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BUREAU OF AIR REGULATION

**AIR PERMIT APPLICATION
SOUTH DAP PLANT
GREEN BAY FACILITY
BARTOW, FLORIDA**

Prepared for:

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

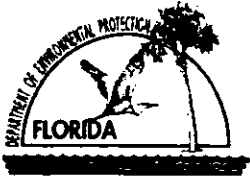
Prepared by:

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

**May 2003
0337506**

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2 Copies – Golder Associates Inc.**



Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

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

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Cargill Fertilizer, Inc.	
2. Site Name: Green Bay Facility	
3. Facility Identification Number: 1050053	<input type="checkbox"/> Unknown
4. Facility Location: Street Address or Other Locator: 4390 C.R. 640 West City: Bartow County: Polk Zip Code: 33830	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Name and Title of Application Contact: Taylor Abel, EH&S Superintendent	
2. Application Contact Mailing Address: Organization/Firm: Cargill Fertilizer, Inc. Street Address: 4390 C.R. 640 West City: Bartow State: FL Zip Code: 33830	
3. Application Contact Telephone Numbers: Telephone: (863) 519-1371 Fax: (863) 519-1213	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	6-3-03
2. Permit Number:	1050053-034-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

[] Initial Title V air operation permit 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: _____

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

Current construction permit number: _____

Operation permit number to be revised: _____

[] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: _____

[] Title V air operation permit revision 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 number to be revised: _____

Reason for revision: _____

Air Construction Permit Application

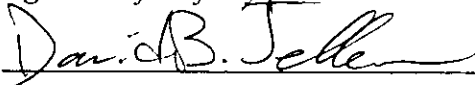
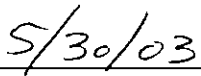
This Application for Air Permit is submitted to obtain: (Check one)

[X] Air construction permit to construct or modify one or more emissions units.

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

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

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official: Mr. David B. Jellerson, Environmental Manager
2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: Cargill Fertilizer, Inc. Street Address: 8813 Highway 41 South City: Riverview State: FL Zip Code: 33569
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (813) 671 - 6158 Fax: (813) 671 - 6149
4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative*(check here [<input checked="" type="checkbox"/>], if so) or the responsible official (check here [<input type="checkbox"/>], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i>  Signature  Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

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

* Board of Professional Engineers Certificate of Authorization #00001670

4. Professional Engineer Statement:

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

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

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

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

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

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

Signature

David A. Buff

Date

5/29/03

(seal)

* Attach any exception to certification statement.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

This application is to modify the existing South DAP Fertilizer Plant so that it can alternatively produce MAP.

2. Projected or Actual Date of Commencement of Construction: **01 June 2003**

3. Projected Date of Completion of Construction: **01 June 2007**

Application Comment

[Empty box for Application Comment]

