BUILDWID	COMBO	73.95	45.20	42.67	45.20	46.35	46.10
SO	BUILDWID	COMBO	44.44	41.44	37.17	59.77	52.79	44.20
SO	BUILDWID	COMBO	34.43	40.37	44.36	44.36	35.94	33.72
SO	BUILDWID	COMBO	73.95	45.20	42.67	45.20	46.35	46.10
SO	BUILDLEN	COMBO	41.44	44.44	46.10	49.60	52.27	53.34
SO	BUILDLEN	COMBO	46.79	49.48	50.67	50.32	37.06	37.06
SO	BUILDLEN	COMBO	42.20	25.42	18.29	25.42	31.78	37.17
SO	BUILDLEN	COMBO	41.44	44.44	46.10	49.60	52.27	53.34

SO	BUILDLEN	COMBO	46.79	49.48	50.67	50.32	37.06	37.06
SO	BUILDLEN	COMBO	42.20	25.42	18.29	25.42	31.78	37.17
SO	XBADJ	COMBO	19.91	20.02	19.53	-100.56	-107.07	-110.34
SO	XBADJ	COMBO	-115.01	-116.19	-113.84	-108.03	27.00	23.06
SO	XBADJ	COMBO	-35.49	-28.98	-32.00	-41.47	-49.67	-56.37
SO	XBADJ	COMBO	-61.35	-64.47	-65.63	50.95	54.81	57.00
SO	XBADJ	COMBO	68.23	66.71	63.17	57.71	-64.06	-60.12
SO	XBADJ	COMBO	-6.71	3.56	13.72	16.05	17.89	19.19
SO	YBADJ	COMBO	-12.86	-5.61	1.81	42.22	28.79	14.48
SO	YBADJ	COMBO	7.06	-8.96	-24.70	-39.70	18.70	26.32
SO	YBADJ	COMBO	27.82	39.39	35.97	31.45	25.98	19.72
SO	YBADJ	COMBO	12.86	5.61	-1.81	-42.22	-28.79	-14.48
SO	YBADJ	COMBO	-7.06	8.96	24.70	39.70	-18.70	-26.32
SO	YBADJ	COMBO	-27.82	-39.39	-35.97	-31.45	-25.98	-19.72

SO	BUILDHGT	RB3B	35.10	35.10	38.10	38.10	38.10	38.10
SO	BUILDHGT	RB3B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB3B	36.60	36.60	21.30	21.30	21.30	35.10
SO	BUILDHGT	RB3B	35.10	35.10	38.10	38.10	38.10	38.10
SO	BUILDHGT	RB3B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB3B	36.60	36.60	21.30	21.30	21.30	35.10
SO	BUILDWID	RB3B	44.44	41.44	64.95	59.77	52.79	44.20
SO	BUILDWID	RB3B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB3B	65.88	65.95	73.15	75.22	74.99	46.10
SO	BUILDWID	RB3B	44.44	41.44	64.95	59.77	52.79	44.20
SO	BUILDWID	RB3B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB3B	65.88	65.95	73.15	75.22	74.99	46.10
SO	BUILDLEN	RB3B	41.44	44.44	50.67	49.60	52.27	53.34
SO	BUILDLEN	RB3B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB3B	59.77	52.79	21.34	30.54	39.34	37.17
SO	BUILDLEN	RB3B	41.44	44.44	50.67	49.60	52.27	53.34
SO	BUILDLEN	RB3B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB3B	59.77	52.79	21.34	30.54	39.34	37.17
SO	XBADJ	RB3B	41.81	44.05	-65.55	-74.49	-81.17	-85.38
SO	XBADJ	RB3B	-91.76	-95.35	-96.05	-93.83	-88.75	-80.98
SO	XBADJ	RB3B	-70.75	-58.37	-39.64	-53.33	-65.39	-75.46
SO	XBADJ	RB3B	-83.25	-88.50	14.88	24.89	28.90	32.04
SO	XBADJ	RB3B	44.97	45.87	45.38	43.50	40.31	35.89
SO	XBADJ	RB3B	10.98	5.58	18.31	22.79	26.05	38.29
SO	YBADJ	RB3B	-27.07	-15.80	48.51	40.86	31.98	22.12
SO	YBADJ	RB3B	18.92	6.76	-5.61	-17.80	-29.45	-40.21
SO	YBADJ	RB3B	-41.55	-48.19	45.69	39.69	32.50	37.51
SO	YBADJ	RB3B	27.07	15.80	-48.51	-40.86	-31.98	-22.12
SO	YBADJ	RB3B	-18.92	-6.76	5.61	17.80	29.45	40.21
SO	YBADJ	RB3B	41.55	48.19	-45.69	-39.69	-32.50	-37.51

SO	BUILDHGT	RB4B	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	RB4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB4B	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	RB4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	RB4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	RB4B	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	RB4B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB4B	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	RB4B	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	RB4B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	RB4B	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	RB4B	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	RB4B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB4B	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	RB4B	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	RB4B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	RB4B	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	RB4B	-16.99	-17.36	-17.21	-16.54	-15.36	-13.72
SO	XBADJ	RB4B	-16.42	-18.62	-20.26	-21.28	-21.66	-21.38
SO	XBADJ	RB4B	-20.44	-18.89	-16.76	-21.54	-25.66	-29.00
SO	XBADJ	RB4B	-31.45	-32.96	-33.46	-32.94	-31.43	-39.62
SO	XBADJ	RB4B	-30.37	-30.86	-30.41	-29.04	-26.79	-23.72
SO	XBADJ	RB4B	-19.93	-15.53	-10.67	-12.89	-14.72	-16.10
SO	YBADJ	RB4B	-3.88	-2.56	-1.17	0.26	1.68	-5.33
SO	YBADJ	RB4B	4.32	5.47	6.45	7.23	7.80	8.12
SO	YBADJ	RB4B	8.20	8.03	7.62	6.98	6.12	5.08
SO	YBADJ	RB4B	3.88	2.56	1.17	-0.26	-1.68	5.33
SO	YBADJ	RB4B	-4.32	-5.47	-6.45	-7.23	-7.80	-8.12
SO	YBADJ	RB4B	-8.20	-8.03	-7.62	-6.98	-6.12	-5.08

SO	BUILDHGT	SDT2B	35.10	35.10	38.10	45.70	45.70	38.10
SO	BUILDHGT	SDT2B	45.70	35.10	35.10	35.10	35.10	35.10

SO	BUILDHGT	SDT2B	35.10	35.10	35.10	35.10	35.10	35.10
SO	BUILDHGT	SDT2B	35.10	35.10	35.10	35.10	30.50	30.50
SO	BUILDHGT	SDT2B	30.50	35.10	35.10	35.10	35.10	35.10
SO	BUILDHGT	SDT2B	35.10	35.10	35.10	35.10	35.10	35.10
SO	BUILDWID	SDT2B	44.44	41.44	64.95	34.91	34.43	44.20
SO	BUILDWID	SDT2B	34.43	31.78	37.17	41.44	44.44	46.10
SO	BUILDWID	SDT2B	46.35	45.20	42.67	45.20	46.35	46.10
SO	BUILDWID	SDT2B	44.44	41.44	37.17	31.78	75.92	70.10
SO	BUILDWID	SDT2B	73.27	31.78	37.17	41.44	44.44	46.10
SO	BUILDWID	SDT2B	46.35	45.20	42.67	45.20	46.35	46.10
SO	BUILDLEN	SDT2B	41.44	44.44	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT2B	46.79	46.35	46.10	44.44	41.44	37.17
SO	BUILDLEN	SDT2B	31.78	25.42	18.29	25.42	31.78	37.17
SO	BUILDLEN	SDT2B	41.44	44.44	46.10	46.35	45.20	42.67
SO	BUILDLEN	SDT2B	51.20	46.35	46.10	44:44	41.44	37.17
SO	BUILDLEN	SDT2B	31.78	25.42	18.29	25.42	31.78	37.17
SO	XBADJ	SDT2B	-30.87	-32.26	-143.18	-151.08	-154.39	-153.01
SO	XBADJ	SDT2B	-151.74	-26.87	-25.05	-22.46	-19.19	-15.34
SO	XBADJ	SDT2B	-11.02	-6.37	-1.52	-4.04	-6.44	-8.64
SO	XBADJ	SDT2B	-10.57	-12.19	-13.43	-14.27	-14.67	-14.63
SO	XBADJ	SDT2B	-23.32	-19.48	-21.05	-21.98	-22.25	-21.83
SO	XBADJ	SDT2B	-20.76	-19.05	-16.76	-21.38	-25.34	-28.54
SO	YBADJ	SDT2B	0.24	-1.53	49.31	37.87	15.36	-16.00
SO	YBADJ	SDT2B	-30.37	-9.45	-9.95	-10.15	-10.03	-9.62
SO	YBADJ	SDT2B	-8.91	-7.93	-6.71	-5.28	-3.70	-2.00
SO	YBADJ	SDT2B	-0.24	1.53	3.25	4.87	31.59	33.53
SO	YBADJ	SDT2B	32.59	9.45	9.95	10.15	10.03	9.62
SO	YBADJ	SDT2B	8.91	7.93	6.71	5.28	3.70	2.00

SO	BUILDHGT	SDT3B	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT3B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3B	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT3B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT3B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT3B	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT3B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT3B	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT3B	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT3B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT3B	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT3B	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT3B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT3B	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT3B	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT3B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT3B	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT3B	-46.74	-51.17	-54.05	-55.28	-54.84	-52.73
SO	XBADJ	SDT3B	-53.78	-53.20	-51.00	-47.25	-42.07	-35.60
SO	XBADJ	SDT3B	-28.06	-19.66	-10.67	-8.76	-6.58	-4.21
SO	XBADJ	SDT3B	-1.71	0.85	3.38	5.80	8.05	-0.61
SO	XBADJ	SDT3B	6.99	3.72	0.33	-3.07	-6.38	-9.49
SO	XBADJ	SDT3B	-12.31	-14.76	-16.76	-25.67	-33.79	-40.88
SO	YBADJ	SDT3B	22.09	17.85	13.06	7.87	2.45	-11.43
SO	YBADJ	SDT3B	-8.45	-13.60	-18.34	-22.51	-26.01	-28.71
SO	YBADJ	SDT3B	-30.54	-31.45	-31.39	-30.39	-28.46	-25.66
SO	YBADJ	SDT3B	-22.09	-17.85	-13.06	-7.87	-2.45	11.43
SO	YBADJ	SDT3B	8.45	13.60	18.34	22.51	26.01	28.71
SO	YBADJ	SDT3B	30.54	31.45	31.39	30.39	28.46	25.66

