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March 23, 2001

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Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road, MS 5500  
Tallahassee, FL 32399-2400

RECEIVED

MAR 27 2001

BUREAU OF AIR REGULATION

Attention: Mr. A. A. Linero, P.E., New Source Review Section

RE: Cargill Fertilizer, Inc.  
Riverview Plant Expansion PSD Application  
PSD-FL-315 0570008-036-AC

Dear Mr. Linero:

On March 15, 2001, Cargill Fertilizer met with you, Syed Arif and Cleve Holladay to discuss the PSD application for the Riverview plant expansion. During the meeting, several potential issues were discussed, and it was agreed to provide additional information to the Department. This additional information is presented in this letter and in the attachments. The information is presented below by subject area.

Sulfuric Acid Plants

The Department indicated that Farmland Industries accepted a SO<sub>2</sub> emission limit for a new H<sub>2</sub>SO<sub>4</sub> plant of 3.5 lb/ton as a 3-hour average. Cargill's proposed emission limit is 3.5 lb/ton as a 24-hour average. The Department requested that Cargill further address the ability to accept a 3-hour averaging time limit, and to quantify any economic or other impacts upon the operations.

The proposed 3.5 lb/ton limit for the Nos. 8 and 9 H<sub>2</sub>SO<sub>4</sub> Plants is already much more restrictive than the current 4.0 lb/ton limit. Cargill is required to operate the plants with some margin or safety factor to compensate for upsets, in order to ensure the emission limit is not exceeded. With a 24-hour averaging time, upsets that temporarily increase emissions can be balanced by time operating at a lower emissions limit. In order to operate the two plants at 3.5 lb/ton with a 3-hour averaging time, with an acceptable margin of safety, the addition of an increased amount of cesium catalyst beyond what was initially budgeted for this project would be required. This additional catalyst would increase the project costs by approximately \$400,000.

The Department was also interested in the test data from the No. 9 H<sub>2</sub>SO<sub>4</sub> Plant, which now has test data after the installation of cesium catalyst. This project was initiated with a goal of achieving an emissions limit of 3.5 lb/ton, 24-hour average, and would not be sufficient to meet a limit based on a 3-hour averaging time. Test data from the No. 9 H<sub>2</sub>SO<sub>4</sub> Plant before the installation of cesium catalyst is presented in the PSD application. Test data after installation of the cesium is presented in Attachment A to this letter.

### Summary of Proposed BACT Limits

A summary table of Cargill's proposed BACT limits, as well as the range of emission limits contained in previous BACT determinations, is provided in Attachment B. The previous determinations include the recently issued US Agri-Chemicals and White Springs Agricultural Chemicals PSD permits.

### BACT for SO<sub>2</sub> from Fuel Oil Burning

The application did not specifically address BACT for SO<sub>2</sub> emissions due to fuel oil burning in the process dryers. The emissions units for which a BACT analysis is required consist of the EPP Plant, AFI Plant, and No. 5 DAP Plant. Each of the emissions units are currently permitted to burn fuel oil as a backup fuel for only 400 hr/yr. The maximum sulfur content of the fuel oil is 0.5%. As such, the potential SO<sub>2</sub> emissions from each emissions unit is less than 10 TPY.

The only feasible alternative BACT is the use of lower sulfur fuel oil, i.e., fuel oil with a maximum sulfur content of 0.05%. However, this would reduce potential SO<sub>2</sub> emissions by only about 15 TPY. In addition, more fuel usage would result due to the lower heating value of 0.05% sulfur fuel oil (about 136,000 Btu/gal vs. about 140,000 Btu/gal for 0.5% sulfur oil). Additional fuel oil usage is not desirable in the current national situation of reduced fuel oil and natural gas availability. Considering that fuel oil is used only as a backup, when natural gas is not available, and fuel oil burning is limited to 400 hr/yr from each emissions unit, the current fuel oil with a maximum sulfur content of 0.5% is considered as BACT for these sources.

### Revisions to SO<sub>2</sub> Class II and Class I Modeling Analysis

Revisions to the SO<sub>2</sub> PSD Class II and Class I emission inventories for several other sources have been made, and the dispersion models have been re-executed with the revised inventories. This resulted in slightly revised impacts from those presented in the PSD application. The revised tables in Section 6.0 and Appendix F with the revised inventories and impacts are provided in Attachment C.

### AQRV Analysis for Sulfuric Acid Mist

The Department requested that Cargill review the PSD application and ensure that the effects of sulfuric acid mist (SAM) emissions are addressed in the air quality related values (AQRV) analysis. The AQRV analysis was presented in Section 7.0 of the PSD report. Review of this section indicates that the impact of SAM emissions in the vicinity of the Cargill facility was addressed in regards to soils, but not addressed for vegetation. The PSD Class I analysis does address SAM impacts on soils and vegetation, but not wildlife. These impacts are addressed below.

### **SAM EMISSIONS**

SAM emissions for the proposed Cargill project are presented in Attachment D (see Table 6-7b). The derivation of SAM emissions from the affected fuel burning sources at Cargill is also presented in Attachment D.

### **IMPACTS OF SAM EMISSIONS ON VEGETATION IN THE VICINITY OF CARGILL**

The predicted maximum increase in the 1-hour, 3-hour, 8-hour, 24-hour, and annual SAM concentrations in the vicinity of the Cargill plant due to the proposed plant expansion are 13.1, 9.0, 6.1, 2.9 and 0.25 µg/m<sup>3</sup>, respectively (see Table 6-22 in the attached Appendix C).

SAM can be emitted directly from sulfuric acid plants and fossil fuel combustion sources, or can be formed as acidic precipitation or acid rain due to SO<sub>2</sub> emissions from these sources. SO<sub>2</sub> is oxidized in the atmosphere and dissolves in rain forming sulfuric acid mist which falls as acidic precipitation (Ravera, 1989). During the last decade, much attention has been focused on acid rain. Acidic deposition is an

ecosystem-level problem that affects vegetation because of some alterations of soil conditions such as increased leaching of essential base cations or elevated concentrations of aluminum in the soil water (Goldstein *et al.*, 1985). Although effects of acid rain in eastern North America have been well published and publicized, detrimental effects of acid rain on Florida vegetation are lacking documentation.

Although concentration data are not available, sulfuric acid mist has been reported to yield necrotic spotting on the upper surfaces of leaves (Middleton *et al.*, 1950). Because the project's SO<sub>2</sub> and SAM impacts on the local air quality are predicted to be low, the project's impacts on vegetation in the Cargill vicinity are not expected to be significant. It is important to realize that the modeled SAM concentrations represent a worst-case scenario, which, in reality, are not likely to occur. As described in the PSD application for SO<sub>2</sub> impacts, actual measured ambient concentrations in the area are much lower than maximum modeled concentrations. Moreover, Cargill's SO<sub>2</sub> emissions represent only a small fraction of the total SO<sub>2</sub> emissions emitted in the area.

#### IMPACTS OF SAM EMISSIONS ON WILDLIFE IN THE CHASSAHOWITZKA CLASS I AREA

The maximum SAM concentrations due to the Cargill expansion project's emissions predicted at the PSD Class I area of the Chassahowitzka National Wilderness Area (CNWA) are presented in the revised Table 7-1 attached (see Attachment D). These results are based on using the CALPUFF model.

A wide range of physiological and ecological effects to fauna has been reported for gaseous and particulate pollutants (Newman, 1981; Newman and Schreiber, 1988). The most severe of these effects have been observed at concentrations above the secondary ambient air quality standards. Physiological and behavioral effects have been observed in experimental animals at or below these standards. For impacts on wildlife, the lowest threshold values of SO<sub>2</sub>, NO<sub>2</sub>, and particulates which are reported to cause physiological changes are shown in Table 7-4 of the PSD application. These values are up to orders of magnitude larger than maximum concentrations predicted for the Cargill expansion for the Class I area. No effects on wildlife AQRVs from SO<sub>2</sub>, NO<sub>2</sub>, and particulates are expected. The proposed project's contribution to cumulative impacts is negligible.

#### Truck Traffic Emissions and Impacts

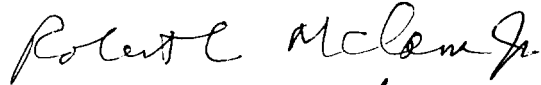
Truck traffic emissions were not explicitly modeled in the air quality impact analyses. Rather the air quality impacts for PM<sub>10</sub> for these sources were assumed to be included in the background concentrations developed for the Project. As discussed in Section 4.2 of the PSD application, the PM<sub>10</sub> background concentrations were based on monitoring data collected by the Department at Gardinier Park, Riverview, which is located immediately adjacent to Cargill's Riverview facility. The highest annual and sixth-highest 24-hour average concentrations occurring over a three-year period from 1998 through 2000 were used to represent background concentrations from sources not explicitly modeled. However, it should be noted that this PM<sub>10</sub> monitor is not a true background monitor and the selected background values are not considered true background concentrations because this monitor is impacted by existing sources, such as those at the Cargill facility, that are included explicitly in the model. In addition, because this monitor is located adjacent to the Cargill facility, this monitor measures PM<sub>10</sub> concentrations from those sources not explicitly modeled, such as truck traffic emissions. As a result, when added to the modeled sources' impacts, the selected background concentrations provide reasonable and still conservative estimates for assessing compliance with ambient air quality standards.

All dispersion modeling electronic files were posted Friday, March 23 on the Golder FTP site:  
<ftp://external.golder.com/Gainesville/CargillRiverview/>

Thank you for considering this information. If you require anything further, please do not hesitate to call me at (352) 336-5600 x545.

Sincerely,

GOLDER ASSOCIATES INC.



David A. Buff, P.E., Q.E.P. *for*

Principal Engineer

Florida P.E. #19011

S E A L

DB/pac

cc: Diana Lee, EPCHC  
David Jellerson, Cagill  
Kathy Edgemon, Cargill

*D. Arif*

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*C. Holladay*

*B. Thomas, SWD*

*A. Harman, HCEPC*

*G. Worley, EPA*

*Q. Bunyat, NPS*

**ATTACHMENT A**  
**NO. 9 H<sub>2</sub>SO<sub>4</sub> PLANT TEST DATA**

TABLE 1. EMISSIONS TEST SUMMARY (con't)

Company: CARGILL FERTILIZER, INC.  
Source: Sulfuric Acid Plant No. 9

	Run 1	Run 2	Run 3	
Date of Run	12/20/00	12/20/00	12/20/00	
Production Rate (TPH 100% Acid)	133.9	135.3	134.6	
Start Time (24-hr. clock)	0820	1000	1132	
End Time (24-hr. clock)	0926	1106	1210	
				<b>Avg.</b>
H <sub>2</sub> SO <sub>4</sub> Emissions (lb./hr.)	1.91	2.96	3.22	2.70
H <sub>2</sub> SO <sub>4</sub> Emissions (lb./ton 100% acid)	0.014	0.022	0.021	0.020
Allowable H <sub>2</sub> SO <sub>4</sub> Emissions (lbs./hr.)				21.3
Allowable H <sub>2</sub> SO <sub>4</sub> Emissions (lbs./ton 100% acid)				0.15
SO <sub>2</sub> Emissions (lb./hr.)	177.3	325.9	334.4	279.2
SO <sub>2</sub> Emissions (lb./ton 100% acid)	1.3	2.4	2.5	2.1
Allowable SO <sub>2</sub> Emissions (lbs./hr.)				566.7
Allowable SO <sub>2</sub> Emissions (lbs./ton 100% acid)				4
Method 8 Measured SO <sub>2</sub> Conc. (PPM)	133	233	239	202
Method 3B Measured O <sub>2</sub> Conc. (percent)	4.9	4.9	6.06	4.95

Note: Standard conditions 68°F, 29.92 in. Hg

TABLE 1. EMISSIONS TEST SUMMARY

Company: CARGILL FERTILIZER, INC.  
Source: Sulfuric Acid Plant No. 9

	Run 1	Run 2	Run 3
Date of Run	12/20/00	12/20/00	12/20/00
Production Rate (TPI 100% Acid)	133.9	135.3	134.6
Start Time (24-hr. clock)	0820	1000	1132
End Time (24-hr. clock)	0926	1105	1240
Vol. Dry Gas Sampled Meter Cond. (DCF)	46.066	49.546	48.896
Gas Meter Calibration Factor	0.989	0.989	0.989
Barometric Pressure at Barom. (in. Hg.)	30.21	30.30	30.29
Elev. Diff. Manom. to Barom. (ft.)	0	0	0
Vol. Gas Sampled Std. Cond. (DSCF)	45.086	47.852	46.962
Vol. Liquid Collected Std. Cond. (SCF)	0.00	0.00	0.00
Moisture in Stack Gas (% Vol.)	0.00	0.00	0.00
Molecular Weight Dry Stack Gas	28.21	28.26	28.25
Molecular Weight Wet Stack Gas	28.21	28.26	28.25
Stack Gas Static Press. (in. H <sub>2</sub> O gauge)	-0.43	-0.44	-0.47
Stack Gas Static Press. (in. Hg. abs.)	30.18	30.27	30.26
Average Square Root Velocity Head	0.662	0.694	0.696
Average Orifice Differential (in. H <sub>2</sub> O)	1.626	1.924	1.932
Average Gas Meter Temperature (°F)	80.9	90.1	93.0
Average Stack Gas Temperature (°F)	150.9	153.4	154.8
Pitot Tube Coefficient	0.84	0.84	0.84
Stack Gas Vel. Stack Cond. (ft./sec.)	40.29	42.77	42.38
Effective Stack Area (sq. ft.)	63.62	63.62	63.62
Stack Gas Flow Rate Std. Cond. (DSCFM)	134,081	140,317	140,489
Stack Gas Flow Rate Stack Cond. (ACFM)	153,805	161,162	161,771
Net Time of Run (min.)	60	60	60
Nozzle Diameter (in.)	0.252	0.252	0.252
Percent Isokinetic	103.0	104.4	102.4

**ATTACHMENT B**  
**BACT SUMMARY TABLE**



Table 1. Summary of Proposed PM/PM<sub>10</sub> BACT Limits for Cargill Riverview Expansion

