File

PSD APPLICATION
FOR
MAP PLANT EXPANSION
CARGILL FERTILIZER, INC.
RIVERVIEW, FLORIDA

RECEIVED
JUN 08 1998
BUREAU OF
AIR REGULATION

Prepared For:

Cargill Fertilizer, Inc.
8813 US Highway 41 South
Riverview, Florida 33569

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500

May 1998
9837532Y\F1

PART A

APPLICATION FOR AIR PERMIT

Department of
Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: **Cargill Fertilizer, Inc.**	
2. Site Name: **Tampa Plant**	
3. Facility Identification Number: **0570008**	[ ] Unknown
4. Facility Location Information: Street Address or Other Locator: **8813 U.S. Highway 41 South** City: **Riverview** County: **Hillsborough** Zip Code: **33569**	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	June 8, 1998
2. Permit Number:	0570008-026-AC
3. PSD Number (if applicable):	PSD-FL-251
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

David Jellerson, Environmental Superintendent

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 of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., 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.*

Dan B. Jellerson — Signature

6-4-98 — Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID		Description of Emissions Unit	Permit Type
Unit #	Unit ID		
1R	*	MAP Plant	AC1A

See individual Emissions Unit (EU) sections for more detailed descriptions.
Multiple EU IDs indicated with an asterisk (*). Regulated EU indicated with an "R".

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be renewed: _____

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

_____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category II: All Air Construction Permit Applications Subject to Processing Under Rule 62-210.300(2)(b),F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

_____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units.

This Application for Air Permit is submitted to obtain:

[x] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: _____

AO29-256726

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

_____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[X] Attached - Amount: **$ 7,500.00** [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

See PSD Report

2. Projected or Actual Date of Commencement of Construction :

1 Jun 1998

3. Projected Date of Completion of Construction :

1 Jul 2000

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's 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 — 6/1/98

Signature (seal) — Date

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact:
   Kathy Edgemon, Environmental Engineer

2. Application Contact Mailing Address:

   Organization/Firm: **Cargill Fertilizer, Inc.**
   Street Address: **8813 Highway 41 South**
   City: **Riverview** State: **FL** Zip Code: **33569**

3. Application Contact Telephone Numbers:

   Telephone: **(813) 671-6369** Fax: **(813) 671-6149**

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates:
   Zone: **17** East (km): **362.9** North (km): **3082.5**

2. Facility Latitude/Longitude:
   Latitude (DD/MM/SS): **27 / 51 / 28** Longitude: (DD/MM/SS): **82 / 23 / 15**

3. Governmental Facility Code:	4. Facility Status Code:	5. Facility Major Group SIC Code:	6. Facility SIC(s):
0	**A**	**28**	**2874**

7. Facility Comment (limit to 500 characters):

Facility Contact

1. Name and Title of Facility Contact:
   David Jellerson, Environmental Superintendent

2. Facility Contact Mailing Address:
   Organization/Firm: **Cargill Fertilizer, Inc.**
   Street Address: **8813 U.S. Highway 41 South**
   City: **Riverview** State: **FL** Zip Code: **33569**

3. Facility Contact Telephone Numbers:
   Telephone: **(813) 677-6297** Fax: **(813) 671-6149**

Facility Regulatory Classifications

1. Small Business Stationary Source? [ ] Yes [X] No [ ] Unknown
2. Title V Source? [X] Yes [ ] No
3. Synthetic Non-Title V Source? [ ] Yes [X] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? [X] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs? [ ] Yes [X] No
6. Major Source of Hazardous Air Pollutants (HAPs)? [X] Yes [ ] No
7. Synthetic Minor Source of HAPs? [ ] Yes [X] No
8. One or More Emissions Units Subject to NSPS? [X] Yes [ ] No
9. One or More Emissions Units Subject to NESHAP? [X] Yes [ ] No
10. Title V Source by EPA Designation? [ ] Yes [X] No
11. Facility Regulatory Classifications Comment (limit to 200 characters):

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

Not Applicable

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted		2. Pollutant Classification
PM	Particulate Matter - Total	A
PM10	Particulate Matter - PM10	A
FL	Fluorides - Total	A
SO2	Sulfur Dioxide	A
NOx	Nitrogen Oxides	A
H107	Hydrogen fluoride	A
SAM	Sulfuric Acid Mist	A

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location:
   [X] Attached, Document ID: Part B
   [ ] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
   [X] Attached, Document ID: Part B
   [ ] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
   [X] Attached, Document ID(s): CR-FI-E3
   [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

5. Fugitive Emissions Identification:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

6. Supplemental Information for Construction Permit Application:
   [X] Attached, Document ID: Part B
   [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

8. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID: _____
   [ ] Equipment/Activities On site but Not Required to be Individually Listed
   [ ] Not Applicable

9. Alternative Methods of Operation:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

10. Alternative Modes of Operation (Emissions Trading):
    [ ] Attached, Document ID: _____
    [ ] Not Applicable

11. Identification of Additional Applicable Requirements:
[ ] Attached, Document ID: _____
[ ] Not Applicable

12. Compliance Assurance Monitoring Plan:
[ ] Attached, Document ID: _____
[ ] Not Applicable

13. Risk Management Plan Verification:

[ ] Plan Submitted to Implementing Agency - Verification Attached
Document ID: _____

[ ] Plan to be Submitted to Implementing Agency by Required Date

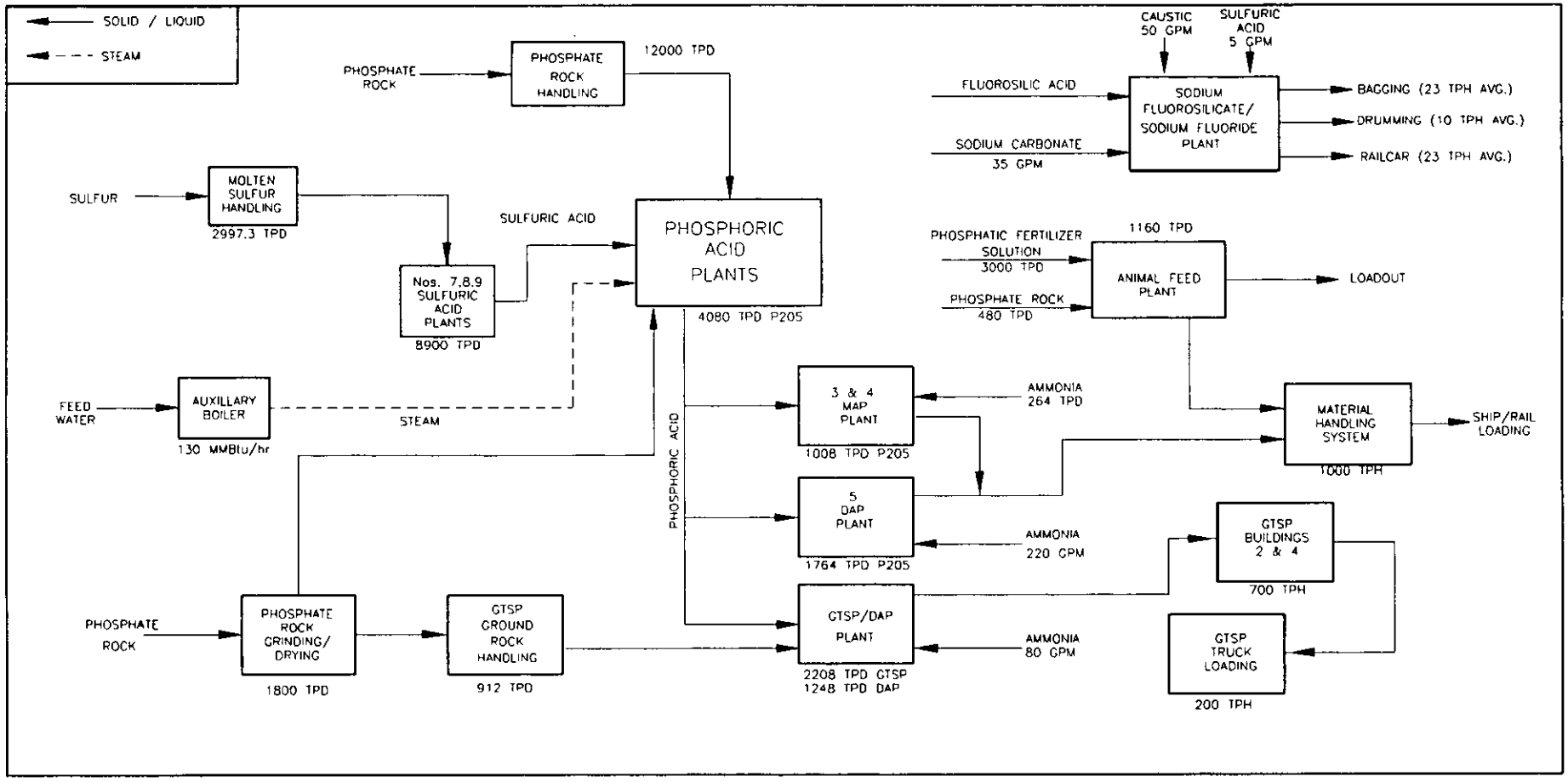
[ ] Not Applicable

14. Compliance Report and Plan
[ ] Attached, Document ID: _____
[ ] Not Applicable

15. Compliance Statement (Hard-copy Required)
[ ] Attached, Document ID: _____
[ ] Not Applicable

ATTACHMENT CR-FI-E3

FACILITY FLOW DIAGRAM



Golder Associates

CARGILL FERTILIZER
TAMPA, FL
FACILITY FLOW DIAGRAM
CR-FI-E3

EMISSION UNIT:	FACILITY WIDE
PROCESS AREA:	
FILENAME:	CRFLOW1.DWG
LATEST REVISION:	06/02/98

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): **MAP Plant**		
2. Emissions Unit Identification Number: [ ] No Corresponding ID [ ] Unknown *		
3. Emissions Unit Status Code: **A**	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code: **28**
6. Emissions Unit Comment (limit to 500 characters): *** 022, 023, 024. See Attachment CR-E01-B6.**		

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters):

Cyclonic Spray Scrubber (2) - ARCO

2. Control Device or Method Code: **85**

B.

1. Description (limit to 200 characters):

Venturi Scrubber

2. Control Device or Method Code: **53**

C.

1. Description (limit to 200 characters):

Cyclonic Mist Eliminator

2. Control Device or Method Code: **15**

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer:	Model Number:
4. Generator Nameplate Rating:	MW
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:		6	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr		tons/day
3. Maximum Process or Throughput Rate:			
4. Maximum Production Rate:	2,016	TPD	
5. Operating Capacity Comment (limit to 200 characters): **Maximum production rate for each unit is 1,008 TPD of MAP.**			

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
	24 hours/day	7	days/week
	52 weeks/yr	8,760	hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-296.320(4)(b) - General VE Limit
62-296.403 - Phosphate Processing
62-296.403(1)(i) - Emission Limits for other Plants
62-296.403(2) - Emission Limits for Existing Plants
62-296.403(3) - Test Methods and Procedures
62-296.700 - RACT for PM
62-296.705 - Phosphate Processing Operations
62-296.705(2)(a) - Emission Limits
62-297.310 - General Compliance Test Reqs.
62-297.401 - Compliance Test Methods

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: MAP	
2. Emission Point Type Code: [x] 1 [ ] 2 [ ] 3 [ ] 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [ ] R [x] V [ ] W	
6. Stack Height:	133 feet
7. Exit Diameter:	7 feet
8. Exit Temperature:	142 °F

9. Actual Volumetric Flow Rate:	**165,000** acfm
10. Percent Water Vapor:	%
11. Maximum Dry Standard Flow Rate:	dscfm
12. Nonstack Emission Point Height:	feet
13. Emission Point UTM Coordinates: Zone: East (km): North (km):	
14. Emission Point Comment (limit to 200 characters):	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Chemical Manufacturing, Ammoniator/Granulator, Ammonium Phosphates.**	
2. Source Classification Code (SCC): **3-01-030-02**	
3. SCC Units: **Tons P2O5 Produced**	
4. Maximum Hourly Rate: **42**	5. Maximum Annual Rate: **367,920**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters): **Maximum rate is for the two MAP units combined, equivalent to 2,016 TPD MAP product.**	

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **In-Process Fuel Use, Natural Gas, Ammonium Phosphate Dryer.**
2. Source Classification Code (SCC): **3-90-006-99**
3. SCC Units: **Million Cubic Feet Burned**

4. Maximum Hourly Rate:	5. Maximum Annual Rate:
0.006	**53**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **1,000**	

10. Segment Comment (limit to 200 characters):
Max Hourly Rate: 0.0060. Max Annual Rate: 52.56. Heat Input Rate based on maximum hourly fuel usage of 6,000 scf/hr total for both fertilizer plants.

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):

In-Process Fuel Use: Distillate Oil: Ammonium Phosphate Dryer.

2. Source Classification Code (SCC):

3-90-005-99

3. SCC Units:

1000 Gallons

4. Maximum Hourly Rate:	5. Maximum Annual Rate:
0.043	**17**

6. Estimated Annual Activity Factor:

7. Maximum Percent Sulfur:	8. Maximum Percent Ash:

9. Million Btu per SCC Unit:

140

10. Segment Comment (limit to 200 characters):

Actual Max Hourly Rate=0.043. Actual Max Annual Rate=17,143 gal/yr based on 400 hr/yr max of fuel oil firing. Heat Input Rate based on max hourly fuel usage of 42.86 gal/hr for both fertilizer plants.

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	085	053	EL
PM10	085	053	EL
FL	085		EL

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM**

2. Total Percent Efficiency of Control: %

3. Potential Emissions: **16.8** lb/hour **75.6** tons/year

4. Synthetically Limited? [**X**] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr

6. Emission Factor: **16.8 lb/hr**

   Reference: **Proposed BACT**

7. Emissions Method Code:

   [**X**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   Maximum emissions for Nos. 3/4 MAP and South Cooler are 16.8 lb/hr. 16.8 lb/hr x 8,760 hr/yr x ton/2000 lb = 75.58 TPY

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

Emissions Unit Information Section 1 of 1

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **RULE**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.3 lb/ton product**	
4. Equivalent Allowable Emissions:	**16.8** lb/hour **75.6** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Test using EPA Method 5**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Rule 62-296.705(2)(a). Lb/ton limit for No. 3 and No. 4 MAP Units. Equivalent allowable emissions for No. 3 and No. 4 MAP and South Cooler combined.**	

B.

1. Basis for Allowable Emissions Code: **RULE**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.3 lb/ton product**	
4. Equivalent Allowable Emissions:	**16.8** lb/hour **75.6** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Testing using EPA Method 5**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Rule 62-296.705(2)(a). Lb/ton limit for the South Cooler. Equivalent allowable emissions are for No. 3 and No. 4 MAP and South Cooler combined.**	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **16.8** lb/hour **75.6** tons/year
4. Synthetically Limited? [**x**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: **16.8 lb/hr** Reference: **Proposed BACT**
7. Emissions Method Code: [**x**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **Maximum emissions for Nos. 3/4 MAP and South Cooler are 16.8 lb/hr. 16.8 lb/hr x 8,760 hr/yr x ton/2000 lb = 75.58 TPY.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

Emissions Unit Information Section 1 of 1

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **RULE**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.3 lb/ton product**	
4. Equivalent Allowable Emissions:	**16.8** lb/hour **75.6** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Test using EPA Method 5**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Rule 62-296.705(2)(a). Lb/ton limit for No. 3 and No. 4 MAP Units. Equivalent allowable emissions are for No. 3 and No. 4 MAP and South Cooler combined.**	

B.

1. Basis for Allowable Emissions Code: **RULE**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.3 lb/ton product**	
4. Equivalent Allowable Emissions:	**16.8** lb/hour **75.6** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Testing using EPA Method 5**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Rule 62-296.705(2)(a). Lb/ton limit for the South Cooler. Equivalent allowable emissions are for No. 3 and No. 4 MAP and South Cooler combined.**	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **FL**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **1.8** lb/hour **7.7** tons/year
4. Synthetically Limited? [**X**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: **0.04 lb/ton** Reference: **Proposed BACT**
7. Emissions Method Code: [**X**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **42 TPH P2O5 x 0.042 lb/ton P2O5 = 1.764 lb/hr. 1.764 lb/hr x 8,760 hr/yr x ton/2000 lb = 7.73 TPY**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Emissions represent total from No. 3 and No. 4 MAP Units and South Cooler combined.**

Emissions Unit Information Section 1 of 1
Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **RULE**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.04 lb/ton P205**
4. Equivalent Allowable Emissions: **1.8** lb/hour **7.7** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Test using EPA Method 13A or 13B**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Limit applies to No. 3 and No. 4 MAP Units and South Cooler combined based on F.A.C. 62-296.403(2) and proposed BACT limit.**

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: **VE20**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **Annual Stack Testing using EPA Method 9.**
5.	Visible Emissions Comment (limit to 200 characters): **Rule 62-296.705(2)(a)**

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment (limit to 200 characters):

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Continuous Monitoring System Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: [ ] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: [ ] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

[X] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[x] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[ ] C	[x] E	[ ] Unknown
	SO_2	[ ] C	[ ] E	[x] Unknown
	NO_2	[ ] C	[x] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	**57.2** lb/hour	**250.6**	tons/year
	SO_2	lb/hour		tons/year
	NO_2		**2.28**	tons/year
5.	PSD Comment (limit to 200 characters):			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1.	Process Flow Diagram	
	[X] Attached, Document ID: Part B	
	[ ] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification	
	[X] Attached, Document ID: Part B	
	[ ] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment	
	[X] Attached, Document ID: CR-EI-L3	
	[ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report	
	[ ] Attached, Document ID: _____	[X] Not Applicable
	[ ] Previously Submitted, Date: _____	
6.	Procedures for Startup and Shutdown	
	[ ] Attached, Document ID: _____	[X] Not Applicable
7.	Operation and Maintenance Plan	
	[ ] Attached, Document ID: _____	[X] Not Applicable
8.	Supplemental Information for Construction Permit Application	
	[X] Attached, Document ID: Part B	[ ] Not Applicable
9.	Other Information Required by Rule or Statute	
	[ ] Attached, Document ID: _____	[X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: _____ [ ] Not Applicable
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: _____ [ ] Not Applicable
12.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: _____ [ ] Not Applicable
13.	Compliance Assurance Monitoring Plan [ ] Attached, Document ID: _____ [ ] Not Applicable
14.	Acid Rain Permit Application (Hard Copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ [ ] Not Applicable

ATTACHMENT CR-E01-B6

EMISSIONS UNIT COMMENT

ATTACHMENT CR-E01-B6

EMISSIONS UNIT COMMENT

Note: Construction activities under AC29-261247 are complete. Source operating under AO29-256726. Previously, the two Chemco scrubbers serving No. 3 and No. 4 MAP Plants were considered pollution control equipment. However, these scrubbers utilize recovery solution to recover ammonia and product, which is then returned to the process.

The recently promulgated Compliance Assurance Monitoring (CAM) rule and associated preamble clarifies the definition of inherent process equipment as opposed to pollution control equipment. "Inherent Process Equipment" is defined as follows (40 CFR 64.1):

> Equipment that is necessary for the proper or safe functioning of the process, or material recovery equipment that the owner or operator documents is installed and operated primarily for purposes other than compliance with air pollution regulations.

The preamble discusses three potential criteria for distinguishing inherent process equipment from control devices. These are:

1. Is the primary purpose of the equipment to control air pollution?
2. How do the cost savings from product recovery compare to the cost of the equipment?
3. Would the equipment be installed if no air quality regulations are in place?

In response to the first question, the primary purpose of the Cargill product recovery scrubbers is to recover ammonia. Since ammonia is not a regulated air pollutant or HAP, the primary purpose is not to control air pollution. From an air regulation standpoint, it is not required to control emissions of ammonia.

In regards to cost savings, the Cargill MAP Plant currently recovers approximately 6,800 TPY of ammonia between the two MAP units. The current price of ammonia is $180 per ton, and therefore the cost savings for the recovering the ammonia is approximately $1.2 million per year. The replacement cost for the two product recovery scrubbers is about $500,000 each (including delivery, installation, and taxes), for a total of about $1.0 million. Thus, the equipment payback time is less than 1 year.

In regards to the last question, based on the cost savings indicated above, the equipment would certainly be installed even if no air quality regulations were in place. Therefore, these product recovery scrubbers are actually part of the process (i.e., inherent process equipment). The flow diagram has been revised to reflect this clarification.

There exists a potential for fugitive emissions of PM, PM10 and Fluoride to occur from this emissions unit. It is our understanding, based on past FDEP interpretations and permitting history, that these emissions are not regulated under federal/state/local emission standards.

ATTACHMENT CR-E1-L3

Attachment CR-E01-L3 (a). Control Equipment Parameters and Removal Efficiency for No. 3 MAP Fertilizer Plant ARCO Cyclonic scrubber at Cargill Fertilizer, Inc. in Tampa, FL

Manufacturer and Model No.	Automotive Rubber Co. WM-350-L Cyclonic Spray Scrubber	
Outlet Gas Temp	130	F
Outlet Gas Flow Rate	35,000	ACFM
Pressure Drop Across Device	5.0	inches of H20
Process Water Flow Rate Minimum	260	gpm
Maximum Production Rate	2,016	tons MAP per day
Maximum Particulate Emission Rate (a)	16.8	lb PM/hr
Maximum Fluoride Emission Rate (a)	1.76	lb F/hr

Pollutants

	Loading		Control
	Inlet (lb/hr)	Permitted (a) (lb/hr)	Efficiency (d) (%)
Particulate Matter (b)	1,680	16.8	99
Fluoride (c)	25.2	1.76	93

(a) Represents total emissions from common stack.
(b) Inlet loading calculated from control efficiency.
(c) Inlet loading for entire emission unit.
Obtained from the Final Guideline Document: Control of Fluoride Emissions (0.6 lb/ton P2O5).
(d) Control Efficiency for entire emission unit.

Attachment CR-EU1-L3 (b) **Control Equipment Parameters and Removal Efficiency for No. 4 MAP Fertilizer Plant ARCO Cyclonic scrubber at Cargill Fertilizer, Inc. in Tampa, FL**

Manufacturer and Model No.	Automotive Rubber Co. WM-350-L Cyclonic Spray Scrubber	
Outlet Gas Temp	130	F
Outlet Gas Flow Rate	35,000	ACFM
Pressure Drop Across Device	5.0	inches of H20
Process Water Flow Rate Minimum	260	gpm
Maximum Production Rate	2,016	tons MAP per day
Maximum Particulate Emission Rate (a)	16.8	lb PM/hr
Maximum Fluoride Emission Rate (a)	1.76	lb F/hr

Pollutants	Loading		Control
	Inlet (lb/hr)	Permitted (a) (lb/hr)	Efficiency (d) (%)
Particulate Matter (b)	1,680	16.8	99
Fluoride (c)	25.2	1.76	93

(a) Represents total emissions from common stack.
(b) Inlet loading calculated from control efficiency.
(c) Inlet loading for entire emission unit.
Obtained from the Final Guideline Document: Control of Fluoride Emissions (0.6 lb/ton P2O5).
(d) Control Efficiency for entire emission unit.

Attachment CR-EU1-L3 (c) Control Equipment Parameters and Removal Efficiency for No. 3 and 4 MAP Fertilizer Plant Cooler scrubber at Cargill Fertilizer, Inc. in Tampa, FL

Manufacturer and Model No.	D.R. Technology Cooler Venturi with Cyclonic Mist Eliminator	
Outlet Gas Temp	130	F
Outlet Gas Flow Rate	56,000	ACFM
Pressure Drop Across Device	13.5	inches of H20
Process Water Flow Rate Minimum	700	gpm
Maximum Production Rate	2,016	tons MAP per day
Maximum Particulate Emission Rate (a)	16.8	lb PM/hr
Maximum Fluoride Emission Rate (a)	1.76	lb F/hr

Pollutants

	Loading		Control
	Inlet (lb/hr)	Permitted (a) (lb/hr)	Efficiency (d) (%)
Particulate Matter (b)	1,680	16.80	99
Fluoride (c)	25.2	1.76	93

(a) Represents total emissions from common stack.
(b) Inlet loading calculated from control efficiency.
(c) Inlet loading for entire emission unit.
Obtained from the Final Guideline Document: Control of Fluoride Emissions (0.6 lb/ton P2O5).
(d) Control Efficiency for entire emission unit.

PART B

PSD REPORT

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1.0 INTRODUCTION

Cargill Fertilizer, Inc., is proposing to modify the existing Monoammonium Phosphate (MAP) plant at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The MAP plant consists of two process units, the No. 3 MAP plant and the No. 4 MAP plant, and the South Cooler. The modifications will allow the MAP plant to increase the maximum production rate from 1,656 tons per day (TPD) [69 tons per hour (TPH)] of MAP to 2,016 TPD of MAP. As a result of this production rate increase, an increase in the actual particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM_{10}), and fluoride (F) emissions for the plant is being requested. Both hourly and annual allowable emissions will decrease as a result of the project.

Based on the requested maximum emissions for the affected source, the proposed modification will constitute a major modification at a major stationary source under current federal and state air quality regulations. This report addresses the requirements of the prevention of significant deterioration (PSD) review procedures pursuant to rules and regulations implementing the Clean Air Act (CAA) Amendments of 1977. The Florida Department of Environmental Protection (FDEP) has PSD review and approval authority in Florida. Based on the PSD source applicability analysis, a PSD review is indicated for PM, PM_{10}, and F.

This application contains six additional sections. A complete description of the project, including air emission rates, is presented in Section 2.0. The air quality review requirements and new source review applicability of the project are discussed in Section 3.0.

Ambient monitoring requirements under PSD are addressed in Section 4.0. The best available control technology (BACT) analysis is presented in Section 5.0. The air quality impact analysis and impacts on soils, vegetation and visibility required as part of the PSD permitting process are addressed in Sections 6.0 and 7.0, respectively.

2.0 PROJECT DESCRIPTION

Cargill is proposing to expand the maximum production capacity of the existing MAP plant at its phosphate fertilizer manufacturing plant located in Riverview, Florida. The plant is located south of Tampa on Hillsborough Bay (see Figure 2-1). Cargill operates one MAP plant consisting of two process units (Nos. 3/4 MAP plants and South Cooler) at the facility. The plant is currently operating under Permit No. AO29-256726, issued Feb. 21, 1995 (see attachments). The location of the MAP plant at Cargill is shown in Attachment CR-FI-E2, which is a plot plan of the Cargill facility (Source ID is "MAP").

Phosphate fertilizers are manufactured at the Cargill facility. The plant manufactures MAP by reacting phosphoric acid with anhydrous ammonia on a bed of recycled reaction material. The reaction is carried out in a rotating cylindrical reactor-granulator. Material exiting the reactor is screened for product size and then cooled in a counter-current flow pan cooler. The over-sized and under-sized material is recycled back to the granulator. Fluoride emissions are evolved as a result of the chemical reaction. PM and PM_{10} emissions result from the contact between the MAP material and the air passed through the granulator and cooler, screens, bucket elevators, etc. A flow diagram of the process is presented in Figure 2-2.

Each MAP plant uses a scrubber to remove emissions from the granulating, screening, and milling circuits within the MAP plant. The scrubber is an Arco cyclonic spray scrubber which removes F and PM/PM_{10} using an aqueous scrubbing medium. Emissions from the MAP cooler are controlled by a venturi scrubber and cyclonic separator. The cooler venturi scrubber and cyclonic separator operate using once through pond water. Emissions from the three wet scrubbers exit to atmosphere through a common stack.

The current capacity of the MAP plant is 1,656 TPD (69.0 TPH) for No. 3 MAP and No. 4 MAP units combined, expressed as 100 percent MAP. The maximum capacity of the MAP plant after modification will be 2,016 TPD of 100 percent MAP produced. Physical modifications of the MAP plant have not been finalized at this time, however, the following physical modifications are being considered; upgrade the screens, mills, elevators, storage conveyor belt, granulator and the South cooler.

The MAP plant at Cargill is currently subject to the emission limit of 0.3 pounds per ton (lb/ton) MAP produced for PM emissions. This limit is based on Rule 62-296.705(2)(a), F.A.C. for phosphoric acid plants. The entire Cargill complex is subject to the fluoride allocation rule for existing plant complexes of 0.4 lb/ton P_2O_5 reacted for F emissions [Rule 62-296.403(2), F.A.C.]. The current fluoride allocation for the MAP plant is 3.0 lb/hr and 12.75 TPY. The current permit limitations for the plant at Cargill are summarized in Table 2-1.

The proposed permit limitations for the expanded MAP units and South cooler are also presented in Table 2-1. It is proposed to reduce the current allowable limit for PM/PM_{10} from 22 lb/hr to 16.8 lb/hr, or ~~0.4~~ 0.2 lb/ton MAP product. It is also proposed to lower the allowable fluoride emissions to 1.76 lb/hr and 0.042 lb/ton P_2O_5 input. The basis for these limits as BACT is presented in Section 5.0.

Stack parameters for both the current and expanded MAP plant are presented in Table 2-2. The existing stack at Cargill serving the MAP plant will be utilized for the expanded plant. The stack parameters shown in Table 2-2 were used in the modeling analysis to determine the net increase in impacts due to the proposed expansion, as well as the total ambient impacts due to the expanded plant.

A burner with a maximum heat input of 3.0 MMBtu/hr will supply each of the reactor-granulator units with heat to facilitate reaction of anhydrous ammonia and phosphoric acid. Natural gas is currently the only permitted fuel source for this unit, however Cargill proposes the use of No. 2 distillate fuel oil with a maximum sulfur content of 0.5 percent as a backup fuel. The maximum gas usage per MAP plant will be approximately 3,000 scf/hr of natural gas. Natural gas is the primary fuel source and will be used most of the time. No. 2 fuel oil is proposed as a stand-by fuel in case of natural gas interruption.

Air emissions due to fuel combustion are presented in Table 2-3 for nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), and volatile organic compounds (VOC). Estimated emissions from fuel combustion were developed using factors specified in the Environmental Protection Agency's (EPA) Compilation of Air Pollution Emission Factors (AP-42) (see Attachment A). Emissions are presented for natural gas and No. 2 fuel oil use. Fuel oil use will

be limited to 400 hr/yr per MAP unit. Future maximum operating hours for the MAP plant are 8,760 hr/yr.

Table 2-1. Current and Proposed Permit Limitations for MAP Plant, Cargill Fertilizer, Inc.