SO	BUILDHGT	SDT4B	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4B	45.70	45.70	45.70	45.70	45.70	38.10
SO	BUILDHGT	SDT4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDHGT	SDT4B	45.70	45.70	45.70	45.70	45.70	45.70
SO	BUILDWID	SDT4B	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4B	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDWID	SDT4B	50.32	48.44	45.09	40.37	34.43	44.20
SO	BUILDWID	SDT4B	34.43	40.37	45.09	48.44	50.32	50.67
SO	BUILDWID	SDT4B	49.48	46.79	42.67	46.79	49.48	50.67
SO	BUILDLEN	SDT4B	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4B	40.37	34.43	27.43	34.43	40.37	45.09
SO	BUILDLEN	SDT4B	48.44	50.32	50.67	49.48	46.79	53.34
SO	BUILDLEN	SDT4B	46.79	49.48	50.67	50.32	48.44	45.09
SO	BUILDLEN	SDT4B	40.37	34.43	27.43	34.43	40.37	45.09
SO	XBADJ	SDT4B	-25.62	-28.06	-29.65	-30.34	-30.10	-28.96
SO	XBADJ	SDT4B	-31.69	-33.46	-34.22	-33.94	-32.62	-30.32

```
SO XBADJ    SDT4B       -27.09  -23.04  -18.29  -20.39  -21.88  -22.70
SO XBADJ    SDT4B       -22.83  -22.26  -21.02  -19.14  -16.68  -24.38
SO XBADJ    SDT4B       -15.10  -16.02  -16.45  -16.38  -15.82  -14.78
SO XBADJ    SDT4B       -13.28  -11.39   -9.14  -14.03  -18.50  -22.40
SO YBADJ    SDT4B         8.78    8.40    7.77    6.90    5.83   -3.81
SO YBADJ    SDT4B         3.18    1.69    0.15   -1.40   -2.90   -4.31
SO YBADJ    SDT4B        -5.60   -6.71   -7.62   -8.30   -8.72   -8.89
SO YBADJ    SDT4B        -8.78   -8.40   -7.77   -6.90   -5.83    3.81
SO YBADJ    SDT4B        -3.18   -1.69   -0.15    1.40    2.90    4.31
SO YBADJ    SDT4B         5.60    6.71    7.62    8.30    8.72    8.89

SO BUILDHGT COMBOB       35.10   35.10   35.10   38.10   38.10   38.10
SO BUILDHGT COMBOB       45.70   45.70   45.70   45.70   30.50   30.50
SO BUILDHGT COMBOB       21.30   35.10   35.10   35.10   35.10   35.10
SO BUILDHGT COMBOB       35.10   35.10   35.10   38.10   38.10   38.10
SO BUILDHGT COMBOB       45.70   45.70   45.70   45.70   30.50   30.50
SO BUILDHGT COMBOB       21.30   35.10   35.10   35.10   35.10   35.10
SO BUILDWID COMBOB       44.44   41.44   37.17   59.77   52.79   44.20
SO BUILDWID COMBOB       34.43   40.37   44.36   44.36   35.94   33.72
SO BUILDWID COMBOB       73.95   45.20   42.67   45.20   46.35   46.10
SO BUILDWID COMBOB       44.44   41.44   37.17   59.77   52.79   44.20
SO BUILDWID COMBOB       34.43   40.37   44.36   44.36   35.94   33.72
SO BUILDWID COMBOB       73.95   45.20   42.67   45.20   46.35   46.10
SO BUILDLEN COMBOB       41.44   44.44   46.10   49.60   52.27   53.34
SO BUILDLEN COMBOB       46.79   49.48   50.67   50.32   37.06   37.06
SO BUILDLEN COMBOB       42.20   25.42   18.29   25.42   31.78   37.17
SO BUILDLEN COMBOB       41.44   44.44   46.10   49.60   52.27   53.34
SO BUILDLEN COMBOB       46.79   49.48   50.67   50.32   37.06   37.06
SO BUILDLEN COMBOB       42.20   25.42   18.29   25.42   31.78   37.17
SO XBADJ    COMBOB       19.91   20.02   19.53 -100.56 -107.07 -110.34
SO XBADJ    COMBOB     -115.01 -116.19 -113.84 -108.03   27.00   23.06
SO XBADJ    COMBOB      -35.49  -28.98  -32.00  -41.47  -49.67  -56.37
SO XBADJ    COMBOB      -61.35  -64.47  -65.63   50.95   54.81   57.00
SO XBADJ    COMBOB       68.23   66.71   63.17   57.71  -64.06  -60.12
SO XBADJ    COMBOB       -6.71    3.56   13.72   16.05   17.89   19.19
SO YBADJ    COMBOB      -12.86   -5.61    1.81   42.22   28.79   14.48
SO YBADJ    COMBOB        7.06   -8.96  -24.70  -39.70   18.70   26.32
SO YBADJ    COMBOB       27.82   39.39   35.97   31.45   25.98   19.72
SO YBADJ    COMBOB       12.86    5.61   -1.81  -42.22  -28.79  -14.48
SO YBADJ    COMBOB       -7.06    8.96   24.70   39.70  -18.70  -26.32
SO YBADJ    COMBOB      -27.82  -39.39  -35.97  -31.45  -25.98  -19.72


SO BUILDHGT LK1B        35.10   35.10   35.10   38.10   38.10   38.10
SO BUILDHGT LK1B        38.10   35.10   35.10   35.10   35.10    0.00
SO BUILDHGT LK1B         0.00    0.00    0.00    0.00   30.50   30.50
SO BUILDHGT LK1B        35.10   35.10   35.10   35.10   30.50   30.50
SO BUILDHGT LK1B        30.50   35.10   35.10   35.10   35.10    0.00
SO BUILDHGT LK1B         0.00    0.00    0.00    0.00   30.50   30.50
SO BUILDWID LK1B        44.44   41.44   37.17   59.77   44.20   44.20
SO BUILDWID LK1B        44.20   31.78   37.17   41.44   44.44    0.00
SO BUILDWID LK1B         0.00    0.00    0.00    0.00   61.21   33.72
SO BUILDWID LK1B        44.44   41.44   37.17   31.78   75.92   70.10
SO BUILDWID LK1B        73.27   31.78   37.17   41.44   44.44    0.00
SO BUILDWID LK1B         0.00    0.00    0.00    0.00   61.21   33.72
SO BUILDLEN LK1B        41.44   44.44   46.10   49.60   46.79   53.34
SO BUILDLEN LK1B        46.79   46.35   46.10   44.44   41.44    0.00
SO BUILDLEN LK1B         0.00    0.00    0.00    0.00   74.22   37.06
SO BUILDLEN LK1B        41.44   44.44   46.10   46.35   45.20   42.67
SO BUILDLEN LK1B        51.20   46.35   46.10   44.44   41.44    0.00
SO BUILDLEN LK1B         0.00    0.00    0.00    0.00   74.22   37.06
SO XBADJ    LK1B       -54.07  -61.48  -67.03 -189.53 -195.76 -196.05
SO XBADJ    LK1B      -195.14  -69.31  -65.24  -59.18  -51.32    0.00
SO XBADJ    LK1B         0.00    0.00    0.00    0.00    2.81   43.68
SO XBADJ    LK1B        12.63   17.04   20.93   24.18   26.70   28.41
SO XBADJ    LK1B        20.08   22.96   19.14   14.74    9.89    0.00
SO XBADJ    LK1B         0.00    0.00    0.00    0.00  -77.02  -80.74
SO YBADJ    LK1B        36.96   30.61   23.32   48.37   28.58  -10.17
SO YBADJ    LK1B       -32.10  -18.70  -26.42  -33.35  -39.26    0.00
SO YBADJ    LK1B         0.00    0.00    0.00    0.00  -38.71  -12.73
SO YBADJ    LK1B       -36.96  -30.61  -23.32  -15.33   18.37   27.70
SO YBADJ    LK1B        34.33   18.70   26.42   33.35   39.26    0.00
SO YBADJ    LK1B         0.00    0.00    0.00    0.00   38.71   12.73


SO BUILDHGT LK2B        35.10   35.10   35.10   38.10   38.10   38.10
SO BUILDHGT LK2B        30.50   35.10   35.10   35.10    0.00    0.00
SO BUILDHGT LK2B         0.00    0.00    0.00    0.00   30.50   35.10
SO BUILDHGT LK2B        35.10   35.10   35.10   35.10   30.50   30.50
SO BUILDHGT LK2B        30.50   35.10   35.10   35.10    0.00    0.00
SO BUILDHGT LK2B         0.00    0.00    0.00    0.00   30.50   35.10
SO BUILDWID LK2B        44.44   41.44   37.17   59.77   44.20   44.20
```

```
SO BUILDWID LK2B       73.27   31.78   37.17   41.44    0.00    0.00
SO BUILDWID LK2B        0.00    0.00    0.00    0.00   61.21   46.10
SO BUILDWID LK2B       44.44   41.44   37.17   31.78   75.92   70.10
SO BUILDWID LK2B       73.27   31.78   37.17   41.44    0.00    0.00
SO BUILDWID LK2B        0.00    0.00    0.00    0.00   61.21   46.10
SO BUILDLEN LK2B       41.44   44.44   46.10   49.60   46.79   53.34
SO BUILDLEN LK2B       51.20   46.35   46.10   44.44    0.00    0.00
SO BUILDLEN LK2B        0.00    0.00    0.00    0.00   74.22   37.17
SO BUILDLEN LK2B       41.44   44.44   46.10   46.35   45.20   42.67
SO BUILDLEN LK2B       51.20   46.35   46.10   44.44    0.00    0.00
SO BUILDLEN LK2B        0.00    0.00    0.00    0.00   74.22   37.17
SO XBADJ    LK2B      -58.49  -65.19  -69.91 -191.50 -196.76 -196.04
SO XBADJ    LK2B      -70.27  -67.32  -62.34  -55.46    0.00    0.00
SO XBADJ    LK2B        0.00    0.00    0.00    0.00    8.23   12.84
SO XBADJ    LK2B       17.05   20.74   23.81   26.15   27.70   28.40
SO XBADJ    LK2B       19.07   20.97   16.24   11.01    0.00    0.00
SO XBADJ    LK2B        0.00    0.00    0.00    0.00  -82.45  -50.01
SO YBADJ    LK2B       33.23   26.17   18.31   42.94   22.88  -15.95
SO YBADJ    LK2B      -40.02  -24.12  -31.42  -37.77    0.00    0.00
SO YBADJ    LK2B        0.00    0.00    0.00    0.00  -36.72  -39.29
SO YBADJ    LK2B      -33.23  -26.17  -18.31   -9.90   24.07   33.48
SO YBADJ    LK2B       40.02   24.12   31.42   37.77    0.00    0.00
SO YBADJ    LK2B        0.00    0.00    0.00    0.00   36.72   39.29

SO BUILDHGT LK3B       35.10   35.10   35.10   38.10   45.70   38.10
SO BUILDHGT LK3B       30.50    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK3B        0.00    0.00    0.00    0.00   30.50   35.10
SO BUILDHGT LK3B       35.10   35.10   35.10   35.10   30.50   30.50
SO BUILDHGT LK3B       30.50    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK3B        0.00    0.00    0.00    0.00   30.50   35.10
SO BUILDWID LK3B       44.44   41.44   37.17   59.77   34.43   44.20
SO BUILDWID LK3B       73.27    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK3B        0.00    0.00    0.00    0.00   61.21   46.10
SO BUILDWID LK3B       44.44   41.44   37.17   31.78   75.92   70.10
SO BUILDWID LK3B       73.27    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK3B        0.00    0.00    0.00    0.00   61.21   46.10
SO BUILDLEN LK3B       41.44   44.44   46.10   49.60   46.79   53.34
SO BUILDLEN LK3B       51.20    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK3B        0.00    0.00    0.00    0.00   74.22   37.17
SO BUILDLEN LK3B       41.44   44.44   46.10   46.35   45.20   42.67
SO BUILDLEN LK3B       51.20    0.00    0.00    0.00    0.00    0.00
SO BUILDLEN LK3B        0.00    0.00    0.00    0.00   74.22   37.17
SO XBADJ    LK3B      -65.90  -71.59  -75.11 -195.34 -199.12 -196.85
SO XBADJ    LK3B      -69.50    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK3B        0.00    0.00    0.00    0.00   16.97   21.04
SO XBADJ    LK3B       24.47   27.15   29.01   29.99   30.06   29.21
SO XBADJ    LK3B       18.30    0.00    0.00    0.00    0.00    0.00
SO XBADJ    LK3B        0.00    0.00    0.00    0.00  -91.18  -58.21
SO YBADJ    LK3B       28.07   19.80   10.92   34.76   14.16  -24.95
SO YBADJ    LK3B      -49.02    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK3B        0.00    0.00    0.00    0.00  -34.40  -35.49
