Golder Associates Inc.

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August 15, 2001

0037650

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

Attention: Mr. A. A. Linero, P.E.

SUBJECT: CARGILL FERTILIZER - RIVERVIEW PLANT EXPANSION
DEP FILE NO. 0570008-036-AC; PSD-FL-315

Dear Mr. Linero:

This letter serves as a response to the comments made by the Department in a letter dated June 28, 2001, in reference to the Riverview Plant Expansion project. The comments are addressed in the same order as they appear in the letter.

1. Comments From U. S. Fish and Wildlife Service (USFWS)

The USFWS commented regarding the exceedance of the 5 percent visibility threshold at the Chassahowitzka NWA Class I area. They request that Cargill reduce the allowable sulfuric acid mist (SAM) emissions in order to stay below the 5 percent threshold.

Response: Cargill provided regional haze modeling at the Class I area for two scenarios. The first scenario was for the normal case of firing natural gas in the fuel burning sources at the Riverview facility. Without fuel oil burning, the maximum predicted 24-hour visibility degradation was 5.2 percent. A plot of the distribution of 24-hour visibility degradation that is predicted to occur during the year was presented for both emission scenarios. The plot showed that there is only one predicted exceedance of the criteria for the natural gas burning case.

In order to reduce the visibility impacts for the normal operational case of natural gas firing, Cargill is willing to reduce allowable SAM emissions from the Nos. 8 and 9 Sulfuric Acid Plants to 0.1 lb/ton of 100 percent sulfuric acid produced. The maximum visibility degradation with this lower SAM emission rate is 4.31 percent.

The second scenario was with all fuel burning sources burning No. 2 fuel oil. The maximum predicted 24-hour visibility degradation due to the proposed project with fuel oil burning was 5.6 percent. The frequency distribution plot showed that there were two predicted exceedances of the 5.0 percent criteria for the fuel oil burning case. However, since Cargill is limited to 400 hrs/yr operation on fuel oil for its fuel burning sources, has not burned fuel oil at the facility for many years, and would only burn fuel oil during a natural gas curtailment, it was concluded that the probability of an actual 24-hour visibility degradation event was extremely unlikely.

The aforementioned reduction in SAM emissions from the two sulfuric acid plants will reduce the maximum predicted visibility degradation under fuel oil burning conditions to 4.71 percent.

Revised application pages and tables reflecting the SAM emission limit changes are attached.

2. BACT Limit for Fluorides

Response: Cargill will agree to changing the proposed fluorides emission limit for the No. 5 DAP Plant to 0.04 lb/ton P_2O_5 input. It is noted that the accuracy of the fluorides testing method (EPA Method 13) is not sufficient to set a fluoride standard out to three decimal places. Revised application pages and tables reflecting the fluoride emission limit changes are attached.

3. Modeling Analysis For PM_{10}

Response: The air modeling analysis has been revised to incorporate an annual PM_{10} background concentration of 25 $\mu g/m^3$. The revised results are presented in Tables 6-15 and 6-16, attached. As in the previous analysis, exceedances of the annual PM_{10} AAQS are predicted at one receptor location. However, the proposed project does not contribute significantly to the predicted exceedances. Supportive computer modeling files have been e-mailed to Cleve Holladay of your staff.

If you have any questions, please call me at (352) 336-5600 or email me at dave_buff@golder.com.

Sincerely,

Golder Associates, Inc.