Emissions Unit	EU ID No.	PM/PM <sub>10</sub> Cargill's Proposed BACT Limit	Range of Previous Determinations
<b>PM/PM<sub>10</sub></b>			
Molten Sulfur Handling System	<sup>a</sup>	Wet scrubber	No controls
EPP Plant - GTSP Mode	007	0.28 lb/ton P <sub>2</sub> O <sub>5</sub>	N/A
- MAP/DAP Mode	007	0.174 lb/ton P <sub>2</sub> O <sub>5</sub>	0.156 - 0.41 lb/ton P <sub>2</sub> O <sub>5</sub>
AFI Granulation System	078	0.178 lb/ton product	0.249 lb/ton product
AFI Baghouses	<sup>b</sup>	0.012 gr/dscf	0.012 - 0.02 gr/dscf
No. 5 DAP Plant	055	0.174 lb/ton P <sub>2</sub> O <sub>5</sub>	0.156 - 0.41 lb/ton P <sub>2</sub> O <sub>5</sub>
<b>SO<sub>2</sub></b>			
Molten Sulfur Handling System	<sup>a</sup>	Wet scrubber	No controls
Nos. 8 and 9 Sulfuric Acid Plants	005, 006	3.5 lb/ton (24-hour avg.) 4.0 lb/ton (3-hour avg.)	3.5 lb/ton (3, 24, and 48-hour avg.) 4.0 lb/ton (1 and 3-hour avg.)
<b>Sulfuric Acid Mist</b>			
Nos. 8 and 9 Sulfuric Acid Plants	005, 006	0.12 lb/ton H <sub>2</sub> SO <sub>4</sub>	0.12 - 0.15 lb/ton H <sub>2</sub> SO <sub>4</sub>
<b>Fluorides</b>			
Phosphoric Acid Plant	073	0.0135 lb/ton P <sub>2</sub> O <sub>5</sub>	0.012 - 0.02 lb/ton P <sub>2</sub> O <sub>5</sub>
EPP Plant - GTSP Mode	007	0.058 lb/ton P <sub>2</sub> O <sub>5</sub>	N/A
- MAP/DAP Mode	007	0.041 lb/ton P <sub>2</sub> O <sub>5</sub>	0.0417 lb/ton P <sub>2</sub> O <sub>5</sub>
AFI Granulation System	078	1.0 lb/hr 0.5 lb/batch-hr 0.022 lb/ton AFI <sup>c</sup>	-- 0.5 lb/batch-hr 0.02 - 0.031 lb/ton product
No. 5 DAP Plant	055	0.045 lb/ton P <sub>2</sub> O <sub>5</sub>	0.0417 lb/ton P <sub>2</sub> O <sub>5</sub>

<sup>a</sup> EU ID Nos. 064, 065, 066, 067, 068, 069, and 074.

<sup>b</sup> EU ID Nos. 079, 080, and 081.

<sup>c</sup> Equivalent emission rate; not a permit limit.

N/A = No Determination Available

**ATTACHMENT C**  
**REVISED SO<sub>2</sub> PSD INVENTORIES AND IMPACT TABLES**

Table 6-14. Maximum Predicted Significant Impacts for the Proposed Project, Cargill Riverview

Pollutant/ Averaging Time	Concentration <sup>a</sup> (ug/m <sup>3</sup> )	Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)	EPA Significant Impact Level (ug/m <sup>3</sup> )
		Direction	Distance		
		(degree)	(m)		
<b><u>SO<sub>2</sub></u></b>					
Annual	2.3	251	1,006	91123124	1
	2.3	251	1,006	91123124	
	2.5	90	1,000	93123124	
	2.1	70	1,000	94123124	
	2.5	80	1,000	95123124	
HIGH 24-Hour	57.2	253	1,079	91010424	5
	69.7	251	1,006	92101324	
	57.2	251	1,006	93031924	
	48.8	253	1,079	94012424	
	50.8	220	960	95121024	
HIGH 3-Hour	186	250	1,000	91092706	25
	223	250	1,000	92121303	
	197	250	1,000	93121806	
	198	257	1,011	94012306	
	215	250	1,000	95061003	
<b><u>PM<sub>10</sub></u></b>					
Annual	7.4	212	601	91123124	1
	9.0	205	515	92123124	
	9.3	212	601	93123124	
	8.9	212	601	94123124	
	9.9	212	601	95123124	
HIGH 24-Hour	6.8	250	2,000	91102224	5
	7.0	250	2,000	92022124	
	6.7	230	2,000	93092924	
	5.8	240	2,000	94021724	
	6.6	200	2,000	95121024	
<b><u>NO<sub>x</sub></u><sup>c</sup></b>					
Annual	0.97	257	1,011	91123124	1
	0.86	257	1,011	92123124	
	0.77	251	1,006	93123124	
	0.80	257	1,011	94123124	
	0.74	257	1,011	95123124	

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

Note: YYMMDDHH = Year, Month, Day, Hour Enging  
HIGH - Highest Concentration

Table 6-15. Maximum Predicted Pollutant Impacts After Completion of the Proposed Project  
AAQS Screening Analysis, Cargill Riverview

Pollutant/ Averaging Time	Concentration <sup>a</sup> (ug/m <sup>3</sup> )	Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)
		Direction (degree)	Distance (m)	
<b><u>SO<sub>2</sub></u></b>				
Annual	39.3	90	900	91123124
	42.1	90	1,000	92123124
	44.6	90	1,000	93123124
	41.3	70	900	94123124
	43.9	80	900	95123124
HSH 24-Hour	182.1	150	8,000	91070724
	189.7	160	8,000	92073124
	210.1	10	6,000	93071724
	171.7	70	600	94090324
	171.5	80	700	95070124
HSH 3-Hour	799.2	150	6,000	91081112
	706.9	180	12,000	92071112
	922.5	220	5,000	93041512
	743.8	8.3	1,002	94032412
	768.3	8.3	1,002	95062512
<b><u>PM10</u></b>				
Annual	13.6	212	601	91123124
	15.7	205	515	92123124
	16.5	212	601	93123124
	15.8	212	601	94123124
	17.8	212	601	95123124
H6H 24-Hour	60.0	247	601	91121524
	63.9	247	601	92061924
	69.4	247	601	93121224
	73.8	247	601	93112524
	76.3	247	601	92101224

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to 1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

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

HSH = Highest, Second-Highest

H6H = Highest, Sixth-Highest

Table 6-16. Maximum Predicted Concentrations for All Sources Compared to the AAQS - Refined Analysis

Pollutant/ Averaging Time	Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>			Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)	Florida AAQS ( $\mu\text{g}/\text{m}^3$ )
	Total	Modeled Source	Background	Direction (degree)	Distance (m)		
<b><u>SO<sub>2</sub></u></b>							
Annual	52.6	44.6	8	90	1,000	93123124	60
HSH 24-Hour	216	185	31	151.5	7,800	91051424	260
	231	200	31	159.0	8,400	92072724	
	263 <sup>c</sup>	232	31	0.0	5,700	93071724	
	260 <sup>c</sup>	229	31	0.0	5,800	93071724	
	262 <sup>c</sup>	231	31	0.5	5,700	93071724	
	261 <sup>c</sup>	230	31	0.5	5,800	93071724	
	261 <sup>c</sup>	230	31	1.0	5,700	93071724	
	262 <sup>c</sup>	231	31	1.0	5,800	93071724	
	262 <sup>c</sup>	231	31	1.5	5,800	93071724	
	262 <sup>c</sup>	231	31	2.0	5,800	93071724	
	261 <sup>c</sup>	230	31	2.5	5,800	93071724	
	261 <sup>c</sup>	230	31	3.0	5,800	93071724	
HSH 3-Hour	1,072	951	121	223	4,800	93041512	1,300
<b><u>PM<sub>10</sub></u></b>							
Annual	40.8	17.8	23	212	601	95123124	50
H6H 24-Hour	115.3	76.3	39	247	601	92101224	150

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to 1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

<sup>c</sup> Cargill Riverview sources contributed 0.0  $\mu\text{g}/\text{m}^3$  to this exceedance of the AAQS.

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

HSH = Highest, Second-Highest

H6H = Highest, Sixth-Highest

Table 6-17. Maximum Predicted Pollutant Impacts After Completion of the Proposed Project  
PSD Class II Screening Analysis, Cargill Riverview

Pollutant/ Averaging Time	Concentration <sup>a</sup> (µg/m <sup>3</sup> )	Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)
		Direction (degree)	Distance (m)	
<b>SO<sub>2</sub></b>				
Annual	< 0.0	All	All <sup>c</sup>	91123124
	< 0.0	All	All <sup>c</sup>	92123124
	< 0.0	All	All <sup>c</sup>	93123124
	< 0.0	All	All <sup>c</sup>	94123124
	< 0.0	All	All <sup>c</sup>	95123124
HSH 24-Hour	30.8	257	1,011	91061524
	33.8	20	23,000	92012624
	37.0	211	294	93041624
	27.5	20	23,000	94082724
	33.7	10	22,000	95082124
HSH 3-Hour	154.5	20	25,000	91090803
	142.8	20	25,000	92011803
	164.8	30	25,000	93121806
	149.5	30	25,000	94112421
	149.7	10	22,000	95081806
<b>PM<sub>10</sub></b>				
Annual	0.4	170	4,000	91123124
	0.2	20	4,000	92123124
	0.2	170	4,000	93123124
	0.5	100	4,000	94123124
	0.5	100	4,000	95123124
HSH 24-Hour	8.5	210.6	294	91022424
	10.4	210.6	294	92121324
	15.4	210.6	294	93110824
	9.8	210.6	294	94032324
	13.1	210.6	294	95111924

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to 1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

<sup>c</sup> Maximum concentrations were predicted to be less than zero at all receptors.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
HSH = Highest, Second-Highest

Table 6-18. Maximum Predicted Concentrations for All Sources Compared to the PSD Class II Increment  
- Refined Analysis

Pollutant/ Averaging Time	Concentration <sup>a</sup> (ug/m <sup>3</sup> )	Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)	PSD Increment (ug/m <sup>3</sup> )
		Direction (degree)	Distance (m)		
<b><u>SO<sub>2</sub></u></b>					
Annual	< 0.0	All	All <sup>c</sup>	All years	20
HSH 24-Hour	37.4	18.8	22,700	92012624	91
	34.5	13.0	23,000	95082124	
HSH 3-Hour	181.7	21.4	25,000	91041603	512
	165.6	29.8	24,800	93121806	
<b><u>PM<sub>10</sub></u></b>					
Annual	0.52	100	4,000	94123124	17
H2H 24-Hour	15.4	210.6	294	93110824	30

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to 1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

<sup>c</sup> Maximum concentrations were predicted to be less than zero at all receptors.

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

Table 6-19. Summary of Maximum Pollutant Concentrations Predicted for the Project Only Compared to the EPA Class I Significant Impact Levels and PSD Class I Increments

Pollutant	Averaging Time	Maximum Concentration <sup>a</sup> ( $\mu\text{g}/\text{m}^3$ )	EPA Class I Significant Impact Levels ( $\mu\text{g}/\text{m}^3$ )	PSD Class I Increments ( $\mu\text{g}/\text{m}^3$ )
SO <sub>2</sub>	Annual	0.007	0.1	2
	24-Hour	0.179	0.2	5
	3-Hour	1.03	1.0	25
PM <sub>10</sub>	Annual	0.002	0.2	4
	24-Hour	0.03	0.3	8
NO <sub>x</sub>	Annual	0.0004	0.1	2.5

<sup>a</sup> Highest Predicted with CALPUFF model and CALMET Tampa Bay Domain, 1990



Table 6-20. Summary of Predicted PSD Class I SO<sub>2</sub> Increment for all PSD Sources at the Chassahowitzka NWA Compared to the Allowable PSD Class I Increments

Averaging Time	Maximum Concentration <sup>a</sup> (ug/m <sup>3</sup> )	Receptor Location (m)		Period Ending (Julian day/hour/year)	PSD Class I Increments (ug/m <sup>3</sup> )
		UTM East	UTM North		
Annual	< 0.0	----	----	--/--/ 90	1
24-Hour	4.40	340300	3165700	045/23/90	5
3-Hour	13.3	340300	3165700	020/08/90	25

<sup>a</sup> Concentrations are highest annual, second-highest 24-hour and 3-hour predicted with CALPUFF model and CALMET Tampa Bay Domain, 1990.

Table 6-21. Predicted Fluoride Impacts due to the Proposed Project, Cargill Riverview

Pollutant/ Averaging Time	Concentration <sup>a</sup> ( $\mu\text{g}/\text{m}^3$ )	Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)
		Direction (degree)	Distance (m)	
<b>Fluorides</b>				
Annual	1.9	268	1050	91123124
	1.7	262	1026	92123124
	1.8	262	1026	93123124
	1.9	262	1026	94123124
	1.9	262	1026	95123124
HIGH 24-Hour	6.9	268	1050	91102224
	6.7	262	1026	92121324
	7.9	262	1026	93110224
	7.4	262	1026	94090624
	8.4	262	1026	95111824
HIGH 8-Hour	12.8	262	1026	91063008
	11.0	270	1100	92103108
	12.7	268	1050	93122808
	12.1	268	1050	94072124
	12.9	268	1050	95110608
HIGH 3-Hour	15.7	268	1050	91101509
	17.5	268	1050	92013003
	17.6	268	1050	93100221
	18.1	268	1050	94072121
	14.8	268	1050	95121403
HIGH 1-Hour	27.1	268	1050	91070606
	24.6	268	1050	92071307
	26.1	251	1006	93042906
	26.6	262	1026	94092715
	39.2	273	1083	95071207

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to 1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
HIGH = Highest Concentration

Table 6-22. Predicted Sulfuric Acid Mist Impacts due to the Proposed Project, Cargill Riverview

Pollutant/ Averaging Time	Concentration <sup>a</sup> ( $\mu\text{g}/\text{m}^3$ )	Receptor Location <sup>b</sup>		Time Period (YYMMDDHH)
		Direction (degree)	Distance (m)	
<b><u>Sulfuric Acid Mist</u></b>				
Annual	0.20	90	1000	91123124
	0.25	90	1000	92123124
	0.25	90	1000	93123124
	0.21	70	900	94123124
	0.25	80	1000	95123124
HIGH 24-Hour	2.45	110	800	91080924
	2.83	90	1000	92073124
	2.94	80	900	93060624
	2.14	120	1000	94061124
	2.56	257	1011	95061524
HIGH 8-Hour	5.32	286	1226	91111916
	5.68	100	900	92061016
	5.98	80	900	93071716
	4.68	273	1083	94042916
	6.10	257	1011	95061516
HIGH 3-Hour	8.25	90	800	91040615
	8.58	100	800	92062215
	8.81	90	800	93073112
	7.40	40	800	94070415
	8.96	80	600	95070415
HIGH 1-Hour	13.1	297	1378	91080116
	11.1	48	505	92070913
	12.3	100	1400	93070710
	11.7	293	1332	94092810
	11.2	90	600	95081714