SO YBADJ    LK3B      -28.07  -19.80  -10.92   -1.72   32.79   42.48
SO YBADJ    LK3B       49.02    0.00    0.00    0.00    0.00    0.00
SO YBADJ    LK3B        0.00    0.00    0.00    0.00   34.40   35.49


   SRCGROUP ALL

SO FINISHED
**
*******************************************
** AERMOD Receptor Pathway
*******************************************
**
**
RE STARTING
   INCLUDED RECPM.rou
RE FINISHED
**
*******************************************
** AERMOD Meteorology Pathway
*******************************************
**
**
ME STARTING
   SURFFILE ..\..\aermet\TLHAYS86.SFC
   PROFFILE ..\..\aermet\TLHAYS86.PFL
   SURFDATA 93805 1986 TALLAHASSEE/MUNICIPAL_ARPT
   UAIRDATA 13861 1986 WAYCROSS/WSMO
   PROFBASE 25 FEET
```

```
ME FINISHED
**
******************************************
** AERMOD Output Pathway
******************************************
**
**
OU STARTING

   RECTABLE ALLAVE FIRST SIXTH

** Auto-Generated Plotfiles

** PLOTFILE 24 ALL 1ST PM24AQS.P86
** PLOTFILE PERIOD ALL SO2ANALL.P86

OU FINISHED
```

```
BUCKEYE FL,  CALPUFF, FUTURE-CURRENT PROJECT EMISSIONS          12/08/05
SHORT-TERM POLLUTANT CONCENTRATIONS
1990 NORTH CENTRAL FL - S. GA  WIND DOMAIN
--------------- Run title (3 lines) ------------------------------------------

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

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

INPUT GROUP: 0 -- Input and Output File Names

--------------
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 = PUFSIGST.LST !
CONC.DAT      output   ! CONDAT = PUFSIGST.CON !
DFLX.DAT      output   * DFDAT  =          *
WFLX.DAT      output   * WFDAT  =          *

VISB.DAT      output   * VISDAT = VISB.DAT    *
RESTARTE.DAT  output   * RSTARTE=          *
--------------------------------------------------------------------------------
Emission Files
--------------
PTEMARB.DAT   input    * PTDAT  =          *
VOLEMARB.DAT  input    * VOLDAT =          *
BAEMARB.DAT   input    * ARDAT  =          *
LNEMARB.DAT   input    * LNDAT  =          *
--------------------------------------------------------------------------------
Other Files
-----------
OZONE.DAT     input    * OZDAT  = ..\OZONE\OZONE90.DAT *
VD.DAT        input    * VDDAT  =          *
CHEM.DAT      input    * CHEMDAT=          *
H2O2.DAT      input    * H2O2DAT=          *
HILL.DAT      input    * HILDAT=          *
HILLRCT.DAT   input    * RCTDAT=          *
COASTLN.DAT   input    * CSTDAT=          *
FLUXBDY.DAT   input    * BDYDAT=          *
BCON.DAT      input    * BCNDAT=          *
DEBUG.DAT     output   * DEBUG =          *
MASSFLX.DAT   output   * FLXDAT=          *
MASSBAL.DAT   output   * BALDAT=          *
FOG.DAT       output   * FOGDAT=          *
--------------------------------------------------------------------------------
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


Provision for multiple input files
----------------------------------

     Number of CALMET.DAT files for run (NMETDAT)
                                Default: 1        ! NMETDAT =   24  !

     Number of PTEMARB.DAT files for run (NPTDAT)
                                Default: 0        ! NPTDAT =  0  !

     Number of BAEMARB.DAT files for run (NARDAT)
                                Default: 0        ! NARDAT =  0  !

     Number of VOLEMARB.DAT files for run (NVOLDAT)
                                Default: 0        ! NVOLDAT =  0  !

!END!

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

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

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

Default Name  Type          File Name
------------  ----          ---------
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\JANA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\JANB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\FEBA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\FEBB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\MARA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\MARB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\APRA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\APRB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\MAYA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\MAYB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\JUNA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\JUNB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\JULA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\JULB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\AUGA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\AUGB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\SEPA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\SEPB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\OCTA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\OCTB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\NOVA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\NOVB.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\DECA.DAT ! !END!
CALMET.DAT    input    ! METDAT =C:\calmet\NCF90\DECB.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 =  1    !

     Base time zone        (XBTZ) -- No default       ! XBTZ =  5    !
        PST = 8., MST = 7.
        CST = 6., EST = 5.

     Length of run (hours) (IRLG) -- No default       ! IRLG = 8615 !

     Number of chemical species (NSPEC)
                                    Default: 5        ! NSPEC = 7    !

     Number of chemical species
     to be emitted  (NSE)           Default: 3        ! NSE =   5    !

     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)

     Method used to simulate building
     downwash? (MBDW)                        Default: 1     ! MBDW =  1   !
        1 = ISC method
        2 = PRIME method

     Vertical wind shear modeled above
     stack top? (MSHEAR)                     Default: 0     ! MSHEAR =  0  !
        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)
     4 = secondary organic aerosol formation
         computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)
(Used only if MCHEM = 1, or 3)        Default: 0     ! MAQCHEM =  0   !
     0 = aqueous phase transformation
         not modeled
     1 = transformation rates adjusted
         for aqueous phase reactions

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 =  3    !

     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 =  3  !
     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 =  3  !
(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

      Boundary conditions (concentration) modeled?
                                          Default: 0     ! MBCON = 0  !
      (MBCON)
         0 = no
         1 = yes, using formatted BCON.DAT file
         2 = yes, using unformatted CONC.DAT file

      Note:  MBCON > 0 requires that the last species modeled
             be 'BCON'.  Mass is placed in species BCON when
             generating boundary condition puffs so that clean
             air entering the modeling domain can be simulated
             in the same way as polluted air.  Specify zero
             emission of species BCON for all regular sources.


      Analyses of fogging and icing impacts due to emissions from
      arrays of mechanically-forced cooling towers can be performed
      using CALPUFF in conjunction with a cooling tower emissions
      processor (CTEMISS) and its associated postprocessors.  Hourly
      emissions of water vapor and temperature from each cooling tower
      cell are computed for the current cell configuration and ambient
      conditions by CTEMISS. CALPUFF models the dispersion of these
      emissions and provides cloud information in a specialized format
      for further analysis. Output to FOG.DAT is provided in either
      'plume mode' or 'receptor mode' format.

      Configure for FOG Model output?
                                          Default: 0     ! MFOG =  0   !
      (MFOG)
         0 = no
         1 = yes  - report results in PLUME Mode format
         2 = yes  - report results in RECEPTOR Mode format


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

         0 = NO checks are made
         1 = Technical options must conform to USEPA
             Long Range Transport (LRT) guidance
                        METFM    1 or 2
                        AVET     60. (min)
                        PGTIME   60. (min)
                        MGAUSS   1
                        MCTADJ   3
                        MTRANS   1
                        MTIP     1
                        MCHEM    1 or 3 (if modeling SOx, NOx)
                        MWET     1
                        MDRY     1
                        MDISP    2 or 3
                        MPDF     0 if MDISP=3
                                 1 if MDISP=2
                        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!
! CSPEC =           CO !         !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,              1,              2,                  0   !
!       NOX  =         1,              1,              1,                  0   !
!      HNO3  =         1,              0,              1,                  0   !
!       NO3  =         1,              0,              2,                  0   !
!      PM10  =         1,              1,              2,                  0   !
!        CO  =         1,              1,              0,                  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 -- Map Projection and Grid control parameters
--------------

     Projection for all (X,Y):
     -------------------------

     Map projection
     (PMAP)                     Default: UTM     ! PMAP = UTM  !

         UTM :  Universal Transverse Mercator
         TTM :  Tangential Transverse Mercator
         LCC :  Lambert Conformal Conic
          PS :  Polar Stereographic