David A. Buff

David A. Buff, P.E., Q.E.P.
Principal Engineer
Florida P.E.# 19011
SEAL

DB/FWH/lsh

Attachments

cc: D. Jellerson
K. Edgemon, P.E.
A. Harman, P.E., EPCHC
F. Howard
C. Holladay ✓
P:\Projects\2000\0037\0037650Y Cargill Riverview PSD\F...\WP\L081501.doc
B. Thomas, SWD ✓
B. Worley, EPA ✓
O. Bunyak, NPS ✓
S. Cerf

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   David Jellerson, Environmental Manager
2. Owner/Authorized Representative or Responsible Official Mailing Address:
   Organization/Firm: **Cargill Fertilizer, Inc.**
   Street Address: **8813 Highway 41 South**
   City: **Riverview** State: **FL** Zip Code: **33569**
3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: **(813) 671 - 6297** Fax: **(813) 671 - 6149**
4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative(check here [X], if so) or the responsible official (check here [ ], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Signature David B. Jellerson Date 8-15-01

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **David A. Buff**
   Registration Number: **19011**
2. Professional Engineer Mailing Address:
   Organization/Firm: **Golder Associates Inc.**
   Street Address: **6241 NW 23rd Street, Suite 500**
   City: **Gainesville** State: **FL** Zip Code: **32653-1500**
3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 336 - 5600** Fax: **(352) 336 - 6603**

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

David A. Buff
Signature

8/15/01
Date

(seal)

Attach any exception to certification statement.

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **SAM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **11.2** lb/hour **49.28** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.1 lb/ton 100% H_2SO_4** Reference: **BACT Analysis**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **0.1 lb/ton 100% H_2SO_4 x 112.5 ton/hr 100% H_2SO_4 = 11.25 lb/hr** **11.25 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 49.28 TPY**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.1 lb/ton 100% H_2SO_4**	4. Equivalent Allowable Emissions: **11.2** lb/hour **49.28** tons/year
5. Method of Compliance (limit to 60 characters): **Annual stack test using EPA Method 8**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Based on Proposed BACT limit.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **SAM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **14.2** lb/hour **62.1** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.1 lb/ton 100% H_2SO_4** Reference: **BACT Analysis**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **0.1 lb/ton 100% H_2SO_4 x 141.67 ton/hr 100% H_2SO_4 = 14.2 lb/hr** **14.2 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 62.05 TPY**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.1 lb/ton 100% H_2SO_4**	4. Equivalent Allowable Emissions: **14.2** lb/hour **62.1** tons/year
5. Method of Compliance (limit to 60 characters): **Annual stack test using EPA Method 8**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Based on Proposed BACT limit.**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **FL**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **2.9** lb/hour **12.9** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.04 lb/ton P_2O_5** Reference: **BACT Analysis**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **0.04 lb/ton P_2O_5 x 73.5 ton/hour P_2O_5 = 2.9 lb/hr** **2.94 lb/hr x 8,760 hr/yr x 1 ton/2,000 lbs = 12.9 TPY**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.04 lb/ton P_2O_5**	4. Equivalent Allowable Emissions: **2.9** lb/hour **12.9** tons/year
5. Method of Compliance (limit to 60 characters): **Annual stack emissions test using EPA Method 13A or 13B.**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Based on BACT analysis. Emissions limited to lesser of 0.04 lb/ton P_2O_5 input or 2.9 lb/hr.**	

Table 2-1. Summary of Emission Rates for the Nos. 8 and 9 Sulfuric Acid Plants (Revised 8/13/01)

Source	EU ID	Maximum Capacity (100% H_2SO_4)	Operating Hours	SO_2 Allowable Emission Rate				SAM Allowable Emission Rate			NO_X Average Emission Rate	
				lb/ton H_2SO_4	3-hr (lb/hr)	24-hr (lb/hr)	Annual (TPY)	lb/ton H_2SO_4	Hourly (lb/hr)	Annual (TPY)	lb/ton H_2SO_4	Annual (TPY)
Existing Plants												
No. 8 H_2SO_4	005	2,700 TPD	8,760	4.0	450.0	450.0	1,971.0	0.15	16.88	73.91	0.12	59.13
No. 9 H_2SO_4	006	3,400 TPD	8,760	4.0	566.7	566.7	2,482.0	0.15	21.25	93.08	0.12	74.46
		5,700 TPD			950.0	950.0	4,161.0		35.63	156.04		124.83
Modified Plants												
No. 8 H_2SO_4	005	2,700 TPD	8,760	4.0	450.0	--	--	0.1	11.3	49.3	0.12	59.13
				3.5	--	393.8	1,724.6					
No. 9 H_2SO_4	006	3,400 TPD	8,760	4.0	566.7	--	--	0.1	14.2	62.1	0.12	74.46
				3.5	--	495.8	2,171.8					
		6,100 TPD			1,016.7	889.6	3,896.4		25.4	111.3		133.59