	PM			Fluoride		
	No. 3/No. 4 MAP	South Cooler	Total	No. 3/No. 4 MA	South Cooler	Total
CURRENT LIMITATIONS						
Production Rate (MAP produced)	1,656 TPD	1,656 TPD	1,656 TPD	1,656 TPD	1,656 TPD	1,656 TPD
Operating Hours	8,500 hr/yr	8,500 hr/yr	8,500 hr/yr	8,500 hr/yr	8,500 hr/yr	8,500 hr/yr
Emission Limit (a)	0.3 lb/ton	0.3 lb/ton	0.6 lb/ton	2.0 lb/hr	1.0 lb/hr	3.0 lb/hr
Hourly Emissions	10.0 lb/hr	12.0 lb/hr	22.0 lb/hr	2.0 lb/hr	1.0 lb/hr	3.0 lb/hr
Annual Emissions	42.5 TPY	51.0 TPY	93.5 TPY	8.5 TPY	4.25 TPY	12.75 TPY
PROPOSED LIMITATIONS						
Production Rate (MAP produced)	2,016 TPD	2,016 TPD	2,016 TPD	2,016 TPD	2,016 TPD	2,016 TPD
Operating Hours	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr
Emission Limit (a)	0.3 lb/ton MAP	0.3 lb/ton MAP	0.6 lb/ton MAP	(b)	(b)	0.04 lb/ton P2O5
Hourly Emissions	--	--	16.8 lb/hr	(b)	(b)	1.8 lb/hr
Annual Emissions	--	--	73.6 TPY	(b)	(b)	7.7 TPY

Notes:
lb/hr = pounds per hour
lb/ton = pounds per ton
MAP = monoammonium phosphate
TPH = tons per hour
TPY = tons per year
(a) For the two MAP plants combined.
(b) Refer to total limit as combined limit for the No. 3/No. 4 MAP Plants and the South Cooler.

Table 2-2. Stack Parameters for Existing and Expanded MAP Plant

Plant	MAP Production Rate[a] (TPD)	Stack Height (ft)	Stack Diameter (ft)	Gas Flow Rate (acfm)	Gas Velocity (fps)	Gas Temperature (°F)
Existing Conditions						
MAP plant	1,656	133	7.0	134,500	50.45	142
Future Conditions						
MAP plant	2,016	133	7.0	165,000	71.46	142

Note: acfm = actual cubic feet per minute.
°F = degrees Fahrenheit.
fps = feet per second.
ft = feet.
MAP = monoammunium phosphate.
TPD = tons per hour.

Table 2-3. Summary of Maximum Emissions from Fuel Combustion, MAP Plant (No.3 and No.4 MAP units combined)

Parameter	No. 2 Fuel Oil	Natural Gas
OPERATING DATA		
Operating Time (hr/yr)	400	8,760
Heat Input Rate (MMBtu/hr)	6.0	6.0
Fuel Oil Use (gal/hr)[a]	42.9	NA
Fuel Oil Use (gal/yr)	17,143	NA
Maximum Sulfur Content (Wt %)	0.5	NA
Natural Gas Use (scf/hr)	NA	6,000
Natural Gas Use (MMscf/yr)	NA	52.56

Pollutant	Emission Factor [b]	No. 2 Fuel Oil (lb/hr)	Natural Gas (lb/hr)	Maximum Annual Emissions (TPY): 400 hr/yr fuel oil and Natural Gas	Maximum Annual Emissions (TPY): 100% Natural Gas
EMISSIONS DATA					
SO2: Fuel Oil	142*S lb/Mgal [c]	3.04	0.004	0.62	0.02
Natural Gas	0.6 lb/MMft³				
NOx: Fuel Oil	20 lb/Mgal	0.86	0.84	3.68	3.68
Natural Gas	140 lb/MMft³				
CO: Fuel Oil	5 lb/Mgal	0.21	0.21	0.92	0.92
Natural Gas	35 lb/MMft³				
NMVOC: Fuel Oil	0.2 lb/Mgal	0.009	0.02	0.07	0.07
Natural Gas	2.8 lb/MMft³ [d]				

Note: NA = not applicable.
These emissions are discharged through the MAP stacks.
PM emission data is presented in Table 2-1.

[a] Based on 140,000 Btu/gal for 0.5% S oil; 1000 BTU/SCF for Natural Gas.
[b] Emission factors based on AP-42.
[c] "S" denotes the weight % sulfur in fuel oil; max sulfur content = 0.5%
[d] Methane comprises 52% of total VOC

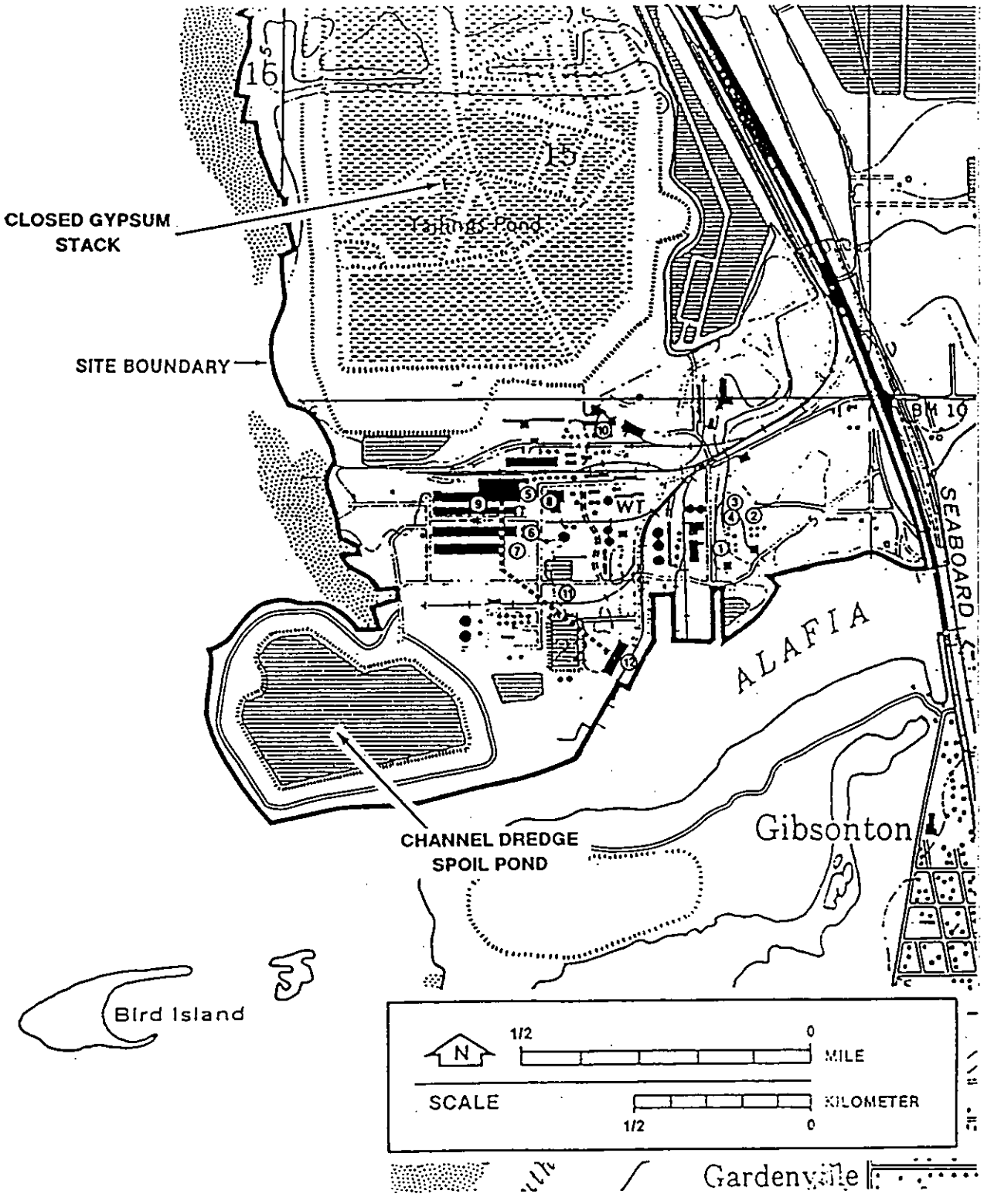
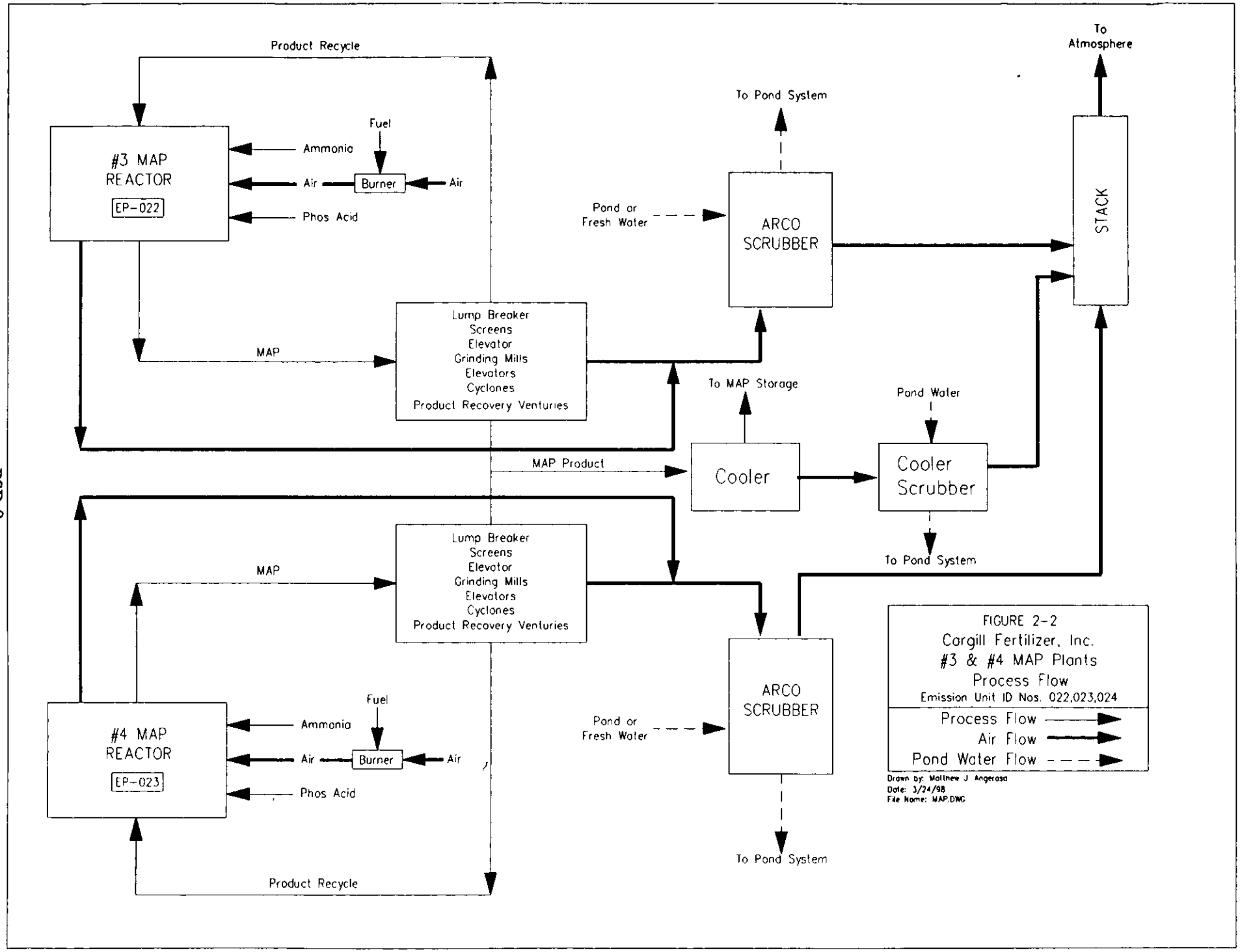
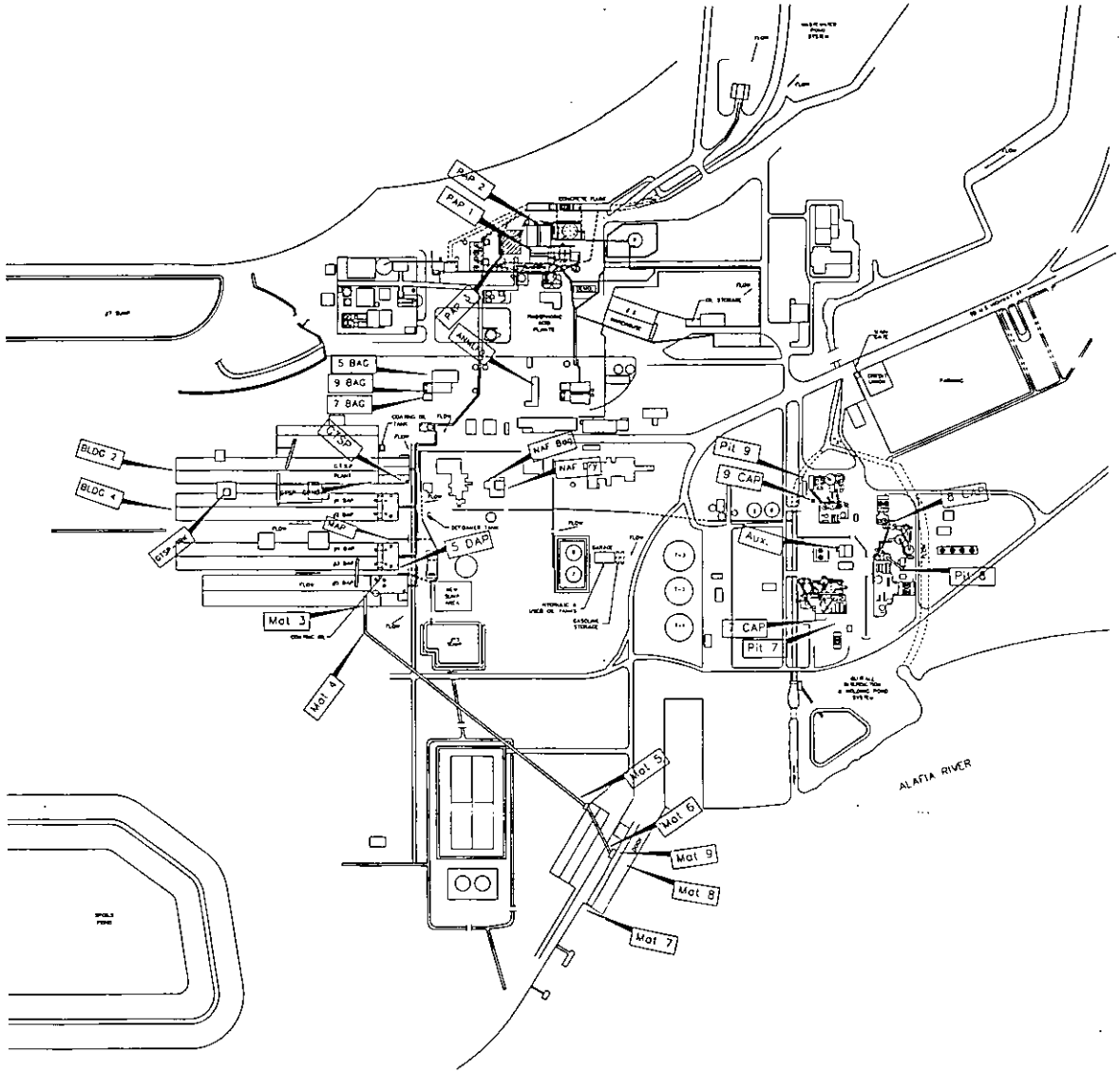


FIGURE 2-1
Site Location
Cargill Fertilizer, Inc.
Riverview Facility
Source: USGS, 1981.

Golder Associates


Product Recycle
To Atmosphere
To Pond System
Fuel
#3 MAP REACTOR
EP-022
Ammonia
Air
Burner
Air
Phos Acid
Pond or Fresh Water
ARCO SCRUBBER
STACK
Lump Breaker
Screens
Elevator
Grinding Mills
Elevators
Cyclones
Product Recovery Venturies
MAP
To MAP Storage
Pond Water
MAP Product
Cooler
Cooler Scrubber
To Pond System
Lump Breaker
Screens
Elevator
Grinding Mills
Elevators
Cyclones
Product Recovery Venturies
MAP
Fuel
#4 MAP REACTOR
EP-023
Ammonia
Air
Burner
Air
Phos Acid
Pond or Fresh Water
ARCO SCRUBBER
To Pond System
Product Recycle
FIGURE 2-2
Cargill Fertilizer, Inc.
#3 & #4 MAP Plants
Process Flow
Emission Unit ID Nos. 022,023,024
Process Flow
Air Flow
Pond Water Flow
Drawn by: Matthew J. Angerosa
Date: 3/24/98
File Name: MAP.DWG



Attachment CR-FE-2.
Facility Plot Plan

Facility:	Cargill Fertilizer Plant
Location:	Riverview, FL
Filename:	tpa-pl12.dwg
Date:	03/26/98

3.0 SOURCE APPLICABILITY

3.1 PSD REVIEW

3.1.1 POLLUTANT APPLICABILITY

The Cargill facility is considered to be an existing major stationary facility because potential emissions of certain regulated pollutants exceed 100 TPY (for example, potential PM emissions currently exceed 100 TPY). As a result, PSD review is required for the proposed modification for each pollutant for which the net increase in emissions exceeds the PSD significant emission rates (i.e., a major modification; see Table 3-1).

The net increase in allowable emissions due to the proposed expansion is shown in Table 3-2 (reference Table 2-1). As shown, the increase in PM/PM_{10} emissions is 67.3 TPY, and the increase in F emissions is 6.9 TPY. The increase in PM/PM_{10} and F emissions will exceed the PSD significant emission rates. Therefore, the proposed project is subject to PSD review for these pollutants.

3.1.2 AMBIENT MONITORING

Based upon the increase in emissions from Cargill's proposed project, a PSD preconstruction ambient monitoring analysis is required for PM. However, if the increase in impacts of a pollutant is less than the *de minimis* monitoring concentration, then an exemption from the preconstruction ambient monitoring requirement may be granted for that pollutant. In addition, if an acceptable ambient monitoring method for the pollutant has not been established by EPA, monitoring is not required.

For PM and PM_{10}, the maximum 24-hour impact due to the proposed expansion is 10.3 micrograms per cubic meter ($\mu g/m^3$), based on emitting PM/PM_{10} at 16.8 lb/hr (MAP units and cooler) for the 24-hour averaging time (refer to Section 6.0). The increase in impacts is above the *de minimis* monitoring concentration of 10 $\mu g/m^3$. In addition, there is no *de minimis* monitoring concentration for F. As a result, the proposed modification can be exempted from the preconstruction monitoring requirements for F, but PM/PM_{10} requires a preconstruction monitoring analysis. These are addressed in Section 4.0.

3.1.3 GEP STACK HEIGHT ANALYSIS

The GEP stack height regulations allow any stack to be at least 65 m [213 feet (ft)] high. The MAP plant at Cargill is an existing source with a stack less than 65 m. The stack height of the existing MAP plant is 133 feet and will not be increased. As a result, the *de minimis* GEP stack height will not exceeded.

3.2 NON-ATTAINMENT REVIEW

The Cargill facility is located in Hillsborough County, which has been designated as an attainment area for PM and F. As a result, non-attainment review does not apply to the proposed project.

3.3 NEW SOURCE PERFORMANCE STANDARDS

Federal NSPS have not been promulgated for new and modified MAP plants. As a result, NSPS does not apply to the proposed project.

Table 3-1. PSD Significant Emission Rates and *De Minimis* Monitoring Concentrations

Pollutant	Regulated Under	Significant Emission Rate (TPY)	*De Minimis* Monitoring Concentration ($\mu g/m^3$)
Sulfur Dioxide	NAAQS, NSPS	40	13, 24-hour
Particulate Matter (TSP)	NSPS	25	NA
Particulate Matter (PM10)	NAAQS	15	10, 24-hour
Nitrogen Oxides	NAAQS, NSPS	40	14, annual
Carbon Monoxide	NAAQS, NSPS	100	575, 8-hour
Volatile Organic Compounds (Ozone)	NAAQS, NSPS	40	100 TPY[a]
Lead	NAAQS	0.6	0.1, 3-month
Sulfuric Acid Mist	NSPS	7	NM
Total Fluorides	NSPS	3	0.25, 24-hour
Mercury	NESHAP	0.1	0.25, 24-hour
Total Reduced Sulfur	NSPS	10	10, 1-hour
Reduced Sulfur Compounds	NSPS	10	10, 1-hour
Hydrogen Sulfide	NSPS	10	0.2, 1-hour
MWC Organics (as dioxification)	NSPS	3.5×10^{-6}	NA
MWC Metals (as PM)	NSPS	15	NA
MWC Acid Gases (as SO_2+HCl)	NSPS	40	NA
MSW Landfill Emission (as NMVOC)	NSPS	50	NA

Note: Ambient monitoring requirements for any pollutant may be exempted if the impact of the increase in emissions is below *de minimis* monitoring concentrations.

MWC = Municipal waste combustor
MSW = Municipal solid waste
NA = Not Applicable
NAAQS = National Ambient Air Quality Standards
NESHAP = National Emission Standards for Hazardous Air Pollutants
NM = No ambient measurement method
NSPS = New Source Performance Standards
PM10 = particulate matter with aerodynamic diameter less than or equal to 10 micrometers
PSD = prevention of significant deterioration
TPY = tons per year
TSP = total suspended particulate matter
$\mu g/m^3$ = micrograms per cubic meter

[a] No *de minimis* concentration; an increase in VOC emissions of 100 TPY or more will require monitoring analysis for ozone.

Source: F.A.C., Rule 62-212.400, Tables 212.400-2 and 212.400-3.

Table 3-2. PSD Source Applicability Analysis, Cargill MAP Plant Expansion

Emission Scenario	Emission Rate (TPY)						
	PM	PM10	F	SO2	VOC	NOx	CO
Current Actual Emissions							
MAP Plant/Cooler	8.35 (a)	8.35 (a)	0.86 (a)	0.006 (b)	0.029 (b)	1.45 (b)	0.36 (b)
Proposed Maximum Emissions (c)							
MAP Plant/Cooler @ 2,016 TPD	73.6	73.6	7.73	0.62	0.07	3.68	0.92
Total Net Increase	65.3	65.3	6.9	0.61	0.041	2.23	0.56
PSD Significant Emission Rate	25	15	3	40	40	40	100

Notes:
MAP = monoammonium phosphate.
PM = particulate matter.
PSD = prevention of significant deterioration.
F = fluoride.
lb/hr = pounds per hour.
TYP = tons per year.
MMscf = million standard cubic feet.

(a) Based on average MAP hours of operation during 1996 and 1997 of 8,305 hours and 8,294 hours, respectively, and annual stack test results as follows:
1997: PM-1.21 lb/hr; F-0.18 lb/hr (Nos. 3 and 4 MAP plants and South Cooler combined)
1996: PM-2.81 lb/hr; F-0.23 lb/hr (Nos. 3 and 4 MAP plants and South Cooler combined)

(b) Based on average MAP plant natural gas usage during 1996 and 1997 of 20.00 MMscf and 21.3 MMscf, respectively, and AP-42

(c) Proposed emission rates are 16.8 lb/hr for PM; and 1.76 lb/hr for fluoride.

4.0 AMBIENT MONITORING ANALYSIS

4.1 INTRODUCTION

In accordance with requirements of 40 CFR 52.21(m) and Rule 62-212.400(5)(f), F.A.C., any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility or major modification. For a new major facility, the affected pollutants are those that the facility potentially would emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate.

Ambient air monitoring for a period of up to 1 year is generally appropriate to satisfy the PSD monitoring requirements. A minimum of 4 months of data is required. Existing data from the vicinity of the proposed source may be used if the data meet certain quality assurance requirements; otherwise, additional data may need to be gathered. Guidance in designing a PSD monitoring network is provided in EPA's Ambient Monitoring Guidelines for Prevention of Significant Deterioration (EPA, 1987).

An exemption from the preconstruction ambient monitoring requirements is also available if certain criteria are met. If the predicted increase in ambient concentrations due to the proposed modification is less than specified *de minimis* concentrations, then the modification can be exempted from the preconstruction air monitoring requirements for that pollutant.

The PSD *de minimis* monitoring concentration for PM/PM_{10} is 10 $\mu g/m^3$, 24-hour average. The predicted increase in PM/PM_{10} concentrations due to the proposed modification only are presented in Section 6.0. The predicted PM/PM_{10} increase is 10.3 $\mu g/m^3$, 24-hour average. Since the predicted increase in PM/PM_{10} impacts due to the proposed modification is greater than the *de minimis* monitoring concentration level, a preconstruction air monitoring analysis is required for PM/PM_{10}. This analysis is presented in the following section.

4.2 PM/PM_{10} AMBIENT BACKGROUND CONCENTRATIONS

4.2.1 VICINITY OF CARGILL

The PSD ambient monitoring guidelines allow the use of existing data to satisfy preconstruction review requirements and to develop background concentrations. "Background concentrations" are defined as concentrations due to sources other than those specifically included in the modeling analysis. For PM_{10}, background would include other point sources not included in the modeling (i.e., faraway sources or small sources), fugitive emission sources, and natural background sources.

Presented in Table 4-1 is a summary of existing ambient PM/PM_{10} data for monitors located in the vicinity of Cargill's Riverview facility. Data are presented for the last 18 months of record, 1996-June 1997. As shown, several PM and PM_{10} monitors were operational in the vicinity of Cargill's Riverview facility during this period. One of these stations, the Gardinier Park station, is located immediately adjacent to the Riverview facility.

The monitors show that ambient PM_{10} concentrations were well below the ambient air quality standards of 150 $\mu g/m^3$, maximum 24-hour average, and 50 $\mu g/m^3$, annual average. For purposes of an ambient PM_{10} background concentration for use in the modeling analysis, the annual average PM_{10} concentration of 21 $\mu g/m^3$ recorded at the Gardinier Park monitor during 1996 was selected. This concentration was utilized for both the 24-hour and annual average background PM_{10} concentrations in the air quality impact analysis since this monitor is impacted by several existing point sources, such as Cargill and Tampa Electric's Big Bend station, which are included explicitly in the modeling analysis. Therefore, this monitor would be influenced significantly by point sources and would represent a conservative estimate of actual background concentrations.

4.2.2 CHASSAHOWITZKA CLASS I AREA

Presented in Table 4-2 is a summary of existing ambient PM/PM_{10} data for monitors located in the vicinity of the Chassahowitzka Class I area. One PM monitor was located adjacent to Chassahowitzka in Crystal River during 1996, and one PM_{10} monitor was located directly in Chassahowitzka in 1996.

The monitors show that ambient PM_{10} concentrations were well below the ambient air quality standards of 150 $\mu g/m^3$, maximum 24-hour average, and 50 $\mu g/m^3$, annual average. For purposes of an ambient PM_{10} background concentration for use in the modeling analysis for the Class I area, the annual average PM_{10} concentration of 20 $\mu g/m^3$ and the maximum 24-hour concentration of 49 $\mu g/m^3$ recorded at the Chassahowitzka monitor during 1996 was selected. This would represent a very conservative background concentration since this monitor would be influenced somewhat by point sources, such as the Florida Power Corp. Crystal River plant.

Table 4-1. Summary of PM/PM10 Monitoring Data Collected Near Cargill's Riverview Facility

County	Station ID	Monitor Location	Distance to Cargill (km)	Year	Number of Observations	Maximum Concentrations Reported ($\mu g/m^3$) Highest 24-Hour	Second-Highest 24-Hour	Annual[a]
		Particulate Matter - Total						
Hillsborough	1800-106-J02	North Ruskin; Big Bend Road	8.04	1997 (JAN-MAR)	15	55	49	36
				1996	44	55	52	32
Hillsborough	1800-107-J02	North Ruskin; Bullfrog Creek County Park	8.47	1997 (JAN-MAR)	14	52	50	36
				1996	45	70	65	29
		PM10						
Hillsborough	1800-066-G02	Gibsonton; ICWU Building; HWY 41 North	3.69	1997 (JAN-JUN)	28	83	69	35
				1996	58	89	81	32
Hillsborough	1800-083-G02	Gardinier Park, US 41	0.81	1997 (JAN-JUN)	29	50	36	24
				1996	53	74	46	21
Hillsborough	1800-085-G02	Eisenhower Jr HS; Big Bend Road	8.03	1997 (JAN-JUN)	26	44	33	20
				1996	56	72	42	18

[a] Geometric mean concentration.

Table 4-2. Summary of PM/PM10 Monitoring Data Collected Near the Chassahowitzka NWA

Year	County	Station ID	Monitor Location	Number of Observations	Maximum Concentrations Reported ($\mu g/m^3$) 24-Hour	Annual
PM Data						
1996	Citrus	0580-003-J09	Crystal River; Twin Rivers Marina	58	75	30[a]
PM10 Data						
1996	Citrus	National Park Service	Within Chassahawitzka NWA	104	49	19.5

[a] Geometric mean concentration.

5.0 BACT ANALYSIS

5.1 REQUIREMENTS

The 1977 Clean Air Act Amendments established requirements for the approval of preconstruction permit applications under the PSD program. One of these requirements is that the best available control technology (BACT) be installed for applicable pollutants. BACT determinations must be made on a case-by-case basis considering technical, economic, energy, and environmental impacts for various BACT alternatives. To bring consistency to the BACT process, the EPA developed the so called "top-down" approach to BACT determinations. This approach has been challenged in court and a settlement agreement reached that requires EPA to initiate formal rulemaking on the "top-down" approach. However, EPA has not yet promulgated rules which address this approach. Nonetheless, in the absence of formal rules related to this approach, the "top-down" approach is followed in the Cargill BACT analysis.

The first step in a "top-down" BACT analysis is to determine, for each applicable pollutant, the most stringent control alternative available for a similar source or source category. If it can be shown that this level of control is not feasible on the basis of technical, economic, energy, or environmental impacts for the source in question, then the next most stringent level of control is identified and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any technical, economic, energy, or environmental consideration.

In the case of the proposed modification at Cargill, PM/PM_{10} and fluoride require BACT analysis. The following sections presents the BACT analysis.