          EM :  Equatorial Mercator
        LAZA :  Lambert Azimuthal Equal Area

     False Easting and Northing (km) at the projection origin
     (Used only if PMAP= TTM, LCC, or LAZA)
     (FEAST)                    Default=0.0      ! FEAST  = 0.000  !
     (FNORTH)                   Default=0.0      ! FNORTH = 0.000  !

     UTM zone (1 to 60)
     (Used only if PMAP=UTM)
     (IUTMZN)                   No Default       ! IUTMZN =  17   !

     Hemisphere for UTM projection?
     (Used only if PMAP=UTM)
     (UTMHEM)                   Default: N       ! UTMHEM = N  !
         N   :  Northern hemisphere projection
         S   :  Southern hemisphere projection

     Latitude and Longitude (decimal degrees) of projection origin
     (Used only if PMAP= TTM, LCC, PS, EM, or LAZA)
     (RLAT0)                    No Default       ! RLAT0 =  48.7N !
     (RLON0)                    No Default       ! RLON0 = 138.8W !

         TTM :  RLON0 identifies central (true N/S) meridian of projection
                RLAT0 selected for convenience
         LCC :  RLON0 identifies central (true N/S) meridian of projection
                RLAT0 selected for convenience
```

```
        PS  :  RLONO identifies central (grid N/S) meridian of projection
               RLATO selected for convenience
        EM  :  RLONO identifies central meridian of projection
               RLATO is REPLACED by 0.0N (Equator)
        LAZA:  RLONO identifies longitude of tangent-point of mapping plane
               RLATO identifies latitude of tangent-point of mapping plane

    Matching parallel(s) of latitude (decimal degrees) for projection
    (Used only if PMAP= LCC or PS)
    (XLAT1)                 No Default      ! XLAT1 = 30N  !
    (XLAT2)                 No Default      ! XLAT2 = 60N  !

        LCC :  Projection cone slices through Earth's surface at XLAT1 and XLAT2
        PS  :  Projection plane slices through Earth at XLAT1
               (XLAT2 is not used)

    ----------
    Note:  Latitudes and longitudes should be positive, and include a
           letter N,S,E, or W indicating north or south latitude, and
           east or west longitude.  For example,
           35.9  N Latitude  =  35.9N
           118.7 E Longitude = 118.7E


    Datum-region
    ------------

    The Datum-Region for the coordinates is identified by a character
    string.  Many mapping products currently available use the model of the
    Earth known as the World Geodetic System 1984 (WGS-G ).  Other local
    models may be in use, and their selection in CALMET will make its output
    consistent with local mapping products.  The list of Datum-Regions with
    official transformation parameters is provided by the National Imagery and
    Mapping Agency (NIMA).

    NIMA Datum - Regions(Examples)
    ------------------------------------------------------------------------------
    WGS-G    WGS-84 GRS 80 Spheroid, Global coverage (WGS84)
    NAS-C    NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)
    NWS-27   NWS 6370KM Radius, Sphere
    NWS-84   NWS 6370KM Radius, Sphere
    ESR-S    ESRI REFERENCE 6371KM Radius, Sphere

    Datum-region for output coordinates
    (DATUM)                    Default: WGS-G     ! DATUM = NAS-C !


METEOROLOGICAL Grid:

            No. X grid cells (NX)      No default     ! NX = 112   !
            No. Y grid cells (NY)      No default     ! NY = 171    !
         No. vertical layers (NZ)      No default     ! NZ =  10   !

           Grid spacing (DGRIDKM)      No default     ! DGRIDKM = 4. !
                                       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 =  77. !
            Y coordinate (YORIGKM)     No default     ! YORIGKM = 2966. !
                                      Units: km


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 =  112 !
                  (1 <= IECOMP <= NX)

         Y index of UR corner (JECOMP)      No default     ! JECOMP =  171  !
                  (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 =  1   !
         (IBCOMP <= IBSAMP <= IECOMP)

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


        X index of UR corner (IESAMP)       No default     ! IESAMP =  112 !
         (IBCOMP <= IESAMP <= IECOMP)

        Y index of UR corner (JESAMP)       No default     ! JESAMP =  171  !
         (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 =  0   !
    (relative humidity file is
     required for visibility
     analysis)
   Use data compression option in output file?
   (LCOMPRS)                          Default: T         ! LCOMPRS = T !

   *
    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 run
        written to the screen ?
        (IMESG)                         Default: 2         ! IMESG =  2   !
          0 = no
          1 = yes (advection step, puff ID)
          2 = yes (YYYYJJJHH, # old puffs, # emitted puffs)


     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,          1,          0,          1,           0  !
!             SO4 =     0,           1,          0,          1,          0,          1,           0  !
!             NOX =     0,           1,          0,          1,          0,          1,           0  !
!            HNO3 =     0,           1,          0,          1,          0,          1,           0  !
!             NO3 =     0,           1,          0,          1,          0,          1,           0  !
!            PM10 =     0,           1,          0,          1,          0,          1,           0  !
!              CO =     0,           1,          0,          1,          0,          1,           0  !

  Note:  Species BCON (for MBCON > 0) does not need to be saved on disk.


     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 =  2   !
        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 NAME	DIFFUSIVITY (cm**2/s)	ALPHA STAR	REACTIVITY	MESOPHYLL RESISTANCE (s/cm)	HENRY'S LAW COEFFICIENT (dimensionless)	
!	SO2 =	0.1509,	1000.,	8.,	0.,	.04	!
!	NOX =	0.1656,	1.,	8.,	5.,	3.5	!
!	HNO3 =	0.1628,	1.,	18.,	0.,	8E-8	!

!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 NAME	GEOMETRIC MASS MEAN DIAMETER (microns)	GEOMETRIC STANDARD DEVIATION (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 = 30.0 !
Reference ground resistance  (s/cm)
(RGR)                            Default: 10    !    RGR = 10.0 !
Reference pollutant reactivity
(REACTR)                         Default: 8     ! REACTR = 8.0 !

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 =  0   !
     (Used only if MCHEM = 1, 3, or 4)
        0 = use a monthly background ozone value
        1 = read hourly ozone concentrations from
            the OZONE.DAT data file

     Monthly ozone concentrations
     (Used only if MCHEM = 1, 3, or 4 and
      MOZ = 0 or MOZ = 1 and all hourly O3 data missing)
     (BCKO3) in ppb                    Default: 12*80.
     !  BCKO3 = 12*50. !

     Monthly ammonia concentrations
     (Used only if MCHEM = 1, or 3)
     (BCKNH3) in ppb                   Default: 12*10.
     !  BCKNH3 = 12*1. !

     Nighttime SO2 loss rate (RNITE1)
     in percent/hour                   Default: 0.2          ! RNITE1 = .2 !

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

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

     H2O2 data input option (MH2O2)    Default: 1            ! MH2O2 =  1   !
     (Used only if MAQCHEM = 1)
        0 = use a monthly background H2O2 value
        1 = read hourly H2O2 concentrations from
            the H2O2.DAT data file

     Monthly H2O2 concentrations
     (Used only if MQACHEM = 1 and
      MH2O2 = 0 or MH2O2 = 1 and all hourly H2O2 data missing)
     (BCKH2O2) in ppb                  Default: 12*1.
     !  BCKH2O2 = 12*1 !


 --- Data for SECONDARY ORGANIC AEROSOL (SOA) Option
     (used only if MCHEM = 4)

     The SOA module uses monthly values of:
          Fine particulate concentration in ug/m^3 (BCKPMF)
          Organic fraction of fine particulate     (OFRAC)
          VOC / NOX ratio (after reaction)         (VCNX)
     to characterize the air mass when computing
     the formation of SOA from VOC emissions.
     Typical values for several distinct air mass types are:

        Month    1    2    3    4    5    6    7    8    9   10   11   12
                Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

     Clean Continental
        BCKPMF   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
        OFRAC  .15  .15  .20  .20  .20  .20  .20  .20  .20  .20  .20  .15
        VCNX   50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.

     Clean Marine (surface)
        BCKPMF  .5   .5   .5   .5   .5   .5   .5   .5   .5   .5   .5   .5
        OFRAC  .25  .25  .30  .30  .30  .30  .30  .30  .30  .30  .30  .25
        VCNX   50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.  50.

     Urban - low biogenic (controls present)
        BCKPMF 30.  30.  30.  30.  30.  30.  30.  30.  30.  30.  30.  30.
        OFRAC  .20  .20  .25  .25  .25  .25  .25  .25  .20  .20  .20  .20
        VCNX    4.   4.   4.   4.   4.   4.   4.   4.   4.   4.   4.   4.

     Urban - high biogenic (controls present)
        BCKPMF 60.  60.  60.  60.  60.  60.  60.  60.  60.  60.  60.  60.
        OFRAC  .25  .25  .30  .30  .30  .55  .55  .55  .35  .35  .35  .25
        VCNX   15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.

     Regional Plume
        BCKPMF 20.  20.  20.  20.  20.  20.  20.  20.  20.  20.  20.  20.
```

```
      OFRAC  .20  .20  .25  .35  .25  .40  .40  .40  .30  .30  .30  .20
      VCNX    15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.  15.

   Urban - no controls present
      BCKPMF 100. 100. 100. 100. 100. 100. 100. 100. 100. 100. 100. 100.
      OFRAC  .30  .30  .35  .35  .35  .55  .55  .55  .35  .35  .35  .30