Notes:
SO_2 = Sulfur Dioxide
SAM = Sulfuric Acid Mist
NO_X = Nitrogen Oxides

Table 2-9. Summary of Pollution Control Equipment and Allowable Emission Rates for the No. 5 DAP Plant (Revised 8/13/01)

Source	EU ID	Control Equipment	Design Capacity	Operating Hours	Process Rate (TPH P_2O_5)	Fluoride Emission Rate		PM/PM_{10} Emission Rate	
						lb/hr	TPY	lb/hr	TPY
Existing DAP Plant									
Reactor, Granulator, Cooler, and Equipment		RGCE Tailgas Scrubber	64,000 acfm	8,760	--	--	--	--	--
Dryer		Dryer Tailgas Scrubber	37,000 acfm	8,760	--	--	--	--	--
Reactor and Granulator		Venturi Scrubber	24,000 acfm	8,760	--	--	--	--	--
Cooler and Equipment		Venturi Scrubber	55,000 acfm	8,760	--	--	--	--	--
Dryer		Venturi Scrubber	49,000 acfm	8,760	--	--	--	--	--
Total--DAP Common Plant Stack	055		101,000 acfm	8,760	73.5	3.3	14.5	12.8	56.1
Modified DAP Plant									
Reactor, Granulator, Cooler, and Equipment		Tailgas Scrubber	126,000 acfm	8,760	--	--	--	--	--
Dryer		Tailgas Scrubber	55,000 acfm	8,760	--	--	--	--	--
Reactor and Granulator		Venturi Scrubber	24,000 acfm	8,760	--	--	--	--	--
Cooler and Equipment		Venturi Scrubber	55,000 acfm	8,760	--	--	--	--	--
Dryer		Venturi Scrubber	49,000 acfm	8,760	--	--	--	--	--
Total--DAP Common Plant Stack	055		172,000 acfm	8,760	73.5	2.9	12.9	12.8	56.1

Notes: DAP = Diammonium Phosphate

PM/PM_{10} = Particulate Matter/Particulate Matter with aerodynamic diameter less than or equal to 10 micrometers

Table 3-3. Future Potential Emissions from Modified/New/Affected Sources (Revised 8/13/01)