5.2 EXISTING CONTROL TECHNOLOGY

Each of the No. 3 and No. 4 MAP plants is currently equipped with an ARCO cyclonic scrubber with the following operating parameters:

Outlet Temperature	130 F
Outlet Flow Rate	35,000 ACFM
Pressure Drop	5.0 in. H_2O
Water Flow Rate	260 gpm

The South Cooler is equipped with a venturi type scrubber with a cyclonic mist eliminator and has the following operating parameters:

Outlet Temperature	130°F
Outlet Flow Rate	56,000 ACFM
Pressure Drop	13.5 in. H_2O
Water Flow Rate	700 gpm

Currently the scrubber system is achieving lower emission rates than required by permit AO29-256726. As shown in Table 5-1, emission rates range from 1.2 lb/hr to 14.0 lb/hr for PM and 0.2 lb/hr to 0.83 lb/hr for F. However, the increased loading from the proposed modification will increase the loading to the scrubbers and thereby increase emissions. Therefore, an emission limit of 16.8 lb/hr for PM is proposed as the future limits. For fluorides, an emission limit of 1.8 lb/hr is proposed, equivalent to 0.04 lb/ton P_2O_5 input. These limits represent total emissions from the three wet scrubbers, as measured at the common stack.

5.3 BACT ANALYSIS FOR PM/PM_{10}

BACT for PM/PM_{10} for the expanded MAP plant are the existing ARCO cyclonic spray scrubber. BACT for the South Cooler is the existing venturi scrubber and cyclonic separator.

A review of previous BACT determinations for PM emissions from MAP plants and diammonium phosphate plants (DAP) was conducted. The results of this review is presented in Table 5-2. It is noted that determinations issued prior to 1991 are not included in Table 5-2.

As shown, the previous BACT determinations were all based on wet scrubber technology. This demonstrates that the currently existing cyclonic spray scrubbers, and venturi scrubber with cyclonic separator, is the best control technology for application on the MAP plant and cooler, respectively. Previous BACT determinations have resulted in emission limits ranging from 0.16 to 0.41 lb/ton P_2O_5 input for PM. Cargill's proposed PM/PM_{10} emission rates for the MAP plant and South Cooler combined of 16.8 lb/hr is equivalent to 0.4 lb/ton P_2O_5 input and 0.2 lb/ton MAP produced. This proposed limit is higher than some of the previous determinations based on the actual emissions measured from the No. 3/4 MAP Plant, and considering the higher production rate

will increase loadings to the scrubbers. Therefore, a higher limit is justified to provide certainty that the proposed emission level will be achievable on a continuous basis.

A previous BACT determination for a DAP plant (IMC-Agrico- New Wales; PSD-FL-241) addressed alternatives for PM/PM_{10} control. The alternatives addressed consisted of a high energy (>30 in.w.c) venturi scrubber and a medium-energy (15-30 in.w.c.) venturi scrubber. The IMC plant employs an existing medium-energy venturi scrubbing system. The high costs of adding a high-energy venturi scrubbing system was deemed economically infeasible with incremental cost effectiveness ranging from $50,000 to $75,000 per incremental ton of PM/PM_{10} removed. As a result, the high-energy venturi scrubber option was found to be infeasible, and the existing medium-energy venturi scrubber was selected as BACT.

Cargill also employs medium-energy wet scrubbers on its MAP plant, and a medium energy venturi scrubber. Similar to the above analysis, replacing the existing scrubbers with high-energy venturi scrubbers would not be cost effective. Therefore, the existing medium-energy wet scrubbers (ARCO scrubbers and cooler scrubber) represent BACT for the Cargill MAP Plant. Since actual PM/PM_{10} emissions from the MAP Plant and South Cooler have been well below the allowable emission rate of 22 lb/hr, Cargill is proposing to lower the allowable to 16.8 lb/hr, even considering the production rate increase.

5.4 BACT ANALYSIS FOR FLUORIDES

BACT for fluorides for the expanded MAP units are the existing ARCO cyclonic spray scrubbers. BACT for the South Cooler is the existing venturi scrubber and cyclonic separator.

A review of previous BACT determinations for F emissions from MAP plants and diammonium phosphate plant (DAP) was conducted. The results of this review is presented in Table 5-3. It is noted that determinations issued prior to 1991 are not included in Table 5-3.

As shown, the previous BACT determinations were all based on wet scrubber technology. This demonstrates that the currently existing cyclonic spray scrubbers, and venturi scrubber with cyclonic separator, is the best control technology for application on the MAP plant and cooler. Previous BACT determinations resulted in emission limits ranging from 0.0417 to 0.06 lb/ton P_2O_5

input for F. Cargill's proposed fluoride emission rate for the MAP plant and South Cooler is 1.8 lb/hr, equivalent to 0.04 lb/ton P_2O_5 input.

A previous BACT determination for a DAP plant (IMC-Agrico- New Wales) addressed alternatives for F control. The alternatives included a packed scrubber using either once-through fresh water, neutralized water from a dedicated pond (fresh water makeup), or process cooling pond water. The first option was dismissed due to concern over fresh water usage and plant water balance problems. The second option was dismissed based on economics, with the cost effectiveness estimated at $14,000 per ton of F removed. In Cargill's case, the first two options can be dismissed based on similar considerations. This leaves the third option, using process cooling pond water, as BACT.

Table 5-1. Summary of MAP Plant Stack Test Data, Cargill Fertilizer Riverview

Date	MAP Production Rate (TPH)	P2O5 Input (TPH)	PM Emissions Run #	lb/hr	avg. lb/h	lb/ton MAP	Fluoride Emissions Run #	lb/hr	avg. lb/hr	lb/ton P2O5
07/31/97	68.4	34.20	1	0.94	1.21	0.018	1	0.268	0.180	0.005
			2	1.14			2	0.149		
			3	1.55			3	0.124		
08/01/96	68.2	34.10	1	2.65	2.81	0.041	1	0.199	0.232	0.007
			2	2.98			2	0.235		
			3	2.81			3	0.262		
07/13/95	68.8	34.40	1	3.16	2.47	0.036	1	0.485	0.704	0.020
			2	2.12			2	0.674		
			3	1.12			3	0.954		
07/14/94	68.3	34.15	1	2.13	1.43	0.021	1	0.175	0.205	0.006
			2	0.93			2	0.196		
			3	1.23			3	0.242		
04/01/94	59.2	29.60	1	5.94	5.31	0.090	1	0.657	0.670	0.023
			2	5.58			2	0.723		
			3	4.42			3	0.631		
04/01/93	58.6	29.30	1	18.6	14.10	0.241	1	0.796	0.801	0.027
			2	14.2			2	1.101		
			3	9.48			3	0.592		
03/24/92	59.2	29.60	1	3.09	3.19	0.054	1	0.537	0.408	0.014
			2	3.44			2	0.327		
			3	3.05			3	0.361		
		Average =			4.36	0.071			0.457	0.015
		Standard Deviation =				0.079 (a)				0.0092 (a)
		99% Confidence Level =				0.28				0.04

(a) Based on standard deviation of all sample runs.

Notes:
TPH = tons per hour
lb/ton = pounds per ton
lb/hr = pounds per hour
MAP = monoammonium phosphate
P2O5 = phosphorous pentoxide

Table 5-2. Summary of BACT Determinations for PM Emissions from Ammonium Phosphate Plants

Company	Permit #	Permit Issue Date	Throughput	Emission Limit	Control Equipment	Control Efficiency
CARGILL FERTILIZER, INC. --Tampa	PSD-FL-178	10/13/92	73.5 TPH P2O5	0.19 lb/ton P2O5	VENTURI SCRUBBER	99%
IMC-AGRICO --New Wales	PSD-FL-241	01/21/98	80 TPH	0.156 lb/ton P2O5	PACKED BED SCRUBBER	--
CARGILL FERTILIZER --Bartow	AC53-246403 / PSD-FL/211	11/28/94	120 TPH 100% P2O5	0.19 lb/ton P2O5	PACKED BED SCRUBBER	--
IMC-AGRICO COMPANY --Nichols	AC53-230355, AC53-232681,FL204	04/18/94	100 TPH DAP	0.41 lb/ton 100% P2O5	VENTURI ACID SCRUBBER	--

Source: EPA's RACT/BACT/LAER Clearinghouse, 1998.

Notes:
DAP = Diammonium Phosphate
MAP = Monoammonium Phosphate

Table 5-3. Summary of BACT Determinations for Fluoride Emissions from Ammonium Phosphate Plants

Company	Permit #	Permit Issue Date	Throughput	Emission Limit	Control Equipment	Control Efficiency
C F INDUSTRIES, INC.	AC 29-210979	05/25/92	100 TPH MAP or DAP	0.06 lb/ton P2O5	TWO STAGE SCRUBBER, ADDITION OF COOLER	99.8%
FARMLAND HYDRO, L.P.	AC53-210886/PSD-FL-186	07/28/92	100 TPH DAP	0.06 lb/ton P2O5	MULTI STAGE SCRUBBER, ADDITION OF COOLER	99.9%
FARMLAND HYDRO, L.P.	AC53-210886/PSD-FL-186	07/28/92	120 TPH MAP	0.06 lb/ton P2O5	MULTI STAGE SCRUBBER, ADDITION OF COOLER	99.9%
IMC-AGRICO- New Wales	PSD-FL-241	01/21/98	80 TPH DAP	0.0417 lb/ton P2O5	PACKED BED SCRUBBER	99.0%
IMC-AGRICO- Nichols	AC53-230355, AC53-232681,FL204	04/18/94	100 TPH DAP	0.0417 lb/ton 100% P2O5	VENTURI ACID SCRUBBER	

Source. EPA's RACT/BACT/LAER Clearinghouse, 1998.

Notes:
DAP = Diammonium Phosphate
MAP = Monoammonium Phosphate

6.0 AIR QUALITY IMPACT ANALYSIS

6.1 SIGNIFICANT IMPACT ANALYSIS

The general modeling approach followed EPA and FDEP modeling guidelines for determining compliance with AAQS and PSD increments. For all criteria pollutants that will be emitted in excess of the PSD significant emission rate due to a proposed project, a significant impact analysis is performed to determine whether the emission and/or stack configuration changes due to the project alone will result in predicted impacts that are in excess of the EPA significant impact levels at any location beyond the plant property boundaries.

Generally, if the facility undergoing the modification also is within 200 kilometers of a PSD Class I area, then a significant impact analysis is also performed for the PSD Class I area. Currently, the National Park Service (NPS) has recommended significant impact levels for PSD Class I areas. The recommended levels have not been promulgated as rules.

If the project's impacts are above the significant impact levels, then a more detailed air modeling analysis that includes background sources is performed. Current FDEP policies stipulate that the highest annual average and highest short-term (i.e., 24 hours or less) concentrations are to be compared to the applicable significant impact levels. Based on the screening modeling analysis results, additional modeling refinements with a denser receptor grid are performed, as necessary, to obtain the maximum concentration. Modeling refinements are performed with a receptor grid spacing of 100 meters (m) or less.

6.2 AAQS/PSD MODELING ANALYSIS

For each pollutant for which a significant impact is predicted, a refined impact analysis is required. This analysis must consider other nearby sources and background concentrations and predict concentrations for comparison to ambient standards. In general, when 5 years of meteorological data are used in the analysis, the highest annual and the highest, second-highest (HSH) short-term concentrations are compared to the applicable AAQS and allowable PSD increments. The HSH concentration is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor,
2. Identifying the second-highest concentration at each receptor, and

3. Selecting the highest concentration among these second-highest concentrations.

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

To develop the maximum short-term concentrations for the proposed project, the modeling approach was divided into screening and refined phases to reduce the computation time required to perform the modeling analysis. For this study, the only difference between the two modeling phases is the density of the receptor grid spacing employed when predicting concentrations. Concentrations are predicted for the screening phase using a coarse receptor grid and a 5-year meteorological data record.

If the original screening analysis indicates that the highest concentrations are occurring in a selected area(s) of the grid and, if the area's total coverage is too vast to directly apply a refined receptor grid, then an additional screening grid(s) will be used over that area. The additional screening grid(s) will employ a greater receptor density than the original screening grid, so refinements can be performed if necessary.

Refinements of the maximum predicted concentrations are typically performed for the receptors of the screening receptor grid at which the highest and/or HSH concentrations occurred over the 5-year period. Generally, if the maximum concentration from other years in the screening analysis are within 10 percent of the overall maximum concentration, then those other concentrations are refined as well. Typically, if the highest and HSH concentrations are in different locations, concentrations in both areas are refined.

Modeling refinements are performed for short-term averaging times by using a denser receptor grid, centered on the screening receptor to be refined. The angular spacing between radials is 2 degrees and the radial distance interval between receptors is 100 m. Annual modeling refinements employ an angular spacing between radials of 2 degrees and a distance interval from 100 to 300 m, depending on the concentration gradient in the vicinity of the screening receptor to be refined. If the maximum screening concentration is located on the plant property boundary, additional plant boundary receptors are input, spaced at a 2 degree angular interval and centered on

the screening receptor. The domain of the refinement grid will extend to all adjacent screening receptors. The air dispersion model is then executed with the refined grid for the entire year of meteorology during which the screening concentration occurred. This approach is used to ensure that a valid HSH concentration is obtained. A more detailed description of the model, along with the emission inventory, meteorological data, and screening receptor grids, is presented in the following sections.

6.2.1 MODEL SELECTION

The Industrial Source Complex Short-term (ISCST3, Version 97363) dispersion model (EPA, 1995) was used to evaluate the pollutant impacts due to the proposed modification to Cargill's Nos. 3 and 4 MAP Plants. This model is maintained on the EPA's Technical Transfer Network (TTN) internet web site. A listing of ISCST3 model features in presented in Table 6-1. The ISCST3 model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights. The ISCST3 model is designed to calculate hourly concentrations based on hourly meteorological parameters (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights).

In this analysis, the EPA regulatory default options were used to predict all maximum impacts. Based on the land-use within a 3-km radius of the Cargill facility, the rural dispersion coefficients were used in the modeling analysis. The ISCST3 model was used to provide maximum concentrations for the annual and 24-hour averaging times.

6.2.2 METEOROLOGICAL DATA

Meteorological data used in the ISCST3 model to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Tampa International Airport and Ruskin, respectively. The 5-year period of meteorological data was from 1987 through 1991. The NWS station at Tampa International Airport, located approximately 18 km to the northwest of the Cargill plant site, was selected for use in the study because it is the closest primary weather station to the study area that is representative of the plant site.

6.2.3 EMISSION INVENTORY

Significant Impact Analysis

The PM_{10} emission rate increases and the physical and operational stack parameters for the MAP Plant are summarized in Table 6-2. This table is based on emission and stack parameter data presented in Tables 2-1 and 2-2. For the PM_{10} analysis, the modeled sources included the pre-modification Nos. 3 and 4 MAP Plants stack, and the post-modification MAP Plant Stack. All sources were modeled at locations relative to the No. 9 Sulfuric Acid Plant stack, which is the modeling origin that has been used in previous PSD applications for the Cargill Riverview facility.

AAQS Analysis

An inventory of future Cargill PM_{10} sources and their locations relative to the origin is provided in Table 6-3. Competing PM facilities that were considered in the air modeling analysis are provided in Table 6-4. All facilities were evaluated against the North Carolina screening technique. Based on this technique, facilities whose maximum annual emissions in tons/year do not exceed the quantity 20 x (D-D1), where D1 is the proposed project's significant impact distance for PM/PM_{10}, were eliminated from the modeling analysis.

Competing PM facility data were obtained from the Cargill Riverview Animal Feed Plant PSD Application (Golder, 1996) and were obtained from three primary sources. Most of the source data were obtained from a modeling analysis performed for a PSD application for US AgriChem, a source in Polk County. Additional PM_{10} source data were obtained from the modeling analysis performed for the FPL Manatee Plant site certification application (SCA). Lastly, FDEP provided updates to the source inventory for several of the facilities.

A summary of the PM_{10} source data that was used for the AAQS analysis is presented in Attachment B, Tables B-1 and B-2. For PM_{10} emission sources only, sources were combined based on EPA's method for merging sources (EPA, 1992). In general, individual PM_{10} emission sources of 100 TPY or more within a facility were modeled separately (i.e., no merging was performed). Those PM_{10} emission sources of less than 100 TPY within a facility were all merged into one source based on the following approach. For each stack, the parameter M was computed:

$$M = \frac{h_s V T_s}{Q}$$

where: M = merged stack parameter which accounts for the relative influence of stack height, plume rise, and emission rate on concentrations

h_s = stack height (m)

V = $(\pi/4) d_s^2 v_s$ = stack gas volumetric flow rate (m^3/s)

d_s = inside stack diameter (m)

v_s = stack gas exit velocity (m/s)

T_s = stack gas exit temperature (K)

Q = pollutant emission rate (g/s)

The stack with the lowest value of M was used as the representative stack. Then, the sum of the emissions from all applicable sources was assumed to be emitted from the representative stack.

PSD Class II Analysis

A summary of Cargill's PM_{10} sources for the PSD baseline year (1974) are provided in Table 6-5. These sources were used with Cargill's future sources from Table 6-3 to determine the PSD increment consumption with the proposed project. Non-Cargill PSD sources were obtained from the US AgriChem PSD analysis. Additional PSD increment consuming sources in the vicinity of Cargill, obtained from FDEP, were included as well. These sources include the Hillsborough Co. Resource Recovery facility, the McKay Bay Refuse-to-Energy facility, and the Tropicana plant in Bradenton. The PSD source emission inventory is presented in Attachment B.

PSD Class I Analysis

Because the proposed MAP Plant expansion's maximum air impacts do not exceed the recommended NPS significant impact levels for PM_{10} at the Chassahowitzka NWA PSD Class I area, a PSD Class I increment consumption modeling assessment is not required. However, the proposed project's emissions of SO_2, PM_{10}, and NO_x were evaluated at the Class I area in support of the regional haze analysis. These emissions are presented in Table 6-6. The air quality related values (AQRV) analysis is presented in Section 7.0.

6.2.4 RECEPTOR LOCATIONS

6.2.4.1 Site Vicinity

To determine the PM_{10} significant impact area for the proposed project, concentrations were predicted for 216 regular and 119 discrete polar grid receptors located in a radial grid centered on H_2SO_4 No. 9 stack. Receptors were located in "rings" with 36 receptors per ring, spaced at 10° intervals and at distances of the fenceline 2, 2.5, 3, 5, 7, and 10 km from the H_2SO_4 No. 9 stack location. Discrete receptors included 36 receptors located on the plant property boundary at 10 degree intervals, plus 83 additional off-property receptors at distances of 0.5, 0.8, 1.1 and 1.5 km from the H_2SO_4 No. 9 stack to cover the area between the property boundary and the closest regular receptor grid distance (i.e., 2.0 km). The 36 property boundary receptors used for the screening analysis are presented in Table 6-7. All receptor locations are relative to the H_2SO_4 No. 9 stack location, an origin which has been used for this site since the 1993 PSD report for H_2SO_4 No. 9. Based on the results of the significant impact analysis, a maximum receptor distance of 1.7 km was used for the screening grid for the AAQS and PSD Class II analysis.

6.2.4.2 Class I Area

Maximum PM_{10} impacts for the Chassahowitzka NWA were predicted at 13 discrete receptors located along the border of the PSD Class I area. Impacts for the proposed modification only were also compared to the Class I significance levels recommended by the National Park Service (NPS). A listing of Class I receptors is provided in Table 6-8.

6.2.5 BACKGROUND CONCENTRATIONS

To estimate total air quality concentrations in the site vicinity, a background concentration must be added to the modeling results. The background concentration is considered to be the air quality concentration contributed by sources not included in the modeling evaluation.

The derivation of the background concentration for the modeling analysis was presented in Section 4.0. Based on this analysis, the PM_{10} background concentration was determined to be 21 $\mu g/m^3$ for the 24-hour and annual averaging periods. These background levels were added to model-predicted concentrations to estimate total air quality levels for comparison to AAQS.

6.2.6 BUILDING DOWNWASH EFFECTS

All significant building structures within Cargill's existing plant area were determined by a site plot plan. The plot plan of the MAP Plant and expansion was presented in Attachment CR-FI-E2 in Section 2.0. A total of 21 building structures were evaluated. All building structures were processed in the EPA Building Input Profile (BPIP, Version 95086) program to determine direction-specific building heights and projected widths for each 10-degree azimuth direction for each source that was included in the modeling analysis. A listing of dimensions for each structure is presented in Table 6-9.

6.3 MODEL RESULTS

6.3.1 SIGNIFICANT IMPACT ANALYSIS

A summary of the predicted maximum PM_{10} concentrations for the proposed modification only for the screening analysis is presented in Table 6-10. Based on these results, refinements were performed to determine the maximum impact due to the proposed project. The refined modeling demonstrates that the maximum 24-hour refined concentration of 10.0 $\mu g/m^3$ is above the significance level of 5 $\mu g/m^3$. The maximum annual PM_{10} impact of 0.87 $\mu g/m^3$ is below the significance level of 1.0 $\mu g/m^3$, annual average. It was further determined that the significant impact area for the proposed modification extends out approximately 1.7 km from the Cargill facility, based on the maximum 24-hour impacts.

6.4 AAQS ANALYSIS

A summary of the maximum PM_{10} concentrations predicted for all sources for the screening analysis is presented in Table 6-11. Based on the screening analysis results, modeling refinements were performed. The results of the refined modeling analysis are presented in Table 6-12. The maximum predicted annual and 24-hour PM_{10} concentrations are 44 and 112 $\mu g/m^3$, respectively, which includes an ambient non-modeled background concentration of 21 $\mu g/m^3$. The maximum PM_{10} concentrations are less than the AAQS of 50 and 150 $\mu g/m^3$, respectively.

6.5 PM_{10} PSD CLASS II ANALYSIS

A summary of the maximum PM_{10} PSD increment consumption predicted for all sources for the screening analysis is presented in Table 6-13. Based on the screening analysis results, modeling refinements were performed. The results of the refined modeling analysis are presented in

Table 6-14. The maximum predicted PM_{10} annual and 24-hour PSD increment consumption of 0.4 and 10.7 $\mu g/m^3$, respectively, are less than the allowable PSD Class II increments of 17 and 30 $\mu g/m^3$, respectively.

6.6 PSD CLASS I ANALYSIS

Maximum PM_{10} concentrations predicted for the proposed project alone at the Chassahowitzka NWA PSD Class I area are compared with the NPS' recommended PSP Class I significance levels in Table 6-15. As the proposed project's maximum impacts are below the Class I significant impact levels, a full PSD Class I incremental analysis is not required.

6.7 FLUORIDE IMPACTS

Maximum fluoride concentrations due to the proposed project in the site vicinity and the Chassahowitzka Class I area are presented in Tables 6-16 and 6-17 for the 8-hour, 24-hour, and annual averaging times. There are no AAQS or PSD increments for fluorides. However, fluoride impacts are required for the additional impact analysis and AQRV analysis for the Class I area, presented in Section 7.0.

Table 6-1. Major Features of the ISCST3 Model

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

Note: ISCST3 = Industrial Source Complex Short-Term.

Source: EPA, 1995.

Table 6-2. Summary of Stack Parameters and PM10 Emissions for the Modified MAP Plant, Cargill Riverview

Source	Stack Height (ft)	Stack Height (m)	Stack Diameter (ft)	Stack Diameter (m)	Flowrate (acfm)	Stack Velocity (f/s)	Stack Velocity (m/s)	Stack Temp. (deg F)	Stack Temp. (deg K)	PM10 Emissions (lb/hr)	PM10 Emissions (g/s)
Pre-Modification Sources (a)											
Nos. 3 and 4 MAP Plants	133	40.54	7.0	2.13	134,500	58.25	17.75	142	334.3	2.0	0.252
Post-Modification Sources											
Nos. 3 and 4 MAP Plants	133	40.54	7.0	2.13	165,000	71.46	21.78	142	334.3	16.8	2.12

(a) Based on stack test data and actual PM10 emissions.

Legend
ft = feet
m = meters
acfm = actual cubic feet per minute
f/s = feet per second
m,/s = meters per second
deg F = degrees Fahrenheit
deg K = degrees Kelvin
lb/hr = pounds per hour
g/s = grams per second

Table 6-3. Stack and Vent Geometry and Future Maximum PM and PM10 Emissions for Cargill Fertilizer, Riverview

Title V Emission Unit No.	AIRS Number	Source	PM Emissions (lb/hr)	PM Emissions (g/sec)	PM10 Emissions (lb/hr)	PM10 Emissions (g/sec)	Stack/Vent Release Height (ft)	Stack/Vent Release Height (m)	Stack/Vent Diameter (ft)	Stack/Vent Diameter (m)	Gas Flow Rate (acfm)	Gas Exit Temperature (F)	Gas Exit Temperature (K)	Velocity (a) (ft/sec)	Velocity (a) (m/sec)	* Discharge Direction (Vert./Horiz.)	Location (b) X Coordinate (ft)	Location (b) X Coordinate (m)	Location (b) Y Coordinate (ft)	Location (b) Y Coordinate (m)
		No. 7 Rock Mill (Proposed)																		
		No. 7 Rock Mill Dust Collector	2.10	0.26	2.10	0.26	91	27.74	3.0	0.91	20,000	165	347	47.20	14.37	V	-1636	-499	487	148
1	22,23,24	No. 3 and No.4 MAP Plants and South Cooler	22.00	2.77	16.80	2.12	133	40.54	7.0	2.13	165,000	142	334	71.46	21.78	V	-1795	-547	-157	-48
2	55	No. 5 DAP Plant	12.80	1.61	12.80	1.61	133	40.54	7.0	2.13	121,732	110	316	52.72	16.07	V	-1711	-521	-133	-40
3	7	GTSP/DAP Manufacturing Plant	21.60	2.72	21.60	2.72	126	38.40	8.0	2.44	140,400	125	325	46.55	14.19	V	-1647	-502	27	8
4	70,71	Two GTSP Storage Buildings	NA	NA	NA	NA	NA	NA	NA	NA	NA	77	298	NA	NA	--	NA	NA	NA	NA
5	72	GTSP Truck Loading Station	0.53	0.07	0.53	0.07	38	11.58	2.7	0.81	2,200	77	298	6.55	2.00	H	-2355	-718	27	8
6	8	GTSP Ground Rock Handling	0.95	0.12	0.95	0.12	87	26.52	1.2	0.37	4,400	138	332	64.84	19.76	H	-1775	-541	67	21
7		Material Handling Conveyor																		
	51	West Baghouse	1.16	0.15	1.16	0.15	30	9.14	3.5	1.07	33,000	80	300	57.17	17.42	V	-879	-268	-1373	-418
	52	South Baghouse	1.16	0.15	1.16	0.15	40	12.19	1.5	0.46	4,500	80	300	42.44	12.94	H	-964	-294	-1601	-488
	53	Tower East Baghouse	3.10	0.39	3.10	0.39	50	15.24	2.5	0.76	12,000	80	300	40.74	12.42	H	-803	-245	-1425	-434
	58	Building No.6 Baghouse	0.62	0.08	0.62	0.08	30	9.14	1.2	0.35	3,630	80	300	57.24	17.45	H	-1820	-555	-419	-128
	59	Belt 7 to 8 Baghouse	0.62	0.08	0.62	0.08	45	13.72	1.2	0.35	3,630	80	300	57.24	17.45	H	-1820	-555	-522	-159
	60	Belt 8 to 9 Baghouse	1.19	0.15	1.19	0.15	75	22.86	1.6	0.48	6,930	80	300	59.54	18.15	H	-1188	-362	-1178	-359
8		Phosphate Rock Grinding/Drying System																		
	100	No. 5 Mill Dust Collector	2.59	0.33	2.59	0.33	91	27.74	2.5	0.76	19,000	165	347	64.50	19.66	V	-1636	-499	497	152
	101	No. 9 Mill Dust Collector	2.59	0.33	2.59	0.33	91	27.74	2.5	0.76	19,000	165	347	64.50	19.66	V	-1610	-491	519	158
	102	Ground Rock Silo Dust Collector	0.41	0.05	0.41	0.05	67	20.42	0.8	0.24	1,200	80	300	39.80	12.13	H	-1640	-499	526	160
9	73	Phosphoric Acid Production Facility	NA	NA	NA	NA	110	33.53	4.8	1.47	57,000	100	311	51.85	15.80	--	NA	NA	NA	NA
10	43	Auxiliary Steam Boiler	13.00	1.64	6.50	0.82	20	6.10	4.5	1.37	39,300	420	489	41.18	12.55	V	35	11	-191	-58
11	6	No. 9 Sulfuric Acid Plant	NA	NA	NA	NA	150	45.72	9.0	2.74	158,000	170	350	41.39	12.62	V	0	0	0	0
	5	No. 8 Sulfuric Acid Plant	NA	NA	NA	NA	150	45.72	8.0	2.44	153,700	150	339	50.96	15.53	V	255	78	-89	-27
	4	No. 7 Sulfuric Acid Plant	NA	NA	NA	NA	150	45.72	7.5	2.29	109,924	152	340	41.47	12.64	V	-60	-18	-422	-129
12		Sodium Silicofluoride/Sodium Fluoride Plant																		
	41	Dryer Scrubber	1.00	0.13	1.00	0.13	40	12.19	1.7	0.51	5,400	120	322	41.09	12.52	V	-1272	-388	35	11
	54	Material Handling Baghouse	0.69	0.09	0.69	0.09	30	9.14	1.3	0.41	4,000	90	305	47.99	14.63	V	-1350	-412	60	18
13	*	Molten Sulfur Handling																		
		Pits/Truck Loading (c)	0.44	0.06	0.44	0.06	8	2.44	0.3	0.10	135.00	240	389	26.31	8.02	V	78	24	-238	-73
		Tanks (d)	2.60	0.33	2.60	0.33	24	7.32	0.8	0.25	445	240	389	13.71	4.18	V	-586	-179	-362	-110
14		Animal Feed Plant																		
	79	DE Hopper Vent	0.09	0.01	0.09	0.01	64	19.51	1.5	0.46	600	90	305	5.66	1.72	--	-1689	-515	728	222
	78	AFI Plant No. 1 Stack	6.00	0.76	6.00	0.76	136	41.45	6.0	1.83	95,000	150	339	56.00	17.07	V	-1173	-358	413	126
	80	Limestone Silo	0.12	0.02	0.12	0.02	85	25.91	1.5	0.46	800	90	305	7.55	2.30	--	-1030	-314	522	159
	81	AFP Loadout System	2.22	0.28	2.22	0.28	15	4.57	2.1	0.64	15,000	90	305	71.43	21.77	V	-801	-244	528	161
	--	AFI Plant No. 2 Stack	6.00	0.76	6.00	0.76	136	41.45	6.0	1.83	95,000	150	339	56.00	17.07	V	-1293	-394	413	126
Total Emissions			105.58	13.30	93.88	11.83														