      VCNX     2.   2.   2.   2.   2.   2.   2.   2.   2.   2.   2.   2.

   Default: Clean Continental
   !  BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !
   !  OFRAC  = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !
   !  VCNX   = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00 !


!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 = .01 !

     Vertical dispersion constant for neutral/
     unstable conditions (k2 in Eqn. 2.7-4)
     (CONK2)                                    Default: 0.1    ! CONK2 = .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 = .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 = .25 !

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

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

        Latitude (degrees) for met location
        (XLATIN)                                Default: -999.  ! XLATIN = -999.0 !

        Longitude (degrees) for met location
        (XLONIN)                                Default: -999.  ! XLONIN = -999.0 !

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

        Anemometer height (m) (Used only if METFM = 2,3)
        (ANEMHT)                                Default: 10.    ! ANEMHT = 10.0 !
```

```
   Form of lateral turbulance data in PROFILE.DAT file
   (Used only if METFM = 4 or MTURBVW = 1 or 3)
   (ISIGMAV)                             Default: 1       ! ISIGMAV =  1  !
       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 = 1.0 !

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

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 = 1.0  !

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

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 = .5 !

Maximum mixing height (m)
(XMAXZI)                                 Default: 3000.   ! XMAXZI = 3000.0 !

Minimum mixing height (m)
(XMINZI)                                 Default: 50.     ! XMINZI = 50.0 !

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
                                           ---   ---   ---   ---   ---
                                 ! 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 = 10.0 !

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

  VERTICAL SPLIT
  --------------

  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 = 100.0 !

  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 !


  HORIZONTAL SPLIT
  ----------------

  Number of puffs that result every time a puff
  is split - nsplith=5 means that 1 puff splits
  into 5
  (NSPLITH)                        Default:   5       ! NSPLITH =  5  !

  Minimum sigma-y (Grid Cells Units) of puff
  before it may be split
  (SYSPLITH)                       Default:  1.0      ! SYSPLITH = 1.0 !

  Minimum puff elongation rate (SYSPLITH/hr) due to
  wind shear, before it may be split
  (SHSPLITH)                       Default:  2.       ! SHSPLITH = 2.0 !

  Minimum concentration (g/m^3) of each
  species in puff before it may be split
  Enter array of NSPEC values; if a single value is
  entered, it will be used for ALL species
  (CNSPLITH)                       Default:  1.0E-07  ! CNSPLITH = 1.0E-07 !

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 = 1.0 !

   Boundary Condition (BC) Puff control variables ------------------------

     Minimum height (m) to which BC puffs are mixed as they are emitted
     (MBCON=2 ONLY).  Actual height is reset to the current mixing height
     at the release point if greater than this minimum.
     (HTMINBC)                          Default:   500.     ! HTMINBC = 500. !

     Search radius (km) about a receptor for sampling nearest BC puff.
     BC puffs are typically emitted with a spacing of one grid cell
     length, so the search radius should be greater than DGRIDKM.
     (RSAMPBC)                          Default:   10.      ! RSAMPBC = 10. !

     Near-Surface depletion adjustment to concentration profile used when
     sampling BC puffs?
     (MDEPBC)                           Default:   1        ! MDEPBC = 1. !
        0 = Concentration is NOT adjusted for depletion
        1 = Adjust Concentration for depletion

!END!


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


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


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

   Number of point sources with
   parameters provided below       (NPT1)  No default  !  NPT1 =  5 !

   Units used for point source
   emissions below                 (IPTU)  Default: 1  !  IPTU =   3  !
         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)
  ------  ---------- ---------- ------  ------   -------- ----- -------- -----  --------
Subgroup (13b)

FUTURE-CURRENT EMISSIONS

EMISSIONS IN LB/HR
```

```
                                                                                          SO2    SO4  NOX            PM10  CO
Future BUCKEYE FL SOURCES
  1  ! SRCNAM = LK4          !
  1  ! X =   256.8144, 3328.9263, 38.10, 16.0, 2.23, 15.20, 511.0, 0.0, 10.9,  0.0, 25.4, 0.0, 0.0, 12.2, 0.0 !  ! E
  4  ! SRCNAM = RB4          !
  4  ! X =   256.4706, 3328.8164, 68.60, 16.0, 2.90, 25.80, 500.0, 1.0,  1.8,  0.0, 12.5, 0.0, 0.0, 28.2, 0.0 !  ! E
  7  ! SRCNAM = SDT4         !
  7  ! X =   256.4846, 3328.8228, 49.40, 16.0, 1.22, 12.90, 342.0, 1.0, 0.04,  0.0, 0.17, 0.0, 0.0, 6.62, 0.0 !  ! E
  9  ! SRCNAM = 12LS         !
  9  ! X =   256.7786, 3328.9810, 40.50, 16.0, 0.59,  1.16, 334.0, 0.0,  0.0,  0.0, 0.00, 0.0, 0.0, 1.72, 0.0 !  ! E
 10  ! SRCNAM = COMBO        !
 10  ! X =   256.5641, 3328.8474, 68.60, 16.0, 3.96, 19.00, 367.0, 1.0, 0.94,  0.0, 0.00, 0.0, 0.0, 0.0, 0.0 !  ! EN

--------

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

     SRCNAM  is a 12-character name for a source
             (No default)
     X       is an array holding the source data listed by the column headings
             (No default)
     SIGYZI  is an array holding the initial sigma-y and sigma-z (m)
             (Default: 0.,0.)
     FMFAC   is a vertical momentum flux factor (0. or 1.0) used to represent
             the effect of rain-caps or other physical configurations that
             reduce momentum rise associated with the actual exit velocity.
             (Default: 1.0  -- full momentum used)

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

      4  ! SRCNAM = RB4          !
      4  !  HEIGHT =  45.70,  45.70,  45.70,  45.70,  45.70,  38.10,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70,
                 45.70,  45.70,  45.70,  45.70,  45.70,  38.10,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70 !
      4  !  WIDTH =   50.32,  48.44,  45.09,  40.37,  34.43,  44.20,
                 34.43,  40.37,  45.09,  48.44,  50.32,  50.67,
                 49.48,  46.79,  42.67,  46.79,  49.48,  50.67,
                 50.32,  48.44,  45.09,  40.37,  34.43,  44.20,
                 34.43,  40.37,  45.09,  48.44,  50.32,  50.67,
                 49.48,  46.79,  42.67,  46.79,  49.48,  50.67 !
!END!

      7  ! SRCNAM = SDT4         !
      7  !  HEIGHT =  45.70,  45.70,  45.70,  45.70,  45.70,  38.10,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70,
                 45.70,  45.70,  45.70,  45.70,  45.70,  38.10,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70,
                 45.70,  45.70,  45.70,  45.70,  45.70,  45.70 !
      7  !  WIDTH =   50.32,  48.44,  45.09,  40.37,  34.43,  44.20,
                 34.43,  40.37,  45.09,  48.44,  50.32,  50.67,
                 49.48,  46.79,  42.67,  46.79,  49.48,  50.67,
                 50.32,  48.44,  45.09,  40.37,  34.43,  44.20,
                 34.43,  40.37,  45.09,  48.44,  50.32,  50.67,
                 49.48,  46.79,  42.67,  46.79,  49.48,  50.67 !
!END!

     10  ! SRCNAM = COMBO        !
     10  !  HEIGHT =  35.10,  35.10,  35.10,  38.10,  38.10,  38.10,
```

```
                45.70,  45.70,  45.70,  45.70,  30.50,  30.50,
                21.30,  35.10,  35.10,  35.10,  35.10,  35.10,
                35.10,  35.10,  35.10,  38.10,  38.10,  38.10,
                45.70,  45.70,  45.70,  45.70,  30.50,  30.50,
                21.30,  35.10,  35.10,  35.10,  35.10,  35.10 !
     10  !  WIDTH =   44.44,  41.44,  37.17,  59.77,  52.79,  44.20,
                34.43,  40.37,  44.36,  44.36,  35.94,  33.72,
                73.95,  45.20,  42.67,  45.20,  46.35,  46.10,
                44.44,  41.44,  37.17,  59.77,  52.79,  44.20,
                34.43,  40.37,  44.36,  44.36,  35.94,  33.72,
                73.95,  45.20,  42.67,  45.20,  46.35,  46.10 !
!END!


---------------
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)

AREA SOURCE: CONSTANT DATA [a]

Source No.	Effect. Height (m)	Base Elevation (m)	Initial Sigma z (m)	Emission Rates [b]

----

[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 No.	Ordered list of X followed by list of Y, grouped by source [a]

----

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

Subgroup (14d)

AREA SOURCE: VARIABLE EMISSIONS DATA [a]

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

Source No.	Beg. X Coordinate (km)	Beg. Y Coordinate (km)	End. X Coordinate (km)	End. Y Coordinate (km)	Release Height (m)	Base Elevation (m)	Emission Rates[a]

----

[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  !

     Number of volume sources with
     variable location and emission
     parameters                   (NVL2)     No default  !  NVL2 =   0   !

     (If NVL2 > 0, ALL parameter data for
      these sources are read from the VOLEMARB.DAT file(s) )

!END!

---------------
Subgroup (16b)
---------------
                                            a
           VOLUME SOURCE: CONSTANT DATA
           ------------------------------
                                                                           b
        X UTM       Y UTM       Effect.     Base      Initial    Initial    Emission
```