<sup>a</sup> Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to 1995

<sup>b</sup> Relative to No. 9 Sulfuric Acid Plant stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
HIGH = Highest Concentration

Appendix F-1. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	Relative Location		Stack Parameters						Emission Rate		PSD Consuming (C), Expanding (E), or Baseline (B)	Modeled in			
			East (m)	North (m)	Height (ft)	Diameter (ft)	Temperature (F)	Velocity (ft/s)	Temperature (K)	Velocity (m/s)	(lb/hr)	(t/y)		AAQS	Class II		
0570040	TECO - GANNON																
	1 UNIT #1 STEAM GENERATOR	TECOGN1	-2800	5000	315	96.0	10.0	3.05	276.53	409	124.4	37.9	2,137	269.3	B	Yes	No
	2 125MW BOILER	TECOGN2	-2800	5000	315	96.0	10.0	3.05	298.67	421	126.3	38.5	2,137	269.3	B	Yes	No
	3 UNIT #3 BOILER	TECOGN3	-2800	5000	315	96.0	10.6	3.23	271.49	406	113.5	34.6	2,718	342.5	B	Yes	No
	4 UNIT#4-BOILER	TECOGN4	-2800	5000	315	96.0	10.0	3.05	289.13	416	97.1	29.6	3,189	401.8	B	Yes	No
	5 UNIT #5 BOILER	TECOGN5	-2800	5000	315	96.0	14.6	4.45	292.73	418	166.5	50.7	3,883	489.3	B	Yes	No
	6 UNIT #6 BOILER WITH ESP	TECOGN6	-2800	5000	315	96.0	17.6	5.36	260.33	400	109.2	33.3	6,457	813.6	B	Yes	No
7 14 MW GAS TURBINE	TECOGN7	-2800	5000	35	10.7	11.0	3.35	1010	816	92.6	28.2	10.96	1.4	B	Yes	No	
0571209	APAC-FLORIDA, INC. 1 Hot mix asphalt plant	APAC1	-3040	5590	31	9.4	3.8	1.16	300	422	88.2	26.9	19.20	2.42	B	Yes	No
0571242	NATIONAL GYPSUM - APOLLO BEACH 1 Imp Mill #1	NATGYPI	400	-6900	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes	Yes
	Imp Mill #2	NATGYPI2	400	-6900	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes	Yes
	Imp Mill #3	NATGYPI3	400	-6900	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes	Yes
	Imp Mill #4	NATGYPI4	400	-6900	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes	Yes
	Kiln	NATGYPI5	400	-6900	54	16.5	13.4	4.08	384	469	58.2	17.7	33.22	4.19	C	Yes	Yes
BIG BEND TRANSFER CO. L.L.C.	Melter/ Molten Scrubber stack	BBTCCMBO	-1800	-6300	95	29.0	2.2	0.66	97	309	57.0	17.4	0.014	0.002	C	Yes	Yes
	Package Boiler	BBTCKBL	-1800	-6300	106	32.3	4.0	1.22	350	450	29.7	9.1	3.56	0.45	C	Yes	Yes
0570039	TECO - BIG BEND 1,2 1 & 2 Gen.3-Hour Emissions	TECOBB12	-1000	-7500	490	149.4	24.0	7.32	300	422	116.0	35.4	42,000	5,292	B	Yes	No
	3 3 Gen. 3-Hour Emissions	TECOBB3	-1000	-7500	490	149.4	24.0	7.32	292	418	51.2	15.6	21,000	2,646	B	Yes	No
	1,2 1 & 2 Gen. 24-Hour Emissions	TECOBB12	-1000	-7500	490	149.4	24.0	7.32	300	422	116.0	35.4	32,937	4,150	B	Yes	No
	3 3 Gen. 24-Hour Emissions	TECOBB3	-1000	-7500	490	149.4	24.0	7.32	292	418	51.2	15.6	17,063	2,150	B	Yes	No
	4 UNIT #4 BOILER W/ESP	TECOBB4	-1000	-7500	490	149.4	24.0	7.32	127	326	78.3	23.9	3,576	451	C	Yes	Yes
	5 Gas Turbine No. 2:	TECOBB5	-1000	-7500	75	22.9	14.0	4.27	928	771	61.0	18.6	314	40	B	Yes	No
	6 Gas Turbine No. 3:	TECOBB6	-1000	-7500	75	22.9	14.0	4.27	928	771	61.0	18.6	314	40	B	Yes	No
	7 GAS TURBINE #1	TECOBB7	-1000	-7500	35	10.7	11.0	3.36	1010	816	91.9	28.0	90	11	B	Yes	No
1,2 Steam Generators 1 & 2 Baseline	TCBB12B	-1000	-7500	490	149.4	24.0	7.32	300	422	94.0	28.7	-19333	-2436	E	No	Yes	
3 Steam Generator 3 Baseline	TCBB3B	-1000	-7500	490	149.4	24.0	7.32	293	418	47.0	14.3	-9667	-1218	E	No	Yes	
0570286	TAMPA BAY SHIPBUILDING & REPAIR CO. 5 DIESEL COMPRESSORS	TBSHIP5	-4900	6500	10	3.0	0.5	0.15	350	450	148.5	45.3	2.74	0.35	C	Yes	Yes
0570038	TECO - HOOKERS POINT 1 Boiler #1	TECOHK1	-4900	8500	280	85.3	11.3	3.44	356	453	82.0	25.0	327.80	41.3	B	Yes	No
	2 Boiler #2	TECOHK2	-4900	8500	280	85.3	11.3	3.44	356	453	82.0	25.0	327.80	41.3	B	Yes	No
	3 Boiler #3	TECOHK3	-4900	8500	280	85.3	12.0	3.66	341	445	62.7	19.1	452.10	57.0	B	Yes	No
	4 Boiler #4	TECOHK4	-4900	8500	280	85.3	12.0	3.66	341	445	62.7	19.1	452.10	57.0	B	Yes	No
	5 Boiler #5	TECOHK5	-4900	8500	280	85.3	11.3	3.44	356	453	82.0	25.0	671.00	84.5	B	Yes	No
	6 Boiler #6	TECOHK6	-4900	8500	280	85.3	9.4	2.87	329	438	75.2	22.9	855.80	107.8	B	Yes	No
0570127	MCKAY BAY REFUSE-TO-ENERGY FACILITY 103 MWC & Aux Burner No. 1	MCKY103	-2700	9710	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes	Yes
	104 MWC & Aux Burner No. 2	MCKY104	-2700	9710	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes	Yes
	105 MWC & Aux Burner No. 3	MCKY105	-2700	9710	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes	Yes
	106 MWC & Aux Burner No. 4	MCKY106	-2700	9710	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes	Yes



Appendix F-1. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	Relative Location		Stack Parameters						Emission Rate		PSD Consuming (C), Expanding (E), or Baseline (B)	Modeled in			
			East (m)	North (m)	Height (ft)	Diameter (ft)	Temperature (°F)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)	AAQS		Class II			
	1 CT Peaking Unit # 1	FPCBAY1	-24100	-11200	40	12.2	22.9	6.98	900	755	21.0	6.4	390.90	49.3	B	Yes	No
	2 CT Peaking Unit # 2	FPCBAY2	-24100	-11200	40	12.2	22.9	6.98	900	755	21.0	6.4	390.90	49.3	B	Yes	No
	3 CT Peaking Unit # 3	FPCBAY3	-24100	-11200	40	12.2	22.9	6.98	900	755	21.0	6.4	390.90	49.3	B	Yes	No
	4 CT Peaking Unit # 4	FPCBAY4	-24100	-11200	40	12.2	22.9	6.98	900	755	21.0	6.4	390.90	49.3	B	Yes	No
1070117	PINELLAS CO. RESOURCE RECOVERY FACILITY																
	1 Waste Combustor & Aux burners-Unit #1	PINRCY1	-27700	1600	161	49.1	7.8	2.38	449	505	88.0	26.8	170.00	21.4	C	Yes	Yes
	3 Waste Combustor & Aux burners-Unit #2	PINRCY3	-27700	1600	165	50.3	9.0	2.74	450	505	90.0	27.4	525.00	66.2	C	Yes	Yes
0810002	PINEY POINT PHOSPHATES, INC.																
	1 SAP 1	PINPT1	-13250	-25160	200	61.0	7.8	2.38	147	337	33.5	10.2	291.70	36.8	B	Yes	No
	11 BOILER	PINPT11	-13250	-25160	30	9.1	4.0	1.22	550	561	25.2	7.7	9.60	1.21	B	Yes	No
0810010	FLORIDA POWER & LIGHT MANATEE PLANT																
	1 GENERATOR 1	FPLMAN1	4350	-28350	475	152	26.2	7.99	325	436	82.5	25.1	9,515.0	1,198.9	B	Yes	No
	2 GENERATOR 2	FPLMAN2	4350	-28350	475	152	26.2	7.99	325	436	82.5	25.1	9,515.0	1,198.9	B	Yes	No
1070012	FPC - HIGGINS																
	1 FFFSG-SG 1	FPCHIG1	-26400	15900	174	53.0	12.5	3.81	312	429	27.0	8.2	1,507.0	189.9	B	Yes	No
	2 FFFSG-SG 2	FPCHIG2	-26400	15900	174	53.0	12.5	3.81	310	428	27.0	8.2	1,438.3	181.2	B	Yes	No
	3 FFFSG-SG 3	FPCHIG3	-26400	15900	174	53.0	12.5	3.81	301	423	24.0	7.3	1,507.0	189.9	B	Yes	No
	4 CTP 1	FPCHIG4	-26400	15900	55	16.8	15.1	4.60	850	728	93.1	28.4	286.30	36.07	B	Yes	No
	5 CTP 2	FPCHIG5	-26400	15900	56	17.1	15.1	4.60	850	728	93.1	28.4	286.30	36.07	B	Yes	No
	6 CTP 3	FPCHIG6	-26400	15900	55	16.8	15.1	4.60	850	728	93.1	28.4	319.10	40.21	B	Yes	No
	7 CTP 4	FPCHIG7	-26400	15900	55	16.8	15.1	4.60	850	728	93.1	28.4	319.10	40.21	B	Yes	No
0570075	CORONET INDUSTRIES, INC.	(formerly Consolidated Minerals, Plant City)															
	3 DEFLUORINATING KILN #2	CORN3	30900	13800	152	46.3	5.8	1.77	110	316	64.0	19.5	188.42	23.74	B	Yes	No
	19 BOILER DEFLUOR. PLANT	CORN19	30900	13800	25	7.6	1.3	0.40	450	505	50.0	15.2	4.26	0.54	B	Yes	No
	20 BOILER DEFLUOR. PLANT	CORN20	30900	13800	20	6.1	1.2	0.37	630	605	66.0	20.1	2.13	0.27	B	Yes	No
	22 FLUID BED REACTOR #1	CORN22	30900	13800	152	46.3	5.8	1.77	110	316	64.0	19.5	68.48	8.63	B	Yes	No
	24 FLUID BED REACTOR #2	CORN24	30900	13800	152	46.3	5.8	1.77	110	316	64.0	19.5	68.48	8.63	B	Yes	No
1050059	IMC PHOSPHATES COMPANY - NEW WALES																
	2 SAP No. 1	IMCWAL2	33800	-3100	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes	Yes
	3 SAP No. 2	IMCWAL3	33800	-3100	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes	Yes
	4 SAP No. 3	IMCWAL4	33800	-3100	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes	Yes
	9 DAP Plant No. 1	IMCWAL9	33800	-3100	133	40.5	7.0	2.13	105	314	49.0	14.9	74.60	9.40	C	Yes	Yes
	13 Auxiliary Boiler	IMCWAL13	33800	-3100	85	25.9	3.0	0.91	555	564	193.3	58.9	569.00	71.69	C	Yes	Yes
	27 AF1 Plant	IMCWAL27	33800	-3100	172	52.4	8.0	2.44	130	328	66.3	20.2	18.30	2.31	C	Yes	Yes
	36 Kilns, Dryer, Blending Op.	IMCWAL36	33800	-3100	172	52.4	4.5	1.37	105	314	52.0	15.8	192.00	24.19	C	Yes	Yes
	42 SAP No. 4	IMCWAL42	33800	-3100	199	60.7	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes	Yes
	44 SAP No. 5	IMCWAL44	33800	-3100	199	60.7	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes	Yes
	45 DAP Plant No 2 - East Train	IMCWAL45	33800	-3100	171	52.1	6.0	1.83	110	316	58.0	17.7	22.00	2.77	C	Yes	Yes
	46 DAP Plant No 2 - West Train	IMCWAL46	33800	-3100	171	52.1	6.0	1.83	110	316	58.0	17.7	22.00	2.77	C	Yes	Yes
	60 Molten Storage Tank	IMCWAL60	33800	-3100	40	12.2	2.0	0.61	240	389	0.4	0.1	0.50	0.06	C	Yes	Yes
	62 Molten Storage Tank	IMCWAL62	33800	-3100	40	12.2	2.0	0.61	240	389	0.4	0.1	0.50	0.06	C	Yes	Yes
	63 Unloading Sulfur Pit	IMCWAL63	33800	-3100	40	12.2	2.0	0.61	240	389	0.4	0.1	0.30	0.04	C	Yes	Yes
	64 Unloading Sulfur Pit	IMCWAL64	33800	-3100	40	12.2	2.0	0.61	240	389	0.4	0.1	0.10	0.01	C	Yes	Yes
	65 Unloading Sulfur Pit	IMCWAL65	33800	-3100	40	12.2	2.0	0.61	240	389	0.4	0.1	0.30	0.04	C	Yes	Yes
	66 Sulfur Transfer Pit	IMCWAL66	33800	-3100	40	12.2	2.0	0.61	240	389	0.4	0.1	0.10	0.01	C	Yes	Yes