* AIRS Nos. 063, 064, 065, 066, 067, 068, 069, 074.
NA = No PM/PM10 or NOx emissions from this source.
(a) For modeling purposes, horizontal discharges were modeled with a velocity of 0.01 m/s.
(b) Relative to H2SO4 Plant No. 9 stack location.
(c) Assumes one pit being loaded for 24 hours/day.
(d) Assumes one tank being loaded for 24 hours/day.

ble 6-4. Facility Screening Analysis for PM Emitting Facilities (>20 TPY) in the Vicinity of Proposed Cargill Project

cility Name/Location	Facility Location UTMs E (km)	N (km)	Relative to Cargill X(m)	Y(m)	Distance (km)	20 X (D-3)	PM Emissions (TPY)	Include in Modeling?
'AC-Florida, Inc.	347.1	3027.3	-15800	-55200	57.4	1088.3	163	NO
lams Packing Association	421.7	3104.2	58800	21700	62.7	1193.5	144	NO
grico Chemical	400.0	3061.0	37100	-21500	42.9	797.6	84	NO
grico Chemical Co	362.1	3076.1	-800	-6400	6.4	69.0	195	YES
grico Chemical Co Pierce	403.7	3079.0	40800	-3500	40.9	759.0	840	YES
grico Chemical Co South Pierce	407.5	3071.5	44600	-11000	45.9	858.7	1096	YES
coa	416.8	3116.0	53900	33500	63.5	1209.2	446	NO
coma Packing - Lake Wales	451.6	3085.5	88700	3000	88.8	1715.0	263	NO
lsun Products	413.5	3093.8	50600	11300	51.8	976.9	318	NO
umax Extrusions	385.6	3097.0	22700	14500	26.9	478.7	172	NO
ncon Concrete	364.0	3075.0	1100	-7500	7.6	91.6	39	NO
ncon Concrete	358.4	3090.2	-4500	7700	8.9	118.4	3	NO
ncon Products	364.6	3092.8	1700	10300	10.4	148.8	32	NO
nerican Orange Corp	429.8	3047.3	66900	-35200	75.6	1451.9	181	NO
noco Oil	357.8	3092.0	-5100	9500	10.8	155.6	9	NO
istrech Chemical Corp	411.7	3085.9	48800	3400	48.9	918.4	7	NO
grow Florida Company	388.6	3104.6	25700	22100	33.9	617.9	5	NO
burndale Cogeneration	420.8	3103.3	57900	20800	61.5	1170.5	161	NO
y Concrete	365.0	3084.0	2100	1500	2.6	-8.4	3	YES
y Concrete	365.1	3093.8	2200	11300	11.5	170.2	37	NO
-Medical Service Corp of GA	413.9	3081.3	51000	-1200	51.0	960.3	46	NO
rdo Citrus Product Inc	427.8	3097.5	64900	15000	66.6	1272.2	13	NO
annen Prestress Co.	353.7	3016.5	-9200	-66000	66.6	1272.8	100	NO
annen Prestress Co.	353.7	3016.5	-9200	-66000	66.6	1272.8	100	NO
& M Products Co	405.5	3079.1	42600	-3400	42.7	794.7	162	NO
F Industries Bonnie Mine Rd	408.4	3082.4	45500	-100	45.5	850.0	1319	YES
zM Products	405.5	3079.1	42600	-3400	42.7	794.7	37	NO
Cure of Florida	386.0	3098.7	23100	16200	28.2	504.3	21	NO
Industries	388.0	3116.0	25100	33500	41.9	777.2	84	NO
Industries - Bartow	408.4	3082.4	45500	-100	45.5	850.0	790	NO
X Transportation Inc.	361.0	3089.0	-1900	6500	6.8	75.4	404	YES
rgill Terminal	358.1	3091.7	-4800	9200	10.4	147.5	22	NO
rgill/Nutrena Feed Division	360.8	3095.8	-2100	13300	13.5	209.3	21	NO
st Metals Corp	368.8	3094.6	5900	12100	13.5	209.2	8	NO
st-Crete Corp of Florida	371.9	3099.2	9000	16700	19.0	319.4	11	NO
ntral Florida Hot-Mix	412.5	3097.7	49600	15200	51.9	977.5	19	NO
ntral Phosphates Inc.	359.1	3089.8	-3800	7300	8.2	104.6	26	NO
apman Contracting	356.8	3068.4	-6100	-14100	15.4	247.3	4	NO
evron Asphalt Inc.	358.2	3092.0	-4700	9500	10.6	152.0	4	NO
trus Hill Mfg	447.9	3068.3	85000	-14200	86.2	1663.6	66	NO
trus World	441.0	3087.3	78100	4800	78.2	1504.9	601	NO
ty of Tampa Dept.	364.0	3089.5	1100	7000	7.1	81.7	48	NO
ca Cola	421.6	3103.7	58700	21200	62.4	1188.2	387	NO
mco of America	361.4	3086.9	-1500	4400	4.6	33.0	9	NO
mmercial Metals Inc	358.5	3088.3	-4400	5800	7.3	85.6	108	YES
nserv Inc.	398.7	3084.2	35800	1700	35.8	656.8	1598	YES
nsolidated Minerals Inc. Plant City	393.8	3096.3	30900	13800	33.8	616.8	756	YES
uch Construction Co	364.3	3098.1	1400	15600	15.7	253.3	45	NO
uch Construction Company	362.1	3096.7	-800	14200	14.2	224.5	26	NO
own Door Company	362.1	3092.5	-800	10000	10.0	140.6	13	NO
vid J. Joseph Co.	364.0	3092.9	1100	10400	10.5	149.2	123	NO
lta Asphalt	372.1	3105.4	9200	22900	24.7	433.6	72	NO
avo Lime Co.	362.9	3084.7	-0	2200	2.2	-16.0	48	YES
iggers Concrete	360.0	3065.9	-2900	-16600	16.9	277.0	21	NO
Carpenter	397.0	3131.5	34100	49000	59.7	1134.0	55	NO
rl Massey	440.4	3103.4	77500	20900	80.3	1545.4	39	NO
stern Association Terminal	360.2	3088.9	-2700	6400	6.9	78.9	534	YES
stern Electric Apparatus Repair Co.	366.6	3092.0	3700	9500	10.2	143.9	21	NO
er Concrete Eastside Dr N	410.5	3102.5	47600	20000	51.6	972.6	11	NO
er Concrete Lake Ida & 5th St	428.1	3102.0	65200	19500	68.1	1301.1	49	NO
nis Drum Service Inc	422.5	3102.5	59600	20000	62.9	1197.3	4	NO
ly Juice Inc	399.0	3101.8	36100	19300	40.9	758.7	117	NO

Table 6-4. Facility Screening Analysis for PM Emitting Facilities (>20 TPY) in the Vicinity of Proposed Cargill Project

Facility Name/Location	Facility Location UTMs E (km)	N (km)	Relative to Cargill X(m)	Y(m)	Distance (km)	20 X (D-3)	PM Emissions (TPY)	Include in Modeling?
Ero Industries	427.5	3095.6	64600	13100	65.9	1258.3	33	NO
Estech	411.5	3074.2	48600	-8300	49.3	926.1	311	NO
Estech-Duette Phosphate Mine	388.9	3047.2	26000	-35300	43.8	816.8	750	NO
Ewell Ind Bonnie Mine Rd	407.7	3080.9	44800	-1600	44.8	836.6	96	NO
Ewell Ind S Florida Ave	406.3	3092.9	43400	10400	44.6	832.6	348	NO
Ewell Industries	367.1	3092.7	4200	10200	11.0	160.6	19	NO
Ewell Industries	367.0	3092.8	4100	10300	11.1	161.7	13	NO
FMC Corp/Citrus Machinery Division	409.6	3102.6	46700	20100	50.8	956.8	9	NO
FPC Bayboro	338.8	3071.3	-24100	-11200	26.6	471.5	2526	YES
FPC Intercession City 7EA Turbine (#180)	446.3	3126.0	83400	43500	94.1	1821.3	108	NO
FPC-Bartow	342.4	3082.6	-20500	100	20.5	350.0	9244	YES
Farmland Industries Green Bay Plant	409.5	3080.1	46600	-2400	46.7	873.2	1486	YES
Florida Brick & Clay Co	384.9	3097.1	22000	14600	26.4	468.1	26	NO
Florida Crushed Stone	358.9	3088.4	-4000	5900	7.1	82.6	20	NO
Florida Distillers Company	421.4	3102.9	58500	20400	62.0	1179.1	2	NO
Florida Fence Post	409.2	3039.9	46300	-42600	62.9	1198.3	6	NO
Florida Institute of Phosphate Research	415.0	3085.8	52100	3300	52.2	984.1	4	NO
Florida M & M	362.2	3066.2	-700	-16300	16.3	266.3	21	NO
Florida Mega-Mix	364.5	3093.4	1600	10900	11.0	160.3	22	NO
Florida Mining & Materials Alabama Lane	420.8	3103.4	57900	20900	61.6	1171.1	40	NO
Florida Petroleum	360.9	3094.0	-2000	11500	11.7	173.5	16	NO
Florida Power & Light	367.2	3054.1	4300	-28400	28.7	514.5	40179	YES
Florida Precast Concrete	360.4	3094.2	-2500	11700	12.0	179.3	132	NO
Florida Privitization Inc	418.3	3048.0	55400	-34500	65.3	1245.3	281	NO
Florida Rock Industries	416.6	3085.8	53700	3300	53.8	1016.0	57	NO
Florida Rock Industries	363.9	3093.5	1000	11000	11.0	160.9	8	NO
Florida Rock Industries	428.0	3105.2	65100	22700	68.9	1318.9	55	NO
Florida Rock Industry	365.8	3085.0	2900	2500	3.8	16.6	21	YES
Florida Rock Industry	362.3	3097.5	-600	15000	15.0	240.2	20	NO
Florida Steel Corp	364.6	3092.8	1700	10300	10.4	148.8	144	NO
Florida Tile	405.4	3102.4	42500	19900	46.9	878.6	309	NO
GAF Building Materials Corp	362.2	3087.2	-700	4700	4.8	35.0	57	YES
GNB Inc. (PAC CHL)	361.8	3088.3	-1100	5800	5.9	58.1	25	NO
Garder Asphalt Corp	360.8	3093.3	-2100	10800	11.0	160.0	5	NO
Gardinier	415.3	3063.3	52400	-19200	55.8	1056.1	175	NO
Garrison Stevedoring	357.8	3091.7	-5100	9200	10.5	150.4	182	YES
Gaylord Container Corp	366.3	3092.3	3400	9800	10.4	147.5	108	NO
General Chemical Corp	359.9	3092.3	-3000	9800	10.2	145.0	30	NO
Glen-Mar Concrete Products	363.2	3093.3	300	10800	10.8	156.1	22	NO
Gold Bond Building Products	347.3	3082.7	-15600	200	15.6	252.0	117	NO
Gold Bond Building Products	347.3	3082.7	-15600	200	15.6	252.0	117	NO
Golden Triangle Asphalt	333.8	3086.1	-29100	3600	29.3	526.4	1274	YES
Graves Enterprises Riverview	363.1	3085.3	200	2800	2.8	-3.9	350	YES
Griffin Industries	364.1	3096.4	1200	13900	14.0	219.0	4	NO
Gulf Coast Lead Company	364.0	3093.5	1100	11000	11.1	161.1	17	NO
Gulf Coast Metals	364.7	3093.6	1800	11100	11.2	164.9	13	NO
H & S Properties	360.3	3093.2	-2600	10700	11.0	160.2	9	NO
Hardee Memorial Hospital	419.2	3046.7	56300	-35800	66.7	1274.4	1	NO
Hardee Power Station Ft. Green Springs	404.8	3057.4	41900	-25100	48.8	916.9	1251	YES
Haynes Funeral Home Plant City	388.1	3100.3	25200	17800	30.9	557.1	6	NO
High Performance Finishers	428.0	3096.0	65100	13500	66.5	1269.7	12	NO
Hillsborough Animal Control Center	368.5	3092.7	5600	10200	11.6	172.7	11	NO
Hillsborough Co Resource Recovery	368.2	3092.7	5300	10200	11.5	169.9	172	YES
Hillsborough Co. Animal Control Center	364.9	3093.5	2000	11000	11.2	163.6	16	NO
Holly Hill	441.0	3115.4	78100	32900	84.7	1634.9	145	NO
Holman Inc.	359.3	3087.1	-3600	4600	5.8	56.8	54	NO
Hull Materials, Inc.	399.4	3070.6	36500	-11900	38.4	707.8	13	NO
Humana Hospital	429.9	3076.7	67000	-5800	67.3	1285.0	1	NO
Humana Hospital	373.3	3093.4	10400	10900	15.1	241.3	4	NO
Hydro Conduit Corp	363.8	3093.5	900	11000	11.0	160.7	2	NO
IMC Ft. Lonesome	389.6	3067.9	26700	-14600	30.4	548.6	678	YES
IMC Kingsford	398.2	3075.7	35300	-6800	35.9	659.0	422	NO

able 6-4. Facility Screening Analysis for PM Emitting Facilities (>20 TPY) in the Vicinity of Proposed Cargill Project

acility Name/Location	Facility Location UTMs E (km)	N (km)	Relative to Cargill X(m)	Y(m)	Distance (km)	20 X (D-3)	PM Emissions (TPY)	Include in Modeling?
MC Noralyn Mine	414.7	3080.3	51800	-2200	51.8	NA	NA	NO
MC Port Sutton Terminal	360.1	3087.5	-2800	5000	5.7	54.6	442	YES
MC Fertilizer New Wales	396.7	3079.4	33800	-3100	33.9	618.8	1430	YES
MC Fertilizer Prairie	402.9	3087.0	40000	4500	40.3	745.0	288	NO
MC Fertilizer Rainbow Division	402.3	3085.8	39400	3300	39.5	730.8	88	NO
MC/Uranium Recovery C F Industries	408.4	3082.8	45500	300	45.5	850.0	1071	YES
nperial Phosphate Ltd.	404.8	3069.5	41900	-13000	43.9	817.4	162	NO
ıternational Paper Company	421.7	3104.3	58800	21800	62.7	1194.2	8	NO
ternational Salt Company	358.2	3090.2	-4700	7700	9.0	120.4	21	NO
)hn Carlos Florida	426.2	3104.1	63300	21600	66.9	1277.7	29	NO
)hnson Controls Battery Group, Inc.	359.9	3102.5	-3000	20000	20.2	344.5	156	NO
aiser Aluminum	408.3	3085.5	45400	3000	45.5	850.0	106	NO
aplan Industries	418.3	3079.3	55400	-3200	55.5	1049.8	53	NO
earney Development Company	368.7	3094.8	5800	12300	13.6	212.0	21	NO
immins Recycling Corporation	360.4	3093.1	-2500	10600	10.9	157.8	66	NO
aFarge Corp	357.7	3090.8	-5200	8300	9.8	135.9	1221	YES
eFarge Corp.	356.3	3092.8	-6600	10300	12.2	184.7	51	NO
eidlaw Environmental Services Inc	424.7	3091.9	61800	9400	62.5	1190.2	9	NO
eland City Electric & Utilities	404.0	3105.3	41100	22800	47.0	880.0	8	NO
eland City Power Larsen Power Station	409.3	3102.8	46400	20300	50.6	952.9	107	NO
eland City Power McIntosh Power Station	409.2	3106.1	46300	23600	52.0	NA	NA	NO
high Portland Cement Co	361.3	3086.9	-1600	4400	4.7	33.6	7	NO
high Portland Cement Co Port Sutton	360.7	3086.8	-2200	4300	4.8	36.6	18	NO
isey Shell Corp	352.7	3064.8	-10200	-17700	20.4	348.6	20	NO
ykes Pasco Packing	412.4	3096.5	49500	14000	51.4	968.8	48	NO
acDill AFB	355.0	3080.6	-7900	-1900	8.1	102.5	2	NO
acasphalt	423.1	3101.5	60200	19000	63.1	1202.5	70	NO
anatee Scrap Processing	366.9	3053.8	4000	-28700	29.0	519.5	108	NO
anna Pro Corporation	364.7	3092.6	1800	10100	10.3	145.2	16	NO
arathon Petroleum Company	362.2	3087.2	-700	4700	4.8	35.0	13	NO
etals & Materials Recycling	386.5	3097.4	23600	14900	27.9	498.2	1	NO
obil Mining & Minerals Big Four Mine	394.7	3069.6	31800	-12900	34.3	626.3	68	NO
obil Mining & Minerals SR 676	398.5	3085.1	35600	2600	35.7	653.9	990	YES
obil-Electrophos Division	405.6	3079.4	42700	-3100	42.8	796.2	544	NO
onier Roof Tile	414.0	3102.5	51100	20000	54.9	1037.5	44	NO
ational Portland Cement Co. of FL	346.4	3056.4	-16500	-26100	30.9	557.6	186	NO
itram	362.5	3089.0	-400	6500	6.5	70.2	218	YES
orth American Salt Co	362.4	3065.7	-500	-16800	16.8	276.1	5	NO
range Co of Florida	418.7	3083.6	55800	1100	55.8	1056.2	119	NO
rlando Utilities Station #1	463.5	3116.0	100600	33500	106.0	2060.6	84	NO
rlando Utilities Station #2	483.5	3150.6	120600	68100	138.5	2710.0	375	NO
tt-Laughlin	427.8	3099.7	64900	17200	67.1	1282.8	1	NO
wens-Brockway Glass Container	423.4	3102.3	60500	19800	63.7	1213.2	189	NO
ckaging Corp of America	423.4	3102.8	60500	20300	63.8	1216.3	38	NO
khoed Dry Bulk Terminals	360.8	3087.3	-2100	4800	5.2	44.8	483	YES
ktank Florida	360.8	3087.3	-2100	4800	5.2	44.8	178	YES
lm Harbor Homes	391.8	3101.5	28900	19000	34.6	631.7	22	NO
vers Incorporated	414.0	3098.2	51100	15700	53.5	1009.1	479	NO
vex Corp	413.0	3086.2	50100	3700	50.2	944.7	44	NO
mbroke Materials Inc	420.4	3075.2	57500	-7300	58.0	1099.2	12	NO
nellas Co. Resource Recovery Facility	335.2	3084.1	-27700	1600	27.7	494.9	329	NO
rina Mills	402.0	3087.0	39100	4500	39.4	727.2	88	NO
uikrete of Florida	412.8	3099.0	49900	16500	52.6	991.1	253	NO
& L Metals	363.6	3093.0	700	10500	10.5	150.5	5	NO
C Martin Concrete Products	388.6	3092.1	25700	9600	27.4	488.7	28	NO
V Shulnburg	362.5	3097.3	-400	14800	14.8	236.1	6	NO
eed Minerals Division	362.2	3085.5	-700	3000	3.1	1.6	70	YES
source Recovery of America Inc	401.8	3085.8	38900	3300	39.0	720.8	10	NO
ynolds Aluminum Recycling	362.7	3097.5	-200	15000	15.0	240.0	14	NO
dge Cogeneration	416.7	3100.4	53800	17900	56.7	1074.0	414	NO
dge Pallets Inc	419.1	3078.1	56200	-4400	56.4	1067.4	96	NO
dge Pallets Inc.	418.6	3084.1	55700	1600	55.7	1054.5	165	NO

Table 6-4. Facility Screening Analysis for PM Emitting Facilities (>20 TPY) in the Vicinity of Proposed Cargill Project

Facility Name/Location	Facility Location UTMs E (km)	N (km)	Relative to Cargill X(m)	Y(m)	Distance (km)	20 X (D-3)	PM Emissions (TPY)	Include in Modeling?
Rinker Cencon Corp	412.4	3099.0	49500	16500	52.2	983.6	159	NO
Rinker Materials Corp	364.9	3084.4	2000	1900	2.8	-4.8	8	YES
Rinker Materials Corp.	392.2	3100.0	29300	17500	34.1	622.6	14	NO
Rinker Materials Corporation	363.2	3098.1	300	15600	15.6	252.1	22	NO
Royster Co	362.6	3098.4	-300	15900	15.9	258.1	18	NO
Royster Company	406.8	3085.1	43900	2600	44.0	819.5	1393	YES
Sani-Med Inc.	359.8	3079.9	-3100	-2600	4.0	20.9	16	NO
Schering Berlin Polymers	410.7	3098.9	47800	16400	50.5	950.7	30	NO
Scrapall Inc.	359.4	3093.1	-3500	10600	11.2	163.3	31	NO
Cargill Fertilizer - Bartow (Seminole Fertilizer)	409.8	3086.7	46900	4200	47.1	881.8	2760	YES
South Bay Hospital	365.3	3065.1	2400	-17400	17.6	291.3	18	NO
Southeastern Galvanizing Division	368.5	3094.5	5600	12000	13.2	204.8	21	NO
Southeastern Wire	368.3	3094.5	5400	12000	13.2	203.2	21	NO
Southern Culvert	391.5	3095.0	28600	12500	31.2	564.2	17	NO
Southern Mill Creek Products Inc.	362.8	3097.7	-100	15200	15.2	244.0	6	NO
Southern Prestressed	363.2	3098.4	300	15900	15.9	258.1	2	NO
Southport Stevedore	358.5	3091.8	-4400	9300	10.3	145.8	30	NO
Speedling, Inc.	354.1	3062.2	-8800	-20300	22.1	382.5	19	NO
Standard Sand & Silica	441.5	3118.2	78600	35700	86.3	1666.6	286	NO
Stauffer Chemical Company	365.3	3093.6	2400	11100	11.4	167.1	9	NO
Stilwell Foods of Florida	389.8	3098.9	26900	16400	31.5	570.1	2	NO
Sulfur Terminals Co	358.0	3090.0	-4900	7500	9.0	119.2	9	NO
Sulfuric Acid Trading Company	349.0	3081.5	-13900	-1000	13.9	218.7	1204	YES
Sun Pac Foods	422.7	3092.6	59800	10100	60.6	1152.9	62	NO
Surfacing Products of America	347.5	3037.6	-15400	-44900	47.5	889.4	153	NO
TECO Big Bend	361.9	3075.0	-1000	-7500	7.6	91.3	7897	YES
TECO Gannon	360.0	3087.5	-2900	5000	5.8	55.6	5857	YES
TECO Hooker's Point	358.0	3091.0	-4900	8500	9.8	136.2	1231	YES
TECO Polk	402.5	3067.4	39600	-15100	42.4	787.6	438	NO
Tampa Armature Works	365.6	3091.7	2700	9200	9.6	131.8	13	NO
Tampa Bay Crematory	372.9	3090.7	10000	8200	12.9	198.6	10	NO
Tampa Bay Stevedores Inc	358.3	3088.6	-4600	6100	7.6	92.8	24	NO
Tampa City McKay Bay Refuse-to-Energy	360.0	3091.9	-2900	9400	9.8	136.7	344	YES
Tampa Sand & Material	360.1	3092.2	-2800	9700	10.1	141.9	17	NO
Tarmac Florida	362.8	3098.4	-100	15900	15.9	258.0	23	NO
Tarmac Florida Hialeah	362.8	3097.0	-100	14500	14.5	230.0	36	NO
The Florida Brewery	422.8	3104.7	59900	22200	63.9	1217.6	121	NO
The Gibson-Homans	365.5	3094.8	2600	12300	12.6	191.4	21	NO
The Mancini Packing Company	421.4	3040.8	58500	-41700	71.8	1376.8	1	NO
Treasure Isle Inc.	378.0	3096.9	15100	14400	20.9	357.3	11	NO
Triangle Pacific Corp	413.3	3098.8	50400	16300	53.0	999.4	6	NO
Tropicana Products, Inc.	346.8	3040.9	-16100	-41600	44.6	832.1	969	YES
US Agri-Chemicals Hwy 60	413.2	3086.3	50300	3800	50.4	948.9	443	NO
US Agri-Chemicals Hwy 630	416.0	3069.0	53100	-13500	54.8	NA	NA	NO
Union Camp Corp	402.0	3102.0	39100	19500	43.7	813.9	47	NO
Union Oil Company of California	358.0	3089.1	-4900	6600	8.2	104.4	14	NO
Universal Waste & Transit	384.9	3093.7	22000	11200	24.7	433.7	7	NO
Unocal Chemical Division	358.4	3088.4	-4500	5900	7.4	88.4	15	NO
Verlite Co	363.0	3098.1	100	15600	15.6	252.0	64	NO
Vigoro Industries Inc.	427.9	3097.4	65000	14900	66.7	1273.7	136	NO
W R Bonasal Co	363.6	3098.1	700	15600	15.6	252.3	19	NO
W R Grace & Co	380.2	3093.0	17300	10500	20.2	344.7	11	NO
Wachula City Power	418.4	3047.0	55500	-35500	65.9	1257.6	21	NO
Westcon	375.3	3092.8	12400	10300	16.1	262.4	21	NO
Weyerhaeuser Co	362.8	3098.3	-100	15800	15.8	256.0	25	NO
Zipperer S. Agape Mortuary Services	363.0	3064.7	100	-17800	17.8	296.0	21	NO

Note: The Cargill Riverview facility is located at UTM Coordinates 362.9 km E, 3082.5 km N

Table 6-5. Stack and Vent Geometry and Baseline (1974) Particulate Matter Emissions for Cargill Fertillizer, Riverview

Source	Particulate Matter Emissions (lb/hr)	(g/sec)	Stack/Vent Release Height (ft)	(m)	Stack/Vent Diameter (ft)	(m)	Gas Flow Rate Standard (dscfm)	Actual (acfm)	Moisture (% H20)	Gas Exit Temperature (C)	(F)	(K)	Velocity (ft/sec)	(m/sec)	Location (a) X Coordinate (ft)	(m)	Y Coordinate (ft)	(m)
Ammonia Plant	22.25	2.803	60	18.29	8.33	2.54	36,796	74,716	1	316	601	589	11.25	3.43	-2233	-681	-1028	-313
Auxiliary Steam Boiler	0.79	0.100	20	6.10	4.50	1.37	23,283	38,207	1	203	397	476	24.41	7.44	35	11	-191	-58
Sodium Silicofluoride/Sodium Fluoride Plant	2.43	0.307	28	8.53	2.50	0.76	2,337	2,594	5.3	35	95	308	7.95	2.42	-1272	-388	35	11
No. 2 and No. 3 Rock Silo Bag Filter	0.90	0.114	93	28.35	1.04	0.32	2,510	2,781	4.2	38	100	311	49.22	15.00	-1272	-388	35	11
Nos. 6, 7, and 8 Rock Mills	5.21	0.656	95	28.96	1.99	0.61	9,560	10,466	4.6	33	91	306	51.40	15.67	-1272	-388	35	11
No. 10 KVS Mill	3.67	0.462	87	26.52	1.60	0.49	6,870	8,154	7.7	48	118	321	57.25	17.45	-790	-241	664	202
No. 11 KVS Mill	3.00	0.378	70	21.34	1.60	0.49	6,075	7,364	8.5	52	126	325	50.63	15.43	-790	-241	664	202
No. 12 KVS Mill	1.33	0.168	71	21.64	1.60	0.49	5,480	6,833	9.4	58	136	331	45.67	13.92	-790	-241	664	202
No. 2 Air Slide North Bag Filter	0.58	0.072	85	25.91	0.92	0.28	1,450	1,606	4.8	36	97	309	36.62	11.16	-996	-303	1138	347
No. 2 Air Slide South Bag Filter	0.28	0.035	96	29.26	0.86	0.26	2,147	2,489	6.1	46	115	319	61.70	18.80	-996	-303	1247	380
No. 3 Air Slide North Bag Filter	0.15	0.019	82	24.99	1.24	0.38	520	623	9.4	45	113	318	7.22	2.20	-996	-303	1138	347
No. 3 Air Slide Center Bag Filter	0.50	0.063	115	35.05	1.60	0.49	1,343	1,569	6.5	47	117	320	11.19	3.41	-996	-303	1138	347
No. 3 Air Slide South Bag Filter	0.80	0.101	96	29.26	1.64	0.50	990	1,117	3.2	47	117	320	7.86	2.39	-790	-241	664	202
No. 3 Air Slide Bin Bag Filter	0.91	0.114	108	32.92	1.24	0.38	1,350	1,558	4.5	50	122	323	18.75	5.72	-996	-303	1247	380
No. 2 Phosphoric Acid System	7.46	0.940	109	33.22	4.01	1.22	19,973	28,517	20.4	60	140	333	26.42	8.05	-996	-303	1138	347
No. 3 Phosphoric Acid System	5.08	0.640	93	28.35	4.01	1.22	11,915	14,733	11.4	48	118	321	15.76	4.80	-996	-303	1247	380
No. 1 Horizontal Filter Scrubber	6.21	0.782	59	17.98	4.75	1.45	34,970	37,913	4.3	31	88	304	32.93	10.04	-1250	-381	1092	333
No. 2 Horizontal Filter Scrubber	6.00	0.756	51	15.54	4.01	1.22	31,915	34,897	4.8	32	90	305	42.22	12.87	-1250	-381	1092	333
No. 2 Horizontal Filter Vacuum System	0.02	0.003	4.5	1.37	1.13	0.34	625	833	16.8	52	126	325	10.42	3.18	-1250	-381	1092	333
No. 3 Horizontal Filter Vacuum System	0.13	0.016	4.5	1.37	1.51	0.46	1,197	1,562	15.0	52	126	325	11.08	3.38	-1250	-381	1092	333
No. 7 Oil-Fired Concentrator	7.58	0.955	78	23.77	6.00	1.83	15,680	29,152	36.3	74	165	347	9.23	2.81	-1250	-381	1092	333
No. 8 Oil-Fired Concentrator	14.42	1.816	78	23.77	6.00	1.83	16,580	28,376	31.6	70	158	343	9.76	2.98	-1250	-381	1092	333
GTSP Bag Filter	0.35	0.044	88	26.82	1.29	0.39	1,475	1,782	3.95	67	153	340	18.91	5.76	-1775	-541	67	21
GTSP Plant	18.29	2.305	126	38.40	7.99	2.44	76,000	99,905	15.1	54	129	327	25.23	7.69	-1647	-502	27	8
No. 5 and No. 9 Mills Bag Filter	10.21	1.286	66	20.12	1.99	0.61	9,445	10,802	4.8	46	115	319	50.78	15.48	-1543	-470	482	147
No. 3 Triple Reactor Belt	6.21	0.782	65	19.81	4.01	1.22	32,170	33,949	3.3	26	79	299	42.55	12.97	-1250	-381	683	208
No. 4 Triple Reactor Belt	4.75	0.598	65	19.81	4.01	1.22	34,525	36,493	4.1	24	75	297	45.67	13.92	-1250	-381	683	208
No. 3 Continuous Triple Dryer	14.42	1.816	68	20.73	3.50	1.07	20,320	24,985	10.9	48	118	321	35.28	10.75	-1250	-381	683	208
No. 4 Continuous Triple Dryer	9.00	1.134	68	20.73	3.50	1.07	28,220	32,555	7.4	40	104	313	48.99	14.93	-1250	-381	683	208
Nos. 2 & 4 Sizing Units	4.09	0.516	74	22.56	4.01	1.22	20,165	21,187	3.2	25	77	298	26.67	8.13	-1250	-381	683	208
Normal Superphosphate	0.45	0.057	73	22.25	2.50	0.76	11,820	13,694	7.5	41	106	314	40.20	12.25	-1250	-381	683	208
No. 1 Ammonium Phosphate Plant	9.38	1.181	90	27.43	4.01	1.22	26,060	37,349	20.7	60	140	333	34.47	10.51	-1696	-517	264	80
No. 2 Ammonium Phosphate Plant	11.67	1.470	90	27.43	3.50	1.07	27,190	36,608	16.6	56	133	329	47.20	14.39	-1696	-517	264	80
No. 3 Ammonium Phosphate Plant	13.08	1.648	90	27.43	3.50	1.07	24,530	35,865	21.8	62	144	335	42.59	12.98	-1660	-506	346	105
No. 4 Ammonium Phosphate Plant	6.96	0.877	90	27.43	3.50	1.07	21,290	32,834	25.2	65	149	338	36.96	11.27	-1660	-506	346	105
North Ammonium Phosphate Cooler	47.00	5.922	54	16.46	4.34	1.32	40,400	48,418	4.6	62	144	335	45.50	13.87	-1696	-517	264	80
South Ammonium Phosphate Cooler	37.17	4.683	54	16.46	4.34	1.32	42,660	49,137	3.7	52	126	325	48.04	14.64	-1660	-506	346	105
Material Handling- West Baghouse	1.16	0.150	30	9.14	3.50	1.07	--	33,000	--	--	80	300	57.17	17.42	-879	-268	-1373	-418
Material Handling- South Baghouse	1.16	0.150	40	12.19	1.50	0.46	--	4,500	--	--	80	300	42.44	12.94	-964	-294	-1601	-488
Material Handling- Tower Baghouse	3.10	0.390	50	15.24	2.50	0.76	--	12,000	--	--	80	300	40.74	12.42	-803	-245	-1425	-434
Molten Sulfur Handling- Pits	0.44	0.060	8	2.44	0.30	0.10	--	135	--	--	240	389	26.31	8.02	78	24	-238	-73
Molten Sulfur Handling- Tanks	2.43	0.310	24	7.32	0.80	0.25	--	445	--	--	240	389	13.71	4.18	-586	-179	-362	-110
Total Particulate	291.01	36.682																

(a) Relative to H2SO4 No. 9 stack location.