Source Description	EU ID	Pollutant Emission Rate (TPY)								
		SO_2	NO_x	CO	PM	PM_{10}	VOC	TRS	SAM	Fluoride
A. Molten Sulfur Storage/Handling Facility										
Molten Sulfur Storage--Tank No. 1		2.59	--	--	0.31	0.31	1.84	1.24	--	--
Molten Sulfur Storage--Tank No. 2	064	2.59	--	--	0.31	0.31	1.84	1.24	--	--
Molten Sulfur Storage--Tank No. 3	065	2.59	--	--	0.31	0.31	1.84	1.24	--	--
Molten Sulfur Storage--Pit No. 7	066	0.04	--	--	0.37	0.37	0.03	0.02	--	--
Molten Sulfur Storage--Pit No. 8	067	0.04	--	--	0.37	0.37	0.03	0.02	--	--
Molten Sulfur Storage--Pit No. 9	068	0.04	--	--	0.37	0.37	0.03	0.02	--	--
Molten Sulfur Storage--Ship Unloading	069	1.07	--	--	0.06	0.06	0.76	0.51	--	--
Molten Sulfur Storage--Truck Loading Station	074	0.04	--	--	0.02	0.02	0.03	0.02	--	--
Total		**8.99**	**--**	**--**	**2.12**	**2.12**	**6.41**	**4.31**	**--**	**--**
B. No. 8 Sulfuric Acid Plant	005	**1,724.63**	**59.13**	--	--	--	--	--	**49.28**	--
C. No. 9 Sulfuric Acid Plant	006	**2,171.75**	**74.46**	--	--	--	--	--	**62.05**	--
D. Rock Mills		--	--	--	--	--	--	--	--	--
No. 5 Rock Mill	100	1.32	5.69	4.78	6.85	6.85	0.31	--	0.02	--
No. 9 Rock Mill	101	1.32	5.69	4.78	6.85	6.85	0.31	--	0.02	--
No. 7 Rock Mill	106	1.32	5.69	4.78	6.85	6.85	0.31	--	0.02	--
Ground Rock Handling and Storage System	034/102	--	--	--	1.78	1.78	--	--	--	--
Total		**3.96**	**17.07**	**14.34**	**22.33**	**22.33**	**0.93**	**--**	**0.07**	**--**
E. Phosphoric Acid Plant	073	--	--	--	--	--	--	--	--	**10.03**
F. EPP Plant	007	8.11	35.04	29.43	52.56	52.56	1.93	--	0.14	10.75
EPP Ground Rock Handling	008	--	--	--	4.16	4.16	--	--	--	--
EPP Storage Building No. 2	070	--	--	--	--	--	--	--	--	21.73
EPP Storage Building No. 4	071	--	--	--	--	--	--	--	--	21.73
EPP Truck Loadout Baghouse	072	--	--	--	2.30	2.30	--	--	--	--
EPP Truck Loadout Fugitive Emissions		--	--	--	2.00	0.40	--	--	--	--
New Molten Sulfur Tank		0.66	--	--	0.85	0.85	0.47	0.32	--	--
Total		**8.77**	**35.04**	**29.43**	**61.87**	**60.27**	**2.40**	**0.32**	**0.14**	**54.20**
G. AFI Plant Defluorination System	078	--	--	--	--	--	--	--	--	9.25
AFI Granulation System No. 1		5.07	21.90	18.40	35.04	35.04	1.20	--	0.09	--
AFI Granulation System No. 2		7.80	34.35	27.59	35.04	35.04	1.79	--	0.13	--
DE Hopper Baghouse	079	--	--	--	0.23	0.23	--	--	--	--
Milling, Classification, & Cooling Equipment Baghouse No. 1		--	--	--	22.53	22.53	--	--	--	--
Milling, Classification, & Cooling Equipment Baghouse No. 2		--	--	--	22.53	22.53	--	--	--	--
Limestone Silo Baghouse	080	--	--	--	1.40	1.40	--	--	--	--
AFI Product Loadout Baghouse	081	--	--	--	9.01	9.01	--	--	--	--
AFI Product Loadout Fugitive Emissions		--	--	--	0.20	0.04	--	--	--	--
Total		**12.87**	**56.25**	**45.99**	**125.98**	**125.82**	**2.99**	**--**	**0.22**	**9.25**
H. No. 5 DAP Plant	055	**2.52**	**17.52**	**14.72**	**56.10**	**56.10**	**0.96**	**--**	**0.04**	**12.88**
I. Material Handling System										
West Baghouse Filter[a]	051	--	--	--	4.60	4.60	--	--	--	--
South Baghouse[a]	052	--	--	--	4.60	4.60	--	--	--	--
Vessel Loading System--Tower Baghouse Exhaust[c]	053	--	--	--	3.20	3.20	--	--	--	--
Building No. 6 Belt to Conveyor No. 7 [a]	058	--	--	--	1.20	1.20	--	--	--	--
Conveyor No.7 to Conveyor No. 8[a]	059	--	--	--	1.90	1.90	--	--	--	--
Conveyor No.8 to Conveyor No. 9[a]	060	--	--	--	3.60	3.60	--	--	--	--
Railcar Unloading of AFI Product[b]		--	--	--	0.30	0.06	--	--	--	--
East Vessel Loading Facility-Shiphold/Chokefeed[a]	061	--	--	--	0.42	0.42	--	--	--	--
Total		**--**	**--**	**--**	**19.82**	**19.58**	**--**	**--**	**--**	**--**
Total Future Potential Emission Rates		**3,933.49**	**259.47**	**104.48**	**288.22**	**286.22**	**13.69**	**4.63**	**111.80**	**86.36**

[a] Emission Rates based on Title V Permit No. 0570008-014-AV.