Appendix F-1. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

Facility ID	Facility Name	ISCST3 ID Name	Relative Location		Stack Parameters						Emission Rate		PSD Consuming (C), Expanding (E), or Baseline (B)	Modeled in			
			East (m)	North (m)	Height (ft)	Diameter (ft)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)		AAQS	Class II		
	68 Unloading Sulfur Pit	IMCWAL68	33800	-3100	25	7.6	0.1	0.03	90	305	0.1	0.03	0.30	0.04	C	Yes	Yes
	69 Unloading Sulfur Pit	IMCWAL69	33800	-3100	25	7.6	0.1	0.03	90	305	0.1	0.03	0.10	0.01	C	Yes	Yes
	74 Multifox C Kiln	IMCWAL74	33800	-3100	172	52.4	4.5	1.37	105	314	70.2	21.4	8.70	1.10	C	Yes	Yes
	78 GRANULAR MAP PLANT	IMCWAL78	33800	-3100	133	40.5	6.0	1.83	145	336	109.6	33.4	13.72	1.73	C	Yes	Yes
	Expanding Source	IMCWAL0	33800	-3100	69	21.0	7.0	2.13	165	347	61.0	18.6	-272.0	-34.27	E	No	Yes
	Expanding Source	IMCWAL1	33800	-3100	200	61.0	8.5	2.59	170	350	42.9	13.1	-1158.7	-146.00	E	No	Yes
1050047	AGRIFOS, L.L.C. - NICHOLS	(formerly Mobil Mining & Minerals Nichols)															
	1 ROCK DRYER NO. 1	AGRINK1	35800	2800	80	24.4	7.5	2.29	160	344	41.0	12.5	255.52	32.20	B	Yes	No
	2 ROCK DRYER NO. 2	AGRINK2	35800	2800	80	24.4	7.5	2.29	160	344	41.0	12.5	251.00	31.63	B	Yes	No
	Expanding Source	AGRINK3	35800	2800	93	28.4	3.6	1.10	152	340	63.1	19.2	-110.32	-13.90	E	No	Yes
	Expanding Source	AGRINK4	35800	2800	13	4.0	2.6	0.79	480	522	5.9	1.8	-6.90	-0.87	E	No	Yes
1050057	IMC PHOSPHATES COMPANY - NICHOLS	(formerly IMC Agricor/Conserve)															
	5 SAP NO. 1 PSD	AGRINK5	35500	1700	150	45.7	7.5	2.29	170	350	33.0	10.1	416.80	52.52	C	Yes	Yes
	12 Phosphatic Rock Dryer	AGRINK12	35500	1700	81	24.7	7.5	2.29	130	328	12.0	3.7	26.49	3.34	B	Yes	No
	15 North Auxiliary Boiler	AGRINK15	35500	1700	27	8.2	2.0	0.61	500	533	45.0	13.7	25.74	3.24	B	Yes	No
	16 South Auxiliary Boiler	AGRINK16	35500	1700	39	11.9	3.2	0.98	500	533	29.0	8.8	2.59	0.33	B	Yes	No
	Expanding Source	AGRINK1	35500	1700	100	30.5	5.9	1.80	95	308	62.0	18.9	-120.5	-15.2	E	No	Yes
	Expanding Source	AGRINK2	35500	1700	80	24.4	5.0	1.52	151	339	42.3	12.9	-30.8	-3.88	E	No	Yes
1050056	IMC-AGRICO CO. - PRAIRIE	(formerly IMC Fertilizer)															
	4 LIMEROCK DRYER	IMCPRI4	40000	4500	70	21.3	4.4	1.34	184	358	51.0	15.5	95.68	12.06	B	Yes	No
0570005	CF INDUSTRIES, INC., PLANT CITY																
	1 BOILER	CFIPL1	25100	33500	25	7.6	3.5	1.07	550	561	58.0	17.7	158.50	19.97	C	Yes	Yes
	2 A H2SO4 DEMISTER	CFIPL2	25100	33500	110	33.5	5.0	1.52	110	316	64.0	19.5	350.00	44.10	C	Yes	Yes
	3 B H2SO4 DEMISTER	CFIPL3	25100	33500	110	33.5	5.0	1.52	110	316	64.0	19.5	350.00	44.10	C	Yes	Yes
	7 "C" SAP	CFIPL7	25100	33500	199	60.7	8.0	2.44	175	353	53.0	16.2	433.00	50.40	C	Yes	Yes
	8 "D" SAP	CFIPL8	25100	33500	199	60.7	8.0	2.44	148	338	31.0	9.4	433.00	39.94	C	Yes	Yes
	10 "A" DAP PLANT	CFIPL10	25100	33500	94	28.7	10.0	3.05	128	326	26.0	7.9	23.50	2.96	C	Yes	Yes
	11 "Z" DAP/MAP GRAN	CFIPL11	25100	33500	180	54.9	9.2	2.80	137	331	43.0	13.1	104.60	13.18	C	Yes	Yes
	12 "X" DAP/MAP/GTSP GRAN	CFIPL12	25100	33500	180	54.9	9.2	2.80	105	314	26.0	7.9	104.60	13.18	C	Yes	Yes
	22 MOLTEN SULFUR STORE	CFIPL22	25100	33500	8	2.4	0.9	0.27	212	373	5.0	1.5	0.90	0.11	C	Yes	Yes
	23 MOLTEN SULFUR STORE A	CFIPL23	25100	33500	12	3.7	0.3	0.09	212	373	5.0	1.5	0.10	0.01	C	Yes	Yes
	24 MOLTEN SULFUR STORE B	CFIPL24	25100	33500	12	3.7	0.3	0.09	212	373	5.0	1.5	1.24	0.16	C	Yes	Yes
1050233	TECO - POLK POWER STATION																
	1 Combined cycle CT	TECOPK1	39550	-15150	150	45.7	19.0	5.79	340	444	75.8	23.1	518.00	65.27	C	Yes	Yes
	3 120 MMBtu/HR AuxBlr	TECOPK3	39550	-15150	75	22.9	3.7	1.13	375	464	0.0	0.0	96.00	12.10	C	Yes	Yes
	4 Sulfuric Acid Plant	TECOPK4	39550	-15150	199	60.7	2.5	0.76	180	355	60.0	18.3	35.60	4.49	C	Yes	Yes
	9 Simple Cycle CT	TECOPK9	39550	-15150	114	34.7	29.0	8.84	1117	876	60.2	18.3	9.20	1.16	C	Yes	Yes
	10 Simple Cycle CT	TECOPK10	39550	-15150	114	34.7	29.0	8.84	1117	876	60.2	18.3	9.20	1.16	C	Yes	Yes
1050048	MULBERRY PHOSPHATES, INC.																
	2 SAP 2	MULPHS2	43900	2600	200	61.0	7.0	2.13	200	366	32.0	9.8	283.33	35.70	C	Yes	Yes
	5 MAP/DAP PLANT	MULPHS5	43900	2600	102	31.1	8.8	2.68	110	316	26.0	7.9	73.79	9.30	B	Yes	No
	9 BOILER	MULPHS9	43900	2600	45	13.7	3.7	1.13	80	300	8.0	2.4	102.44	12.91	B	Yes	No
	1 Expanding Source	MULPHSX	43900	2600	168	51.2	7.0	2.13	181	356	37.5	11.4	-2,044.40	-257.59	E	No	Yes

Appendix F-1. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	Relative Location		Stack Parameters						Emission Rate		PSD Consuming (C), Expanding (E), or Baseline (B)	Modeled in			
			East (m)	North (m)	Height (ft)	Diameter (ft)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(µg/s)		AAQS	Class II		
1050052	CF INDUSTRIES, INC. - BARTOW	(Bonnie Mine Road)															
	6 SAP NO.6	CFIBAR6	45400	0.00	206	62.8	7.0	2.13	140	333	21.0	6.4	400.00	50.40	C	Yes	Yes
	21 BOILER NO. 1	CFIBAR21	45400	0.00	36	11.0	2.5	0.76	600	589	44.0	13.4	16.80	2.12	B	Yes	No
	1 Expanding Source	CFIBARX1	45400	0.00	100	30.5	4.5	1.37	170	350	40.0	12.2	-483	-61	E	No	Yes
	2 Expanding Source	CFIBARX2	45400	0.00	100	30.5	5.5	1.68	170	350	34.0	10.4	-875	-110	E	No	Yes
	3 Expanding Source	CFIBARX3	45400	0.00	100	30.5	9.0	2.74	196	364	14.0	4.3	-850	-107	E	No	Yes
	4 Expanding Source	CFIBARX4	45400	0.00	100	30.5	7.0	2.13	185	358	26.0	7.9	-1,388	-175	E	No	Yes
	5 Expanding Source	CFIBARX5	45400	0.00	206	62.8	7.0	2.13	185	358	35.0	10.7	-1,800	-227	E	No	Yes
	6 Expanding Source	CFIBARX6	45400	0.00	206	62.8	7.0	2.13	187	359	34.0	10.4	-1,350	-170	E	No	Yes
1050055	IMC-AGRICO CO. - SOUTH PIERCE																
	1 Auxiliary Boiler	IMCSPR1	44600	-11100	35	10.7	4.8	1.46	430	494	51.0	15.5	63.5	8.00	B	Yes	No
	4 SAP No. 10	IMCSPR4	44600	-11100	144	43.9	9.0	2.74	170	350	41.1	12.5	450.0	56.70	C	Yes	Yes
	5 SAP No. 11	IMCSPR5	44600	-11100	144	43.9	9.0	2.74	170	350	41.1	12.5	450.0	56.70	C	Yes	Yes
	Combined Expanding Sources	IMCPIER6	44600	-11100	144	43.9	5.2	1.58	170	350	86.6	26.4	-600.0	-75.6	E	No	Yes
1050053	FARMLAND HYDRO, L.P. - GREEN BAY																
	3 SAP #3	FARM3	46600	-2400	100	30.5	7.5	2.29	170	350	28.0	8.5	350.00	44.10	C	Yes	Yes
	4 SAP #4	FARM4	46600	-2400	100	30.5	7.5	2.29	180	355	39.6	12.1	350.00	44.10	C	Yes	Yes
	5 SAP #5	FARM5	46600	-2400	150	45.7	8.0	2.44	180	355	44.1	13.4	466.70	58.80	C	Yes	Yes
	29 MAP/DAP PLANT	FARM29	46600	-2400	129	39.3	7.5	2.29	108	315	43.0	13.1	0.03	0.004	C	Yes	Yes
	34 MOLTEN SULFUR PIT	FARM34	46600	-2400	10	3.0	0.8	0.24	200	366	54.0	16.5	0.70	0.09	C	Yes	Yes
	38 No. 6 SAP	FARM38	46600	-2400	150	45.7	9.0	2.74	180	355	34.8	10.6	401.00	50.53	C	Yes	Yes
	12 Expanding Source	FARMX	46600	-2400	100	30.5	4.5	1.37	100	311	66.2	20.2	-667	-83.98	E	No	Yes
1050046	CARGILL FERTILIZER - BARTOW																
	1 NO.3 FERTILIZER PLANT	CARBAR1	46900	4100	141	43.0	7.5	2.29	160	344	79.0	24.1	76.90	9.69	C	Yes	Yes
	12 No. 4 SAP	CARBAR12	46900	4100	200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	C	Yes	Yes
	21 NO.4 FERTILIZER PLANT	CARBAR21	46900	4100	140	42.7	11.0	3.35	132	329	42.1	12.8	102.53	12.92	B	Yes	No
	32 No. 6 SAP	CARBAR32	46900	4100	200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	C	Yes	Yes
	33 No. 5 SAP	CARBAR33	46900	4100	200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	C	Yes	Yes
	51 Boiler	CARBAR51	46900	4100	31	9.4	3.5	1.07	410	483	20.0	6.1	165.17	20.81	C	Yes	Yes
0490015	HARDEE POWER PARTNERS, LTD																
	1 CT 1A WHIRSG	HARDE1	41900	-25100	90	27.4	14.5	4.42	236	386	77.5	23.6	734.40	92.53	C	Yes	Yes
	2 CT 2A WHIRSG	HARDE2	41900	-25100	90	27.4	14.5	4.42	245	391	75.8	23.1	734.40	92.53	C	Yes	Yes
	3 Simple cycle CT 2A	HARDE3	41900	-25100	75	22.9	17.9	5.46	986	803	94.3	28.7	734.40	92.53	C	Yes	Yes
	5 Unit 2B - 75 MW gas turbine	HARDE5	41900	-25100	85	25.9	14.8	4.51	999	810	142.0	43.3	5.30	0.67	C	Yes	Yes
1050003	LAKELAND ELECTRIC - LARSEN POWER PLANT																
	3 Steam Generator # 6	LARS3	46000	20000	165	50.3	10.0	3.05	340	444	21.0	6.4	841.20	105.99	B	Yes	No
	4 Steam Generator # 7	LARS4	46000	20000	165	50.3	10.0	3.05	340	444	22.0	6.7	1,643.00	207.02	B	Yes	No
	5 Peaking Gas Turbine # 3	LARS5	46000	20000	31	9.4	11.8	3.60	800	700	101.0	30.8	106.20	13.38	B	Yes	No
	6 Peaking Gas Turbine # 2	LARS6	46000	20000	31	9.4	11.8	3.60	800	700	101.0	30.8	106.20	13.38	B	Yes	No
	7 Peaking Gas Turbine # 1	LARS7	46000	20000	31	9	11.8	3.60	800	700	101	30.8	106.2	13.38	B	Yes	No
	8 Combined Cycle CT	LARS8	46000	20000	155	47.2	16.0	4.88	481	523	85.7	26.1	211.40	26.64	C	Yes	Yes
1050004	LAKELAND ELECTRIC - MCINTOSH POWER PLANT																
	1 McIntosh Unit 1	MCINT1	46100	23700	150	45.7	9.0	2.74	277	409	81.2	24.7	2,612.50	329.18	B	Yes	No
	2 McIntosh Unit 2	MCINT2	46100	23700	20	6.1	2.6	0.79	715	653	77.0	23.5	14.30	1.80	B	Yes	No
	3 McIntosh Unit 3	MCINT3	46100	23700	20	6.1	2.6	0.79	715	653	77.0	23.5	14.30	1.80	B	Yes	No
	4 Gas Turbine Peaking Unit 1	MCINT4	46100	23700	35	10.7	13.5	4.11	900	755	79.5	24.2	164.70	20.75	B	Yes	No