Source: 1974 Annual Air Operating Report to Hillsborough County.

Table 6-6. Emissions of SO2 and NOx for the Proposed Nos. 3 & 4 MAP Plant Expansion
Cargill Riverview

Source	SO2 Emissions(a) (lb/hr)	(g/s)	NOx Emissions (a) (lb/hr)	(g/s)
Post-Modification				
Nos. 3 & 4 MAP Plant	3.04	0.38	0.86	0.11

(a) see Table 2-3.

Legend
lb/hr = pounds per hour
g/s = grams per second

Table 6-7. Cargill Property Boundary Receptors Used in the Modeling Analysis

Direction (deg)	Distance (m)	Direction (deg)	Distance (m)
10	965	190	362
20	805	200	390
30	675	210	796
40	597	220	971
50	550	230	1,296
60	525	240	1,512
70	517	250	1,494
80	524	260	1,019
90	550	270	1,064
100	596	280	1,151
110	414	290	1,296
120	338	300	1,421
130	294	310	1,623
140	285	320	1,962
150	293	330	2,000
160	311	340	1,843
170	343	350	1,759
180	347	360	1,245

Note: Distances are relative to the H_2SO_4 No. 9 stack location.
deg = degree.
m = meter.

Table 6-8. Chassahowitzka Wilderness Area Receptors Used in the Modeling Analysis

Class I Receptor	UTM Coordinates	
	East (km)	North (km)
1	340.3	3,165.7
2	340.3	3,167.7
3	340.3	3,169.8
4	340.7	3,171.9
5	342.0	3,174.0
6	343.0	3,176.2
7	343.7	3,178.3
8	342.4	3,180.6
9	341.1	3,183.4
10	339.0	3,183.4
11	336.5	3,183.4
12	334.0	3,183.4
13	331.5	3,183.4

Table 6-9. Building Dimensions for Cargill Riverview Plant Structures Used in the Modeling Analysis

Structure	Height		Length		Width	
	(ft)	(m)	(ft)	(m)	(ft)	(m)
Phosphoric Acid Plant						
South Building	100	30.48	73	22.25	33	10.06
North Building	100	30.48	76	23.16	46	14.02
Dry Rock Processing Plant						
No 5/9 Mills Building	35	10.67	40	12.19	30	9.14
No. 7 Rock Mill Building	35	10.67	26	7.92	30	9.14
Ground Rock Silo	63	19.20	32	9.75	32	9.75
No. 5/9 Dust Collectors	84	25.60	9	2.74	9	2.74
Animal Feed Proc. Plant						
AFI Building	120	36.58	120	36.58	30	9.14
AFI Loadout Silos	100	30.48	298	90.83	37	11.28
Material Storage Area						
Building No. 6	74	22.56	812	247.50	122	37.19
Building No. 5	54.7	16.67	879	267.92	174	53.04
Building No. 4	54.7	16.67	799	243.54	105	32.00
Building No. 2 (Bottom)	62	18.90	919	280.11	102	31.09
Building No. 2 (Top)	70.1	21.37	402	122.53	126	38.40
GTSP Building	127	38.71	127	38.71	64	19.51
DAP 5 Building Tier A	86.5	26.37	100	30.48	46	14.02
DAP 5 Building Tier B	126.5	38.56	37	11.28	27	8.23
Map 3/4 Building	90	27.43	109	33.22	54	16.46
Docks						
West Building	30	9.14	126	38.40	100	30.48
East Building Tier A	30	9.14	130	39.62	80	24.38
East Building Tier B	50	15.24	60	18.29	50	15.24
Sulfuric Acid Plant						
Auxiliary Boiler Building	18	5.49	46	14.02	45	13.72

Source: Golder Associates Inc., 1998.

Table 6-10. Maximum Predicted PM10 Impacts Due to the Proposed Project Only - Screening Analysis

Averaging Time	Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (degrees)	Receptor Location[a] Distance (m)	Period Ending (YYMMDDHH)
Site Vicinity				
Annual	0.31	230	1296	87123124
	0.77	230	1296	88123124
	0.85[b]	220	971	89123124
	0.39	220	971	90123124
	0.35	230	1296	91123124
HIGH 24-Hour	5.6	230	1296	87101124
	8.7	230	1296	88070524
	9.0[b]	220	971	89102924
	9.6[b]	220	971	90111924
	5.6	220	971	91120424
HSH 24-Hour	4.0	220	1100	87101224
	6.5	230	1296	88102924
	7.2	220	971	89111024
	5.8	220	971	90120924
	4.8	220	971	91110324

Note: Impacts reported are highest predicted.
YY = Year, MM = Month, DD = Day, HH = Hour, HSH = Highest, Second-Highest.

[a] Relative to H_2SO_4 Plant No. 9 stack location. Impacts reported are highest predicted.
[b] Refined concentrations are 0.87 and 10.0 $\mu g/m^3$, respectively, for the annual and 24-hour averaging times.

Table 6-11. Maximum Predicted PM10 Concentrations for All Sources - AAQS Screening Analysis

Averaging Time	Modeled Sources' Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (degrees)	Receptor Location[a] Distance (m)	Period Ending (YYMMDDHH)
Annual	18.2	260	1019	87123124
	18.1	220	971	88123124
	22.4	210	796	89123124
	18.9	260	1019	90123124
	17.1	260	1019	91123124
HIGH 24-Hour	71	30	1500	87050824
	68	200	800	88121724
	88	200	800	89030724
	65	90	550	90032724
	61	30	1700	91021124
HSH 24-Hour	60	190	800	87102124
	67	200	800	88120424
	83	200	800	89050724
	61	260	1019	90071924
	55	200	800	91120424

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

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

Table 6-12. Maximum Predicted PM10 Concentrations for All Sources Compared With AAQS--Refined Analysis

Averaging Time	Concentration ($\mu g/m^3$)			Receptor Location[a]		Period Ending (YYMMDDHH)	Florida AAQS ($\mu g/m^3$)
	Total	Modeled Sources	Background	Direction (degrees)	Distance (m)		
Annual	44	23	21	208	771	89123124	50
HSH 24-Hour	112	91	21	198	700	89070424	150

Note: YY = year.
MM = month.
DD = day.
HH = hour.
HSH = highest, second-highest.

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

Source: Golder Associates Inc., 1998.

Table 6-13. Maximum Predicted PM10 Increment Consumption - PSD Class II Screening Analysis

Averaging Time	Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (degrees)	Receptor Location[a] Distance (m)	Period Ending (YYMMDDHH)
Annual	<0.00	--	--	87123124
	<0.00	--	--	88123124
	0.34	120	1700	89123124
	<0.00	--	--	90123124
	<0.00	--	--	91123124
HIGH 24-Hour	11.3	130	294	87041324
	10.8	260	1019	88020424
	11.1	260	1019	89091624
	11.7	260	1019	90083124
	10.0	160	1019	91031224
HSH 24-Hour	10.7	140	285	87031724
	7.7	40	1100	88082124
	10.0	200	1700	89091624
	9.5	160	1700	90083124
	9.9	260	1019	91052124

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

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

Table 6-14. Maximum Predicted PM10 PSD Increment Consumption Compared with PSD Class II Increments -- Refined Analysis

Averaging Time	Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (degrees)	Receptor Location[a] Distance (m)	Period Ending (YYMMDDHH)	Allowable PSD Increment ($\mu g/m^3$)
Annual	0.39	117	1700	89123124	17
HSH 24-Hour	10.73	146	289	87031724	30

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

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

Table 6-15. Maximum Predicted PM10 Concentrations for the Proposed Modification Only at the Chassahowitzka Wilderness Area

Averaging	Concentration	Receptor Location[a] UTM-E	UTM-N	Period Ending (YYMMDDHH)	EPA Significance Levels ($\mu g/m^3$)
Annual	0.001	342000	3174000	87123124	0.1
	0.002	340300	3165700	88123124	
	0.003	342000	3174000	89123124	
	0.002	340300	3167700	90123124	
	0.001	343000	3176200	91123124	
HIGH 24-Hour	0.028	343000	3176200	87121224	0.33
	0.048	340300	3165700	88072524	
	0.042	331500	3183400	89072924	
	0.053	343700	3178300	90021924	
	0.041	340300	3165700	91012024	
HIGH 8-Hour	0.084	342000	3174000	87072408	NA
	0.117	340300	3165700	88072508	
	0.139	331500	3183400	89072908	
	0.158	343700	3178200	90021908	
	0.124	340300	3165700	91012008	

Note: YY=Year, MM=Month, DD=Day, HH=Hour, HSH = Highest, Second-Highest, NA = Not Applicable.

[a] All receptor coordinates are reported in Universal Transverse Mercator (UTM) Coordinates.

Table 6-16. Maximum Predicted Fluoride Impacts Due to the Future MAP Plant —Site Vicinity

Averaging Time	Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (degrees)	Distance (m)	Period Ending (YYMMDDHH)
Site Vicinity				
Annual	0.038	230.	1296.	87123124
	0.094	230.	1296.	88123124
	0.104	220.	971.	89123124
	0.048	220.	971.	90123124
	0.042	230.	1296.	91123124
HIGH 24-Hour	0.672	230.	1296.	87101124
	1.046	230.	1296.	88070524
	1.098	220.	971.	89102924
	1.166	220.	971.	90111924
	0.674	220.	971.	91120424
HIGH 8-Hour	1.517	220.	1100.	87100808
	1.503	220.	1100.	88120208
	1.679	210.	1100.	89112908
	1.982	220.	971.	90111908
	1.214	220.	1100.	91031008

Note: Impacts reported are highest predicted.
YY=Year, MM=Month, DD=Day, HH=Hour, HSH=Highest, Second-Highest.

[a] Relative to H_2SO_4 Plant No. 9 stack location. Impacts reported are highest predicted.

Table 6-17. Maximum Predicted Fluoride Concentrations for the Future MAP Plant — Chassahowitzka Wilderness Area

Averaging	Concentration	Receptor Location[a] UTM-E	Receptor Location[a] UTM-N	Period Ending (YYMMDDHH)
Annual	0.0001	342000.	3174000.	87123124
	0.0002	340300.	3165700.	88123124
	0.0003	342000.	3174000.	89123124
	0.0002	340300.	3167700.	90123124
	0.0001	343000.	3176200.	91123124
HIGH 24-Hour	0.0033	343000.	3176200.	87121224
	0.0057	340300.	3165700.	88072524
	0.0050	331500.	3183400.	89072924
	0.0063	343700.	3178300.	90021924
	0.0049	340300.	3165700.	91012024
HIGH 8-Hour	0.0100	342000	3174000	87072408
	0.0140	340300	3165700	88072508
	0.0166	331500	3182400	89072908
	0.0188	343700	3178300	9021908
	0.0148	340300	3165700	91012008

Note: YY=Year, MM=Month, DD=Day, HH=Hour, HSH = Highest, Second-Highest, NA = Not Applicable.

[a] All receptor coordinates are reported in Universal Transverse Mercator (UTM) Coordinates.

7.0 ADDITIONAL IMPACT ANALYSIS

7.1 INTRODUCTION

Cargill is proposing to modify its existing facility in Riverview, Florida. The facility is subject to the PSD new source review requirements for PM_{10} and fluoride. The additional impact analysis and the Class I area analysis addresses these pollutants.

The analysis addresses the potential impacts on vegetation, soils, and wildlife of the surrounding area and the nearest Class I area due to Cargill's proposed modification. The nearest Class I area is the Chassahowitzka National Wilderness Area (NWA), located approximately 86 kilometers (km) north-northwest of the Cargill Riverview plant. In addition, potential impacts upon visibility resulting from the proposal modification are assessed.

The analysis will demonstrate that the increase in impacts due to the proposed increase in emissions is extremely low. Regardless of the existing conditions in the vicinity of the site or in the Class I areas, the proposed project will not cause any significant adverse effects due to the predicted low impacts upon these areas.

7.2 SOIL, VEGETATION, AND AQRV ANALYSIS METHODOLOGY

In the foregoing analysis, the maximum air quality impacts predicted to occur in the vicinity of the Cargill plant and in the Class I area due to the increase in emissions are used. These impacts were presented in Section 6.0. The analysis involved predicting worst-case maximum short- and long-term concentrations of pollutants in the vicinity of the plant and in the Class I areas and comparing the maximum predicted concentrations to lowest observed effect levels for AQRVs or analogous organisms. In conducting the assessment, several assumptions were made as to how pollutants interact with the different matrices, i.e., vegetation, soils, wildlife, and aquatic environment.

A screening approach was used to evaluate potential effects which compared the maximum predicted ambient concentrations of air pollutants of concern with effect threshold limits for both vegetation and wildlife as reported in the scientific literature. A literature search was conducted which specifically addressed the effects of air contaminants on plant species reported to occur in the vicinity of the plant and the Class I area. It was recognized that effects threshold information is not

available for all species found in the Chassahowitzka NWA, although studies have been performed on a few of the common species and on other similar species which can be used as models.

7.3 IMPACTS TO SOILS, VEGETATION, AND VISIBILITY IN THE VICINITY OF THE CARGILL PLANT

7.3.1 IMPACTS TO SOILS

Soils in the vicinity of the Cargill site consist primarily of tidal lands and poorly drained sands with organic pans. These tidal lands occur along the coast between the tidal swamps and the flatwoods. The tidal lands consist of mucky fine sand to dark-gray fine sand overlying gray fine sand, mixed with broken and whole shells. Many of the soils in the region and a large portion of the site have been disturbed and altered by industrial activities.

7.3.1.1 Particulate Matter (PM)

These soils will not be affected by the additional PM_{10} concentrations resulting from the proposed modification, because both the underlying substrate and the sea spray from the nearby Hillsborough bay are neutral to alkaline and would neutralize any acidifying effects of deposition. The soils are composed primarily of limestone, which is a naturally occurring substance in the area.

The poorly drained sands in the area are already strongly acidic. Normal liming practices currently used on soils in the vicinity of Cargill by agricultural interests will effectively mitigate the small effects of any increased deposition resulting from the increased PM_{10} emissions from the proposed project.

7.3.1.2 Fluoride

Many of the soils in the region and a large portion of the site have been disturbed and altered by industrial activities. They were originally sandy, siliceous hyperthermic Haploquods with very strongly acid subsoils. The undisturbed soils of the Payne Creek floodplain have formed in unconsolidated loamy textured sediment influenced by calcareous material (USDA, 1991). They are mapped as coarse-loamy siliceous, hyperthermic Typic Ochraqualfs.

No particulate deposition will occur; therefore, no measurable soil accumulation of fluorides will occur from the proposed emissions. As a result, the impact of the proposed emissions upon soils will not be significant.

7.3.2 IMPACTS TO VEGETATION

Vegetation Analysis

In general, the effects of air pollutants on vegetation occur primarily from SO_2, NO_2, O_3, and PM. Effects from minor air contaminants such as fluoride, chlorine, hydrogen chloride, ethylene, ammonia, hydrogen sulfide, CO, and pesticides have also been reported in the literature. The effects of air pollutants are dependent both on the concentration of the contaminant and the duration of the exposure. The term "injury," as opposed to damage, is commonly used to describe all plant responses to air contaminants and will be used in the context of this analysis. Air contaminants are thought to interact primarily with plant foliage, which is considered to be the major pathway of exposure. For purposes of this analysis, it was assumed that 100 percent of each air contaminant of concern is accessible to the plants.

Injury to vegetation from exposure to various levels or air contaminants can be termed acute, physiological, or chronic. Acute injury occurs as a result of a short-term exposure to a high contaminant concentration and is typically manifested by visible injury symptoms ranging from chlorosis (discoloration) to necrosis (dead areas). Physiological or latent injury occurs as the result of a long-term exposure to contaminant concentrations below that which results in acute injury symptoms. Chronic injury results from repeated exposure to low concentrations over extended periods of time, often without any visible symptoms, but with some effect on the overall growth and productivity of the plant. In this assessment, 100 percent of the particular air pollutant in the ambient air was assumed to interact with the vegetation. This is a conservative approach.

The response of vegetation and wildlife to atmospheric pollutants is influenced by the concentration of the pollutant, duration of exposure, and frequency of exposures. The pattern of pollutant exposure expected from the facility is that of a few episodes of relatively high ground-level concentration which occur during certain meteorological conditions interspersed with long periods of extremely low ground-level concentrations. If there are any effects of stack emissions on plants and animals they will be from the short-term, higher doses. A dose is the product of the concentration of the pollutant and duration of the exposure.

Vegetation in the Vicinity of Cargill

Cut-over pine flatwoods and mixed forest comprise the natural vegetation in the vicinity of the Cargill site. Mangrove trees and salt-tolerant plants are found near the coast. Winter vegetables and pasture grasses are cultivated inland from the facility.

Particulate Matter

The maximum predicted concentrations of PM (in the form of PM_{10}) due to operation of all sources, including the proposed modification, are 112 $\mu g/m^3$ for the 24-hour average and 44 $\mu g/m^3$ for the annual average (see Table 6-12). By comparing predicted concentrations with the few injury threshold values reported in the literature (Darley and Middleton, 1966; Krause and Kaiser, 1977), no potential effects on vegetation are predicted, because these concentrations are below the values reported to adversely affect plants.

Fluoride

Fluoride is an inhibitor of plant metabolism. As fluoride accumulates in plants, it causes an inhibition of plant metabolism and chlorosis (a yellowing of the leaf). With further increases in accumulation of fluoride, the cells die and necrosis is observed. Leaf tips and margins accumulate the highest concentrations of fluoride and are the sites of initial visible injury. Gaseous fluoride is taken up primarily through the stomata of transpiring plants. There is negligible contribution to leaf fluoride content by uptake by roots (Applied Sciences Associates, Inc., 1978).

The sensitivity of plants varies widely. Gladiolus are considered the most sensitive. Visible symptoms are reported to occur when gladiolus have been exposed to concentrations >0.5 microgram per cubic meter ($\mu g/m^3$) for 5 to 10 days. More tolerant fruit tree species and conifers first showed symptoms at around 1 $\mu g/m^3$ at 10-day exposures (Treshow and Anderson, 1989). Plant sensitivities can range from 16 $\mu g/m^3$ of fluoride in sensitive plants to 500 $\mu g/m^3$ of fluoride in tolerant plants for 3-hour exposures. The lowest observed effect levels for sensitive plants are reported to be as follows (Applied Sciences Associates, Inc., 1978):

<50 $\mu g/m^3$ for 1-hour exposures
<16 $\mu g/m^3$ for 3-hour exposures
<1.6 $\mu g/m^3$ for 24-hour exposures

The ingestion of excessive amounts of fluoride can lead to an animal disease called fluorosis. Fluorosis is a skeletal and dental disease resulting in softening of bone and dental tissue that can lead to injury and other health problems. In general, forage plants with over 30 ppm of fluoride which are regularly ingested by animals such as cattle and deer can result in mild fluorosis. A number of states (but not Florida) have fluoride standards. These range from 25 to 40 parts per million (ppm) of fluoride as a maximum annual average (Newman, 1984).

Data suggest that a fluoride accumulation factor might be calculated under fumigation conditions with an uncertainty factor of less than 2. One study indicated that hydrogen fluoride concentrations of 0.3 $\mu g/m^3$ would lead to an accumulation of up to 20 ppm of fluoride in conifer foliage after 2 years of exposure (Treshow and Anderson, 1989).

The predicted maximum 8-hour, 24-hour, and annual fluoride concentrations in the vicinity of the Cargill plant due to the expanded MAP plant are 2.0, 1.2, and 0.10 $\mu g/m^3$, respectively (refer to Table 6-16). Based on these predicted impacts, no significant effects are predicted. Some chlorosis in sensitive plants might occur at the 24 hour exposures. These maximum values are predicted to occur due west of the plant at the plant boundary. No significant adverse effects to vegetation are predicted because these are singular events and the effects are reversible and no significant vegetative resources occur in this area. The accumulation of fluoride to levels that could present a risk to herbivores is also unlikely given the predicted low annual levels.

7.3.3 IMPACTS UPON VISIBILITY

One new emission source will be created by the proposed Nos. 3 and 4 MAP Plant expansion. These sources will be controlled by a baghouse and, therefore, a visible emission plume from this source will generally not occur. Cargill has a number of similar type sources already in operation at Riverview. All these sources are in compliance with opacity regulations and should remain in compliance after the modification. As a result, no adverse impacts upon visibility are expected.

Fluoride is a colorless gas. The existing MAP plants have wet scrubbers which emit a water vapor plume. This visibility characteristic will not change as a result of the MAP plant expansion.

7.3.4 IMPACTS DUE TO ASSOCIATED POPULATION GROWTH

There will be a small, temporary increase in the number of workers during the construction period. There will be no significant increase in permanent employment at Cargill as a result of the proposed project. Therefore, there will be no anticipated permanent impacts on air quality caused by associated population growth.

7.4 CLASS I AREA IMPACT ANALYSIS

7.4.1 IDENTIFICATION OF AQRVS AND METHODOLOGY

An AQRV analysis was conducted to assess the potential risk to AQRVs of the Chassahowitzka NWA due to the proposed increase from the Cargill Riverview facility. The U.S. Department of the Interior in 1978 administratively defined AQRVs to be:

> All those values possessed by an area except those that are not affected by changes in air quality and include all those assets of an area whose vitality, significance, or integrity is dependent in some way upon the air environment. These values include visibility and those scenic, cultural, biological, and recreational resources of an area that are affected by air quality.
>
> Important attributes of an area are those values or assets that make an area significant as a national monument, preserve, or primitive area. They are the assets that are to be preserved if the area is to achieve the purposes for which it was set aside (Federal Register 1978).

Except for visibility, AQRVs were not specifically defined. However, odor, soil, flora, fauna, cultural resources, geological features, water, and climate generally have been identified by land managers as AQRVs. Since specific AQRVs have not been identified for the Chassahowitzka NWA, this AQRV analysis evaluates the effects of air quality on general vegetation types and wildlife found in the Chassahowitzka NWA.

Vegetation type AQRVs and their representative species types have been defined as:

Marshlands - black needlerush, saw grass, salt grass, and salt marsh cordgrass

Marsh Islands - cabbage palm and eastern red cedar

Estuarine Habitat - black needlerush, salt marsh cordgrass, and wax myrtle

Hardwood Swamp - red maple, red bay, sweet bay, and cabbage palm

Upland Forests - live oak, scrub oak, longleaf pine, slash pine, wax myrtle, and saw palmetto

Mangrove Swamp - red, white, and black mangrove

Wildlife AQRVs have been identified as endangered species, waterfowl, marsh and waterbirds, shorebirds, reptiles, and mammals.

A screening approach was used that compared the maximum predicted ambient concentration of air pollutants of concern in the Chassahowitzka NWA with effect threshold limits for both vegetation and wildlife as reported in the scientific literature. A literature search was conducted that specifically addressed the effects of air contaminants on plant species reported to occur in the NWA. While the literature search focused on such species as cabbage palm, eastern red cedar, lichens, and species of the hardwood swamplands and mangrove forest, no specific citations that addressed these species were found. It is recognized that effect threshold information is not available for all species found in the Chassahowitzka NWA, although studies have been performed on a few of the common species and on other similar species that can be used as indicators of effects.

7.4.2 VEGETATION

General

As stated earlier, the effects of contaminants are dependent both on the concentration of the contaminant and the duration of the exposure. The term "injury," as opposed to damage, is commonly used to describe all plant responses to air contaminants and will be used in the context of this analysis. Air contaminants are thought to interact primarily with plant foliage, which is considered to be the major pathway of exposure. For purposes of this analysis, it is assumed that 100 percent of each air contaminant of concern is accessible to the plants.

Injury to vegetation from exposure to various levels of air contaminants can be termed acute, physiological, and chronic. Acute injury occurs as a result of a short-term exposure to a high contaminant concentration and is typically manifested by visible injury symptoms ranging from chlorosis (discoloration) to necrosis (dead areas). Physiological or latent injury occurs as the result of a long-term exposure to contaminant concentrations below that which results in acute injury symptoms. Chronic injury results from repeated exposure to low concentrations over extended periods of time, often without any visible symptoms but with some effect on the overall growth and productivity of the plant.

Particulate Matter Exposure

Although information pertaining to the effects of particulate matter on plants is scarce, some concentrations are available (Mandoli and Dubey, 1988). Ten species of native Indian plants were exposed to levels of particulate matter that ranged from 210 to 366 $\mu g/m^3$ for an 8-hour averaging period. Damage in the form of a higher leaf area/dry weight ratio was observed at varying degrees for most plants tested. Concentrations of particulate matter lower than 163 $\mu g/m^3$ did not appear to be injurious to the tested plants.

By comparison of these published toxicity values for particulate matter exposure (i.e., concentrations for an 8-hour averaging time), the possibility of plant damage in the Chassahowitzka NWA can be determined. The maximum predicted cumulative 8-hour PM_{10} concentration, including the Cargill MAP plant, is 132 $\mu g/m^3$ (see Table 7-1). This concentration is well below the lower threshold value that reportedly affects plant foliage. In any event, since the project contributes only 0.16 $\mu g/m^3$, 8-hour average impact, to the total predicted impacts (see Table 6-15), no effects to vegetative AQRVs are expected from the MAP plant expansion.

Fluoride Exposure

Fluoride is an inhibitor of plant metabolism. As fluoride accumulates in plants, it causes an inhibition of plant metabolism and chlorosis (a yellowing of the leaf). With further increases in accumulation of fluoride, the cells die and necrosis is observed. Leaf tips and margins accumulate the highest concentrations of fluoride and are the sites of initial visible injury. Gaseous fluoride is taken up primarily through the stomata of transpiring plants. There is negligible contribution to leaf fluoride content by uptake by roots (Applied Sciences Associates, Inc., 1978).

The sensitivity of plants varies widely. Gladiolus are considered the most sensitive. Visible symptoms are reported to occur when gladiolus have been exposed to concentrations >0.5 microgram per cubic meter ($\mu g/m^3$) for 5 to 10 days. More tolerant fruit tree species and conifers first showed symptoms at around 1 $\mu g/m^3$ at 10-day exposures (Treshow and Anderson, 1989). Plant sensitivities can range from 16 $\mu g/m^3$ of fluoride in sensitive plants to 500 $\mu g/m^3$ of fluoride in tolerant plants for 3-hour exposures. The lowest observed effect levels for sensitive plants are reported to be as follows (Applied Sciences Associates, Inc., 1978):

< 50 $\mu g/m^3$ for 1-hour exposures

< 16 $\mu g/m^3$ for 3-hour exposures

< 1.6 $\mu g/m^3$ for 24-hour exposures

The ingestion of excessive amounts of fluoride can lead to an animal disease called fluorosis. Fluorosis is a skeletal and dental disease resulting in softening of bone and dental tissue that can lead to injury and other health problems. In general, forage plants with over 30 ppm of fluoride which are regularly ingested by animals such as cattle and deer can result in mild fluorosis. A number of states (but not Florida) have fluoride standards. These range from 25 to 40 parts per million (ppm) of fluoride as a maximum annual average (Newman, 1984).