Coordinate (km)	Coordinate (km)	Height (m)	Elevation (m)	Sigma y (m)	Sigma z (m)	Rates

----
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)

VOLUME SOURCE: VARIABLE EMISSIONS DATA [a]

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 VOLEMARB.DAT and NVL2 > 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: 17a & 17b -- Non-gridded (discrete) receptor information

Subgroup (17a)

Number of non-gridded receptors (NREC) No default ! NREC = 439 !

!END!

Subgroup (17b)

NON-GRIDDED (DISCRETE) RECEPTOR DATA [a]

Receptor No.	X UTM Coordinate (km)	Y UTM Coordinate (km)	Ground Elevation (m)	Height [b] Above Ground (m)

RECEPTORS OBTAINED FROM THE NPS/FWS EXTRACTION PROGRAM
ALL RECEPTORS ARE UTM ZONE 17 (KM)

180 OKEFENOKEE NWA RECEPTORS REPRESENTING ALL NPS BOUNDARY RECEPTORS AND AND INTERIOR RECEPTORS WITH GREATER SPACING

1	! X = 386.913,	3381.527,	36.000 !	!END!
2	! X = 388.530,	3383.358,	36.000 !	!END!
3	! X = 385.314,	3381.544,	36.000 !	!END!
4	! X = 386.932,	3383.374,	36.000 !	!END!
5	! X = 390.147,	3385.188,	36.000 !	!END!
6	! X = 385.334,	3383.391,	36.000 !	!END!
7	! X = 388.549,	3385.205,	36.000 !	!END!
8	! X = 383.736,	3383.408,	36.000 !	!END!
9	! X = 388.568,	3387.052,	36.000 !	!END!
10	! X = 382.137,	3383.425,	36.000 !	!END!
11	! X = 386.971,	3387.068,	37.000 !	!END!
12	! X = 380.539,	3383.443,	36.000 !	!END!
13	! X = 388.588,	3388.899,	36.000 !	!END!
14	! X = 378.941,	3383.461,	36.000 !	!END!
15	! X = 390.204,	3390.730,	36.000 !	!END!
16	! X = 377.343,	3383.479,	37.000 !	!END!
17	! X = 388.607,	3390.746,	36.000 !	!END!
18	! X = 380.580,	3387.137,	36.000 !	!END!
19	! X = 375.744,	3383.497,	36.000 !	!END!
20	! X = 388.626,	3392.593,	36.000 !	!END!
21	! X = 374.146,	3383.516,	36.000 !	!END!
22	! X = 390.242,	3394.424,	36.000 !	!END!
23	! X = 382.218,	3390.814,	36.000 !	!END!
24	! X = 372.548,	3383.534,	36.000 !	!END!
25	! X = 388.645,	3394.440,	36.000 !	!END!
26	! X = 387.048,	3394.457,	36.000 !	!END!
27	! X = 370.949,	3383.553,	30.000 !	!END!
28	! X = 374.189,	3387.210,	36.000 !	!END!
29	! X = 369.351,	3383.573,	27.000 !	!END!
30	! X = 383.855,	3394.491,	36.000 !	!END!
31	! X = 387.068,	3396.304,	36.000 !	!END!
32	! X = 375.829,	3390.886,	37.000 !	!END!
33	! X = 367.753,	3383.592,	27.000 !	!END!
34	! X = 387.087,	3398.151,	36.000 !	!END!
35	! X = 367.775,	3385.439,	30.000 !	!END!
36	! X = 385.491,	3398.168,	36.000 !	!END!
37	! X = 377.469,	3394.562,	36.000 !	!END!
38	! X = 366.177,	3385.459,	27.000 !	!END!
39	! X = 367.798,	3387.286,	32.000 !	!END!
40	! X = 387.107,	3399.998,	36.000 !	!END!
41	! X = 382.299,	3398.202,	36.000 !	!END!
42	! X = 390.317,	3401.812,	36.000 !	!END!
43	! X = 364.579,	3385.479,	27.000 !	!END!
44	! X = 388.721,	3401.829,	36.000 !	!END!
45	! X = 369.441,	3390.961,	36.000 !	!END!
46	! X = 387.126,	3401.845,	36.000 !	!END!
47	! X = 364.603,	3387.326,	30.000 !	!END!
48	! X = 390.336,	3403.659,	36.000 !	!END!
49	! X = 371.082,	3394.636,	36.000 !	!END!
50	! X = 375.915,	3398.274,	36.000 !	!END!
51	! X = 363.005,	3387.346,	27.000 !	!END!
52	! X = 390.355,	3405.506,	36.000 !	!END!
53	! X = 380.744,	3401.914,	36.000 !	!END!
54	! X = 363.028,	3389.193,	27.000 !	!END!
55	! X = 388.760,	3405.523,	36.000 !	!END!
56	! X = 361.431,	3389.214,	27.000 !	!END!
57	! X = 363.052,	3391.041,	38.000 !	!END!
58	! X = 390.374,	3407.354,	37.000 !	!END!
59	! X = 382.380,	3405.591,	36.000 !	!END!
60	! X = 369.530,	3398.350,	36.000 !	!END!
61	! X = 361.455,	3391.061,	33.000 !	!END!
62	! X = 364.695,	3394.715,	38.000 !	!END!
63	! X = 374.362,	3401.987,	36.000 !	!END!
64	! X = 390.393,	3409.201,	36.000 !	!END!
65	! X = 361.478,	3392.908,	38.000 !	!END!
66	! X = 363.099,	3394.735,	38.000 !	!END!
67	! X = 387.204,	3409.234,	36.000 !	!END!
68	! X = 390.412,	3411.048,	36.000 !	!END!
69	! X = 361.502,	3394.755,	37.000 !	!END!
70	! X = 376.000,	3405.663,	36.000 !	!END!
71	! X = 363.122,	3396.582,	37.000 !	!END!
72	! X = 380.826,	3409.303,	36.000 !	!END!
73	! X = 367.980,	3402.064,	36.000 !	!END!
74	! X = 363.146,	3398.429,	36.000 !	!END!
75	! X = 390.430,	3412.895,	36.000 !	!END!
76	! X = 388.837,	3412.912,	36.000 !	!END!
77	! X = 361.550,	3398.450,	37.000 !	!END!
78	! X = 368.002,	3403.911,	36.000 !	!END!
79	! X = 363.169,	3400.277,	36.000 !	!END!
80	! X = 364.788,	3402.104,	36.000 !	!END!
81	! X = 369.620,	3405.739,	37.000 !	!END!

82	! X = 390.449,	3414.742,	36.000 !	!END!
83	! X = 366.407,	3403.931,	36.000 !	!END!
84	! X = 374.448,	3409.376,	36.000 !	!END!
85	! X = 382.461,	3412.980,	36.000 !	!END!
86	! X = 363.193,	3402.124,	36.000 !	!END!
87	! X = 368.025,	3405.758,	36.000 !	!END!
88	! X = 364.812,	3403.951,	36.000 !	!END!
89	! X = 369.643,	3407.586,	36.000 !	!END!
90	! X = 390.468,	3416.589,	36.000 !	!END!
91	! X = 363.216,	3403.971,	36.000 !	!END!
92	! X = 368.048,	3407.606,	37.000 !	!END!
93	! X = 387.282,	3416.623,	36.000 !	!END!
94	! X = 369.665,	3409.433,	36.000 !	!END!
95	! X = 376.086,	3413.052,	36.000 !	!END!
96	! X = 390.487,	3418.437,	36.000 !	!END!
97	! X = 369.688,	3411.280,	36.000 !	!END!
98	! X = 380.909,	3416.692,	36.000 !	!END!
99	! X = 390.506,	3420.284,	36.000 !	!END!
100	! X = 388.914,	3420.300,	36.000 !	!END!
101	! X = 369.710,	3413.128,	36.000 !	!END!
102	! X = 368.116,	3413.147,	36.000 !	!END!
103	! X = 374.535,	3416.765,	36.000 !	!END!
104	! X = 390.525,	3422.131,	36.000 !	!END!
105	! X = 361.693,	3409.533,	27.000 !	!END!
106	! X = 382.543,	3420.369,	36.000 !	!END!
107	! X = 366.522,	3413.167,	36.000 !	!END!
108	! X = 360.098,	3409.554,	32.000 !	!END!
109	! X = 364.928,	3413.187,	30.000 !	!END!
110	! X = 390.544,	3423.978,	36.000 !	!END!
111	! X = 361.717,	3411.381,	30.000 !	!END!
112	! X = 376.171,	3420.441,	36.000 !	!END!
113	! X = 360.122,	3411.401,	29.000 !	!END!
114	! X = 368.162,	3416.842,	36.000 !	!END!
115	! X = 364.952,	3415.034,	31.000 !	!END!
116	! X = 361.741,	3413.228,	33.000 !	!END!
117	! X = 384.176,	3424.045,	36.000 !	!END!
118	! X = 390.563,	3425.825,	36.000 !	!END!
119	! X = 358.528,	3411.422,	34.000 !	!END!
120	! X = 363.358,	3415.055,	31.000 !	!END!
121	! X = 360.147,	3413.249,	33.000 !	!END!
122	! X = 356.934,	3411.444,	36.000 !	!END!
123	! X = 361.764,	3415.075,	33.000 !	!END!
124	! X = 390.582,	3427.672,	37.000 !	!END!
125	! X = 369.800,	3420.517,	36.000 !	!END!
126	! X = 377.807,	3424.117,	36.000 !	!END!
127	! X = 388.991,	3427.689,	36.000 !	!END!
128	! X = 355.340,	3411.465,	36.000 !	!END!
129	! X = 387.399,	3427.706,	36.000 !	!END!
130	! X = 356.959,	3413.291,	32.000 !	!END!
131	! X = 361.788,	3416.922,	33.000 !	!END!
132	! X = 353.746,	3411.487,	36.000 !	!END!
133	! X = 382.624,	3427.757,	36.000 !	!END!
134	! X = 352.151,	3411.509,	36.000 !	!END!
135	! X = 387.419,	3429.553,	36.000 !	!END!
136	! X = 371.438,	3424.192,	36.000 !	!END!
137	! X = 353.771,	3413.334,	36.000 !	!END!
138	! X = 385.827,	3429.570,	36.000 !	!END!
139	! X = 363.429,	3420.596,	29.000 !	!END!
140	! X = 384.236,	3429.587,	36.000 !	!END!
141	! X = 352.177,	3413.356,	36.000 !	!END!
142	! X = 376.257,	3427.830,	36.000 !	!END!
143	! X = 353.796,	3415.181,	36.000 !	!END!
144	! X = 355.415,	3417.007,	32.000 !	!END!
145	! X = 384.256,	3431.434,	37.000 !	!END!
146	! X = 357.033,	3418.833,	36.000 !	!END!
147	! X = 352.202,	3415.203,	36.000 !	!END!
148	! X = 382.665,	3431.452,	37.000 !	!END!
149	! X = 365.069,	3424.271,	36.000 !	!END!
150	! X = 361.860,	3422.464,	30.000 !	!END!
151	! X = 353.821,	3417.029,	36.000 !	!END!
152	! X = 368.276,	3426.078,	36.000 !	!END!
153	! X = 358.651,	3420.659,	36.000 !	!END!
154	! X = 381.074,	3431.470,	37.000 !	!END!
155	! X = 355.440,	3418.854,	32.000 !	!END!
156	! X = 363.476,	3424.291,	36.000 !	!END!
157	! X = 366.684,	3426.098,	37.000 !	!END!
158	! X = 360.268,	3422.485,	35.000 !	!END!
159	! X = 369.891,	3427.906,	36.000 !	!END!
160	! X = 357.058,	3420.680,	36.000 !	!END!
161	! X = 361.884,	3424.311,	36.000 !	!END!
162	! X = 365.092,	3426.118,	41.000 !	!END!
163	! X = 358.675,	3422.506,	37.000 !	!END!

```
164  ! X = 368.299,  3427.925,  36.000 !  !END!
165  ! X = 376.300,  3431.524,  37.000 !  !END!
166  ! X = 381.095,  3433.317,  37.000 !  !END!
167  ! X = 379.504,  3433.335,  37.000 !  !END!
168  ! X = 369.913,  3429.753,  36.000 !  !END!
169  ! X = 373.118,  3431.562,  37.000 !  !END!
170  ! X = 368.322,  3429.772,  37.000 !  !END!
171  ! X = 371.527,  3431.581,  37.000 !  !END!
172  ! X = 369.936,  3431.600,  37.000 !  !END!
173  ! X = 379.525,  3435.182,  37.000 !  !END!
174  ! X = 373.140,  3433.409,  37.000 !  !END!
175  ! X = 377.934,  3435.200,  37.000 !  !END!
176  ! X = 376.344,  3435.219,  37.000 !  !END!
177  ! X = 374.753,  3435.237,  37.000 !  !END!
178  ! X = 373.162,  3435.256,  37.000 !  !END!
179  ! X = 377.955,  3437.047,  37.000 !  !END!
180  ! X = 376.365,  3437.066,  37.000 !  !END!
```