Appendix F-1. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	Relative Location		Stack Parameters								Emission Rate		PSD Consuming (C), Expanding (E), or Baseline (B)	Modeled in	
			East (m)	North (m)	Height (ft)	Diameter (m)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)	AAQS	Class II			
	5 McIntosh Unit 2	MCINT5	46100	23700	157	47.9	10.5	3.20	277	409	73.2	22.3	892.00	112.39	B	Yes	No
	6 McIntosh Unit 3	MCINT6	46100	23700	250	76.2	18.0	5.49	167	348	82.6	25.2	4,368.00	550.37	C	Yes	Yes
	28 CT UNIT 5	MCINT28	46100	23700	85	25.9	28.0	8.53	1095	864	82.7	25.2	126.70	15.96	C	Yes	Yes
1010017	FPC - ANCLOTE POWER PLANT																
	1 TURBINE GEN. UNIT NO. 1	FPCANC1	-38500	36200	499	152.1	24.0	7.32	320	433	62.0	18.9	13,652.1	1,720.2	B	Yes	No
	2 TURBINE GEN. UNIT NO. 2	FPCANC2	-38500	36200	499	152.1	24.0	7.32	320	433	62.0	18.9	13,338	774.3	B	Yes	No
1050051	U.S. AGRI-CHEMICALS - FT. MEADE																
	6 AUXILIARY BOILER	USAGFM6	53100	-13500	70	21.3	3.7	1.13	400	478	49	14.9	51.00	6.43	B	Yes	No
	16 SAP #1	USAGFM16	53100	-13500	175	53.3	8.5	2.59	180	355	32	9.8	500.00	63.00	C	Yes	Yes
	17 SAP #2	USAGFM17	53100	-13500	175	53.3	8.5	2.59	180	355	32	9.8	500.00	63.00	C	Yes	Yes
	28 MOLTEN SULFUR TANK	USAGFM28	53100	-13500	6	1.8	0.3	0.09	270	405	344	104.9	0.49	0.06	C	Yes	Yes
	29 MOLTEN SULFUR TANK	USAGFM29	53100	-13500	6	1.8	0.3	0.09	260	400	157	47.9	0.23	0.03	C	Yes	Yes
	Expanding Source	USAGFM0	53100	-13500	95	29	9.9	3.02	106	314	23	6.9	-625.4	-78.80	E	No	Yes
	Expanding Source	USAGFM1	53100	-13500	93	28	5.0	1.52	134	330	58	17.6	-145.0	-18.27	E	No	Yes
1050023	CUTRALE CITRUS JUICES USA, INC																
	1 CITRUS FEED MILL DRYER	CUTR1	58700	21200	93	28.3	3.5	1.07	140	333	55.0	16.8	186.00	23.44	B	Yes	No
	3 PEEL DRYER	CUTR3	58700	21200	100	30.5	3.2	0.98	161	345	49.0	14.9	186.00	23.44	C	Yes	Yes
	8 COGEN #1	CUTR8	58700	21200	40	12.2	4.0	1.22	323	435	60.0	18.3	170.00	21.52	C	Yes	Yes
	9 COGEN #2	CUTR9	58700	21200	40	12.2	4.0	1.22	330	439	66.0	20.1	26.00	3.28	C	Yes	Yes

<sup>a</sup> Velocity of 0.1 ft/s assumed

Appendix F-4. Summary of SO<sub>2</sub> Class I Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	UTM Coordinates		Stack Parameters						Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class I		
			East (m)	North (m)	Height (ft)	Diameter (m)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)				
0571242	NATIONAL GYPSUM - APOLLO BEACH															
	1 Imp Mill #1	NATGYP1	363.3	3075.6	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes
	Imp Mill #2	NATGYP2	363.3	3075.6	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes
	Imp Mill #3	NATGYP3	363.3	3075.6	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes
	Imp Mill #4	NATGYP4	363.3	3075.6	98	29.9	3.8	1.14	350	450	28.2	8.6	5.28	0.67	C	Yes
	Kiln	NATGYP5	363.3	3075.6	54	16.5	13.4	4.08	384	469	58.2	17.7	33.22	4.19	C	Yes
0571039	BIG BEND TRANSFER CO. L.L.C.															
	Melter/ Molten Scrubber stack	BBTCCMBO	361.1	3076.2	95	29.0	2.2	0.66	97	309	57.0	17.4	0.014	0.002	C	Yes
	Package Boiler	BBTCPKBL	361.1	3076.2	106	32.3	4.0	1.22	350	450	29.7	9.1	3.56	0.45	C	Yes
0570286	TECO - BIG BEND															
	4 UNIT #4 BOILER W/ESP	TECOBB4	361.9	3075.0	490	149.4	24.0	7.32	127	326	78.3	23.9	3,576	451	C	Yes
	1,2 Steam Generators 1 & 2 Baseline	TCBB12B	361.9	3075.0	490	149.4	24.0	7.32	300	422	94.0	28.7	-19333	-2436	E	Yes
	3 Steam Generator 3 Baseline	TCBB3B	361.9	3075.0	490	149.4	24.0	7.32	293	418	47.0	14.3	-9667	-1218	E	Yes
0570286	TAMPA BAY SHIPBUILDING & REPAIR CO.															
	5 DIESEL COMPRESSORS	TBSIII05	358.0	3089.0	10	3.0	0.5	0.15	350	450	148.5	45.3	2.74	0.35	C	Yes
0570127	MCKAY BAY REFUSE-TO-ENERGY FACILITY															
	103 MWC & Aux Burner No. 1	MCKY103	360.2	3092.2	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes
	104 MWC & Aux Burner No. 2	MCKY104	360.2	3092.2	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes
	105 MWC & Aux Burner No. 3	MCKY105	360.2	3092.2	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes
	106 MWC & Aux Burner No. 4	MCKY106	360.2	3092.2	201	61.3	4.2	1.28	289	416	73.3	22.3	40.87	5.15	C	Yes
0570261	HILLSBOROUGH CTY. RESOURCE RECOVERY FAC.															
	1 MWC & Aux Burner #1	HILLSRC1	368.2	3092.7	220	67.1	5.1	1.55	290	416	72.5	22.1	58.67	7.39	C	Yes
	2 MWC & Aux Burner #2	HILLSRC2	368.2	3092.7	220	67.1	5.1	1.55	290	416	72.5	22.1	58.67	7.39	C	Yes
	3 MWC & Aux Burner #3	HILLSRC3	368.2	3092.7	220	67.1	5.1	1.55	290	416	72.5	22.1	58.67	7.39	C	Yes
0570006	YUENGLING BREWING CO.															
	1 2 Natural gas boilers	YNGIBREW1	362.0	3103.2	90	27.4	6.5	1.98	275	408	7.0	2.1	9.00	1.13	C	Yes
1030117	PINELLAS CO. RESOURCE RECOVERY FACILITY															
	1 Waste Combustor & Aux burners-Unit #1	PINRCY1	335.2	3084.1	161	49.1	7.8	2.38	449	505	88.0	26.8	170.00	21.4	C	Yes
	3 Waste Combustor & Aux burners-Unit #2	PINRCY3	335.2	3084.1	165	50.3	9.0	2.74	450	505	90.0	27.4	525.00	66.2	C	Yes
1050059	IMC PHOSPHATES COMPANY - NEW WALES															
	2 SAP No. 1	IMCWAL2	396.7	3079.4	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes
	3 SAP No. 2	IMCWAL3	396.7	3079.4	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes
	4 SAP No. 3	IMCWAL4	396.7	3079.4	200	61.0	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes
	9 DAP Plant No. 1	IMCWAL9	396.7	3079.4	133	40.5	7.0	2.13	105	314	49.0	14.9	74.60	9.40	C	Yes
	13 Auxiliary Boiler	IMCWAL13	396.7	3079.4	85	25.9	3.0	0.91	555	564	193.3	58.9	569.00	71.69	C	Yes
	27 AFI Plant	IMCWAL27	396.7	3079.4	172	52.4	8.0	2.44	130	328	66.3	20.2	18.30	2.31	C	Yes
	36 Kilns, Dryer, Blending Op.	IMCWAL36	396.7	3079.4	172	52.4	4.5	1.37	105	314	52.0	15.8	192.00	24.19	C	Yes
	42 SAP No. 4	IMCWAL42	396.7	3079.4	199	60.7	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes
	44 SAP No. 5	IMCWAL44	396.7	3079.4	199	60.7	8.5	2.59	170	350	50.0	15.2	483.30	60.90	C	Yes
	45 DAP Plant No 2 - East Train	IMCWAL45	396.7	3079.4	171	52.1	6.0	1.83	110	316	58.0	17.7	22.00	2.77	C	Yes
	46 DAP Plant No 2 - West Train	IMCWAL46	396.7	3079.4	171	52.1	6.0	1.83	110	316	58.0	17.7	22.00	2.77	C	Yes
	60 Molten Storage Tank	IMCWAL60	396.7	3079.4	40	12.2	2.0	0.61	240	389	0.4	0.1	0.50	0.06	C	Yes
	62 Molten Storage Tank	IMCWAL62	396.7	3079.4	40	12.2	2.0	0.61	240	389	0.4	0.1	0.50	0.06	C	Yes

Appendix F-4. Summary of SO<sub>2</sub> Class I Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	UTM Coordinates		Stack Parameters						Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class I		
			East (m)	North (m)	Height (ft)	Diameter (m)	Temperature (F)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)					
	63 Unloading Sulfur Pit	IMCWAL63	396.7	3079.4	40	12.2	2.0	0.61	240	389	0.4	0.1	0.30	0.04	C	Yes
	64 Unloading Sulfur Pit	IMCWAL64	396.7	3079.4	40	12.2	2.0	0.61	240	389	0.4	0.1	0.10	0.01	C	Yes
	65 Unloading Sulfur Pit	IMCWAL65	396.7	3079.4	40	12.2	2.0	0.61	240	389	0.4	0.1	0.30	0.04	C	Yes
	66 Sulfur Transfer Pit	IMCWAL66	396.7	3079.4	40	12.2	2.0	0.61	240	389	0.4	0.1	0.10	0.01	C	Yes
	68 Unloading Sulfur Pit	IMCWAL68	396.7	3079.4	25	7.6	0.1	0.03	90	305	0.1	0.03 <sup>a</sup>	0.30	0.04	C	Yes
	69 Unloading Sulfur Pit	IMCWAL69	396.7	3079.4	25	7.6	0.1	0.03	90	305	0.1	0.03 <sup>a</sup>	0.10	0.01	C	Yes
	74 Multifos C Kiln	IMCWAL74	396.7	3079.4	172	52.4	4.5	1.37	105	314	70.2	21.4	8.70	1.10	C	Yes
	78 GRANULAR MAP PLANT	IMCWAL78	396.7	3079.4	133	40.5	6.0	1.83	145	336	109.6	33.4	13.72	1.73	C	Yes
	Expanding Source	IMCWAL0	396.7	3079.4	69	21.0	7.0	2.13	165	347	61.0	18.6	-272.0	-34.27	E	Yes
	Expanding Source	IMCWAL1	396.7	3079.4	200	61.0	8.5	2.59	170	350	42.9	13.1	-1158.7	-146.00	E	Yes
1050047	AGRIFOS, L.L.C. - NICHOLS	(formerly Mobil Mining & Minerals Nichols)														
	Expanding Source	AGRINK3	398.7	3085.3	93	28.4	3.6	1.10	152	340	63.1	19.2	-110.32	-13.90	E	Yes
	Expanding Source	AGRINK4	398.7	3085.3	13	4.0	2.6	0.79	480	522	5.9	1.8	-6.90	-0.87	E	Yes
1050057	IMC PHOSPHATES COMPANY - NICHOLS	(formerly IMC Agricor/Conserve)														
	5 SAP NO. 1 PSD	AGRINK5	398.4	3084.2	150	45.7	7.5	2.29	170	350	33.0	10.1	416.80	52.52	C	Yes
	Expanding Source	AGRINK1	398.4	3084.2	100	30.5	5.9	1.80	95	308	62.0	18.9	-120.5	-15.2	E	Yes
	Expanding Source	AGRINK2	398.4	3084.2	80	24.4	5.0	1.52	151	339	42.3	12.9	-30.8	-3.88	E	Yes
0570005	CF INDUSTRIES, INC. - PLANT CITY															
	1 BOILER	CFIPL1	388.0	3116.0	25	7.6	3.5	1.07	550	561	58.0	17.7	158.50	19.97	C	Yes
	2 A H2SO4 DEMISTER	CFIPL2	388.0	3116.0	110	33.5	5.0	1.52	110	316	64.0	19.5	350.00	44.10	C	Yes
	3 B H2SO4 DEMISTER	CFIPL3	388.0	3116.0	110	33.5	5.0	1.52	110	316	64.0	19.5	350.00	44.10	C	Yes
	7 "C" SAP	CFIPL7	388.0	3116.0	199	60.7	8.0	2.44	175	353	53.0	16.2	433.00	50.40	C	Yes
	8 "D" SAP	CFIPL8	388.0	3116.0	199	60.7	8.0	2.44	148	338	31.0	9.4	433.00	39.94	C	Yes
	10 "A" DAP PLANT	CFIPL10	388.0	3116.0	94	28.7	10.0	3.05	128	326	26.0	7.9	23.50	2.96	C	Yes
	11 "Z" DAP/MAP GRAN	CFIPL11	388.0	3116.0	180	54.9	9.2	2.80	137	331	43.0	13.1	104.60	13.18	C	Yes
	12 "X" DAP/MAP/GTSP GRAN	CFIPL12	388.0	3116.0	180	54.9	9.2	2.80	105	314	26.0	7.9	104.60	13.18	C	Yes
	22 MOLTEN SULFUR STORE	CFIPL22	388.0	3116.0	8	2.4	0.9	0.27	212	373	5.0	1.5	0.90	0.11	C	Yes
	23 MOLTEN SULFUR STORE A	CFIPL23	388.0	3116.0	12	3.7	0.3	0.09	212	373	5.0	1.5	0.10	0.01	C	Yes
	24 MOLTEN SULFUR STORE B	CFIPL24	388.0	3116.0	12	3.7	0.3	0.09	212	373	5.0	1.5	1.24	0.16	C	Yes
1050233	TECO - POLK POWER STATION															
	1 Combined cycle CT	TECOPK1	402.5	3067.4	150	45.7	19.0	5.79	340	444	75.8	23.1	518.00	65.27	C	Yes
	3 120 MMBtu/HR Aux Blr	TECOPK3	402.5	3067.4	75	22.9	3.7	1.13	375	464	50.0	15.2	96.00	12.10	C	Yes
	4 Sulfuric Acid Plant	TECOPK4	402.5	3067.4	199	60.7	2.5	0.76	180	355	60.0	18.3	35.60	4.49	C	Yes
	9 Simple Cycle CT	TECOPK9	402.5	3067.4	114	34.7	29.0	8.84	1117	876	60.2	18.3	9.20	1.16	C	Yes
	10 Simple Cycle CT	TECOPK10	402.5	3067.4	114	34.7	29.0	8.84	1117	876	60.2	18.3	9.20	1.16	C	Yes
1050048	MULBERRY PHOSPHATES, INC.															
	2 SAP 2	MULPHS2	406.8	3085.1	200	61.0	7.0	2.13	200	366	32.0	9.8	283.33	35.70	C	Yes
	1 Expanding Source	MULPHSX	406.8	3085.1	168	51.2	7.0	2.13	181	356	37.5	11.4	-2,044.40	-258	E	Yes
1050052	CF INDUSTRIES, INC. - BARTOW	(Bonnie Mine Road)														
	6 SAP NO.6	CFIBAR6	408.3	3082.5	206	62.8	7.0	2.13	140	333	21.0	6.4	400.00	50.40	C	Yes
	21 BOILER NO. 1	CFIBAR21	408.3	3082.5	36	11.0	2.5	0.76	600	589	44.0	13.4	16.80	2.12	C	Yes
	1 Expanding Source	CFIBARX1	408.3	3082.5	100	30.5	4.5	1.37	170	350	40.0	12.2	-483	-61	E	Yes
	2 Expanding Source	CFIBARX2	408.3	3082.5	100	30.5	5.5	1.68	170	350	34.0	10.4	-875	-110	E	Yes