Data suggest that a fluoride accumulation factor might be calculated under fumigation conditions with an uncertainty factor of less than 2. One study indicated that hydrogen fluoride concentrations of 0.3 $\mu g/m^3$ would lead to an accumulation of up to 20 ppm of fluoride in conifer foliage after 2 years of exposure (Treshow and Anderson, 1989).

The predicted maximum 8-hour, 24-hour, and annual fluoride concentrations in the Chassahowitzka NWA due to the modified MAP plant are 0.019, 0.0063, and 0.0003 $\mu g/m^3$, respectively (refer to Table 6-17). These predicted values are well below the lowest observed effect levels for sensitive vegetation. No significant adverse effects are predicted to occur to the vegetative AQRVs of Chassahowitzka NWA. Since the predicted annual concentration is very low, no measurable accumulation of fluoride will occur in vegetation that would be the prime forage of wildlife. Therefore, no significant adverse effects to wildlife AQRVs will occur.

7.4.3 WILDLIFE

Particulate Matter Exposure

A wide range of physiological and ecological effects to fauna has been reported for particulate pollutants (Newman, 1980; Newman and Schreiber, 1988). The most severe of these effects have been observed at concentrations above the PM_{10} secondary ambient air quality standards (150 $\mu g/m^3$, 24-hour average, and 50 $\mu g/m^3$, annual average). Physiological and behavioral effects have also been observed in experimental animals at or below these standards. However, no observable effects to fauna are expected at concentrations up to the values reported in Table 7-1.

As shown in Table 7-1, the cumulative concentrations of PM_{10} in the Class I area with the proposed project are well below those that would cause respiratory stress in wildlife. The proposed project's contribution to cumulative impacts is negligible.

Fluoride Exposure

As discussed in Section 7.4.2, no measured accumulation of fluoride in vegetation is expected to occur due to the proposed project. As a result, no significant adverse effects to wildlife AQRVs will occur.

7.4.4 SOILS

Particulate Matter Exposure

The majority of the soil in the Class I area is classified as Weekiwachee-Durbin muck. This is an euic, hyperthermic type sufihemist that is characterized by high levels of sulfur and organic matter. This soil is flooded daily with the advent of high tide and the pH ranges between 6.1 and 7.8. The upper level of this soil may contain as much as 4 percent sulfur (USDA, 1991).

Any particulate deposition from the proposed project would be neutral or alkaline in nature. Although ground deposition was not calculated, it is evident that the effect of any dust deposited would be inconsequential in light of the existing soil pH. The regular flooding of these soils by the Gulf of Mexico regulates the pH and any change in acidity in the soil would be buffered by this activity.

7.4.5 IMPACTS UPON VISIBILITY

General

A regional haze analysis was conducted to determine if the proposed Cargill modification would cause a perceptible degradation in visibility at the Chassahowitzka NWR. The CNWR is located approximately 86 kilometers (km) north-northwest of the Cargill plant. Visibility is an Air Quality Related Value at the CNWR. The visibility of an area is generally characterized by either its visual range, V_r (i.e., the greatest distance that a dark object can be seen) or its extinction coefficient, b_{ext} (i.e., the attenuation of light over a distance due to particle scattering and/or gaseous absorption). The visual range and extinction coefficient are related to one another by the following equation[a]:

$$b_{ext} = 3.912 / V_r \ (km^{-1}) \qquad (1)$$

The National Park Service (NPS) in coordination with the Fish and Wildlife Service (FWS) uses the Deciview index (NPS, 1992), d_v, to describe an area's change in extinction coefficient. The deciview is defined as:

$$d_v = 10 \ln (b_{ext}/0.01) \quad (2)$$

where ln represents the natural logarithm of the quantity in parentheses. A change in an area's deciview (NPS, 1995, 1997), Δd_v, of 0.5 corresponds to an approximate 5 percent changed in extinction, which is considered as a noticeable change in regional haze. The deciview change is defined by:

$$\Delta d_v = 10 \ln (1 + b_{exts}/b_{extb}) \quad (3)$$

where b_{exts} and b_{extb} represent the extinction coefficients due to the source (i.e., the proposed expansion) and for the CNWR background visual range, respectively. Based on recent communications with the NPS, the background visual range for the CNWR is 65 km based on air monitoring data (USFWS, 1995).

Calculation of Source Extinction

The source extinction due to the proposed plant expansion is calculated according to interim recommendations that are provided in the Interagency Workgroup on Air Quality Modeling (IWAQM) Phase I Report, Appendix B. The report states that the primary sources of regional visibility degradation are mostly fine particles with diameters ≤ 2.5 μm, ammonium bi-sulfate [$(NH_4)_2SO_4$] and ammonium nitrate (NH_4NO_3). The procedures for determining the ambient concentration levels of these compounds due to the proposed project are:

1. Obtain the maximum hourly sulfur dioxide (SO_2), nitrogen oxides (NO_x) and sulfuric acid (H_2SO_4) mist, as PM_{10}, impacts due to the proposed expansion from the MESOPUFF II air quality dispersion model with chemical transformation processes. Based on verbal communications with Bud Rolofson of the NPS, the NPS had changed it's policy of using the hourly maximum impacts to using the highest 24-hour impacts for these pollutants. The maximum 24-hour impacts are based on the highest predicted concentrations from the MESOPUFF II model for 1986. It should be noted that meteorological data for 1986 were used in the MESOPUFF II model since the necessary data were not readily available for 1987 to 1991, the years for which

pollutant concentrations were predicted for the project. The maximum 24-hour impacts at the CNWR due to the proposed project only are 0.00251, 0.00083, and 0.0212 $\mu g/m^3$ for SO_2, NO_x, and PM_{10}, respectively.

2. Calculate maximum concentrations of ammonium sulfate and ammonium nitrate from multiplicative factors 1.375 and 1.29, respectively, from IWAQM, Appendix B.
3. Obtain hourly values of relative humidity (RH). The maximum predicted 24-hour impacts from the MESOPUFF II model occurred on 2/6/86. The Tampa National Weather Service hourly surface observations for this day were obtained.
4. Calculate the extinction coefficients of ammonium sulfate, ammonium nitrate, and primary fine particulate. The extinction coefficients for each compound are defined by:

$$b_{exts} = 0.003 \text{ (comp) } f(RH)$$

where (comp) represents the ambient concentration of the compound in question, and f(RH) is the relative humidity factor. Based on hourly relative humidity factors for 2/6/86, an average daily RH factor of 5.9 was computed. For H_2SO_4 mist (as fine particulate matter), an RH factor of unity was used per IWAQM recommendations. The total source extinction coefficient value is equal to the sum of the calculated extinction coefficients for each compound.

A summary of the calculations is provided in Table 7-2. The total source extinction coefficient due to the proposed project was determined to be 0.000081. From equation (3), above, the total deciview change due to the proposed project is 0.0135.

Based on this analysis, the proposed project will result in less that a 5 percent decrease in visibility to the clearest days observed at the CNWR. Therefore, no adverse impacts upon regional haze is expected to occur due to the proposed Cargill project.

The existing MAP plant must currently meet an opacity limitation of 10 percent. This opacity limit is expected to be met after the plant is expanded to greater capacity. This opacity level produces essentially no visible emissions and, therefore, no increase in the visible plume from the MAP Plant's expansion is expected.

7.5 ADDITIONAL GROWTH

Total MAP production capacity for the Cargill plant will represent an increase in total capacity for this existing plant. No increase in jobs, payroll, and taxes in the area is expected as a result of these changes. Therefore, no significant growth-related impacts are expected due to the proposed expansion.

Table 7-1. Maximum Predicted PM10 Impacts Due to All Sources- Chassahowitzka NWA

Averaging Time	Concentration[b] ($\mu g/m^3$)	Receptor Location[a] X (m)	Receptor Location[a] Y (m)	Period Ending (YYMMDDHH)
Annual	21.1	-22600	83200	87123124
	21.5	-22600	83200	88123124
	22.3	-22600	83200	89123124
	21.2	-22600	83200	90123124
	21.0	-22600	83200	91123124
HIGH 24-Hour	63	-22600	83200	87013024
	67	-19900	93700	88090524
	69	-28900	100900	89071224
	70	-22600	83200	90071424
	59	-21800	100900	91031324
HIGH 8-Hour	129	-22600	83200	87013008
	132	-19200	95800	88071408
	132	-20900	91500	89031508
	121	-22600	83200	90080608
	112	-21800	100900	91031308

Note: Impacts reported are highest predicted.
YY=Year, MM=Month, DD=Day, HH=Hour, HSH=Highest, Second-Highest.

[a] Relative to H_2SO_4 Plant No. 9 stack location. Impacts reported are highest predicted.

[b] Total concentration includes background concentrations of 20 and 49 $\mu g/m^3$, respectively, for the annual and 24-hour averaging times. Background for 8-hour average based on 24-hour background and averaging time factor of 0.7/0.4, yielding 86 $\mu g/m^3$.

Table 7-2. Estimated Change in Deciview Due to the Cargill Riverview Project

Pollutant	Value	Reference
Maximum Emission Rates (lb/hr)		
SO_2	3.04	
NOx	0.86	
PM10	14.50	
Highest Predicted 24-Hour Concentrations ($\mu g/m^3$)		
SO_2	0.00251	
NOx	0.00083	
PM10	0.0212	(1)
SO_4	0.00056	(2)
NO_3	0.00017	(2)
$(NH_4)_2\ SO_4$	0.0008	(3)
$NH_4\ NO_3$	0.0002	(4)
Average RH (percent)	86	(5)
RH factor, f(RH)	5.9	(6)
Extinction Coefficients (km^{-1})		
Background: (bextb)	0.0602	(7)
Source: (bexts)		
$(NH_4)_2\ SO_4$	0.00001	(8)
$NH_4\ NO_3$	0.000004	(8)
PM10	0.000064	(9)
Total (bexts)	0.000081	
Deciview Change		
total delta dv =	0.0135	(10)

(1) Highest predicted PM10 concentration (as SO4) in Mesopuff II model without chemistry for 1 year meteorological record from Tampa for 1986
(2) Highest predicted concentration from SO2 and NOx emissions from Mesopuff II model with chemistry for 1 year meteorological record from Tampa for 1986
(3) $(NH_4)_2\ SO_4 = SO_4$ times 1.375 from IWAQM Appendix B
(4) $NH_4\ NO_3 = NO_3$ times 1.29 from IWAQM Appendix B
(5) Based on meteorological data collected at the National Weather Service station in Tampa for February 6, 1986 (worst day).
(6) From IWAQM Figure B-1. Based on average of hourly computed RH factors
(7) bextb = 3.912 / 65 where background visual range is 65 km.
(8) values= 0.003 * compound concentration* f(RH) from IWAQM Appendix B
(9) PM10 = 0.003 * compound concentration. f(RH) set = 1 for fine PM
(10) Delta DV = 10 * ln (1 + bexts/bextb)

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ATTACHMENT A

Attachment CR-E01-L2

MAP Plant
Fuel Analysis

Fuel	Density (lb/scf)	Moisture (%)	Weight % Sulfur	Weight % Nitrogen	Weight % Ash	Heat Capacity
No. 2 Fuel Oil	6.83	< 0.01	0.5	0.006	< 0.01	140,000 Btu/gal

ATTACHMENT B

PM10 AAQS AND PSD SOURCE DATA

:ble B-1. PM Source Screening Analysis Using the EPA 'M' Factor

CST ID	Relative Coord (m) X	Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
ɔurces From US Agri-Chem PSD Application									
ɜri1	40800	-3500	4.46	24.4	316.3	5.76	3.05	42.1	72763
ɜri2	40800	-3500	5.04	24.4	320.8	21.25	2.44	99.4	154193
ɜri3	40800	-3500	3.92	29.0	683.0	14.75	1.77	36.3	183131
ɜri4	40800	-3500	1.9	10.4	298.0	5.92	0.70	2.3	3702
ɜri5	40800	-3500	1.9	27.4	298.0	3.60	0.98	2.7	11682
ɜri6	40800	-3500	1.9	27.4	298.0	4.79	0.70	1.8	7931
ɜri7	40800	-3500	1.9	24.7	298.0	4.15	2.13	14.8	57264
ɜri8	40800	-3500	3.17	24.7	298.0	3.69	2.13	13.1	30518
ƆRIA	40800	-3500	24.19	10.4	298.0	5.92	0.70		
ɜri9	44600	-11000	3.02	38.1	327.4	14.55	3.05	106.3	439086
ɜri10	44600	-11000	4.12	30.5	306.3	6.87	1.22	8.0	18198
ɜri11	44600	-11000	0.55	26.8	307.4	9.24	0.91	6.0	90083
ɜri12	44600	-11000	0.43	38.1	319.1	15.84	1.07	14.2	402713
ɜri13	44600	-11000	0.03	29.3	298.0	1.15	0.40	0.1	42003
ɜri14	44600	-11000	0.03	20.7	298.0	2.87	0.46	0.5	98216
ɜri15	44600	-11000	0.03	16.2	298.0	1.72	0.46	0.3	45857
ɜri16	44600	-11000	0.26	19.8	310.2	5.48	0.49	1.0	24424
ɜri17	44600	-11000	0.23	19.8	300.2	88.45	0.49	16.7	431268
ɜri18	44600	-11000	4	3.1	344.1	20.69	0.55	4.9	1290
ɜri19	44600	-11000	4.4	42.7	304.7	10.66	2.74	62.9	185734
ɜri20	44600	-11000	5.07	24.4	296.9	7.80	3.35	68.8	98154
ɜri21	44600	-11000	5.07	24.4	295.2	7.23	3.35	63.7	90461
ɜri22	44600	-11000	4.32	18.3	323.0	9.70	0.30	0.7	938
ƆRIB	44600	-11000	31.56	18.3	323.0	9.70	0.30		
FIn23	45500	-100	15.27	42.7	298.0	21.60	0.80	10.9	9048
FIn24	45500	-100	5.1	42.7	298.0	21.73	0.76	9.9	24578
FIn25	45500	-100	0.83	62.8	338.6	6.51	2.13	23.2	594196
FIn26	45500	-100	1.5	62.8	333.0	6.69	2.13	23.8	332291
FIn27	45500	-100	5.1	36.9	338.6	18.76	1.83	49.3	120818
FIn28	45500	-100	5.44	35.7	338.6	11.31	2.44	52.9	117382
FIn29	45500	-100	2.45	36.6	333.0	17.17	2.29	70.7	351603
FIn30	45500	-100	1.27	16.8	298.0	9.01	1.37	13.3	52233
FIn31	45500	-100	4.95	41.5	333.0	18.05	2.83	113.5	316595
FIn32	45500	-100	1.38	11.0	588.6	13.45	0.76	6.1	28549
FIn33	45500	-100	5.12	41.2	298.0	7.92	1.52	14.4	34421
FIn34	45500	-100	1.76	19.8	298.0	15.36	1.22	18.0	60227
FIn35	45500	-100	0.12	30.5	299.7	5.95	0.76	2.7	205473
FINDA	45500	-100	50.29	42.7	298.0	21.60	0.80		
ons36	35800	1700	4.43	24.7	327.4	3.77	2.29	15.5	28333
ons37	35800	1700	0.29	8.2	533.0	13.74	0.61	4.0	60739
ons38	35800	1700	0.43	11.9	533.0	8.91	0.98	6.7	99051
ons39	35800	1700	28.91	45.7	349.7	10.31	2.29	42.5	23484
ons40	35800	1700	4.92	12.8	310.8	10.60	1.22	12.4	10019
ons41	35800	1700	1.18	15.9	321.9	20.18	0.76	9.2	39583
ons42	35800	1700	1.18	24.4	327.4	23.81	1.07	21.4	144826
ons43	35800	1700	1.18	22.0	360.8	31.08	0.98	23.4	157341
ons44	35800	1700	0.63	63.1	330.2	21.12	0.43	3.1	101419
ons45	35800	1700	0.63	63.1	330.2	21.12	0.43	3.1	101419

ble B-1. PM Source Screening Analysis Using the EPA 'M' Factor

CST ID	Relative Coord (m) X	Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
ons46	35800	1700	0.63	54.6	338.6	14.37	0.18	0.4	10723
ons47	35800	1700	0.2	55.5	310.8	2.97	0.43	0.4	37179
ons48	35800	1700	1.38	63.1	333.0	51.22	0.27	2.9	44646
ONSA	35800	1700	45.99	54.6	338.6	14.37	0.18		
ons49	30900	13800	0.12	16.5	298.0	19.14	0.43	2.8	113614
ons50	30900	13800	0.06	3.1	338.6	18.19	0.24	0.8	14164
ons51	30900	13800	0.03	15.2	294.1	20.70	0.15	0.4	54651
ons52	30900	13800	1.76	46.3	299.7	12.14	1.77	29.9	235663
ons53	30900	13800	0.03	21.3	298.0	12.58	0.18	0.3	67859
ons54	30900	13800	2.1	46.3	298.0	13.17	1.77	32.4	213050
ons55	30900	13800	1.67	30.5	338.0	11.98	1.37	17.7	108944
ons56	30900	13800	1.76	24.4	319.1	6.20	1.68	13.7	60750
ons57	30900	13800	1.64	46.3	300.2	9.61	1.77	23.6	200534
ons58	30900	13800	1.9	45.7	313.0	18.34	1.77	45.1	339886
ons59	30900	13800	0.26	24.7	315.2	9.05	0.82	4.8	143054
ons60	30900	13800	0.17	32.6	298.0	33.69	0.37	3.6	207068
ons61	30900	13800	0.86	30.5	319.1	0.01	0.91	0.0	74
ons62	30900	13800	0.06	29.6	298.0	13.58	0.30	1.0	140977
ons63	30900	13800	0.12	15.9	298.0	19.14	0.43	2.8	109404
ons64	30900	13800	0.09	14.0	298.0	17.97	0.18	0.5	21228
ons65	30900	13800	0.26	18.9	298.0	24.95	0.55	5.9	128408
ons66	30900	13800	0.14	20.4	298.0	11.50	0.46	1.9	83071
ons67	30900	13800	0.09	21.3	298.0	31.89	0.37	3.4	242279
ons68	30900	13800	0.89	10.4	327.4	19.16	0.82	10.1	38562
ons69	30900	13800	0.2	17.4	298.0	28.75	0.46	4.8	123660
ons70	30900	13800	0.2	16.5	298.0	19.96	0.55	4.7	116303
ons71	30900	13800	0.2	13.7	349.7	14.17	0.55	3.4	80762
ons72	30900	13800	0.12	6.1	605.2	20.21	0.37	2.2	66851
ons73	30900	13800	4.4	24.4	308.0	79.21	1.37	116.8	199270
ons74	30900	13800	0.66	9.8	295.8	10.76	0.46	1.8	7814
ons75	30900	13800	1.76	46.3	295.2	11.16	1.77	27.5	213386
ONSB	30900	13800	21.55	30.5	319.1	0.01	0.91		
arm84	46600	-2400	0.09	12.2	366.3	0.03	0.61	0.0	435
arm85	46600	-2400	0.09	12.2	366.3	2.67	0.61	0.8	38713
arm86	46600	-2400	0.66	30.5	349.7	8.70	2.29	35.8	578691
arm87	46600	-2400	0.66	30.5	351.9	9.74	2.29	40.1	651944
arm88	46600	-2400	2.94	39.3	326.9	12.41	2.29	51.1	223467
arm89	46600	-2400	4.46	27.4	305.2	5.48	0.91	3.6	6690
arm90	46600	-2400	3.31	50.3	298.0	8.86	0.70	3.4	15438
arm91	46600	-2400	3.43	26.8	349.7	19.09	0.73	8.0	21848
arm92	46600	-2400	3.22	39.6	311.9	5.66	1.22	6.6	25392
arm93	46600	-2400	3.8	39.3	319.1	10.66	2.13	38.0	125419
arm94	46600	-2400	3.8	39.9	298.0	9.92	2.44	46.4	145249
arm95	46600	-2400	3.22	39.3	327.4	7.47	2.29	30.8	123004
arm96	46600	-2400	2.94	56.4	338.0	5.17	1.52	9.4	60819
arm97	46600	-2400	6.62	35.1	349.7	22.72	0.67	8.0	14831
arm98	46600	-2400	3.4	39.3	327.4	6.84	2.29	28.2	106667
arm99	46600	-2400	0.06	12.2	366.3	0.03	0.61	0.0	652
arm100	46600	-2400	0.09	12.2	366.3	0.03	0.61	0.0	435
ARM	46600	-2400	42.79	12.2	366.3	0.03	0.61		

able B-1. PM Source Screening Analysis Using the EPA 'M' Factor

CST ID	Relative Coord (m) X	Relative Coord (m) Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
or101	4300	-28400	108.93	152.1	425.8	23.61	7.99	1183.8	703828
or102	4300	-28400	108.93	152.1	425.8	23.98	7.92	1181.4	702388
ard106	41900	-25000	1.89	22.9	389.0	23.90	4.88	447.0	2103253
ICF107	26700	-14600	3.17	38.1	339.1	15.16	2.44	70.9	288910
ICF108	26700	-14600	3.14	38.1	339.1	16.80	2.44	78.6	323223
ICF109	26700	-14600	6.45	45.7	316.3	8.43	0.82	4.5	9981
ICF110	26700	-14600	6.77	22.9	314.7	17.33	0.85	9.8	10450
ICFA	26700	-14600	19.53	45.7	316.3	8.43	0.82		
ICF116	33600	-3500	3.6	40.5	313.6	15.18	2.13	54.1	191020
ICF117	33600	-3200	2.53	40.5	313.6	1.01	0.91	0.7	3301
ICF118	33800	-3100	0.43	18.3	313.6	9.70	0.30	0.7	9146
ICF119	33800	-3100	0.43	13.7	313.6	9.70	0.30	0.7	6861
ICF120	33800	-3100	0.43	26.5	438.6	86.24	0.46	14.3	387693
ICF121	33800	-3100	1.78	52.1	316.3	17.97	1.83	47.3	437748
ICF122	33800	-3100	0.43	26.5	438.6	86.24	0.46	14.3	387693
ICF123	33800	-3100	0.43	5.2	380.2	38.27	0.40	4.8	22026
ICF124	33800	-3100	0.43	17.4	352.4	22.96	0.40	2.9	41072
ICF125	33800	-3100	3.34	52.4	313.6	15.97	1.37	23.5	115890
ICF126	33800	-3100	0.43	32.6	313.6	20.96	0.55	5.0	118431
ICF127	33800	-3100	0.43	19.8	352.4	14.37	0.46	2.4	38772
ICF128	33800	-3100	2.13	21.6	299.7	10.35	0.30	0.7	2228
ICF129	33800	-3100	0.12	30.5	299.7	54.62	0.46	9.1	690999
ICF130	33800	-3100	0.43	31.7	313.6	21.48	0.49	4.1	93645
ICF131	33800	-3100	0.6	12.2	315.2	20.12	0.91	13.1	83799
ICF132	33800	-3100	1.78	52.1	316.3	17.97	1.83	47.3	437748
ICF133	33800	-3100	0.17	33.5	316.3	13.86	0.43	2.0	125567
ICF134	33800	-3100	0.58	28.7	352.4	10.78	1.83	28.4	493564
ICF135	33600	-3400	4.26	40.5	316.3	20.66	1.83	54.3	163567
ICF136	33800	-3100	0.06	30.5	311.9	12.58	0.55	3.0	473560
ICF137	33600	-3500	1.93	40.5	333.0	21.43	1.22	25.1	175228
ICF138	33800	-3100	0.2	26.2	299.7	16.50	0.21	0.6	22446
ICF139	33600	-3300	3.63	40.5	315.2	18.87	1.83	49.6	174714
ICF140	33800	-3100	0.43	36.0	313.6	10.35	0.30	0.7	19192
ICF141	33800	-3100	0.46	19.8	313.6	51.75	0.30	3.7	49402
ICF142	33800	-3100	0.35	32.6	338.6	15.84	1.07	14.2	449347
ICF143	33800	-3100	0.43	18.3	313.6	16.17	0.30	1.1	15246
ICF144	33800	-3100	0.66	7.6	333.0	10.49	1.31	14.1	54358
ICF145	33800	-3100	0.43	34.1	313.6	10.35	0.30	0.7	18216
ICF146	33800	-3100	0.78	51.8	316.3	1.97	1.52	3.6	75118
ICF147	33800	-3100	0.43	32.0	313.6	42.69	0.30	3.0	70423
ICF148	33800	-3100	0.81	12.2	299.7	9.39	0.27	0.5	2425
ICF149	33800	-3100	0.43	35.7	313.6	38.81	0.30	2.7	71345
ICF150	33800	-3100	0.2	5.5	313.6	9.70	0.30	0.7	5902
ICF151	33900	-3100	4.64	52.4	321.9	13.14	2.44	61.4	223485
ICF152	33800	-3100	0.43	34.1	313.6	10.35	0.30	0.7	18216
ICFB	33800	-3100	41.06	21.6	299.7	10.35	0.30		
ICU168	45500	300	2.42	27.4	299.7	16.50	0.21	0.6	1941
ICU169	45500	300	5.82	18.3	302.4	9.50	1.07	8.5	8118
ICU170	45500	300	1.47	30.5	321.9	12.98	0.55	3.1	20583
ICU171	45500	300	0.12	30.5	299.7	5.95	0.76	2.7	205473

ble B-1. PM Source Screening Analysis Using the EPA 'M' Factor

ST ID	Relative Coord (m) X	Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
CU172	45500	300	23.9	25.9	296.9	11.64	0.15	0.2	66
CU173	45500	300	0.63	25.9	296.9	11.64	0.15	0.2	2512
CU174	45500	300	0.4	27.4	299.7	16.50	0.21	0.6	11745
CU175	45500	300	0.12	15.2	313.6	8.09	0.61	2.4	94162
CU	45500	300	34.88	25.9	296.9	11.64	0.15		
bi182	35600	2600	4.55	24.4	344.1	12.65	2.29	52.1	96063
bi183	35600	2600	5.5	24.4	344.1	12.65	2.29	52.1	79471
bi184	35500	2700	1.12	30.5	338.6	19.02	1.10	18.1	166560
bi185	35300	2500	3.11	25.9	338.6	16.10	2.29	66.3	187060
bi186	35500	2700	1.41	24.4	326.9	11.68	0.49	2.2	12450
bi187	35500	2700	1.55	24.4	326.9	11.68	0.49	2.2	11325
bi188	35500	2600	0.14	4.6	312.4	16.50	0.43	2.4	24435
bi189	35500	2800	0.72	4.0	521.9	2.12	0.76	1.0	2761
bi190	35500	2800	1.96	25.9	299.7	14.54	1.68	32.2	127694
bi191	35400	2600	7	25.9	296.9	19.40	1.52	35.2	38686
bi192	35500	2800	1.38	12.2	344.1	11.83	1.07	10.6	32333
bi193	35500	2800	0.06	24.1	349.7	14.64	0.24	0.7	92951
BIL	35500	2800	28.5	4.0	521.9	2.12	0.76		
ys202	43900	2600	1.93	22.6	308.0	3.80	1.07	3.4	12302
mi203	46900	4200	1.38	24.4	299.7	17.90	0.52	3.8	20128
mi204	46900	4200	0.12	10.7	305.2	9.98	0.55	2.4	64345
mi205	46900	4200	1.27	15.2	294.1	8.02	0.34	0.7	2570
mi206	46900	3500	3.77	15.2	333.0	17.29	2.04	56.5	76073
mi207	46900	4200	0.58	20.7	294.1	2.46	0.52	0.5	5492
mi208	46900	4200	0.43	30.5	300.2	9.70	0.61	2.8	60322
mi209	47000	4500	1.73	45.7	304.1	9.32	2.04	30.5	244818
mi210	46900	4200	0.46	30.5	324.7	9.70	0.61	2.8	60990
mi211	46900	4200	1.93	16.8	294.1	17.42	1.07	15.7	40005
mi213	47000	4500	1.35	61.0	341.3	24.58	1.52	44.6	687395
mi214	46900	4200	0.06	6.1	366.3	17.46	0.30	1.2	45961
mi215	46900	4200	33.6	30.5	324.7	13.40	2.04	43.8	12901
mi216	46900	4200	0.06	10.4	366.3	0.12	0.30	0.0	536
mi217	46900	4200	0.43	16.2	301.9	4.19	0.67	1.5	16750
mi218	46900	4200	0.06	9.5	366.3	0.03	0.61	0.0	506
mi219	46900	4200	0.26	12.8	307.4	9.41	1.16	9.9	150500
mi220	46900	4200	0.06	7.9	366.3	0.12	0.30	0.0	410
mi221	46900	4200	0.63	30.5	294.1	13.20	2.13	47.0	669256
mi222	46900	4200	0.06	7.9	366.3	0.12	0.30	0.008	410
mi223	46900	4200	0.63	27.4	296.9	11.37	0.98	8.6	110866
mi224	46900	4200	0.52	14.0	296.9	8.09	0.61	2.4	18926
mi225	47000	4500	2.82	40.2	316.3	26.40	2.13	94.1	424476
mi226	46900	4200	0.75	21.3	299.7	21.27	1.28	27.4	233398
mi227	46900	4200	1.38	22.6	305.2	9.98	0.55	2.4	11830
mi228	46900	4200	1.93	16.8	298.0	17.42	1.07	15.7	40536
mi229	46900	4200	1.93	16.8	294.1	17.42	1.07	15.7	40005
mi230	46900	4200	0.58	14.0	298.0	15.16	0.24	0.7	4940
mi231	46900	4200	0.58	16.2	294.1	20.21	0.12	0.2	1872
mi232	46900	4200	0.81	16.2	299.7	7.68	0.67	2.7	16180
mi233	46900	4200	3.17	24.4	313.6	16.63	2.01	52.8	127270
mi234	46900	3500	3.77	15.2	333.0	17.29	2.04	56.5	76073