58 RECEPTORS ON BOUNDARY OF CHASSAHOWITZA WILDERNESS

```
181  ! X=  337.46,  3166.01,  0.0 !  !END!
182  ! X=  338.27,  3166.00,  1.0 !  !END!
183  ! X=  339.09,  3165.99,  1.0 !  !END!
184  ! X=  339.90,  3165.98,  3.0 !  !END!
185  ! X=  336.66,  3166.95,  0.0 !  !END!
186  ! X=  339.91,  3166.90,  2.0 !  !END!
187  ! X=  335.85,  3167.88,  0.0 !  !END!
188  ! X=  339.93,  3167.82,  2.0 !  !END!
189  ! X=  335.87,  3168.80,  0.0 !  !END!
190  ! X=  339.94,  3168.75,  2.0 !  !END!
191  ! X=  336.69,  3169.72,  0.0 !  !END!
192  ! X=  339.95,  3169.67,  2.0 !  !END!
193  ! X=  336.71,  3170.64,  0.0 !  !END!
194  ! X=  339.97,  3170.59,  3.0 !  !END!
195  ! X=  336.72,  3171.56,  0.0 !  !END!
196  ! X=  339.98,  3171.52,  2.0 !  !END!
197  ! X=  336.73,  3172.49,  0.0 !  !END!
198  ! X=  337.55,  3172.47,  0.0 !  !END!
199  ! X=  338.36,  3172.46,  0.0 !  !END!
200  ! X=  339.18,  3172.45,  1.0 !  !END!
201  ! X=  339.99,  3172.44,  1.0 !  !END!
202  ! X=  340.82,  3173.35,  2.0 !  !END!
203  ! X=  340.83,  3174.28,  1.0 !  !END!
204  ! X=  341.64,  3174.27,  2.0 !  !END!
205  ! X=  335.14,  3175.28,  0.0 !  !END!
206  ! X=  335.96,  3175.27,  0.0 !  !END!
207  ! X=  336.77,  3175.26,  0.0 !  !END!
208  ! X=  337.59,  3175.24,  0.0 !  !END!
209  ! X=  338.40,  3175.23,  0.0 !  !END!
210  ! X=  340.84,  3175.20,  1.0 !  !END!
211  ! X=  341.66,  3175.19,  1.0 !  !END!
212  ! X=  342.47,  3175.18,  1.0 !  !END!
213  ! X=  334.34,  3176.21,  0.0 !  !END!
214  ! X=  338.41,  3176.16,  0.0 !  !END!
215  ! X=  342.48,  3176.10,  1.0 !  !END!
216  ! X=  333.54,  3177.15,  0.0 !  !END!
217  ! X=  338.43,  3177.08,  0.0 !  !END!
218  ! X=  331.93,  3178.10,  0.0 !  !END!
219  ! X=  332.74,  3178.08,  0.0 !  !END!
220  ! X=  333.55,  3178.07,  1.0 !  !END!
221  ! X=  338.44,  3178.00,  1.0 !  !END!
222  ! X=  333.57,  3179.00,  0.0 !  !END!
223  ! X=  338.45,  3178.93,  1.0 !  !END!
224  ! X=  334.39,  3179.91,  0.0 !  !END!
225  ! X=  338.46,  3179.85,  1.0 !  !END!
226  ! X=  339.28,  3179.84,  1.0 !  !END!
227  ! X=  334.41,  3180.83,  0.0 !  !END!
228  ! X=  338.48,  3180.77,  0.0 !  !END!
229  ! X=  334.42,  3181.75,  0.0 !  !END!
230  ! X=  338.49,  3181.70,  1.0 !  !END!
231  ! X=  334.43,  3182.68,  0.0 !  !END!
232  ! X=  338.50,  3182.62,  1.0 !  !END!
233  ! X=  334.45,  3183.60,  0.0 !  !END!
234  ! X=  335.26,  3183.59,  1.0 !  !END!
235  ! X=  336.07,  3183.58,  1.0 !  !END!
236  ! X=  336.89,  3183.57,  2.0 !  !END!
237  ! X=  337.70,  3183.56,  2.0 !  !END!
238  ! X=  338.52,  3183.54,  2.0 !  !END!
```

RECEPTORS AT THE SAINT MARKS WILDERNESS THAT ARE BEYOND 50 KM FROM THE BUCKEYE PROJECT SITE LOCATION, UTM ZONE 17 EQUIVALENT COORDINATES

```
239     ! X=    206.46,     3334.06,     0.0 !   !END!
240     ! X=    206.49,     3334.98,     1.0 !   !END!
241     ! X=    205.66,     3334.08,     0.0 !   !END!
242     ! X=    205.68,     3335.00,     1.0 !   !END!
243     ! X=    204.86,     3334.10,     1.0 !   !END!
244     ! X=    204.88,     3335.03,     2.0 !   !END!
245     ! X=    204.05,     3334.12,     1.0 !   !END!
246     ! X=    203.22,     3333.22,     0.0 !   !END!
247     ! X=    203.25,     3334.14,     1.0 !   !END!
248     ! X=    202.42,     3333.24,     0.0 !   !END!
249     ! X=    202.45,     3334.17,     1.0 !   !END!
250     ! X=    201.64,     3334.19,     1.0 !   !END!
251     ! X=    200.81,     3333.29,     1.0 !   !END!
252     ! X=    200.01,     3333.31,     1.0 !   !END!
253     ! X=    200.04,     3334.23,     1.0 !   !END!
254     ! X=    199.23,     3334.25,     1.0 !   !END!
255     ! X=    198.40,     3333.35,     1.0 !   !END!
256     ! X=    198.43,     3334.28,     1.0 !   !END!
257     ! X=    198.45,     3335.20,     2.0 !   !END!
258     ! X=    197.60,     3333.37,     1.0 !   !END!
259     ! X=    197.63,     3334.30,     1.0 !   !END!
260     ! X=    197.65,     3335.22,     1.0 !   !END!
261     ! X=    196.77,     3332.47,     1.0 !   !END!
262     ! X=    196.80,     3333.40,     1.0 !   !END!
263     ! X=    196.82,     3334.32,     1.0 !   !END!
264     ! X=    195.94,     3331.57,     0.0 !   !END!
265     ! X=    195.97,     3332.49,     1.0 !   !END!
266     ! X=    196.07,     3336.19,     1.0 !   !END!
267     ! X=    195.14,     3331.59,     1.0 !   !END!
268     ! X=    195.21,     3334.36,     1.0 !   !END!
269     ! X=    195.24,     3335.29,     1.0 !   !END!
270     ! X=    195.27,     3336.21,     1.0 !   !END!
271     ! X=    194.33,     3331.61,     1.0 !   !END!
272     ! X=    194.36,     3332.54,     1.0 !   !END!
273     ! X=    194.39,     3333.46,     1.0 !   !END!
274     ! X=    194.41,     3334.39,     1.0 !   !END!
275     ! X=    194.44,     3335.31,     1.0 !   !END!
276     ! X=    194.46,     3336.23,     2.0 !   !END!
277     ! X=    193.53,     3331.64,     1.0 !   !END!
278     ! X=    193.56,     3332.56,     0.0 !   !END!
279     ! X=    193.61,     3334.41,     1.0 !   !END!
280     ! X=    193.63,     3335.33,     1.0 !   !END!
281     ! X=    193.66,     3336.26,     3.0 !   !END!
282     ! X=    193.68,     3337.18,     2.0 !   !END!
283     ! X=    192.80,     3334.43,     1.0 !   !END!
284     ! X=    192.83,     3335.36,     1.0 !   !END!
285     ! X=    192.86,     3336.28,     2.0 !   !END!
286     ! X=    192.88,     3337.20,     2.0 !   !END!
287     ! X=    192.00,     3334.45,     0.0 !   !END!
288     ! X=    192.03,     3335.38,     1.0 !   !END!
289     ! X=    192.05,     3336.30,     1.0 !   !END!
290     ! X=    192.08,     3337.23,     1.0 !   !END!
291     ! X=    192.10,     3338.15,     1.0 !   !END!
292     ! X=    192.13,     3339.07,     1.0 !   !END!
293     ! X=    192.16,     3340.00,     1.0 !   !END!
294     ! X=    191.27,     3337.25,     1.0 !   !END!
295     ! X=    191.30,     3338.17,     1.0 !   !END!
296     ! X=    191.33,     3339.10,     1.0 !   !END!
297     ! X=    168.28,     3321.27,     1.0 !   !END!
298     ! X=    167.56,     3324.06,     1.0 !   !END!
299     ! X=    167.53,     3323.14,     1.0 !   !END!
300     ! X=    167.50,     3322.22,     1.0 !   !END!
301     ! X=    166.75,     3324.09,     1.0 !   !END!
302     ! X=    166.73,     3323.16,     1.0 !   !END!
303     ! X=    166.70,     3322.24,     1.0 !   !END!
304     ! X=    166.67,     3321.32,     1.0 !   !END!
305     ! X=    165.98,     3325.04,     1.0 !   !END!
306     ! X=    165.95,     3324.11,     1.0 !   !END!
307     ! X=    165.15,     3324.14,     1.0 !   !END!
```