Appendix F-4. Summary of SO<sub>2</sub> Class 1 Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	UTM Coordinates		Stack Parameters								Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class 1
			East (m)	North (m)	Height (ft)	Diameter (m)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)				
	3 Expanding Source	CFIBARX3	408.3	3082.5	100	30.5	9.0	2.74	196	364	14.0	4.3	-850	-107	E	Yes
	4 Expanding Source	CFIBARX4	408.3	3082.5	100	30.5	7.0	2.13	185	358	26.0	7.9	-1,388	-175	E	Yes
	5 Expanding Source	CFIBARX5	408.3	3082.5	206	62.8	7.0	2.13	185	358	35.0	10.7	-1,800	-227	E	Yes
	6 Expanding Source	CFIBARX6	408.3	3082.5	206	62.8	7.0	2.13	187	359	34.0	10.4	-1,350	-170	E	Yes
1050055	IMC PHOSPHATES COMPANY - SOUTH PIERCE															
	4 SAP No. 10	IMCSPR4	407.5	3071.4	144	43.9	9.0	2.74	170	350	41.1	12.5	450.0	56.70	C	Yes
	5 SAP No. 11	IMCSPR5	407.5	3071.4	144	43.9	9.0	2.74	170	350	41.1	12.5	450.0	56.70	C	Yes
	Combined Expanding Sources	IMCPIER6	407.5	3071.4	144	43.9	5.2	1.58	170	350	86.6	26.4	-600.0	-75.6	E	Yes
1050053	FARMLAND HYDRO, L.P. - GREEN BAY															
	3 SAP #3	FARM3	409.5	3080.1	100	30.5	7.5	2.29	170	350	28.0	8.5	350.00	44.10	C	Yes
	4 SAP #4	FARM4	409.5	3080.1	100	30.5	7.5	2.29	180	355	39.6	12.1	350.00	44.10	C	Yes
	5 SAP #5	FARM5	409.5	3080.1	150	45.7	8.0	2.44	180	355	44.1	13.4	466.70	58.80	C	Yes
	29 MAP/DAP PLANT	FARM29	409.5	3080.1	129	39.3	7.5	2.29	108	315	43.0	13.1	0.03	0.004	C	Yes
	34 MOLTEN SULFUR PIT	FARM34	409.5	3080.1	10	3.0	0.8	0.24	200	366	54.0	16.5	0.70	0.09	C	Yes
	38 No. 6 SAP	FARM38	409.5	3080.1	150	45.7	9.0	2.74	180	355	34.8	10.6	401.00	50.53	C	Yes
	12 Expanding Source	FARMX	409.5	3080.1	100	30.5	4.5	1.37	100	311	66.2	20.2	-667	-83.98	E	Yes
1050046	CARGILL FERTILIZER - BARTOW															
	1 NO.3 FERTILIZER PLANT	CARBAR1	409.8	3086.6	141	43.0	7.5	2.29	160	344	79.0	24.1	76.90	9.69	C	Yes
	12 No. 4 SAP	CARBAR12	409.8	3086.6	200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	C	Yes
	32 No. 6 SAP	CARBAR32	409.8	3086.6	200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	C	Yes
	33 No. 5 SAP	CARBAR33	409.8	3086.6	200	61.0	6.8	2.07	180	355	61.0	18.6	433.30	54.60	C	Yes
	51 Boiler	CARBAR51	409.8	3086.6	31	9.4	3.5	1.07	410	483	20.0	6.1	165.17	20.81	C	Yes
0490015	HARDEE POWER STATION															
	1 CT 1A WHRSG	HARDE1	404.8	3057.4	90	27.4	14.5	4.42	236	386	77.5	23.6	734.40	92.53	C	Yes
	2 CT 2A WHRSG	HARDE2	404.8	3057.4	90	27.4	14.5	4.42	245	391	75.8	23.1	734.40	92.53	C	Yes
	3 Simple cycle CT 2A	HARDE3	404.8	3057.4	75	22.9	17.9	5.46	986	803	94.3	28.7	734.40	92.53	C	Yes
	5 Unit 2B - 75 MW gas turbine	HARDE5	404.8	3057.4	85	25.9	14.8	4.51	999	810	142.0	43.3	5.30	0.67	C	Yes
1050003	LAKELAND ELECTRIC, LARSEN POWER PLANT															
	8 Combined Cycle CT	LARS8	408.9	3102.5	155	47.2	16.0	4.88	481	523	85.7	26.1	211.40	26.64	C	Yes
1050004	LAKELAND ELECTRIC, MCINTOSH POWER PLANT															
	6 McIntosh Unit 3	MCINT6	409.0	3106.2	250	76.2	18.0	5.49	167	348	82.6	25.2	4,368.00	550.37	C	Yes
	28 CT UNIT 5	MCINT28	409.0	3106.2	85	25.9	28.0	8.53	1095	864	82.7	25.2	126.70	15.96	C	Yes
1050051	U.S. AGRI-CHEMICALS - FT. MEADE															
	16 SAP #1	USAGFM16	416.0	3069.0	175	53.3	8.5	2.59	180	355	32	9.8	500.00	63.00	C	Yes
	17 SAP #2	USAGFM17	416.0	3069.0	175	53.3	8.5	2.59	180	355	32	9.8	500.00	63.00	C	Yes
	28 MOLTEN SULFUR TANK	USAGFM28	416.0	3069.0	6	1.8	0.3	0.09	270	405	344	104.9	0.49	0.06	C	Yes
	29 MOLTEN SULFUR TANK	USAGFM29	416.0	3069.0	6	1.8	0.3	0.09	260	400	157	47.9	0.23	0.03	C	Yes
	Expanding Source	USAGFM0	416.0	3069.0	95	29	9.9	3.02	106	314	23	6.9	-625.4	-78.80	E	Yes
	Expanding Source	USAGFM1	416.0	3069.0	93	28	5.0	1.52	134	330	58	17.6	-145.0	-18.27	E	Yes
1050023	CUTRALE CITRUS JUICES USA,INC															
	3 PEEL DRYER	CUTR3	421.6	3103.7	100	30.5	3.2	0.98	161	345	49.0	14.9	186.00	23.44	C	Yes
	8 COGEN #1	CUTR8	421.6	3103.7	40	12.2	4.0	1.22	323	435	60.0	18.3	170.80	21.52	C	Yes
	9 COGEN #2	CUTR9	421.6	3103.7	40	12.2	4.0	1.22	330	439	66.0	20.1	26.00	3.28	C	Yes

Appendix F-4. Summary of SO<sub>2</sub> Class I Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description		ISCST3 ID Name	UTM Coordinates		Stack Parameters						Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class I		
				East (m)	North (m)	Height (ft)	Diameter (m)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)	(g/s)				
1050221	Auburndale Power Partners, LP Proposed CT		LD7595A	420.8	3103.3	50	15	22.0	6.71	1,040	833	68	20.8	53.6	6.75	C	Yes
	1	Existing CT	CALEXT1	420.8	3103.3	160	49	18.0	5.49	280	411	58	17.7	70.0	8.82	C	Yes
		Proposed CT, Osprey	CALOSIP1	420.8	3103.3	135	41	19.0	5.79	200	366	60	18.3	6.5	0.82	C	Yes
		Proposed CT, Osprey	CALOSIP2	420.8	3103.3	135	41	19.0	5.79	200	366	60	18.3	6.5	0.82	C	Yes
1050096	Florida Distillers - Auburndale .3 Boiler		FDIST31	421.4	3102.9	45	14	4.0	1.22	350	450	5	1.5	0.1	0.008	C	Yes
0970014	FPC - Intercession City Plant																
	1-6	Combined CT Units 1-6	INTCP16	446.3	3126.0	20	6	14.6	4.46	760	678	175	53.3	2,185.2	275.3	C	Yes
	7-10	Combined CTs 7-10	INTCP710	446.3	3126.0	75	23	19.0	5.79	1034	830	139	42.5	1,295.0	163.2	C	Yes
	11	CT 11	INTCP11	446.3	3126.0	75	23	19.0	5.79	1034	830	139	42.5	407.0	51.3	C	Yes
	IPS - Shady Hills CT No. 1-3		IPSPASCO	347.2	3138.8	60	18.3	22	6.71	1076	853	122.4	37.3	304.5	38.367	C	Yes
	Estech/Swift Polk																
			ESTDRY1	411.5	3,074.2	60.0	18.3	9.7	2.95	151	339	27.8	8.47	-190.0	-23.94	E	Yes
			ESTDRY2	411.5	3,074.2	61.5	18.8	9.7	2.95	152	340	16.6	5.06	-181.0	-22.8	E	Yes
			ESTSAP	411.5	3,074.2	101	30.8	7.0	2.13	185	358	12.8	3.90	-737.1	-92.87	E	Yes
40TPA270021	FL Crushed Stone Kiln 1		FCS1	360.0	3,162.5	320	97.5	21.3	6.48	323	435	54.6	16.6	806.3	101.6	C	Yes
	FPC Polk County Site					113	34.4	13.5	4.115	260	400	133.0	40.5	98.0	12.35	C	Yes
			FPCPKC2	414.3	3,073.9	113	34.4	13.5	4.1	260	400	133.0	40.5	98.0	12.35	C	Yes
														196.0	24.7	C	Yes
NA	General Portland Cement #4		GPCEM4B	358.0	3,090.6	118	36.0	9.0	2.74	450	505	57.8	17.6	-499.9	-62.99	E	Yes
NA	General Portland Cement #5		GPCEM5B	358.0	3,090.6	149	45.4	12.5	3.81	430	494	19.0	5.80	-550.0	-69.3	E	Yes
NA	IMC-Agrico Pierce																
			IAPRC12	404.1	3,079.0	80.0	24.4	5.0	1.52	151	339	42.5	12.9	-193.0	-24.3	E	Yes
			IAPRC34	404.1	3,079.0	80.0	24.4	8.0	2.43	151	339	61.7	18.8	-182.5	-23.0	E	Yes
40TPA530080	Imperial Phosphates (Brewer)		IMPRLX	404.8	3,069.5	90	27.4	7.5	2.29	151	339	50.0	15.3	-152.9	-19.3	E	Yes
40TPA530060	Mobil Electrofos Division																
			MOBELE1	405.6	3,079.4	24.0	7.3	3.0	0.91	376	464	10.6	3.2	-51.8	-6.53	E	Yes
			MOBELE2	405.6	3,079.4	20.0	6.1	3.0	0.91	376	464	25.3	7.7	-79.8	-10.05	E	Yes
			MOBELE3	405.6	3,079.4	60.0	18.3	6.0	1.83	170	350	22.3	6.8	-173.1	-21.81	E	Yes
		MOBELE4	405.6	3,079.4	84.0	25.6	7.0	2.13	91	306	22.9	7.0	-56.4	-7.11	E	Yes	

Appendix F-4. Summary of SO<sub>2</sub> Class I Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	UTM Coordinates		Stack Parameters						Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class I		
			East (m)	North (m)	Height (ft)	(m)	Diameter (ft)	(m)	Temperature (F)	(K)	Velocity (ft/s)	(m/s)			(lb/hr)	(g/s)
		MOBELE5	405.6	3,079.4	60.0	18.3	2.3	0.7	120	322	75.0	22.9	-25.2	-3.17	E	Yes
		MOBELE6	405.6	3,079.4	96.0	29.3	7.0	2.13	106	314	28.0	8.5	-375.0	-47.25	E	Yes
40PNL520042	Stauffer Shutdown															
		STAUFRI	325.6	3,116.7	24.0	7.3	3.0	0.91	376	464	10.6	3.2	-38.6	-4.86	E	Yes
		STAUFRI2	325.6	3,116.7	60.0	18.3	2.3	0.7	120	322	75.0	22.9	-11.9	-1.50	E	Yes
		STAUFRI3	325.6	3,116.7	161	49.0	3.9	1.2	143	335	11.8	3.6	-404.2	-50.93	E	Yes
		STAUFRI4	325.6	3,116.7	84.0	25.6	7.0	2.13	91	306	22.9	7.0	-58.4	-7.36	E	Yes
		STAUFRI5	325.6	3,116.7	84.0	25.6	3.0	0.91	120	322	22.9	7.0	-3.6	-0.45	E	Yes
40TPA530050	US Agri-Chem Bartow															
		UAGBARI	413.2	3,086.3	51.8	15.8	6.0	1.83	138	332	32.8	10.0	-27.1	-3.41	E	Yes
		UAGBAR2	413.2	3,086.3	95.0	29.0	7.0	2.12	89	305	24.6	7.5	-333.3	-42.0	E	Yes
40TPA270024	Asphalt Pavers 3															
		ASPHALT3	359.9	3,162.4	40.0	12.2	4.5	1.37	219	377	34.7	10.6	17.9	2.25	C	Yes
40TPA270015	Asphalt Pavers 4															
		ASPHALT4	361.4	3,168.4	28.0	8.5	3.5	1.08	184	357	35.9	11.0	17.9	2.25	C	Yes
NA	Borden Hillsborough															
		BORDHIL	394.6	3,069.6	100	30.5	6.0	1.82	160	344	48.5	14.8	-51.4	-6.48	E	Yes
NA	Borden Polk															
		BORDPLK	414.5	3,109.0	56.0	17.1	7.7	2.34	140	333	27.1	8.3	-42.0	-5.29	E	Yes
40HIL290005	CF Industries Zephyrhills Baseline C Baseline D															
					198	60.4	8.0	2.44	176	353	53.8	16.4	-400	-50.40	E	Yes
					198	60.4	8.0	2.44	176	353	53.8	16.4	-400	-50.40	E	Yes
		CFZEPB	388.0	3,116.0	198	60.4	8.0	2.44	176	353	53.8	16.4	-800	-100.80	E	Yes
	--	CFZEP2	388.0	3,116.0	61.7	18.8	5.0	1.52	109	316	61.7	18.8	-833	-105.00	E	Yes
40TPA510066	Couch Const-Zephyrhills (Asphalt)															
		COUCHZEP	390.3	3,129.4	20.0	6.1	4.5	1.38	300	422	68.9	21.0	28.1	3.54	C	Yes
40TPA510041	Couch Const-Odessa (Asphalt)															
		COUCHODE	340.7	3,119.5	30.0	9.1	4.6	1.4	325	436	73.2	22.3	57.5	7.25	C	Yes
	Dris Paving (Asphalt)															
		DRIS	340.6	3,119.2	40.0	12.2	10.0	3.05	151	339	21.2	6.5	1.83	0.23	C	Yes
NA	Dolime Dryers Boilers															
		DOLIMEDR	404.8	3,069.5	90.0	27.4	5.0	1.52	140	333	67.8	20.7	-45.1	-5.68	E	Yes
		DOLIMEBL	404.8	3,069.5	90.0	27.4	2.0	0.61	430	494	23.8	7.3	-35.9	-4.52	E	Yes
NA	Evans Packing															
		EVANS	383.3	3,135.8	40.4	12.3	1.3	0.4	379	466	30.2	9.2	1.59	0.20	C	Yes
40TPA270017	E R Jahna (Lime Dryer)															
		ERJAHNA	386.7	3,155.8	35.0	10.7	6.0	1.83	129	327	29.5	9.0	6.51	0.82	C	Yes