ble B-1. PM Source Screening Analysis Using the EPA 'M' Factor

ST ID	Relative Coord (m) X	Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
mi235	46900	4200	3.77	30.2	330.2	16.21	2.29	66.8	176481
mi236	47000	4500	1.3	61.0	346.9	28.46	1.52	51.6	840075
mi237	46900	4200	0.09	30.5	260.8	15.52	1.52	28.2	2487418
mi238	47000	4500	3.34	61.0	346.9	28.46	1.52	51.6	326975
mi239	46900	4200	0.09	18.0	317.4	9.70	0.61	2.8	179753
mi240	46900	4200	0.12	10.7	305.2	9.98	0.55	2.4	64345
mi241	46900	4200	3.22	24.4	294.1	8.38	0.76	3.8	8465
mi242	46900	4200	0.12	10.7	305.2	9.98	0.55	2.4	64345
MINOL	46900	4200	79.16	7.9	366.3	0.12	0.30		
CO243	-1000	-7500	50.96	149.4	404.7	13.74	7.32	578.2	685816
CO244	-1000	-7500	50.44	149.4	404.7	13.02	7.32	547.9	656578
CO245	-900	-7500	51.97	149.4	410.2	14.47	7.32	608.9	717842
CO246	-1200	-7000	4.17	22.9	770.8	18.74	4.27	268.4	1133958
CO247	-1200	-7300	4.17	22.9	770.8	18.74	4.27	268.4	1133958
CO248	-1000	-7500	4.17	10.7	816.3	15.17	4.57	248.8	519740
CO249	-1000	-7500	54.61	149.4	341.9	18.21	7.32	766.3	716563
CO250	-1000	-7500	0.66	31.1	394.1	16.04	0.76	7.3	135084
CO251	-1000	-7500	2.1	34.4	394.1	123.77	0.27	7.1	45802
CO252	-1000	-7500	0.03	42.4	333.0	18.19	0.49	3.4	1613230
CO253	-1000	-7500	0.06	54.6	298.6	21.04	0.52	4.5	1213264
CO254	-1000	-7500	0.06	54.6	298.6	21.04	0.52	4.5	1213264
CO255	-1000	-7500	0.06	54.6	298.6	21.04	0.52	4.5	1213264
COBBA	-1000	-7500	0.21	54.6	298.6	21.04	0.52		
CO256	-2900	5000	15.89	93.3	415.8	28.90	3.05	211.1	515335
CO257	-2900	5000	15.89	93.3	420.8	30.85	3.05	225.4	556722
CO258	-2900	5000	20.18	93.3	419.7	38.64	3.23	316.6	614175
CO259	-2900	5000	23.69	93.3	426.9	22.97	3.05	167.8	282068
CO260	-2900	5000	28.76	93.3	423.6	23.18	4.45	360.5	495259
CO261	-2900	5000	47.91	93.3	433.0	24.74	5.36	558.2	470569
CO262	-2900	5000	15.4	10.7	816.3	136.61	1.52	247.9	140202
CO263	-2900	5000	0.03	22.0	449.7	10.96	0.21	0.4	124904
CO264	-2900	5000	0.14	32.6	449.7	30.37	0.30	2.1	224866
CO265	-2900	5000	0.37	31.7	449.7	18.27	0.61	5.3	205716
CO267	-2900	5000	0.06	53.3	298.6	21.49	0.52	4.6	1211503
CO268	-2900	5000	0.03	54.0	298.6	15.52	0.61	4.5	2435574
CO269	-2900	5000	0.03	53.3	298.6	21.49	0.52	4.6	2423006
CO270	-2900	5000	0.03	53.0	298.6	24.26	0.37	2.6	1377071
CO271	-2900	5000	0.03	53.3	298.6	21.49	0.52	4.6	2423006
COGANA	-2900	5000	0.72	22.0	449.7	10.96	0.21		
CB292	-24100	-11200	8.14	12.2	755.4	6.54	6.98	250.3	283329
C-296	-20500	100	31.96	91.4	424.8	31.09	2.74	183.3	222708
C-297	-20500	100	27.9	91.4	408.2	34.44	3.35	303.6	405936
C-298	-20500	100	0.04	9.1	541.5	5.18	0.91	3.4	415033

ble B-1. PM Source Screening Analysis Using the EPA 'M' Factor

CST ID	Relative Coord (m) X	Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
C-299	-20500	100	12.8	13.7	772.0	22.25	5.27	485.3	401023
C-300	-20500	100	0.01	7.6	298.1	0.04	0.27	0.0	519
CBART	-20500	100	72.71	7.6	298.1	0.04	0.27		
urces Obtained from FDEP									
AF1	-700	4700	0.43	10.7	298.0	0.06	14.30	9.6	71457
AF2	-700	4700	0.18	6.1	298.0	15.16	0.49	2.9	28871
AF3	-700	4700	0.03	6.1	298.0	2.87	0.46	0.5	28901
AF4	-700	4700	0.29	10.1	700.0	8.53	0.70	3.3	80031
AF4	-700	4700	0.24	11.6	464.0	18.59	0.49	3.5	78619
AF4	-700	4700	0.02	13.7	298.0	1.22	0.61	0.4	72781
AF4	-700	4700	0.03	13.7	298.0	1.22	0.61	0.4	48520
AF4	-700	4700	0.03	13.7	298.0	1.22	0.61	0.4	48520
AF	-700	4700	1.25	6.1	298.0	15.16	0.49		
yConc1	2200	11300	0.62	3.0	299.0	0.61	0.61	0.2	258
yConc2	2200	11300	0.45	18.3	298.0	4.57	0.61	1.3	16185
khoed1	-2100	4800	0.2	9.1	299.0	39.32	0.30	2.8	37812
khoed2	-2100	4800	0.08	4.9	299.0	13.72	0.34	1.2	22813
khoed3	-2100	4800	0.13	14.3	299.0	8.84	0.52	1.9	61747
C_Ag1	-800	-6400	0.4	11.0	298.0	12.80	0.46	2.1	17433
C_Ag2	-800	-6400	0.19	7.6	298.0	10.36	0.40	1.3	15518
C_Ag3	-800	-6400	0.19	7.6	298.0	10.36	0.40	1.3	15518
C_Ag4	-800	-6400	1.42	9.1	298.0	26.52	0.67	9.4	17856
C_Ag5	-800	-6400	1.16	13.7	314.0	12.19	0.85	6.9	25652
C_Ag6	-800	-6400	1.93	22.9	314.0	12.80	1.52	23.2	86536
CAGCH	-800	-6400	5.29	7.6	298.0	10.36	0.40		
avLim1 (Pt 4)	0	2200	0.04	5.5	298.0	7.01	0.15	0.1	5076
avLim2 (Pt 2,3,5)	0	2200	0.12	5.5	298.0	11.28	0.12	0.1	1742
avLim3 (Pt 1)	0	2200	0.08	5.5	298.0	1.83	0.61	0.5	10957
avLim4 (Pt 6)	0	2200	0.05	5.5	299.0	11.28	0.12	0.1	4196
AVLIME			0.13	5.5	299.0	1.83	0.61		
rrStv1	-5100	9200	0.5	18.3	298.0	0.30	1.37	0.4	4823
rrStv2	-5100	9200	4.71	6.1	298.0	0.30	3.05	2.2	846
edMin1	-700	3000	0.43	9.1	329.0	9.75	1.19	10.8	75502
edMin2	-700	3000	1.45	9.1	306.0	9.75	1.68	21.6	41506
edMin3	-700	3000	0.06	11.0	300.0	0.30	3.35	2.6	145433
edMin4	-700	3000	0.06	10.4	300.0	0.30	3.35	2.6	137500
EDMIN	-700	3000	2.00	9.1	306.0	9.75	1.68		
kerM	2000	1900	0.25	6.7	298.0	18.90	0.40	2.4	18968
Rock	2900	2500	0.63	6.7	298.0	8.53	0.70	3.3	10404
mmMet1	-4400	5800	1.3	15.2	298.0	16.15	1.22	18.9	65781
mmMet1	-4400	5800	1.78	15.2	298.0	22.25	1.22	26.0	66188

able B-1. PM Source Screening Analysis Using the EPA 'M' Factor

SCST ID	Relative Coord (m) X	Relative Coord (m) Y	QS (g/s)	HS (m)	TS (K)	VS (m/s)	DS (m)	Flowrate (m^3/s)	Merged Stack Parameter "M"
ombined PM Sources from FPL Manatee SCA									
SX Corporation									
SXTR01	-1900	6500	3.88	13.7	298.1	13.2	2.38		
SXTR11	-1900	6500	3.53	18.3	298.7	3.05	2.74		
SXTRC9	-1900	6500	3.76	0.9	298.1	194.04	0.15		
astern Association Terminal									
ASTAT03	-2700	6400	3.5	4.3	298.7	194.04	0.61		
ASTATBA	-2700	6400	2.1	3.4	298.1	24.05	0.34		
ASTATBB	-2700	6400	9.2	4.6	298.1	81.76	0.76		
olden Triangle Asphalt									
LDTRI01	-29100	3600	123.48	12.2	410.9	20.74	1.22		
raves Enterprises									
RAVES01	200	2800	10.08	4.3	1144	3.05	3.66		
illsborough Co Resource Recovery									
ILRFC3	5300	10200	2.65	67.1	494.3	16.76	3.51		
ECO Hookers Point									
ECHKC6	-4900	8500	35.44	85.3	448.2	10.48	3.44		
MC Port Sutton Terminal									
ACPTS01	-2800	5000	5.52	19.8	338.7	12.63	2.44		
ACPTSBA	-2800	5000	3.58	2.1	322	32.07	0.34		
afarge Corp.									
AFRG29	-5200	8100	11.98	44.5	494.8	40.24	2.44		
AFRG30	-5200	8100	5.67	30.8	401.9	6.09	3.81		
AFRGMM	-5200	8100	17.06	1.5	310.8	17.92	0.58		
itram									
ITRM06	-400	6500	3.55	52.7	310.9	5.84	4.57		
ITRMBA	-400	6500	2.32	11.9	298.1	4.48	0.58		
ulfuric Acid Trading Co.									
ULFTC3	-13900	-1000	0.4	7.6	480.4	4.56	0.52		
ampa City McKay Bay Refuse-to-Energy									
MCKBAYC5	-2900	9400	3.57	45.7	500	21.3	1.3		
ropicana									
ROPNC3	-16100	-41600	11.99	29	333.1	21.56	0.91		
ROPNC8	-16100	-41600	14.01	15.2	305.4	3.23	0.3		

Table B-2 . PM Emission Inventory of AAQS Sources Taken from FPL Manatee SCA

APIS Number	Facility/Source	Facility Relative Location Coordinate (in meters) X	Y	ISCST ID	APIS Src #	Stack Height (ft)	Stack Height (m)	Stack Diameter (ft)	Stack Diameter (m)	Exit Velocity (ft/s)	Exit Velocity (m/s)	Temperature (°F)	Temperature (K)	Maximum PM Emissions (lb/hr)	Maximum PM Emissions (TPY)	Maximum PM Emissions (g/s)	Merged Stack Parameter M	Test (a)
40HIL290018	LaFarge Corp.	-5200	8100	LAFRG29	29	146.0	44.5	8.0	2.44	132.0	40.24	431	494.8	95.1	416	11.98		
				LAFRG30	30	101.0	30.8	12.5	3.81	20.0	6.09	264	401.9	45.0	197	5.67		
					01	98.0	29.9	1.6	0.49	39.8	12.13	77	298.0	1.1	5	0.14	145434	
					02	98.0	29.9	1.6	0.49	39.8	12.13	77	298.0	1.1	5	0.14	145434	
					03	102.0	31.1	1.9	0.58	64.7	19.71	77	298.0	2.8	12	0.35	137848	
					05	100.0	30.5	2.5	0.76	40.7	12.42	77	298.0	3.2	14	0.40	127941	
					06	147.0	44.8	1.7	0.52	44.1	13.43	77	298.0	1.6	7	0.20	190429	
					07	147.0	44.8	1.7	0.52	44.1	13.43	77	298.0	1.6	7	0.20	190429	
					08	147.0	44.8	1.7	0.52	44.1	13.43	77	298.0	1.6	7	0.20	190429	
					09	171.0	52.1	1.1	0.34	84.2	25.66	77	298.0	1.1	5	0.14	258462	
					11	47.0	14.3	1.3	0.40	62.8	19.14	77	298.0	1.3	6	0.17	60418	
					12	83.0	25.3	2.3	0.70	80.2	24.45	77	298.0	5.0	22	0.63	112606	
					13	83.0	25.3	3.4	1.04	62.4	19.02	77	298.0	8.7	38	1.09	111758	
					14	57.0	17.4	2.2	0.67	57.0	17.37	157	342.4	1.6	7	0.20	182114	
					15	30.0	9.1	2.4	0.73	55.2	16.84	77	298.0	3.9	17	0.49	39178	
					16	83.0	25.3	3.4	1.04	62.4	19.02	77	298.0	8.7	38	1.09	111758	
					17	90.0	27.4	1.1	0.34	87.7	26.73	77	298.0	3.2	14	0.40	49594	
					18	16.0	4.9	2.4	0.73	55.2	16.84	77	298.0	3.9	17	0.49	20918	
					19	83.0	25.3	3.4	1.04	62.4	19.02	77	298.0	8.7	38	1.09	111758	
					20	57.0	17.4	2.2	0.67	57.0	17.37	77	298.0	3.2	14	0.40	79249	
					21	30.0	9.1	2.4	0.73	55.2	16.84	77	298.0	3.9	17	0.49	39178	
					23	49.0	14.9	2.2	0.67	35.1	10.69	77	298.0	2.1	9	0.26	64537	
					24	49.0	14.9	2.2	0.67	35.1	10.69	77	298.0	2.1	9	0.26	64537	
					25	72.0	22.0	0.8	0.24	265.3	80.85	77	298.0	2.1	9	0.26	92017	
					27	20.0	6.1	2.2	0.67	78.9	24.06	100	310.8	4.6	20	0.58	27728	
					31	49.0	14.9	2.0	0.61	63.6	19.40	77	298.0	2.9	13	0.37	68221	
					42	174.0	53.0	1.5	0.46	75.5	23.00	77	298.0	20.1	88	2.53	23880	
					43	174.0	53.0	1.5	0.46	94.3	28.75	77	298.0	2.3	10	0.29	260415	
					44	60.0	18.3	1.0	0.30	112.0	34.15	77	298.0	1.3	6	0.17	77393	
					45	60.0	18.3	1.0	0.30	112.0	34.15	77	298.0	1.3	6	0.17	77393	
					50	123.0	37.5	1.0	0.30	84.9	25.87	77	298.0	1.1	5	0.14	145926	
					--	33.0	10.1	2.4	0.73	55.2	16.84	196	364.1	2.9	13	0.37	69774	
					--	5.0	1.5	1.9	0.58	58.8	17.92	100	310.8	2.5	11	0.32	6990	Lowest M
					--	95.0	29.0	1.5	0.46	37.7	11.50	77	298.0	1.1	5	0.14	117812	
					--	57.0	17.4	2.2	0.67	57.0	17.37	77	298.0	3.2	14	0.40	79249	
					--	73.0	22.3	1.9	0.58	76.4	23.29	77	298.0	2.9	13	0.37	110271	
					--	115.0	35.1	1.9	0.58	70.5	21.50	100	310.8	2.9	13	0.37	167244	
					--	33.0	10.1	2.4	0.73	55.2	16.84	196	364.1	1.6	7	0.20	129082	
					--	90.0	27.4	1.0	0.30	106.1	32.34	77	298.0	1.3	6	0.17	109917	
					--	34.0	10.4	1.1	0.34	107.0	32.61	77	298.0	1.6	7	0.20	45703	
					--	83.0	25.3	3.4	1.04	62.4	19.02	180	355.2	2.1	9	0.26	558454	
					--	57.0	17.4	2.2	0.67	57.0	17.37	157	342.4	2.1	9	0.26	140088	
					--	83.0	25.3	3.4	1.04	62.4	19.02	180	355.2	1.6	7	0.20	725990	
					--	83.0	25.3	1.3	0.40	80.3	24.49	77	298.0	1.6	7	0.20	116013	
					--	33.0	10.1	2.4	0.73	55.2	16.84	196	364.1	2.1	9	0.26	99294	
				LAFRGMM		5.0	1.5	1.9	0.58	58.8	17.92	100	310.8	2.5	11.1	17.06		
40HIL290014	Eastern Association Terminal	-2700	6400	EASTAT03	3	14	4.3	2.0	0.61	636.6	194.04	78	298.7	27.8	122	3.50	20810	
					1	55	16.8	4.2	1.28	62.6	19.07	77	298.1	12.0	53	1.52	80852	
					2	70	21.3	0.5	0.15	25.5	7.76	77	298.1	0.1	0	0.01	87071	
					4	11	3.4	1.6	0.49	93.3	28.42	78	298.7	2.5	11	0.31	17557	
					6	11	3.4	1.1	0.34	78.9	24.05	77	298.1	1.0	5	0.13	17024	Lowest M
					9	11	3.4	1.1	0.34	78.9	24.05	78	298.7	1.0	5	0.13	17058	

Table B-2 . PM Emission Inventory of AAQS Sources Taken from FPL Manatee SCA

APIS Number	Facility/Source	Facility Relative Location Coordinate (in meters) X	Y	ISCST ID	APIS Src #	Stack Height (ft)	(m)	Stack Diameter (ft)	(m)	Exit Velocity (ft/s)	(m/s)	Temperature (°F)	(K)	Maximum PM Emissions (lb/hr)	(TPY)	(g/s)	Merged Stack Parameter M	Test (s)
				EASTATBA	1,2,4,6,9	11	3.4	1.1	0.34	78.9	24.05	77	298.1	16.6	73	2.10		
					11	15	4.6	2.5	0.76	268.2	81.76	77	298.1	18.3	80	2.30	22113	
					12	15	4.6	2.5	0.76	268.2	81.76	77	298.1	18.3	80	2.30	22113	
					13	15	4.6	2.5	0.76	268.2	81.76	77	298.1	18.3	80	2.30	22113	
					14	15	4.6	2.5	0.76	268.2	81.76	77	298.1	18.3	80	2.30	22113	
				EASTATBB	11,12,13,14	15	4.6	2.5	0.76	268.2	81.76	77	298.1	73.1	320	9.20		
40HIL290024	IMC-Agrico Co. (Port Sutton)	-2800	5000	IACPTS01	1	65	19.8	8.0	2.44	41.4	12.63	150	338.7	43.8	192	5.52		
					2	68	20.7	6.0	1.83	55.1	16.80	79	299.3	11.1	49	1.40	195547	
					3	45	13.7	1.5	0.46	113.2	34.50	90	305.4	3.09	14	0.39	61511	
					4	7	2.1	1.1	0.34	105.2	32.07	120	322.0	1.54	7	0.19	10363	Lowest M
					5	32	9.8	1.7	0.52	51.4	15.67	120	322.0	1.8	8	0.23	45658	
					6	18	5.5	1.1	0.34	105.2	32.07	120	322.0	1.54	7	0.19	27140	
					7	39	11.9	1.1	0.34	105.2	32.07	120	322.0	1.54	7	0.19	58721	
					8	97	29.6	1.1	0.34	61.4	18.71	77	298.1	0.9	4	0.11	136264	
					9	101	30.8	1.3	0.4	43.9	13.40	120	322.0	1.05	5	0.13	128463	
					12	10	3	2.0	0.61	132.6	40.43	100	310.9	5.94	26	0.75	14694	
				IACPTSBA	ALL	7	2.1	1.1	0.34	105.2	32.07	120	322.0	28.5	125	3.58		
40HIL290029	Nitrum	-400	6500	NITRM06	6	173	52.7	15.0	4.57	19.1	5.84	100	310.9	28.2	124	3.55		
					3	90	27.4	4.5	1.37	35.3	10.76	260	399.8	4.1	18	0.52	334144	
					4	30	9.1	4.5	1.37	35.3	10.76	450	505.4	2.04	9	0.26	280573	
					8	36	11	1.9	0.58	47	14.33	77	298.1	0.6	3	0.08	155187	
					9	39	11.9	1.9	0.58	14.7	4.48	77	298.1	2.1	9	0.26	16150	Lowest M
					10	63	19.2	0.3	0.09	106.1	32.34	77	298.1	0.12	1	0.02	58877	
					11	35	10.7	0.3	0.09	129.7	39.53	77	298.1	0.14	1	0.02	40107	
					12	35	10.7	5.0	1.52	35.4	10.79	101	311.5	9.24	40	1.16	56258	
				NITRMBA	3-12	39	11.9	1.9	0.58	14.7	4.48	77	298.1	18.3	80	2.32		
40HIL290033	CSX Transportation Inc.	-1900	6500	CSXTR01	1	45	13.7	7.8	2.38	43.3	13.20	77	298.1	30.8	135	3.88		
				CSXTR11	11	60	18.3	9.0	2.74	10	3.05	78	298.7	28	123	3.53		
					2	3	0.9	0.5	0.15	636.6	194.04	77	298.1	1.9	8	0.24	3833	Lowest M
					3	40	12.2	6.7	2.04	47.5	14.49	77	298.1	17.9	78	2.26	76214	
					4	40	12.2	2.2	0.67	63.6	19.38	77	298.1	1.9	8	0.24	103539	
					5	40	12.2	1.8	0.55	59.6	18.17	77	298.1	1.2	5	0.15	104665	
					6	4	1.2	0.5	0.15	360.8	109.96	77	298.1	1.1	5	0.14	4965	
					7	3	0.9	0.5	0.15	275.9	84.08	77	298.1	0.8	4	0.10	3986	
					8	3	0.9	0.5	0.15	275.9	84.08	77	298.1	0.8	4	0.10	3986	
					9	36	11	3.3	1.01	37.2	11.34	77	298.1	3.93	17	0.50	59584	
					10	54	16.5	6.0	1.83	12.4	3.77	77	298.1	0.27	1	0.03	1625766	
				CSXTRC9	2-10	3	0.9	0.5	0.15	636.6	194.04	77	298.1	29.8	131	3.76		
40HIL290099	Sulfuric Acid Trading Co.	-13900	-1000		1	25	7.6	1.7	0.52	15	4.56	405	480.4	1.38	6	0.17		
					2	25	7.6	1.7	0.52	15	4.56	405	480.4	1.38	6	0.17		
					3	0	0	0.0	0	0	0.00	0	255.4	0.51	2	0.06		
				SULFTC3	1,2,3	25	7.6	1.7	0.52	15	4.56	405	480.4	3.27	14	0.40		

Table B-2 . PM Emission Inventory of AAQS Sources Taken from FPL Manatee SCA

APIS Number	Facility/Source	Facility Relative Location Coordinate (in meters) X	Y	ISCST ID	APIS Src #	Stack Height (ft)	(m)	Stack Diameter (ft)	(m)	Exit Velocity (ft/s)	(m/s)	Temperature (°F)	(K)	Maximum PM Emissions (lb/hr)	(TPY)	(g/s)	Merged Stack Parameter M Test (a)
40HIL290127	Tampa City McKay Bay RTE	-2900	9400		1	160	45.7	4.3	1.30	70.0	21.30	440	500.0	7.0	31	0.88	
					2	160	45.7	4.3	1.30	70.0	21.30	440	500.0	7.0	31	0.88	
					3	160	45.7	4.3	1.30	70.0	21.30	440	500.0	7.0	31	0.88	
					4	160	45.7	4.3	1.30	70.0	21.30	440	500.0	7.0	31	0.88	
					5	57	17.4	2.0	0.61	11.2	3.41	200	366.5	0.4	2	0.05	
				MCKBAYC5	1-5	160	45.7	4.3	1.30	70.0	21.30	440	500.0	28.36	124	3.57	
40MAN410007	Tropicana Products, Inc.	-16100	-41600		1	95	29	3.0	0.91	70.7	21.56	140	333.1	31.8	139	4.01	33779 Lowest M
					2	95	29	3.0	0.91	70.7	21.56	140	333.1	31.8	139	4.01	33779 Lowest M
					3	95	29	3.2	0.98	62.2	18.95	140	333.1	31.5	138	3.97	34780
				TROPNC3	01-03	95	29	3.0	0.91	70.7	21.56	140	333.1	95.2	417	11.99	
					10	30	9.1	2.5	0.76	1.4	0.41	600	588.7	2.2	10	0.28	3559
					11	71	21.6	6.3	1.92	25.2	7.69	441	500.4	17.39	76	2.19	109887
					12	71	21.6	6.3	1.92	39.2	11.95	536	553.2	18.2	80	2.29	180535
					14	103	31.4	6.3	1.92	22.4	6.83	489	527.0	21.5	94	2.71	120749
					15	80	24.4	7.0	2.13	24.8	7.55	540	555.4	7.87	34	0.99	368262
					16	80	24.4	12.0	3.66	54.3	16.55	268	404.3	1.75	8	0.22	7807661
					18	50	15.2	1.0	0.3	10.6	3.23	90	305.4	26.4	116	3.33	318
					20	65	19.8	6.7	2.04	18.9	5.76	90	305.4	15.9	70	2.00	56922
				TROPNC8	10-20	50	15.2	1.0	0.3	10.6	3.23	90	305.4	111.2	487	14.01	
40PNL520004	Golden Triangle Asphalt	-29100	3600	GLDTRI01	1	40	12.2	4.0	1.22	68	20.74	280	410.9	980	4292	123.48	
40HIL290261	Hillsborough County RRF	5300	10200	HILRFC3	--	220	67.1	11.5	3.51	55.0	16.76	430	494.3	21.0	92	2.65	
40HIL290317	Graves Enterprises	200	2800	GRAVES01	1	14	4.3	12.0	3.66	10	3.05	1600	1144.3	80.0	350	10.08	
40HIL290038	TECO Hooker's Point	-4900	8500		1	280.0	85.3	11.3	3.44	20.0	6.10	295	419.3	29.9	11	3.77	538137
					2	280.0	85.3	11.3	3.44	18.0	5.49	315	430.2	29.9	11	3.77	496914
					3	280.0	85.3	12.0	3.66	26.0	7.93	322	434.3	41.1	16	5.18	596978
					4	280.0	85.3	12.0	3.66	24.7	7.52	300	422.0	41.1	16	5.18	550080
					5	280.0	85.3	11.3	3.44	34.4	10.48	347	448.2	61.0	23	7.69	484492 Lowest M
					6	280.0	85.3	9.4	2.87	73.0	22.26	320	433.3	78.2	30	9.85	540635
				TECHKC6	01-06	280.0	85.3	11.3	3.44	34.4	10.48	347	448.2	281.3	106.9	35.44	

Notes:

Some point sources provided by TECO PPS data were identifed with an APIS source number.

(a) M parameter used for merging multiple stacks at a single facility. Where M= (Stack ht (m) x Airflow (m^3/s) x Exit Temperature (K)) / Maximum emissions (g/s), based on Screening Procedures for Estimating Air Quality Impacts From Stationary Sources (EPA, 1992)

UTM Coordinates of the Cargill Riverview Facility are: 362.9 3082.5

PSD INCREMENT INVENTORY

Facility	UTM East	UTM North	PM* (g/s)	Height+ (m)	Temper-ature (K)	Velocity** (m/s)	Diameter (m)
Agrico Chemical Pierce	403.7	3,079.0	5.04	24.38	320.8	21.25	2.44
Agrico Chemical Pierce	403.7	3,079.0	3.92	28.96	683.0	14.75	1.77
Agrico South Pierce	407.5	3,071.3	49.10	45.70	350.0	39.06	1.60
CF Industries Bonnie Mine Road	408.4	3,082.4	15.27	42.70	298.0	21.60	0.80
CF Industries Bonnie Mine Road	408.4	3,082.4	2.45	36.58	333.0	17.17	2.29
CF Industries Bonnie Mine Road	408.4	3,082.4	4.95	41.45	333.0	18.05	2.83
Conserv Inc.	398.7	3,084.2	28.91	45.72	349.7	10.31	2.29
Conserv Inc.	398.7	3,084.2	4.92	12.80	310.8	10.60	1.22
FPC Bayboro C4	338.8	3071.3	8.14	12.2	755.4	6.54	6.98
FPC-Bartow TC2	342.4	3082.6	31.96	91.4	424.8	31.09	2.74
FPC-Bartow TD4	342.4	3082.6	12.8	13.7	772	22.25	5.27
FPC-Bartow TO3	342.4	3082.6	27.9	91.4	408.2	34.44	3.35
FPC-Bartow TO4	342.4	3082.6	0.04	9.1	541.5	5.18	0.91
FPC-Bartow TO9	342.4	3082.6	0.01	7.6	298.1	0.04	0.27
Farmland Industries Green Bay Plant	409.5	3,080.1	28.09	30.50	308.0	18.30	1.40
Florida Power & Light	367.2	3054.1	218	152.1	425.8	23.61	7.99
Hardee Power Station	404.8	3,057.4	1.89	22.90	389.0	23.90	4.88
IMC Ft. Lonesome	389.6	3,067.9	3.17	38.10	339.1	15.16	2.44
IMC Ft. Lonesome	389.6	3,067.9	3.14	38.10	339.1	16.80	2.44
IMC Ft. Lonesome	359.6	3,067.9	6.45	45.72	316.3	8.43	0.82
IMC Fertilizer Noralyn Mine	414.7	3,080.3	28.00	11.58	333.0	7.17	0.58
IMC/Uranium Recovery CF Industries	408.4	3,082.8	23.90	25.90	297.0	11.60	0.20
Lakeland City Power CT (Larsen)	409.2	3,102.8	1.89	30.48	783.0	28.22	5.79
Lakeland McIntosh	409.5	3,105.8	40.82	76.20	350.0	32.60	4.90
Lakeland McIntosh	409.5	3,105.8	14.00	45.70	419.0	23.77	2.74
Mobil-Electrophos Division	405.6	3,079.4	15.95	30.48	319.1	12.34	1.31
TECO Big Bend	361.9	3,079.4	167.30	149.40	342.0	20.00	7.32
TECO Big Bend	361.9	3,057.0	54.61	149.35	341.9	18.21	7.32
TECO Polk KBA	402.5	3067.4	2.02	6.1	533	13.1	0.9
TECO Polk KBB	402.5	3067.4	7.43	45.7	400	16.79	5.8
TECO Polk KBC	402.5	3067.4	3.15	60.7	1033	9.14	1.07
WR Grace/Seminole	409.8	3,087.0	13.61	15.24	333.0	17.10	2.00
WR Grace/Seminole	409.8	3,087.0	4.68	60.96	347.0	25.10	1.52

Table 6a. Additional PM/PM10 PSD Class II Increment-Consuming Sources

	UTM Coordinates		PM	Height	Temperature	Velocity	Diameter
	East	North	(g/s)	(m)	(K)	(m/s)	(m)
Hillsborough Co. Resource Recovery Facility	368.2	3092.7	2.65	67.1	494.3	16.76	3.51
Tampa City McKay Bay Refrigerator-Energy	360.0	3091.9	3.57	45.7	500.0	21.3	1.3
Tropicana	346.8	3040.9	11.99	29.0	333.1	21.56	0.91
Tropicana	346.8	3040.9	14.01	15.2	305.4	3.23	0.3

ATTACHMENT C

AIR OPERATING PERMIT FOR MAP PLANT

Department of Environmental Protection

Copies To:
D JELLERSON
E CURRAN
M WELCH
D YORK
T LINDSAY
A MALCOX
E MATTHEWS

RECEIVED
FEB 22 1995

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

Orig. File: P-30-34-4

NOTICE OF PERMIT ISSUANCE

CERTIFIED MAIL

Mr. Elton C. Curran
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

DEP File No.: AO29-256726
County: Hillsborough

Enclosed is Permit Number AO29-256726 to operate MAP Plants No. 3 and 4 and the South Cooler located at 8813 Highway 41 South, Riverview, Hillsborough County, issued pursuant to Section 403.087, Florida Statutes and Florida Administrative Code Rules 62-200 through 297 & 62-4.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee 32399-2400, within 14 days of receipt of this permit amendment. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends required reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice, in the Office of General Counsel at the above address of the Department. Failure to petition within the allotted time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Mr. Elton C. Curran
Riverview, FL 33569

Executed in Tampa, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

George W. Richardson
Air Permitting Engineer
Southwest District

3804 Coconut Palm Drive
Tampa, FL 33619-8318
(813)744-6100, Ext. 105

cc: Environmental Protection Commission
of Hillsborough County
David A. Buff, P.E., KBN Engineering and Applied
Sciences, Inc.