132 RECEPTORS AT THE BRADWELL BAY WILDERNESS AREA, UTM ZONE 17 EQUIVALENT COORDINATES

```
308  ! X = 155.872,  3336.455,   14.000 !  !END!
309  ! X = 155.098,  3337.405,   14.000 !  !END!
310  ! X = 155.901,  3337.380,   15.000 !  !END!
311  ! X = 156.705,  3337.354,   14.000 !  !END!
312  ! X = 158.312,  3337.304,   15.000 !  !END!
313  ! X = 153.520,  3338.380,   16.000 !  !END!
314  ! X = 154.323,  3338.354,   15.000 !  !END!
315  ! X = 155.127,  3338.329,   15.000 !  !END!
316  ! X = 155.930,  3338.304,   15.000 !  !END!
317  ! X = 156.733,  3338.279,   15.000 !  !END!
```

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318  ! X = 157.537,  3338.254,   17.000 !  !END!
319  ! X = 158.340,  3338.229,   16.000 !  !END!
320  ! X = 152.745,  3339.329,   18.000 !  !END!
321  ! X = 153.549,  3339.304,   17.000 !  !END!
322  ! X = 154.352,  3339.279,   17.000 !  !END!
323  ! X = 155.156,  3339.253,   17.000 !  !END!
324  ! X = 155.959,  3339.228,   17.000 !  !END!
325  ! X = 156.762,  3339.203,   17.000 !  !END!
326  ! X = 157.566,  3339.178,   18.000 !  !END!
327  ! X = 158.369,  3339.153,   17.000 !  !END!
328  ! X = 152.775,  3340.254,   17.000 !  !END!
329  ! X = 153.578,  3340.228,   17.000 !  !END!
330  ! X = 154.381,  3340.203,   18.000 !  !END!
331  ! X = 155.185,  3340.178,   18.000 !  !END!
332  ! X = 155.988,  3340.152,   17.000 !  !END!
333  ! X = 156.791,  3340.127,   17.000 !  !END!
334  ! X = 157.595,  3340.102,   15.000 !  !END!
335  ! X = 152.000,  3341.203,   18.000 !  !END!
336  ! X = 152.804,  3341.178,   17.000 !  !END!
337  ! X = 153.607,  3341.152,   17.000 !  !END!
338  ! X = 154.410,  3341.127,   17.000 !  !END!
339  ! X = 155.214,  3341.102,   17.000 !  !END!
340  ! X = 156.017,  3341.077,   18.000 !  !END!
341  ! X = 156.820,  3341.052,   16.000 !  !END!
342  ! X = 157.623,  3341.026,   15.000 !  !END!
343  ! X = 158.427,  3341.001,   15.000 !  !END!
344  ! X = 159.230,  3340.976,   15.000 !  !END!
345  ! X = 160.033,  3340.952,   14.000 !  !END!
346  ! X = 152.833,  3342.102,   17.000 !  !END!
347  ! X = 153.636,  3342.077,   17.000 !  !END!
348  ! X = 154.439,  3342.051,   18.000 !  !END!
349  ! X = 155.243,  3342.026,   17.000 !  !END!
350  ! X = 156.046,  3342.001,   17.000 !  !END!
351  ! X = 156.849,  3341.976,   17.000 !  !END!
352  ! X = 157.652,  3341.951,   17.000 !  !END!
353  ! X = 158.455,  3341.926,   16.000 !  !END!
354  ! X = 159.259,  3341.901,   15.000 !  !END!
355  ! X = 160.062,  3341.876,   15.000 !  !END!
356  ! X = 160.865,  3341.851,   12.000 !  !END!
357  ! X = 152.059,  3343.052,   17.000 !  !END!
358  ! X = 152.862,  3343.026,   18.000 !  !END!
359  ! X = 153.665,  3343.001,   17.000 !  !END!
360  ! X = 154.469,  3342.976,   18.000 !  !END!
361  ! X = 155.272,  3342.950,   17.000 !  !END!
362  ! X = 156.075,  3342.925,   17.000 !  !END!
363  ! X = 156.878,  3342.900,   17.000 !  !END!
364  ! X = 157.681,  3342.875,   18.000 !  !END!
365  ! X = 158.484,  3342.850,   17.000 !  !END!
366  ! X = 159.287,  3342.825,   17.000 !  !END!
367  ! X = 160.091,  3342.800,   15.000 !  !END!
368  ! X = 160.894,  3342.775,   14.000 !  !END!
369  ! X = 161.697,  3342.750,   14.000 !  !END!
370  ! X = 162.500,  3342.726,   12.000 !  !END!
371  ! X = 151.285,  3344.002,   17.000 !  !END!
372  ! X = 152.088,  3343.976,   17.000 !  !END!
373  ! X = 152.892,  3343.951,   17.000 !  !END!
374  ! X = 153.695,  3343.925,   18.000 !  !END!
375  ! X = 154.498,  3343.900,   17.000 !  !END!
376  ! X = 155.301,  3343.875,   17.000 !  !END!
377  ! X = 156.104,  3343.850,   18.000 !  !END!
378  ! X = 156.907,  3343.824,   17.000 !  !END!
379  ! X = 157.710,  3343.799,   17.000 !  !END!
380  ! X = 158.513,  3343.774,   17.000 !  !END!
381  ! X = 159.316,  3343.749,   17.000 !  !END!
382  ! X = 160.119,  3343.724,   17.000 !  !END!
383  ! X = 160.922,  3343.699,   15.000 !  !END!
384  ! X = 161.725,  3343.675,   14.000 !  !END!
385  ! X = 162.528,  3343.650,   12.000 !  !END!
386  ! X = 151.315,  3344.926,   15.000 !  !END!
387  ! X = 152.118,  3344.901,   16.000 !  !END!
388  ! X = 152.921,  3344.875,   18.000 !  !END!
389  ! X = 153.724,  3344.850,   17.000 !  !END!
390  ! X = 154.527,  3344.824,   17.000 !  !END!
391  ! X = 155.330,  3344.799,   18.000 !  !END!
392  ! X = 156.133,  3344.774,   17.000 !  !END!
393  ! X = 156.936,  3344.749,   17.000 !  !END!
394  ! X = 157.739,  3344.724,   17.000 !  !END!
395  ! X = 158.542,  3344.699,   17.000 !  !END!
396  ! X = 159.345,  3344.674,   17.000 !  !END!
397  ! X = 160.148,  3344.649,   17.000 !  !END!
398  ! X = 160.951,  3344.624,   16.000 !  !END!
399  ! X = 161.754,  3344.599,   15.000 !  !END!
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400  ! X = 162.557,  3344.574,   14.000 !  !END!
401  ! X = 151.344,  3345.850,   21.000 !  !END!
402  ! X = 152.147,  3345.825,   18.000 !  !END!
403  ! X = 152.950,  3345.799,   16.000 !  !END!
404  ! X = 153.753,  3345.774,   17.000 !  !END!
405  ! X = 154.556,  3345.749,   18.000 !  !END!
406  ! X = 155.359,  3345.723,   17.000 !  !END!
407  ! X = 156.162,  3345.698,   17.000 !  !END!
408  ! X = 156.965,  3345.673,   18.000 !  !END!
409  ! X = 157.768,  3345.648,   17.000 !  !END!
410  ! X = 158.571,  3345.623,   17.000 !  !END!
411  ! X = 159.374,  3345.598,   17.000 !  !END!
412  ! X = 160.177,  3345.573,   16.000 !  !END!
413  ! X = 160.979,  3345.548,   15.000 !  !END!
414  ! X = 161.782,  3345.523,   14.000 !  !END!
415  ! X = 152.176,  3346.749,   23.000 !  !END!
416  ! X = 152.979,  3346.724,   22.000 !  !END!
417  ! X = 153.782,  3346.698,   19.000 !  !END!
418  ! X = 154.585,  3346.673,   17.000 !  !END!
419  ! X = 155.388,  3346.648,   17.000 !  !END!
420  ! X = 156.191,  3346.622,   17.000 !  !END!
421  ! X = 156.994,  3346.597,   17.000 !  !END!
422  ! X = 157.797,  3346.572,   17.000 !  !END!
423  ! X = 158.599,  3346.547,   17.000 !  !END!
424  ! X = 159.402,  3346.522,   16.000 !  !END!
425  ! X = 160.205,  3346.497,   15.000 !  !END!
426  ! X = 161.008,  3346.472,   15.000 !  !END!
427  ! X = 154.614,  3347.597,   22.000 !  !END!
428  ! X = 155.417,  3347.572,   21.000 !  !END!
429  ! X = 156.220,  3347.547,   19.000 !  !END!
430  ! X = 157.023,  3347.522,   18.000 !  !END!
431  ! X = 157.826,  3347.496,   18.000 !  !END!
432  ! X = 158.628,  3347.471,   17.000 !  !END!
433  ! X = 159.431,  3347.446,   15.000 !  !END!
434  ! X = 160.234,  3347.421,   15.000 !  !END!
435  ! X = 157.052,  3348.446,   22.000 !  !END!
436  ! X = 157.854,  3348.421,   19.000 !  !END!
437  ! X = 158.657,  3348.396,   17.000 !  !END!
438  ! X = 159.460,  3348.371,   15.000 !  !END!
439  ! X = 159.489,  3349.295,   15.000 !  !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,