Appendix F-4. Summary of SO<sub>2</sub> Class I Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description	ISCST3 ID Name	UTM Coordinates		Stack Parameters						Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class I		
			East (m)	North (m)	Height (ft)	Diameter (ft)	Temperature (m)	Velocity (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)	(lb/hr)			(g/s)	
NA	FDOC Boiler #3	FDOC	382.2	3,166.1	30.0	9.1	2.0	0.61	401	478	15.0	4.6	23.7	2.99	C	Yes
40TPA270010	FL Mining and Materials Kiln	FMM	356.2	3,169.9	105	32.0	14.0	4.27	250	394	32.5	9.9	11.5	1.45	C	Yes
40TPA090004	FPC - Crystal River															
	Crystal River 1	CRYRIV1B	334.2	3,204.5	499	152.0	15.0	4.57	300	422	138.1	42.1	-2492	-314.00	E	Yes
	Crystal River 2	CRYRIV2B	334.2	3,204.5	502	153.0	16.0	4.88	300	422	138.1	42.1	-14754	-1859.00	E	Yes
	Crystal River 4				585	178.2	25.5	7.77	253	396	68.9	21.0	8006	1008.80	C	Yes
	Crystal River 5				585	178.2	25.5	7.77	253	396	68.9	21.0	8006	1008.80	C	Yes
		CRYRIV45	334.2	3,204.5	585	178.2	25.5	7.77	253	396	68.9	21.0	16013	2017.60	C	Yes
30ORL640028	FPC Debarry	DEBARY	467.5	3,197.2	50.0	15.2	13.8	4.21	1016	820	184.4	56.2	3702	466.40	C	Yes
NA	Hospital Corp of America															
	Boiler #1				36.0	11.0	1.0	0.31	500	533	13.1	4.0	0.63	0.08	C	Yes
	Boiler #2				36.0	11.0	1.0	0.31	500	533	13.1	4.0	0.63	0.08	C	Yes
		HCOA12	333.4	3,141.0	36.0	11.0	1.0	0.31	500	533	13.1	4.0	1.27	0.16	C	Yes
NA	Kissimmee Utilities	KISSUT	447.7	3,127.9	40.0	12.2	10.0	3.05	718	654	95.5	29.1	233	29.40	C	Yes
30ORL490001	Kissimmee Utilities Exist	KISSEX	460.1	3,129.3	60.0	18.3	12.0	3.66	300	422	124.7	38.0	255	32.10	C	Yes
NA	Lake Cogen	LAKECOGN	434.0	3,198.8	100	30.5	11.0	3.35	232	384	56.2	17.1	40.0	5.04	C	Yes
NA	Mulberry Cogeneration															
	CT	MULCNAA	413.6	3,080.6	125	38.1	15.0	4.57	219	377	61.9	18.9	100.8	12.70	C	Yes
	Duct Burner	MULCNAB	413.6	3,080.6	125	38.1	6.5	1.98	300	422	30.5	9.3	5.16	0.65	C	Yes
NA	New Pt Richey Hospital															
	Boiler #1				36.0	11.0	1.0	0.31	520	544	12.7	3.9	0.48	0.06	C	Yes
	Boiler #2				36.0	11.0	1.0	0.31	520	544	12.7	3.9	0.24	0.03	C	Yes
		NEWPTR12	331.2	3,124.5	36.0	11.0	1.0	0.31	520	544	12.7	3.9	0.71	0.09	C	Yes
NA	Oman Construction	OMAN	359.8	3,164.9	25.0	7.6	6.0	1.83	165	347	20.6	6.3	16.6	2.09	C	Yes
30ORL480137	Orlando Utilities Commission - Stanton															
	Unit 1	OUC1	483.5	3,150.6	550	167.6	19.0	5.8	127	326	70.9	21.6	4770	601.00	C	Yes
	Unit 2 (24-hour)	OUC2	483.5	3,150.6	550	167.6	19.0	5.8	124	324	77.1	23.5	729	91.80	C	Yes
40TPA510028	Overstreet Paving	OVERST	355.9	3,143.7	30	9.1	4.3	1.3	275	408	52.5	16.0	29.1	3.67	C	Yes

Appendix F-4. Summary of SO<sub>2</sub> Class I Sources Included in the Air Modeling Analysis

Facility ID	Facility Name EU ID Emission Unit Description		ISCST3 ID Name	UTM Coordinates		Stack Parameters						Emission Rate		PSD Consuming (C) or Expanding (E)	Modeled in Class I		
				East (m)	North (m)	Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Temperature (F)	Temperature (K)	Velocity (ft/s)	Velocity (m/s)			(lb/hr)	(g/s)
40TPA510056	Pasco Cty RRF		PASCORRF	347.1	3,139.2	275	83.8	10.0	3.05	250	394	51.0	15.5	111.9	14.10	C	Yes
NA	Pasco Cogen		PASCOGN	385.6	3,139.0	100	30.5	11.0	3.35	232	384	56.2	17.1	40.0	5.04	C	Yes
30ORL48109	Reedy Creek Energy Services- EPCOT					17.0	5.2	1.8	0.55	650	617	144.8	44.1	14.5	1.83	C	Yes
	Generator 1					17.0	5.2	1.8	0.55	650	617	144.8	44.1	14.5	1.83	C	Yes
	Generator 2		EPCOT12	442.0	3,139.0	17.0	5.2	1.8	0.55	650	617	144.8	44.1	29.0	3.66	C	Yes
30ORL480110	Reedy Creek Energy Services		REEDY	443.1	3,144.3	65.0	19.8	11.2	3.41	285	414	51.0	15.6	1.19	0.15	C	Yes
NA	Ridge Cogeneration		RIDGE	416.7	3,100.4	325	99.1	10.0	3.05	170	350	47.6	14.5	109.5	13.80	C	Yes



**ATTACHMENT D**  
**SULFURIC ACID MIST ANALYSIS**

Table 2-6. Maximum Emission Rates Due to Fuel Combustion for the Dryer at the Future EPP Plant

Parameter	Units	No. Fuel Oil	Natural Gas				
<u>Operating Data</u>							
Annual Operating Hours	hr/yr	400	8,760				
Maximum Heat Input Rate	10 <sup>6</sup> Btu/hr	80	80				
Hourly Fuel Oil Usage <sup>a</sup>	10 <sup>3</sup> gal/hr	0.5714	N/A				
Annual Fuel Oil Usage	10 <sup>3</sup> gal/yr	229	N/A				
Maximum Sulfur Content	Weight %	0.5	N/A				
Hourly Natural Gas Usage <sup>b</sup>	scf/hr	N/A	80,000				
Annual Natural Gas Usage	10 <sup>6</sup> scf/yr	N/A	701				
		<u>No. 2 Fuel Oil</u>		<u>Natural gas</u>		<u>Maximum Total Emission Rate</u>	
Pollutant	AP-42 Emissions Factor <sup>c</sup>	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
		(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
<u>Sulfur Dioxide</u>							
Fuel oil	142 *(S)lb/10 <sup>3</sup> gal <sup>d</sup>	40.57	8.11	--	--	--	--
Natural gas	0.6 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	0.048	0.21	--	--
Worse-Case Combination of Fuels		--	--	--	--	40.57	8.11
<u>Nitrogen Oxides</u>							
Fuel oil	20 lb/10 <sup>3</sup> gal	11.43	2.29	--	--	--	--
Natural gas	100 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	8.000	35.04	--	--
Worse-Case Combination of Fuels		--	--	--	--	11.43	35.04
<u>Carbon Monoxide</u>							
Fuel oil	5 lb/10 <sup>3</sup> gal	2.86	0.57	--	--	--	--
Natural gas	84 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	6.720	29.43	--	--
Worse-Case Combination of Fuels		--	--	--	--	6.72	29.43
<u>Volatile Organic Compounds</u>							
Fuel oil	0.2 lb/10 <sup>3</sup> gal	0.11	0.023	--	--	--	--
Natural gas	5.5 lb/10 <sup>6</sup> ft <sup>3</sup> <sup>e</sup>	--	--	0.440	1.927	--	--
Worse-Case Combination of Fuels		--	--	--	--	0.44	1.93

Footnotes:

Particulate matter emissions through the common plant stack are included in Table 2.5

<sup>a</sup> Based on the heat content of fuel oil of 140,000 Btu/gallon.

<sup>b</sup> Based on the heat content of natural gas of 1,000 Btu/scf.

<sup>c</sup> Emission factors for fuel oil are based on AP-42, Section 1.3, September 1998. Emission factors for natural gas are based on AP-42, Section 1.4, July 1998.

<sup>d</sup> S denotes the weight-percent of Sulfur in fuel oil; Maximum sulfur content = 0.5%.

<sup>e</sup> Based on methane comprised of 52% total VOC.

Table 2-8. Maximum Emission Rates Due to Fuel Combustion for the Dryer at the AFI Plant

Parameter	Units	No. Fuel Oil	Natural Gas
<b>Operating Data</b>			
Annual Operating Hours	hr/yr	400	8,760
Maximum Heat Input Rate	10 <sup>6</sup> Btu/hr	50	50
Hourly Fuel Oil Usage <sup>a</sup>	10 <sup>3</sup> gal/hr	0.357	N/A
Annual Fuel Oil Usage	10 <sup>3</sup> gal/yr	143	N/A
Maximum Sulfur Content	Weight %	0.5	N/A
Hourly Natural Gas Usage <sup>b</sup>	10 <sup>6</sup> scf/hr	N/A	0.050
Annual Natural Gas Usage	10 <sup>6</sup> scf/yr	N/A	438

Pollutant	AP-42 Emissions Factor <sup>c</sup>	No. 2 Fuel Oil		Natural gas		Maximum Total Emission Rate	
		Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)
<b>Sulfur Dioxide</b>							
Fuel oil	142 *(S)lb/10 <sup>3</sup> gal <sup>d</sup>	25.357	5.071	--	--	--	--
Natural gas	0.6 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	0.030	0.131	--	--
Worse-Case Combination of Fuels		--	--	--	--	25.36	5.07
<b>Nitrogen Oxides</b>							
Fuel oil	20 lb/10 <sup>3</sup> gal	7.143	1.429	--	--	--	--
Natural gas	100 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	5.000	21.900	--	--
Worse-Case Combination of Fuels		--	--	--	--	7.14	21.90
<b>Carbon Monoxide</b>							
Fuel oil	5 lb/10 <sup>3</sup> gal	1.786	0.357	--	--	--	--
Natural gas	84 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	4.200	18.396	--	--
Worse-Case Combination of Fuels		--	--	--	--	4.20	18.40
<b>Volatile Organic Compounds</b>							
Fuel oil	0.2 lb/10 <sup>3</sup> gal	0.071	0.014	--	--	--	--
Natural gas	5.5 lb/10 <sup>6</sup> ft <sup>3e</sup>	--	--	0.275	1.205	--	--
Worse-Case Combination of Fuels		--	--	--	--	0.28	1.20

Footnotes:

Particulate matter emissions rates through the common plant stack are included in Table A-1.

<sup>a</sup> Based on the heat content of fuel oil of 140,000 Btu/gallon.

<sup>b</sup> Based on the heat content of natural gas of 1,000 Btu/scf.

<sup>c</sup> Emission factors for fuel oil are based on AP-42, Section 1.3, September 1998. Emission factors for natural gas are based on AP-42, Section 1.4, July 1998.

<sup>d</sup> S denotes the weight-percent of Sulfur in fuel oil; Maximum sulfur content = 0.5%.

<sup>e</sup> Based on methane comprised of 52% total VOC.