Attachment:

CERTIFICATE OF SERVICE

The undersigned duly designated Deputy Department Clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed before the close of business on FEB 21 1995 to the listed persons.

FILING AND ACKNOWLEDGEMENT

FILED, on this date, pursuant to Section 120.52(11), Florida Statutes, with the designated Deputy Department Clerk, receipt of which is hereby acknowledged.

Clerk FEB 21 1995 Date

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

PERMITTEE:

Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

PERMIT/PROJECT:

Permit No.: AO29-256726
County: Hillsborough
Expiration Date: 02/20/00
Project: MAP Plants No. 3 and 4 and South Cooler

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 62-200 through 62-297 and 62-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the operation of two (2) ammonium phosphate granulators and one (1) associated ammonium phosphate cooler designated as MAP Plants No. 3 and 4 and the South Cooler, respectively. Each MAP Plant is capable of producing a maximum of 34.5 tons/hour of monoammonium phosphate using 17.94 tons/hour of P_2O_5 and 5.10 tons/hour of ammonia. The South cooler is a counter-current flow pan cooler which is capable of handling up to 69.0 tons/hour monoammonium phosphate from MAP Plants No. 3 and 4. The operation of the MAP plant(s) includes granulation, screening and recycling. Screened exiting material from MAP Plants No. 3 and 4 is cooled in the South Cooler and transported by a conveyor system to storage.

Particulate matter and fluoride emissions generated from the granulating, screening and milling operations are controlled by two (2) cyclonic spray scrubbers of Automotive Rubber Company, Model WM-350-L. Design air flow of each scrubber is 35,000 ACFM. The emissions generated from the cooling operation are controlled by two (2) dry cyclones manufactured by MAC Equipment, Inc. Model 4H68, followed by a wet venturi scrubber by D.R. Technology with a design air flow of 56,000 ACFM. The pollutants are discharged from MAP Plants No. 3 and 4 and the South Cooler through a common stack 133.0 feet in height and 7.0 feet in diameter.

Location: 8813 Highway 41 South and Riverview Drive

UTM: 17-362.6 E 3082.4 N NEDS No.: 0008 Point ID No.:
22-No. 3 MAP Plant
23-No. 4 MAP Plant
24-South Cooler

Modifies Permit No.: AC29-261247

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

1. A part of this permit is the attached 15 General Conditions.

2. The permittee shall not exceed the following production rates: (construction permit number AC29-261247).

Plant/Equipment	Product Rate (TPH)
A) MAP Plants No. 3 & 4 combined*	69.0
B) South Cooler	69.0

*Diammonium Phosphate (DAP) shall not be produced at these plants.

3. The permittee shall not exceed the following emissions rates: (Rules 62-296.403(2), 62-296.705(2)(a), F.A.C., construction permit number AC29-261247).

Source	Particulate Matter*			Fluorides		Opacity
	**lbs/ton product	lbs/ hour	TPY	lbs/ hour	TPY	
A) MAP Plants No. 3 & 4 combined	0.30	10.0	42.50	2.0	8.50	20%
B) South Cooler	0.30	12.0	51.00	1.0	4.25	20%

C) The particulate matter emission concentration from the dry cyclone/venturi scrubber shall be less than 0.04 grains/dscf.
*particulate matter includes PM^{10}
**Per rule; note that lbs./hr. limits are less than the product of lbs./ton times tons/hr. per permittee's request.

4. The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor (Rule 62-296.320(2), F.A.C.).

5. The following limitations and restrictions shall apply to ensure compliance with Specific Condition Nos. 2 & 3 construction permit number AC29-261247).

	Input Rate (TPH) P_2O_5
A) MAP Plants No. 3 & 4 combined	35.88

B) Natural Gas Usage: 2,440 CFH, each MAP Plant
C) Hours of Operation: 8,500 hours/year, Maximum

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

6. Test the emissions from MAP Plants No. 3 and 4 and the South Cooler for the following pollutants annually within 60 days of July 14. A report of the test data shall be submitted to the Air Management Division of the Environmental Protection Commission of Hillsborough County within 45 days of the testing.

(X) Particulate matter (X) Visible emissions
(X) Fluorides (X) Ammonia (Nos. 3 & 4 MAP Plants only)

(Rules 62-297.340 and 62-297.570, F.A.C.).

7. Compliance with the emission limitations of Specific Condition No. 3 shall be determined using EPA Methods 1, 2, 4, 5, 9 and 13A or 13B contained in 40 CFR 60, Appendix A, July 1, 1990 and adopted by reference in Rule 17-297, F.A.C., while MAP Plants* No. 3 and 4 and the South Cooler are operating at 90-100% of their permitted capacity (MAP Plants No. 3 and 4 combined, 69.0 TPH Product, and the South Cooler, 69.0 TPH Product). The scrubber liquid flow rate, gas pressure drop and mole ratio as specified in Specific Condition Nos. 9 & 10 shall be included in the test report. Ammonia emissions shall be determined using a variation of the EPA draft Method, using large impingers, the last impinger dry and a probe with an external design similar to that used in EPA Method 16 of any other test method agreed to by the Department. The actual production rate shall be specified in each test report. Failure to include the actual production rate in the report may invalidate the test. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A.

The total allowable emissions from the common stack serving MAP Plants No. 3 and 4 and the South Cooler shall be the sum of the allowable emissions for each of the sources in operation during the compliance tests.

* the permittee shall seek a written approval of the Department if any of the sources is not likely to be in operation during the scheduled compliance test(s).

8. In order to comply with Specific Condition Nos. 2 & 5, the permittee shall maintain records showing production unit(s) No. 3 and 4 operating time, MAP production rate(s), phosphoric acid (P_2O_5) consumption, scrubber liquid flow(s), gas pressure drop across the ARCO & Cemco scrubber system combined for production unit(s) No. 3 and 4, and gas pressure drop across the Cooler scrubber system for a minimum of two years (construction permit No. AC29-261247).

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

9. The design parameters for the scrubbers associated with these plants are listed below. The scrubbers are expected to operate at no less than 90% of these values. Final permit limits will be determined during compliance testing and incorporated into the operating permit.

Scrubber	Delta P	GPM
No. 3 ARCO & CHEMCO COMBINED	20	-
No. 3 ARCO	-	260 RECIRCULATION 25 MAKEUP
No. 3 CHEMCO	-	1070
No. 4 ARCO & CHEMCO COMBINED	20	-
No. 4 ARCO	-	260 RECIRCULATION 25 MAKEUP
No. 4 CHEMCO	-	1070
COOLER SCRUBBER	15	700 RECIRCULATION 100 MAKEUP

Within 30 days of a scrubber(s) being operated at less than 90% of its associated rate(s)/value(s) as shown above and the permittee requests the Department's authorization to operate at this condition, the permittee shall conduct a new compliance test on the effected scrubber(s) at no higher than that rate and/or value in order to demonstrate facility compliance. The test(s) results shall be submitted to this office and the EPCHC within 45 days of such testing. Acceptance of the test(s) by the Department will automatically constitute an amended permit and change the rate(s)/value(s) shown above to the rate(s)/value(s) during the compliance test.

10. The design mole ratio parameters for the CHEMCO scrubbers associated with these plants is 1.45. The scrubbers are expected to operate at no more than 110% of these values. Final permit limits will be determined during compliance testing and incorporated into the operating permit.

Within 30 days of a scrubber(s) being operated at more than 110% of its associated mole ratio as shown above and the permittee requests the Department's authorization to operate at this condition, the permittee shall conduct a new compliance test on the effected scrubber(s) at no higher than that rate and/or value in order to demonstrate facility compliance.

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

Specific Condition No. 10 continued:

The test(s) results shall be submitted to this office and the EPCHC within 45 days of such testing. Acceptance of the test(s) by the Department will automatically constitute an amended permit and change the rate(s)/value(s) shown above to the rate(s)/value(s) during the compliance test.

11. The sources shall cease operation whenever the air pollution control equipment on these Plants or the South Cooler is not operating in compliance with the permit conditions or regulations. Covers shall be kept on all openings in process equipment except during service. Any leaks in the vessels, ducts, and control systems shall be repaired promptly to minimize fugitive emissions (construction permit number AC29-261247).

12. The permittee shall notify the Air Management Division of the Environmental Protection Commission of Hillsborough County in writing at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted (Rule 62-297.340(1)(i), F.A.C.).

13. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provisions in Rule 62-296.310(3)(c), F.A.C. These provisions are applicable to any source, including but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling (Rule 62-296.310(3)(b), F.A.C.).

14. Submit to the Air Management Division of the Environmental Protection Commission of Hillsborough County each calendar year on or before March 1, completed DEP Form 62-210.900(4), "Annual Operating Report for Air Pollutant Emitting Facility," for the preceding calendar year (Rules 62-210.370(2), F.A.C.).

15. Operation and Maintenance Plan for Particulate Control (Rule 62-296.700(6), F.A.C.):

A) Process Parameters (Arco Scrubber)(MAP Plants No. 3 & 4):

1. Manufacturer: Automotive Rubber Company
2. Model Name & Number: WM-350-L
3. Type: Cyclonic Spray Scrubber
4. Design Flow: 35,000 ACFM
5. Minimum Capture Efficiency: 95%
6. Pressure Drop: 3 to 17 inches w.g.

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

Specific Condition No. 15 continued:

7. Gas-to-Liquid Ratio: 167 ACF/gallon
8. Scrubbing Liquid: Arco Scrubber - Fresh Water & Pond Water
9. Maximum Phosphoric Acid (P_2O_5): 17.94 TPH, each plant
10. Maximum Anhydrous Ammonia (NH_3): 5.10 TPH, each plant
11. Maximum Product (Monoammonium Phosphate): 34.5 TPH, each plant
12. Common Stack for MAP Plants No. 3 and 4 and South Cooler: Height: 133 feet with Sampling Facilities
    Diameter: 84 inches i.d.
13. Minimum Recirculating Water Rate: 210 gpm
14. Minimum Make-up Water Rate: 13 gpm
15. Minimum Pump Current: 19 Amps @ 480 volts
16. Minimum Fan Current: 52 Amps @ 2300 volts

B) Process Parameters (Chemco Scrubber)(MAP Plants No. 3 & 4):

1. Manufacturer: Chemical Company
2. Model Name & Number: Unknown
3. Type: Venturi
4. Design Flow: 35,000 ACFM
5. Minimum Capture Efficiency: 95%
6. Pressure Drop: 6 to 26 inches water
7. Gas-to-Liquid Ratio: 50 ACF/gallon
8. Scrubbing Liquid: Chemco Scrubber - 16-22% Phos Acid
9. Maximum Phosphoric Acid (P_2O_5): 17.94 TPH, each plant
10. Maximum Anhydrous Ammonia (NH_3): 5.10 TPH, each plant
11. Maximum Product (Monoammonium Phosphate): 34.5 TPH, each plant

C) Process Parameters (D.R. Technology Scrubber)(South Cooler):

1. Manufacturer: D.R. Technology
2. Type: Wetted wall venturi with cyclonic mist eliminator
3. Design Flow: 56,000 ACFM
4. Efficiency: 98% particulates
5. Pressure Drop: 9 to 25 inches
6. Liquid Flow: 400 gpm Make-up Water Rate
7. Scrubber Liquid: Pond Water
8. Minimum Recirculating Water Rate: 700 gpm
9. Minimum Fan Current: 50 Amps @ 2300 volts

D) The following observations, checks, & operations apply to this source & shall be conducted on the schedule specified:

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

Specific Condition No. 15 continued:

Daily

1. Log production parameters.
2. Scrubber fan amps.
3. Scrubber: Recirculating water rate in gpm, make-up water rate in gpm.
4. Continuously monitor the scrubber recirculating rate with low flow alarms.

Semi-Annually

1. Evacuation ducting & evacuated equipment for clogging or weak spots.
2. Scrubber fan for build-up & Vibration.
3. Scrubber pump, piping & sprays.
4. Scrubber fan motor & pump motor.

E) Records:

Records of inspections, maintenance, & performance parameters shall be retained for a minimum of the last two years and shall be made available to the Department for inspection upon request (Rule 62-296.700(e), F.A.C.).

16. Cargill Fertilizer, Inc. shall comply with all "abnormal events" requirements associated with these sources on a consistent basis and all abnormal events shall be reported to the Air Management Division of the Environmental Protection Commission of Hillsborough County within thirty (30) minutes of each event. "Abnormal events" would be defined as any of the following:

1. Operation of the sources without liquid on the tailgas scrubbers for fifteen (15) minutes or more:
2. Operation of the sources for fifteen (15) minutes or more when the pH of the primary scrubber liquor is seven (7) or greater when the scrubbing medium is pond water or, when a nitrogen/phosphorous mole ratio greater than 1.6 when the scrubbing medium is phosphoric acid:
3. Any pipeline or vessel leak associated with the sources which results in release of uncontrolled ammonia emissions to the outside air in quantities in excess of the SARA Section 304 (Community Right-to-Know Reportable Quantity).
4. Ammonia emissions in excess of 200.0 pounds/hour during annual testing (ref. Specific Conditions 6 & 7). The thirty minute notification requirement above is not applicable to this item but the test report shall address actions taken to mitigate this situation.

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AO29-256726
Project: MAP Plants No. 3 and 4 and South Cooler

17. A minimum of two applications for the renewal of this operating permit shall be submitted to the Air Permitting Section of the Department's Southwest District Office no later than 60 days prior to the expiration date of this permit (Rule 62-4.090(1), F.A.C.). Note - the requirements of Rule 62-213.420, F.A.C. (Title V) may supersede this requirement.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

for Dr. Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

3804 Coconut Palm Drive
Tampa, FL 33619-8318
(813)744-6100

ATTACHMENT - GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

GENERAL CONDITIONS:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

GENERAL CONDITIONS:

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Department of Environmental Protection

Copies To:
D. Tillerson
E. Curran
M. Wells
D. York
T. Lindsay
A. Wilcox
F. Mathews

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

RECEIVED
FEB 22 1995

ORig. File: P-30-34-4

NOTICE OF PERMIT

In the Matter of an Application
for Permit by:

Mr. Elton C. Curran
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

DEP Permit No.: AC29-261247
County: Hillsborough

Enclosed is Permit Number AC29-261247 for the modification of MAP Plants No. 3 and 4 and the South Cooler located at 8813 Highway 41 South, Riverview, Hillsborough County, issued pursuant to Section 403.087, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

George W. Richardson
Air Permitting Engineer
Southwest District

3804 Coconut Palm Drive
Tampa, FL 33619-8318
(813)744-6100, Ext. 105

Mr. Elton C. Curran
Riverview, FL 33569

cc: Environmental Protection Commission
of Hillsborough County
David A. Buff, P.E., KBN Engineering and Applied Sciences, Inc.

CERTIFICATE OF SERVICE

The undersigned duly designated Deputy Department Clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed before the close of business on FEB 21 1995 to the listed persons.

FILING AND ACKNOWLEDGEMENT

FILED, on this date, pursuant to Section 120.52(11), Florida Statutes, with the designated Deputy Department Clerk, receipt of which is hereby acknowledged.

Marilyn Quispe
Clerk

FEB 21 1995
Date

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

PERMITTEE:

Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569 /

PERMIT/PROJECT:

Permit No.: AC29-261247
County: Hillsborough
Expiration Date: 01/30/97
Project: MAP Plants No. 3 and 4 and South Cooler

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 62-200 through 62-297 and 62-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the modification of two (2) ammonium phosphate granulators and one (1) associated ammonium phosphate cooler designated as MAP Plants No. 3 and 4 and the South Cooler, respectively. This modification is to eliminate the non-regulated emission limits for ammonia. Each MAP Plant is capable of producing a maximum of 34.5 tons/hour of monoammonium phosphate using 17.94 tons/hour of P_2O_5 and 5.10 tons/hour of ammonia. The South cooler is a counter-current flow pan cooler which is capable of handling up to 69.0 tons/hour monoammonium phosphate from MAP Plants No. 3 and 4. The operation of the MAP plant(s) includes granulation, screening and recycling. Screened exiting material from MAP Plants No. 3 and 4 is cooled in the South Cooler and transported by a conveyor system to storage.

Particulate matter and fluoride emissions generated from the granulating, screening and milling operations are controlled by two (2) cyclonic spray scrubbers of Automotive Rubber Company, Model WM-350-L. Design air flow of each scrubber is 35,000 ACFM. The emissions generated from the cooling operation are controlled by two (2) dry cyclones manufactured by MAC Equipment, Inc. Model 4H68, followed by a wet venturi scrubber by D.R. Technology with a design air flow of 56,000 ACFM. The pollutants are discharged from MAP Plants No. 3 and 4 and the South Cooler through a common stack 133.0 feet in height and 7.0 feet in diameter.

Location: 8813 Highway 41 South and Riverview Drive

UTM: 17-362.6 E 3082.4 N NEDS No.: 0008 Point ID No.:
22-No. 3 MAP Plant
23-No. 4 MAP Plant
24-South Cooler

Modifies Permit No.: AC29-240093

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AC29-261247
Project: MAP Plants No. 3 and 4 and South Cooler

1. A part of this permit is the attached 15 General Conditions.

2. The permittee shall not exceed the following production rates: (construction/modification application dated 10/19/93).

Plant/Equipment	Product Rate (TPH)
A) MAP Plants No. 3 & 4 combined*	69.0
B) South Cooler	69.0

*Diammonium Phosphate (DAP) shall not be produced at these plants.

3. The permittee shall not exceed the following emissions rates: (Rules 62-296.403(2), 62-296.705(2)(a), F.A.C., construction/modification application dated 10/19/93, modification request dated 11/21/94).

Source	Particulate Matter*			Fluorides		Opacity
	**lbs/ton product	lbs/ hour	TPY	lbs/ hour	TPY	
A) MAP Plants No. 3 & 4 combined	0.30	10.0	42.50	2.0	8.50	20%
B) South Cooler	0.30	12.0	51.00	1.0	4.25	20%

C) The particulate matter emission concentration from the dry cyclone/venturi scrubber shall be less than 0.04 grains/dscf.
*particulate matter includes PM^{10}
**Per rule; note that lbs./hr. limits are less than the product of lbs./ton times tons/hr. per permittee's request.

4. The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor (Rule 62-296.320(2), F.A.C.).

5. The following limitations and restrictions shall apply to ensure compliance with Specific Condition Nos. 2 & 3 (construction/modification application dated 10/19/93).

	Input Rate (TPH) P_2O_5
A) MAP Plants No. 3 & 4 combined	35.88

B) Natural Gas Usage: 2,440 CFH, each MAP Plant
C) Hours of Operation: 8,500 hours/year, Maximum

PERMITTEE:
Cargill Fertilizer, Inc.

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Project: MAP Plants No. 3 and 4 and South Cooler

6. Test the emissions from MAP Plants No. 3 and 4 and the South Cooler for the following pollutants annually within 60 days of July 14. A report of the test data shall be submitted to the Air Management Division of the Environmental Protection Commission of Hillsborough County within 45 days of the testing.

(X) Particulate matter (X) Visible emissions
(X) Fluorides (X) Ammonia (Nos. 3 & 4 MAP Plants only)

(Rules 62-297.340 and 62-297.570, F.A.C.).

7. Compliance with the emission limitations of Specific Condition No. 3 shall be determined using EPA Methods 1, 2, 4, 5, 9 and 13A or 13B contained in 40 CFR 60, Appendix A, July 1, 1990 and adopted by reference in Rule 17-297, F.A.C., while MAP Plants* No. 3 and 4 and the South Cooler are operating at 90-100% of their permitted capacity (MAP Plants No. 3 and 4 combined, 69.0 TPH Product, and the South Cooler, 69.0 TPH Product). The scrubber liquid flow rate, gas pressure drop and mole ratio as specified in Specific Condition Nos. 9 & 10 shall be included in the test report. Ammonia emissions shall be determined using a variation of the EPA draft Method, using large impingers, the last impinger dry and a probe with an external design similar to that used in EPA Method 16 of any other test method agreed to by the Department. The actual production rate shall be specified in each test report. Failure to include the actual production rate in the report may invalidate the test. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A.

The total allowable emissions from the common stack serving MAP Plants No. 3 and 4 and the South Cooler shall be the sum of the allowable emissions for each of the sources in operation during the compliance tests.

* the permittee shall seek a written approval of the Department if any of the sources is not likely to be in operation during the scheduled compliance test(s).

8. In order to comply with Specific Condition Nos. 2 & 5, the permittee shall maintain records showing production unit(s) No. 3 and 4 operating time, MAP production rate(s), phosphoric acid (P_2O_5) consumption, scrubber liquid flow(s), gas pressure drop across the ARCO & Cemco scrubber system combined for production unit(s) No. 3 and 4, and gas pressure drop across the Cooler scrubber system for a minimum of two years (permit Nos. AC29-194504, 194507, 194508 & AO29-220316).

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AC29-261247
Project: MAP Plants No. 3 and 4 and South Cooler

9. The design parameters for the scrubbers associated with these plants are listed below. The scrubbers are expected to operate at no less than 90% of these values. Final permit limits will be determined during compliance testing and incorporated into the operating permit.

Scrubber	Delta P	GPM
No. 3 ARCO & CHEMCO COMBINED	20	-
No. 3 ARCO	-	260 RECIRCULATION 25 MAKEUP
No. 3 CHEMCO	-	1070
No. 4 ARCO & CHEMCO COMBINED	20	-
No. 4 ARCO	-	260 RECIRCULATION 25 MAKEUP
No. 4 CHEMCO	-	1070
COOLER SCRUBBER	15	700 RECIRCULATION 100 MAKEUP

Within 30 days of a scrubber(s) being operated at less than 90% of its associated rate(s)/value(s) as shown above and the permittee requests the Department's authorization to operate at this condition, the permittee shall conduct a new compliance test on the effected scrubber(s) at no higher than that rate and/or value in order to demonstrate facility compliance. The test(s) results shall be submitted to this office and the EPCHC within 45 days of such testing. Acceptance of the test(s) by the Department will automatically constitute an amended permit and change the rate(s)/value(s) shown above to the rate(s)/value(s) during the compliance test.

10. The design mole ratio parameters for the CHEMCO scrubbers associated with these plants is 1.45. The scrubbers are expected to operate at no more than 110% of these values. Final permit limits will be determined during compliance testing and incorporated into the operating permit.

Within 30 days of a scrubber(s) being operated at more than 110% of its associated mole ratio as shown above and the permittee requests the Department's authorization to operate at this condition, the permittee shall conduct a new compliance test on the effected scrubber(s) at no higher than that rate and/or value in order to demonstrate facility compliance.

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AC29-261247
Project: MAP Plants No. 3 and 4 and South Cooler

Specific Condition No. 10 continued:

The test(s) results shall be submitted to this office and the EPCHC within 45 days of such testing. Acceptance of the test(s) by the Department will automatically constitute an amended permit and change the rate(s)/value(s) shown above to the rate(s)/value(s) during the compliance test.

11. The sources shall cease operation whenever the air pollution control equipment on these Plants or the South Cooler is not operating in compliance with the permit conditions or regulations. Covers shall be kept on all openings in process equipment except during service. Any leaks in the vessels, ducts, and control systems shall be repaired promptly to minimize fugitive emissions (permits AC29-194504, 194507, 194508 & AO29-220316).

12. The permittee shall notify the Air Management Division of the Environmental Protection Commission of Hillsborough County in writing at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted (Rule 62-297.340(1)(i), F.A.C.).

13. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provisions in Rule 62-296.310(3)(c), F.A.C. These provisions are applicable to any source, including but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling (Rule 62-296.310(3)(b), F.A.C.).

14. Submit to the Air Management Division of the Environmental Protection Commission of Hillsborough County each calendar year on or before March 1, completed DEP Form 62-210.900(4), "Annual Operating Report for Air Pollutant Emitting Facility," for the preceding calendar year (Rules 62-210.370(2), F.A.C.).

15. Operation and Maintenance Plan for Particulate Control (Rule 62-296.700(6), F.A.C.):

A) Process Parameters (Arco Scrubber)(MAP Plants No. 3 & 4):

1. Manufacturer: Automotive Rubber Company
2. Model Name & Number: WM-350-L
3. Type: Cyclonic Spray Scrubber
4. Design Flow: 35,000 ACFM
5. Minimum Capture Efficiency: 95%
6. Pressure Drop: 3 to 17 inches w.g.

PERMITTEE:
Cargill Fertilizer, Inc.

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Project: MAP Plants No. 3 and 4 and South Cooler

Specific Condition No. 15 continued:

7. Gas-to-Liquid Ratio: 167 ACF/gallon
8. Scrubbing Liquid: Arco Scrubber - Fresh Water & Pond Water
9. Maximum Phosphoric Acid (P_2O_5): 17.94 TPH, each plant
10. Maximum Anhydrous Ammonia (NH_3): 5.10 TPH, each plant
11. Maximum Product (Monoammonium Phosphate): 34.5 TPH, each plant
12. Common Stack for MAP Plants No. 3 and 4 and South Cooler: Height: 133 feet with Sampling Facilities
    Diameter: 84 inches i.d.
13. Minimum Recirculating Water Rate: 210 gpm
14. Minimum Make-up Water Rate: 13 gpm
15. Minimum Pump Current: 19 Amps @ 480 volts
16. Minimum Fan Current: 52 Amps @ 2300 volts

B) Process Parameters (Chemco Scrubber)(MAP Plants No. 3 & 4):

1. Manufacturer: Chemical Company
2. Model Name & Number: Unknown
3. Type: Venturi
4. Design Flow: 35,000 ACFM
5. Minimum Capture Efficiency: 95%
6. Pressure Drop: 6 to 26 inches water
7. Gas-to-Liquid Ratio: 50 ACF/gallon
8. Scrubbing Liquid: Chemco Scrubber - 16-22% Phos Acid
9. Maximum Phosphoric Acid (P_2O_5): 17.94 TPH, each plant
10. Maximum Anhydrous Ammonia (NH_3): 5.10 TPH, each plant
11. Maximum Product (Monoammonium Phosphate): 34.5 TPH, each plant

C) Process Parameters (D.R. Technology Scrubber)(South Cooler):

1. Manufacturer: D.R. Technology
2. Type: Wetted wall venturi with cyclonic mist eliminator
3. Design Flow: 56,000 ACFM
4. Efficiency: 98% particulates
5. Pressure Drop: 9 to 25 inches
6. Liquid Flow: 400 gpm Make-up Water Rate
7. Scrubber Liquid: Pond Water
8. Minimum Recirculating Water Rate: 700 gpm
9. Minimum Fan Current: 50 Amps @ 2300 volts

D) The following observations, checks, & operations apply to this source & shall be conducted on the schedule specified:

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AC29-261247
Project: MAP Plants No. 3 and 4 and South Cooler

Specific Condition No. 15 continued:

Daily

1. Log production parameters.
2. Scrubber fan amps.
3. Scrubber: Recirculating water rate in gpm, make-up water rate in gpm.
4. Continuously monitor the scrubber recirculating rate with low flow alarms.

Semi-Annually

1. Evacuation ducting & evacuated equipment for clogging or weak spots.
2. Scrubber fan for build-up & Vibration.
3. Scrubber pump, piping & sprays.
4. Scrubber fan motor & pump motor.

E) Records:

Records of inspections, maintenance, & performance parameters shall be retained for a minimum of the last two years and shall be made available to the Department for inspection upon request (Rule 62-296.700(e), F.A.C.).

16. Cargill Fertilizer, Inc. shall comply with all "abnormal events" requirements associated with these sources on a consistent basis and all abnormal events shall be reported to the Air Management Division of the Environmental Protection Commission of Hillsborough County within thirty (30) minutes of each event. "Abnormal events" would be defined as any of the following (modification request dated 11/21/94):

1. Operation of the sources without liquid on the tailgas scrubbers for fifteen (15) minutes or more:
2. Operation of the sources for fifteen (15) minutes or more when the pH of the primary scrubber liquor is seven (7) or greater when the scrubbing medium is pond water or, when a nitrogen/phosphorous mole ratio greater than 1.6 when the scrubbing medium is phosphoric acid:
3. Any pipeline or vessel leak associated with the sources which results in release of uncontrolled ammonia emissions to the outside air in quantities in excess of the SARA Section 304 (Community Right-to-Know Reportable Quantity).
4. Ammonia emissions in excess of 200.0 pounds/hour during annual testing (ref. Specific Conditions 6 & 7). The thirty minute notification requirement above is not applicable to this item but the test report shall address actions taken to mitigate this situation.

PERMITTEE:
Cargill Fertilizer, Inc.

Permit No.: AC29-261247
Project: MAP Plants No. 3 and 4 and South Cooler

17. A minimum of two applications for an operating permit shall be submitted to the Air Permitting Section of the Department's Southwest District Office no later than 180 days prior to the expiration date of this permit (Rule 62-4.090(1), F.A.C.). Note - the requirements of Rule 62-213.420, F.A.C. (Title V) may supersede this requirement.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

For Dr. Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

3804 Coconut Palm Drive
Tampa, FL 33619-8318
(813)744-6100

ATTACHMENT - GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

GENERAL CONDITIONS:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

GENERAL CONDITIONS:

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.