[b] See Appendix B for calculation of emission rate.

[c] Based on stack tests, see Appendix C and Section 2.0.

Table 3-4. Contemporaneous and Debottlenecking Emissions Analysis and PSD Applicability (Revised 8/13/01)

Source Description	Pollutant Emission Rate (TPY)								
	SO_2	NO_x	CO	PM	PM_{10}	VOC	TRS	SAM	Fluoride
Potential Emissions From Modified/New/Affected Sources[a]									
A. Existing Molten Sulfur Storage/Handling Facility	8.99	--	--	2.12	2.12	6.41	4.31	--	--
B. Modified No. 8 Sulfuric Acid Plant	1,724.63	59.13	--	--	--	--	--	49.28	--
C. Modified No. 9 Sulfuric Acid Plant	2,171.75	74.46	--	--	--	--	--	62.05	--
D. Existing Nos. 5, 7, and 9 Rock Mills[b]	3.96	17.07	14.34	22.33	22.33	0.93	--	0.07	--
E. Modified Phosphoric Acid Plant	--	--	--	--	--	--	--	--	10.03
F. Modified EPP Plant	8.77	35.04	29.43	61.87	60.27	2.40	0.32	0.14	54.20
G. Modified AFI Plant No. 1 and Plant No. 2	12.87	56.25	45.99	125.98	125.82	2.99	--	0.22	9.25
H. Modified No. 5 DAP Plant	2.52	17.52	14.72	56.10	56.10	0.96	--	0.04	12.88
I. Existing Material Handling System[b]	--	--	--	19.82	19.58	--	--	--	--
Total Potential Emission Rates	**3,933.49**	**259.47**	**104.48**	**288.22**	**286.22**	**13.69**	**4.63**	**111.80**	**86.36**
Actual Emissions from Current Operations[c]									
A. Molten Sulfur Storage/Handling Facility	1.69	--	--	1.97	1.97	1.21	0.82	--	--
B. No. 8 Sulfuric Acid Plant	1,349.15	44.05	--	--	--	--	--	14.09	--
C. No. 9 Sulfuric Acid Plant	1,211.29	51.23	--	--	--	--	--	10.75	--
D. Nos. 5, 7, and 9 Rock Mills	0.07	11.03	7.82	5.40	5.40	0.59	--	--	--
E. Phosphoric Acid Plant	--	--	--	--	--	--	--	--	3.59
F. GTSP Plant	0.11	18.05	15.16	15.38	14.39	0.99	--	--	31.50
G. AFI Plant No. 1	0.04	5.71	4.80	17.30	17.14	0.31	--	--	1.05
H. No. 5 DAP Plant	0.02	3.90	3.28	6.66	6.66	0.21	--	--	8.37
I. Material Handling System	--	--	--	3.62	3.60	--	--	--	--
Total Actual Emission Rates	**2,562.36**	**133.98**	**31.05**	**50.32**	**49.16**	**3.32**	**0.82**	**24.84**	**44.51**
TOTAL CHANGE DUE TO PROPOSED PROJECT	**1,371.13**	**125.49**	**73.43**	**237.90**	**237.06**	**10.36**	**3.81**	**86.96**	**41.85**
Contemporaneous Emission Changes									
A. Upgrade of Phosphate Rock Grinding System (June 1996)	2.70	--	3.99	--	--	0.31	0.00	0.00	--
B. AFI Plant Expansion (July 1996)	9.40	[e]	14.20	--	--	1.10	0.00	0.00	--
C. MAP Plant Expansion (May 1998)	0.61	2.23	0.56	[e]	[e]	0.04	0.00	0.00	[e]
D. DAP Plant Cooler Upgrade (August 1998)[d]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E. Reconstruction of Molten Sulfur Tank No. 1 (February 1999)	2.82	0.00	0.00	3.40	3.40	2.01	1.35	0.00	0.00
F. Molten Sulfur Increase/Truck Loadout (pending)	0.32	0.00	0.00	1.25	1.25	0.23	0.15	0.00	0.00
Total Contemporaneous Emission Changes	**15.85**	**2.23**	**18.75**	**4.65**	**4.65**	**3.69**	**1.50**	**0.00**	**0.00**
TOTAL NET CHANGE	**1,386.98**	**127.72**	**92.18**	**242.55**	**241.71**	**14.05**	**5.31**	**86.96**	**41.85**
PSD SIGNIFICANT EMISSION RATE	40	40	100	25	15	40	10	7	3
PSD REVIEW TRIGGERED?	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes

[a] Total future potential emissions from Table 3-3.
[b] Debottlenecking analysis revealed that emissions from this sources could potentially increase as part of this project.
[c] Based on actual emissions for 2000 and 1999 from Tables A-1 and A-2, respectively.
[d] Project was determined to not result in an increase in emissions of any pollutant.
[e] Denotes that PSD review was triggered for this pollutant; therefore any previous contemporaneous increases/decreases are wiped clean.

Table 6-7. Stack Parameters and Actual and Potential Fluoride Emission Rates for Current and Future Cargill Riverview Sources (Revised 8/13/01)

AIRS Number	Source	ISCST Model ID	Short-Term F Emissions lb/hr	g/sec	Annual Average F Emissions TPY	g/sec	Stack/Vent Release Height ft	m	Stack/Vent Diameter ft	m	Gas Flow Rate acfm	Gas Exit Temperature F	K	Velocity ft/sec	m/sec	Discharge Direction (Vert./Horiz.)	Location [c] X Coordinate ft	m	Y Coordinate ft	m	Modeled in Significant Impact Analysis? (Yes/No)
CURRENT SOURCES																					
73	Phosphoric Acid Production Facility																				
	Prayon Reactor/No. 1 Filtration Unit	PAPPRAC	0.09	0.01	0.21	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/Dorrco Reactor	PAPF12C	1.14	0.14	2.75	0.08	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	0.63	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	2.47	0.07	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	29.04	0.84	55	16.76 [b]	--	--	--	191	58.12 [b]	25.58	7.80 [b]	[b]	-2680	-817	50	15	Yes
	Animal Feed Ingredient Plant																				
78	AFI Defluorination & Granulation Scrubber	AFIPLTC	0.17	0.02	1.05	0.03	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	DAPNO5C	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
FUTURE SOURCES																					
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
	Dorrco 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 [b]	--	--	--	191	58.12 [b]	25.58	7.80 [b]	[b]	-2680	-817	50	15	Yes
	Animal Feed Ingredient Plant Nos. 1 and 2																				
78	Defluorination System Scrubber	AFIDFS	2.11	0.27	9.25	0.27	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	2.94	0.37	12.88	0.37	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

[a] Relative to H_2SO_4 Plant No. 9 stack location.

[b] Volume source dimensions based on methods presented in accordance with ISCST3 User's Manual.

Source	Physical Dimensions (ft) Height (H)	Width (W)	Model Dimensions (ft) 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 6-15a. Maximum Predicted SO_2 and NO_x Impacts After Completion of the Proposed Project
AAQS Screening Analysis, Cargill Riverview (Revised 8/15/01)