Table 2-10. Maximum Emission Rates Due to Fuel Combustion for the Dryer at the No. 5 DAP Plant

Parameter	Units	No. Fuel Oil	Natural Gas				
<b>Operating Data</b>							
Annual Operating Hours	hr/yr	400	8,760				
Maximum Heat Input Rate	10 <sup>6</sup> Btu/hr	40	40				
Hourly Fuel Oil Usage <sup>a</sup>	10 <sup>3</sup> gal/hr	0.286	N/A				
Annual Fuel Oil Usage	10 <sup>3</sup> gal/yr	114	N/A				
Maximum Sulfur Content	Weight %	0.5	N/A				
Hourly Natural Gas Usage <sup>b</sup>	10 <sup>6</sup> scf/hr	N/A	0.040				
Annual Natural Gas Usage	10 <sup>6</sup> scf/yr	N/A	350				
<hr/>							
Pollutant	AP-42 Emissions Factor <sup>c</sup>	No. 2 Fuel Oil		Natural gas		Maximum Total Emission Rate	
		Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)
<b>Sulfur Dioxide</b>							
Fuel oil	142 *(S)lb/10 <sup>3</sup> gal <sup>d</sup>	20.286	4.057	--	--	--	--
Natural gas	0.6 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	0.024	0.105	--	--
Worse-Case Combination of Fuels		--	--	--	--	20.29	4.06
<b>Nitrogen Oxides</b>							
Fuel oil	20 lb/10 <sup>3</sup> gal	5.714	1.143	--	--	--	--
Natural gas	100 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	4.000	17.520	--	--
Worse-Case Combination of Fuels		--	--	--	--	5.71	17.52
<b>Carbon Monoxide</b>							
Fuel oil	5 lb/10 <sup>3</sup> gal	1.429	0.286	--	--	--	--
Natural gas	84 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	3.360	14.717	--	--
Worse-Case Combination of Fuels		--	--	--	--	3.36	14.72
<b>Volatile Organic Compounds</b>							
Fuel oil	0.2 lb/10 <sup>3</sup> gal	0.057	0.011	--	--	--	--
Natural gas	5.5 lb/10 <sup>6</sup> ft <sup>3e</sup>	--	--	0.220	0.964	--	--
Worse-Case Combination of Fuels		--	--	--	--	0.22	0.96

## Footnotes:

Particulate matter emissions rates through the common plant stack are included in Table A-1.

<sup>a</sup> Based on the heat content of fuel oil of 140,000 Btu/gallon.<sup>b</sup> Based on the heat content of natural gas of 1,000 Btu/scf.<sup>c</sup> Emission factors for fuel oil are based on AP-42, Section 1.3, September 1998. Emission factors for natural gas are based on AP-42, Section 1.4, July 1998.<sup>d</sup> S denotes the weight-percent of Sulfur in fuel oil; Maximum sulfur content = 0.31%.<sup>e</sup> Based on methane comprised of 52% total VOC.

Table B-4. Maximum Potential Emission Rates Due to Fuel Combustion, Nos. 5, 7, and 9 Rock Mills (each)

Parameter	Units	No. Fuel Oil	Natural Gas
<b>Operating Data</b>			
Annual Operating Hours	hr/yr	400	8,760
Maximum Heat Input Rate	10 <sup>6</sup> Btu/hr	13	13
Hourly Fuel Oil Usage <sup>a</sup>	10 <sup>3</sup> gal/hr	0.093	N/A
Annual Fuel Oil Usage	10 <sup>3</sup> gal/yr	37.14	N/A
Maximum Sulfur Content	Weight %	0.5	N/A
Hourly Natural Gas Usage <sup>b</sup>	10 <sup>6</sup> scf/hr	N/A	0.0130
Annual Natural Gas Usage	10 <sup>6</sup> scf/yr	N/A	113.88

Pollutant	AP-42 Emissions Factor <sup>c</sup>	No. 2 Fuel Oil		Natural gas		Maximum Total Emission Rate	
		Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)
<b>Sulfur Dioxide</b>							
Fuel oil	142 *(S)lb/10 <sup>3</sup> gal <sup>d</sup>	6.593	1.319	--	--	--	--
Natural gas	0.6 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	0.008	0.034	--	--
Worse-Case Combination of Fuels		--	--	--	--	6.59	1.32
<b>Nitrogen Oxides</b>							
Fuel oil	20 lb/10 <sup>3</sup> gal	1.857	0.371	--	--	--	--
Natural gas	100 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	1.300	5.694	--	--
Worse-Case Combination of Fuels		--	--	--	--	1.86	5.69
<b>Carbon Monoxide</b>							
Fuel oil	5 lb/10 <sup>3</sup> gal	0.464	0.093	--	--	--	--
Natural gas	84 lb/10 <sup>6</sup> ft <sup>3</sup>	--	--	1.092	4.783	--	--
Worse-Case Combination of Fuels		--	--	--	--	1.09	4.78
<b>Volatile Organic Compounds</b>							
Fuel oil	0.2 lb/10 <sup>3</sup> gal	0.019	0.004	--	--	--	--
Natural gas	5.5 lb/10 <sup>6</sup> ft <sup>3</sup> <sup>e</sup>	--	--	0.072	0.313	--	--
Worse-Case Combination of Fuels		--	--	--	--	0.07	0.31

Footnotes:

Particulate matter emissions rates for each rock mill are included in Table B-2.

<sup>a</sup> Based on the heat content of fuel oil of 140,000 Btu/gallon.

<sup>b</sup> Based on the heat content of natural gas of 1,000 Btu/scf.

<sup>c</sup> Emission factors for fuel oil are based on AP-42, Section 1.3, September 1998. Emission factors for natural gas are based on AP-42, Section 1.4, July 1998.

<sup>d</sup> S denotes the weight-percent of Sulfur in fuel oil; Maximum sulfur content = 0.5%.

<sup>e</sup> Based on methane comprised of 52% total VOC.

Table 6-7a. Stack Parameters and Actual and Potential Fluoride Emission Rates for Current and Future Cargill Riverview Sources

AIRS Number	Source	ISCST Model ID	Short-Term F Emissions		Annual Average F Emissions		Stack/Vent Release Height		Stack/Vent Diameter		Gas Flow Rate acfm	Gas Exit Temperature		Velocity		Discharge Direction (Vert./Horiz.)	Location <sup>f</sup>				Modeled in Significant Impact Analysis? (Yes/No)
			lb/hr	g/sec	TPY	g/sec	ft	m	ft	m		F	K	ft/sec	m/sec		X Coordinate		Y Coordinate		
																ft		ft			
<b>CURRENT SOURCES</b>																					
73	Phosphoric Acid Production Facility																				
	Prayon Reactor/No. 1 Filtration Unit	PAPPRAC	0.09	0.01	0.23	0.01	110	33.53	4.00	1.22	18,300	105	313.71	24.20	7.38	V	-1140	-347	940	287	Yes
	No. 1 Filtration Unit/No.2 Filtration Unit/Dorco Reactor	PAPF12C	1.14	0.14	3.01	0.09	110	33.53	4.80	1.46	38,900	115	319.26	35.30	10.76	V	-1200	-366	1120	341	Yes
	No. 3 Filtration Unit	PAPF3C	0.26	0.03	0.69	0.02	115	35.05	4.90	1.49	57,100	90	305.37	41.30	12.59	V	-1350	-411	984	300	Yes
7	GTSP/AP Manufacturing Plant	GTSPAPC	1.55	0.20	3.62	0.10	126	38.40	8.00	2.44	171,700	132	328.71	51.11	15.58	V	-1730	-527	50	15	Yes
70,71	Two GTSP Storage Buildings	GTSPSTC	8.44	1.06	38.90	1.12	55	16.76 <sup>b</sup>	-	-	-	191	58.12 <sup>b</sup>	25.58	7.80 <sup>b</sup>	°	-2680	-817	50	15	Yes
	Animal Feed Ingredient Plant																				
78	AFI Defluorination & Granulation Scrubber	AFIPLTC	0.17	0.02	1.79	0.05	136	41.45	6.00	1.83	108,400	147	337.04	63.90	19.48	V	-1230	-375	490	149	Yes
55	No. 5 DAP Plant	DAPNOSC	3.02	0.38	8.37	0.24	133	40.54	7.00	2.13	121,732	132	328.71	52.72	16.07	V	-1744	-532	-380	-116	Yes
<b>FUTURE SOURCES</b>																					
73	Phosphoric Acid Production Facility																				
	Prayon Reactor	PAPPRAY	0.57	0.07	2.51	0.07	110	33.53	4.00	1.22	20,900	105	313.71	27.72	8.45	V	-1140	-347	940	287	Yes
	Nos. 1 and 2 Filtration Units	PAPF12	0.57	0.07	2.51	0.07	110	33.53	4.83	1.47	45,000	115	319.26	40.93	12.48	V	-1200	-366	1120	341	Yes
	Dorco Reactor and New Digester	PAPDORR	0.57	0.07	2.51	0.07	95	28.96	4.50	1.37	55,000	110	316.48	57.64	17.57	V	-1070	-326	1110	338	Yes
	No. 3 Filtration Unit	PAPF3	0.57	0.07	2.51	0.07	115	35.05	4.92	1.50	57,100	90	305.37	50.06	15.26	V	-1350	-411	984	300	Yes
7	EPP Manufacturing Plant	EPPPLNT	1.89	0.24	8.26	0.24	126	38.40	8.00	2.44	237,000	132	328.71	78.58	23.95	V	-1730	-527	50	15	Yes
70,71	Two EPP Storage Buildings	EPPST24	9.92	1.25	43.46	1.25	55	16.76 <sup>b</sup>	-	-	-	191	58.12 <sup>b</sup>	25.58	7.80 <sup>b</sup>	°	-2680	-817	50	15	Yes
	Animal Feed Ingredient Plant																				
78	Defluorination System Scrubber	AFIDFS	1.00	0.13	4.38	0.13	35	10.67	3.00	0.91	25,400	105	313.71	59.89	18.25	V	-1230	-375	490	149	Yes
55	No. 5 DAP Plant	DAPNO5	3.30	0.42	14.50	0.42	133	40.54	7.00	2.13	121,732	132	328.71	52.72	16.07	V	-1744	-532	-380	-116	Yes
22,23,24	Nos. 3 and 4 MAP Plants and South Cooler	MAPNO34	2.00	0.25	8.50	0.24	133	40.54	7.00	2.13	165,000	142	334.26	71.46	21.78	V	-1800	-549	-170	-52	No

Footnotes:

<sup>f</sup> Relative to H2SO4 Plant No. 9 stack location.

<sup>b</sup> Volume source dimensions based on methods presented in accordance with ISCST3 User's Manual.

Source	Physical Dimensions (ft)		Model Dimensions (ft)		
	Height (H)	Width (W)	Height (H or H/2)	Sigma Y (W/4.3)	Sigma Z (H/2.15)
Two GTSP Storage Buildings	55.0	820	55.0	191	25.58

Table 6-7b. Stack Parameters and Sulfuric Acid Mist Emission Rates for Affected Cargill - Riverview Sources

AIRS Number	Source	ISCST Source ID	Short-Term SAM Emissions		Annual Average SAM Emissions		Stack/Vent Release Height		Stack/Vent Diameter		Gas Flow Rate acfm	Gas Exit Temperature		Velocity		Discharge Direction (Vert./Horiz.)	Location <sup>4</sup>			
			lb/hr	g/sec	TPY	g/sec	ft	m	ft	m		F	K	ft/sec	m/sec		X Coordinate		Y Coordinate	
																	ft	m	ft	m
<b>CURRENT SOURCES</b>																				
5	No. 8 Sulfuric Acid Plant	NO8SAPC	4.08	0.514	14.68	0.422	150	45.72	8.0	2.44	118,938	165	347	39.4	12.02	V	340	104	-90	-27
6	No. 9 Sulfuric Acid Plant	NO9SAPC	4.90	0.617	13.43	0.386	150	45.72	9.0	2.74	159,602	155	341	41.8	12.74	V	0	0	0	0
<b>FUTURE SOURCES</b>																				
5	No. 8 Sulfuric Acid Plant	NO8SAP	13.50	1.701	59.1	1.701	150	45.72	8.00	2.44	129,400	165	347	42.91	13.08	V	340	104	-90	-27
6	No. 9 Sulfuric Acid Plant	NO9SAP	17.00	2.142	74.5	2.142	150	45.72	9.00	2.74	171,100	155	341	44.83	13.66	V	0	0	0	0
	Phosphate Rock Grinding/Drying System																			
100	No. 5 Rock Mill Dust Collector	RKMLNO5	0.11	0.014	0.02	0.001	91	27.74	2.50	0.76	36,100	166	348	122.57	37.36	V	-1,620	-494	510	155
106	No. 7 Rock Mill Dust Collector	RKMLNO7	0.11	0.014	0.02	0.001	91	27.74	3.00	0.91	20,000	165	347	47.16	14.37	V	-1,638	-499	486	148
101	No. 9 Rock Mill Dust Collector	RKMLNO9	0.11	0.014	0.02	0.001	91	27.74	2.50	0.76	31,360	162	345	106.48	32.45	V	-1,630	-497	460	140
7	EPP Manufacturing Plant	EPPPLNT	0.70	0.088	0.14	0.004	126	38.40	8.00	2.44	237,000	132	329	78.58	23.95	V	-1,730	-527	50	15
	Animal Feed Ingredient Plant																			
	Granulation System Scrubber	AFIGRAN	0.44	0.055	0.09	0.003	136	41.45	6.00	1.83	109,400	150	339	64.49	19.66	V	-1,230	-375	460	140
55	No. 5 DAP Plant	DAPNO5	0.22	0.027	0.04	0.001	133	40.54	7.00	2.13	121,732	132	329	52.72	16.07	V	-1,744	-532	-380	-116

<sup>4</sup> Relative to H2SO4 Plant No. 9 stack location.

Table 7-1. Maximum Predicted Concentrations Due to the Project Only at the Class I Area of the Chassahowitza National Wilderness Area

Pollutant	Concentrations <sup>a</sup> (ug/m <sup>3</sup> ) for Averaging Times				
	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Sulfur Dioxide (SO <sub>2</sub> )	0.007	0.179	0.367	1.03	1.51
Nitrogen Dioxide (NO <sub>2</sub> )	0.0004	0.014	0.038	0.091	0.122
Particulates (PM <sub>10</sub> )	0.002	0.03	0.057	0.151	0.183
Fuorides (F)	0.007	0.179	0.36	1.03	1.51
Sulfuric Acid Mist (SAM)	0.002	0.036	0.065	0.187	0.237

<sup>a</sup> Highest Predicted with CALPUFF model and CALMET Tampa Bay Domain, 1990.



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TRANSMITTAL LETTER

**To: Syed Aref**  
**Florida Department of Environmental Protection**

**Date: March 15, 2001**  
**Project No.: 0037650**

**Sent by: jkw**

- Mail
- Air Freight
- Hand Carried

- UPS
- Federal Express

**Per: David A. Buff, P.E., Q.E.P.**

Quantity	Item	Description
1	Final Air Permit - Application Only	Facility Expansion, Cargill Fertilizer, Inc.

**Remarks:**

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