B. FACILITY POLLUTANTS

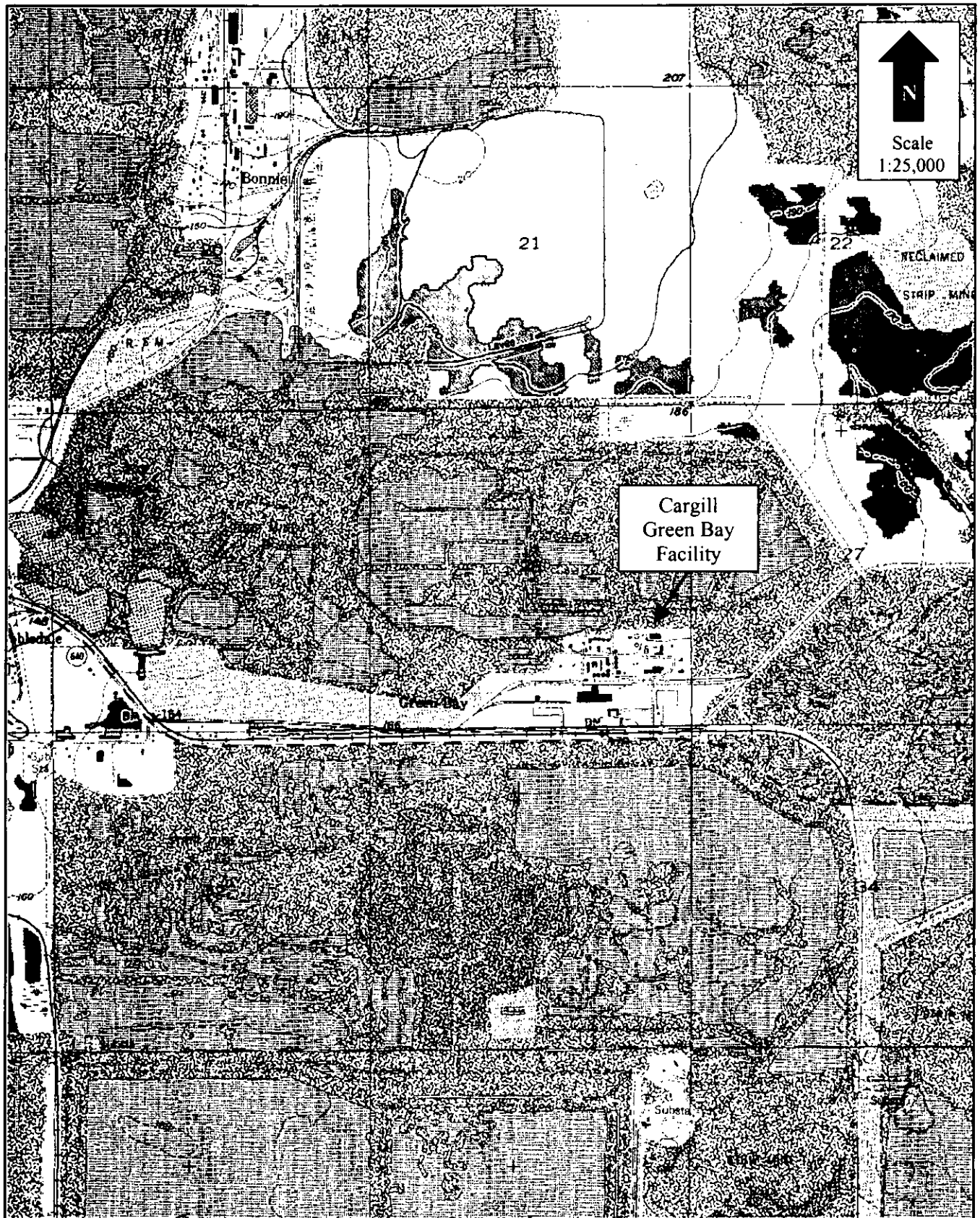
List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap		4. Basis for Emissions Cap	5. Pollutant Comment
		lb/hour	tons/year		
PM	A				Particulate Matter – Total
PM ₁₀	A				Particulate Matter – PM ₁₀
FL	A				Fluorides - Total
SO ₂	A				Sulfur Dioxide
NO _x	A				Nitrogen Oxides
H107	A				Hydrogen Fluoride
SAM	A				Sulfuric Acid Mist

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input checked="" type="checkbox"/> Not Applicable
10. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Risk Management Plan Verification: <input type="checkbox"/> Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID: _____) or previously submitted to DEP (Date and DEP Office: _____) <input type="checkbox"/> Plan to be submitted to CEPPO (Date required: _____) <input checked="" type="checkbox"/> Not Applicable
14. Compliance Report and Plan: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
15. Compliance Certification (Hard-copy Required): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