Pollutant/ Averaging Time	Concentration ($\mu g/m^3$) [a]			Receptor Location [b]		Time Period (YYMMDDHH)	Florida AAQS ($\mu g/m^3$)
	Total	Modeled Sources	Background	Direction (degree)	Distance (m)		
SO_2							
Annual	54	45.8	8	270	15,000	91123124	60
	51	42.9	8	90	1,000	92123124	
	53	45.3	8	90	1,000	93123124	
	50	42.1	8	70	900	94123124	
	53	44.8	8	80	900	95123124	
HSH 24-Hour	214	182.9	31	360	5,500	91081224	260
	222	191.0	31	100	900	92073024	
	241	210.1	31	10	6,000	93071724	
	206	174.8	31	70	600	94090324	
	215	184.5	31	256.6	1,011	95073124	
HSH 3-Hour	1,011	889.8	121	180	6,500	91042715	1,300
	981	860.3	121	180	6,500	92071815	
	1,044	922.5	121	220	5,000	93041512	
	870	748.6	121	200	7,500	94091012	
	934	812.6	121	160	7,500	95070812	
NO_x							
Annual	39	18.1	21	330	2,000	91123124	100
	40	19.4	21	330	2,000	92123124	
	42	21.2	21	340	2,000	93123124	
	43	21.9	21	340	2,000	94123124	
	45	24.2	21	340	2,000	95123124	

[a] Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to1995.

[b] Relative to No. 9 Sulfuric Acid Plant stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending
HSH = Highest, Second-Highest
H6H = Highest, Sixth-Highest

Table 6-15b. Maximum Predicted PM_{10} Impacts After Completion of the Proposed Project
AAQS Screening Analysis, Cargill Riverview (Revised 08/14/01)

Pollutant/ Averaging Time	Concentration ($\mu g/m^3$) [a]			Receptor Location [b]		Time Period (YYMMDDHH)	Florida AAQS ($\mu g/m^3$)
	Total	Modeled Sources	Background	Direction (degree)	Distance (m)		
PM_{10}							
Annual	54.5	29.5	25 [c]	340	6,000	91123124	50
	51.4	26.4	25 [c]	330	6,000	91123124	
	50.7	25.7	25 [c]	350	6,000	91123124	
	50.2	25.2	25 [c]	320	6,000	91123124	
	49.7	24.7	25 [c]	340	5,500	91123124	
	55.1	30.1	25 [c]	340	6,000	92123124	
	52.3	27.3	25 [c]	350	6,000	92123124	
	50.2	25.2	25 [c]	340	5,500	92123124	
	54.9	29.9	25 [c]	350	5,500	93123124	
	52.6	27.6	25 [c]	340	5,500	93123124	
	52.5	27.5	25 [c]	320	6,000	93123124	
	50.2	25.2	25 [c]	340	5,000	93123124	
	56.0	31.0	25 [c]	350	6,000	94123124	
	53.7	28.7	25 [c]	340	6,000	94123124	
	51.7	26.7	25 [c]	320	6,000	94123124	
	50.4	25.4	25 [c]	330	6,000	94123124	
	50.2	25.2	25 [c]	330	5,500	94123124	
	54.4	29.4	25 [c]	340	6,000	95123124	
	53.7	28.7	25 [c]	350	6,000	95123124	
	51.5	26.5	25 [c]	320	6,000	95123124	
	51.3	26.3	25 [c]	330	6,000	95123124	
	49.9	24.9	25 [c]	340	5,000	95123124	
	49.8	24.8	25 [c]	330	5,500	95123124	
H6H 24-Hour	157	118.0	39 [d]	350	6000	91020124	150
	162	123.1	39 [d]	350	6000	92111824	
	160	120.7	39 [d]	350	6000	92110724	
	156	116.9	39 [d]	350	6000	92101324	
	176	136.9	39 [d]	350	6000	93111024	
	167	127.9	39 [d]	350	6000	93100324	
	167	127.7	39 [d]	350	6000	94102824	
	165	126.2	39 [d]	350	6000	94012024	

[a] Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to1995.

[b] Relative to No. 9 Sulfuric Acid Plant stack.

[c] Cargill Riverview sources contributed less than 0.3 ug/m^3 to these exceedences of the AAQS standard.

[d] Cargill Riverview sources contributed 0.0 ug/m^3 to this exceedence of the AAQS standard.

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 (Revised 08/14/01)

Pollutant/ Averaging Time	Concentration ($\mu g/m^3$) [a]					Time Period (YYMMDDHH)	Florida AAQS ($\mu g/m^3$)
	Total	Modeled Sources	Background	Receptor Location [b] Direction (degree)	Distance (m)		
SO_2							
Annual	57.8	49.8	8	270	14,400	91123124	60
HSH 24-Hour	261	230	31 [c]	3.0	5,800	91081224	260
	261	230	31 [c]	2.5	5,800	93071724	
	262	231	31 [c]	2.0	5,800	91081224	
	262	231	31 [c]	1.5	5,800	93071724	
	262	231	31 [c]	1.0	5,800	91081224	
	261	230	31 [c]	1.0	5,700	93071724	
	261	230	31 [c]	0.5	5,800	93071724	
	262	231	31 [c]	0.5	5,700	91081224	
	263	232	31 [c]	360.0	5,700	93071724	
	260	229	31 [c]	360.0	5,800	91081224	
	264	233	31 [c]	359.5	5,700	93071724	
	264	233	31 [c]	359.0	5,700	93071724	
	264	233	31 [c]	358.5	5,700	93071724	
	263	232	31 [c]	358.0	5,700	91081224	
	262	231	31 [c]	357.5	5,700	93071724	
	261	230	31 [c]	357.0	5,700	91081224	
HSH 3-Hour	1,074	953	121	178	7,000	91071912	1,300
	1,167	1046	121	177	7,000	92041215	
	1,072	951	121	223	4,800	93041512	
PM_{10}							
Annual	57.6	32.6	25 [d]	348.5	6000	94123124	50
H6H 24-Hour	227.6	188.6	39 [c]	347.5	6000	93100624	150
NO_x							
Annual	43.0	22.0	21	335	2,000	93123124	100
	43.8	22.8	21	345	2,000	94123124	
	46.1	25.1	21	335	2,000	95123124	

[a] Based on 5-year meteorological record, Tampa (surface)/ Ruskin (upper air), 1991 to1995

[b] Relative to No. 9 Sulfuric Acid Plant stack.

[c] Cargill Riverview sources contributed 0.0 ug/m^3 to this exceedence of the AAQS standard.

[d] Cargill Riverview sources contributed less than 0.3 ug/m^3 to these exceedences of the AAQS standard.

Note: YYMMDDHH = Year, Month, Day, Hour Ending
HSH = Highest, Second-Highest
H6H = Highest, Sixth-Highest

Table 6-23. Stack Parameters and Sulfuric Acid Mist Emission Rates for Affected Cargill - Riverview Sources (Revised 08/14/01)

AIRS Number	Source	ISCST Source ID	Short-Term SAM Emissions		Annual Average SAM Emissions		Stack/Vent Release Height		Stack/Vent Diameter		Gas Flow Rate	Gas Exit Temperature		Velocity		Discharge Direction	Location [a] X Coordinate		Location [a] Y Coordinate	
			lb/hr	g/sec	TPY	g/sec	ft	m	ft	m	acfm	F	K	ft/sec	m/sec	(Vert./Horiz.)	ft	m	ft	m
CURRENT SOURCES																				
5	No. 8 Sulfuric Acid Plant	NO8SAPC	4.08	0.514	14.09	0.405	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	10.75	0.309	150	45.72	9.0	2.74	159,602	155	341	41.8	12.74	V	0	0	0	0
FUTURE SOURCES																				
5	No. 8 Sulfuric Acid Plant	NO8SAP	11.25	1.417	49.28	1.418	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	14.20	1.789	62.05	1.785	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 No. 1	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
	Granulation System Scrubber No. 2	AFIGRN2	0.66	0.083	0.13	0.004	155	47.24	6.00	1.83	112,188	150	339	66.13	20.16	V	-1,415	-431	420	128
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

[a] Relative to H2SO4 Plant No. 9 stack location.

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Cargill Fertilizer, Inc.
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Riverview, FL 33569

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