ATTACHMENT CG-FI-C1
FACILITY LOCATION MAP

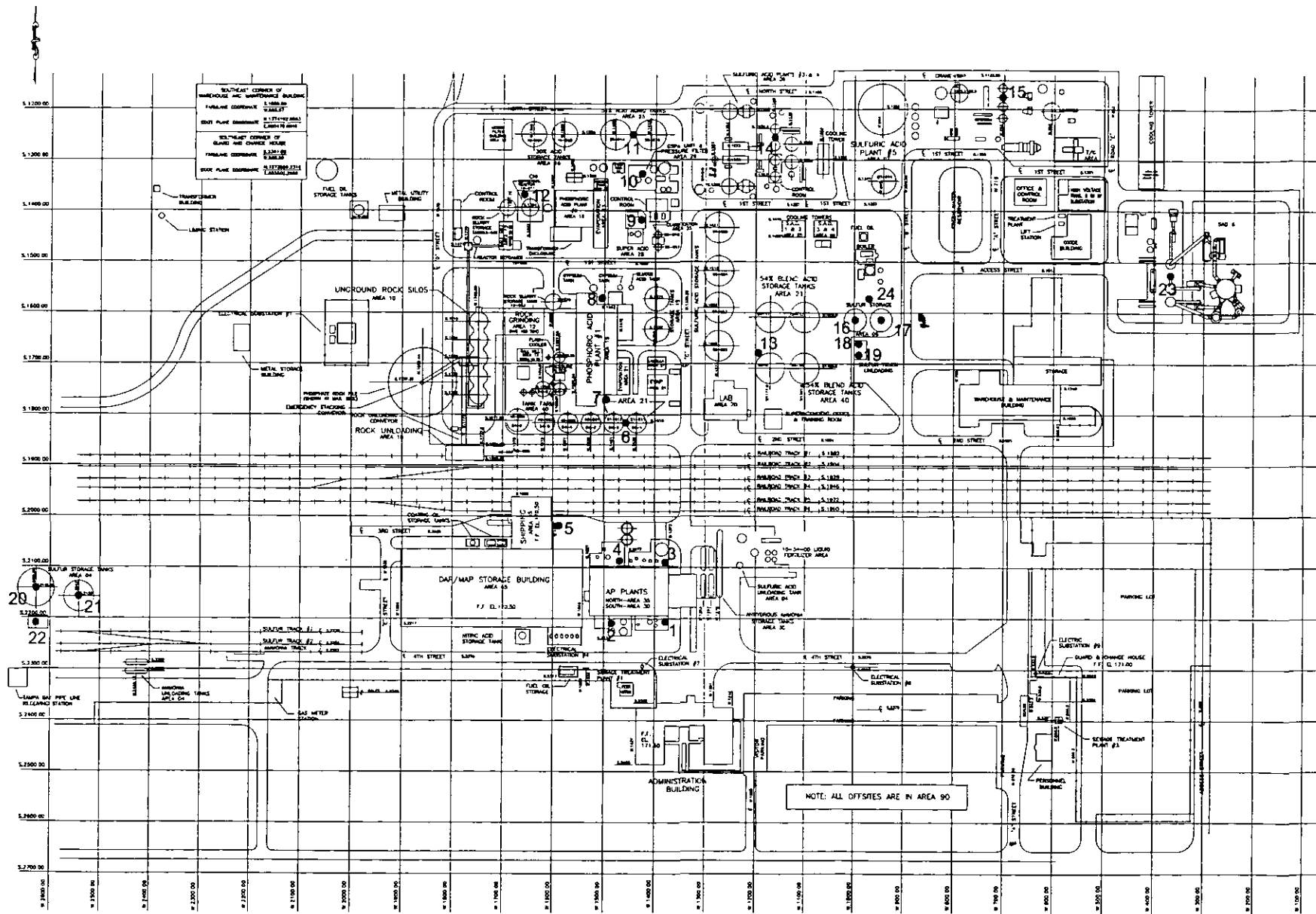


Attachment CG-FI-C1
Area Map

Source: DeLorme, 1999.



ATTACHMENT CG-FI-C2
FACILITY PLOT PLAN



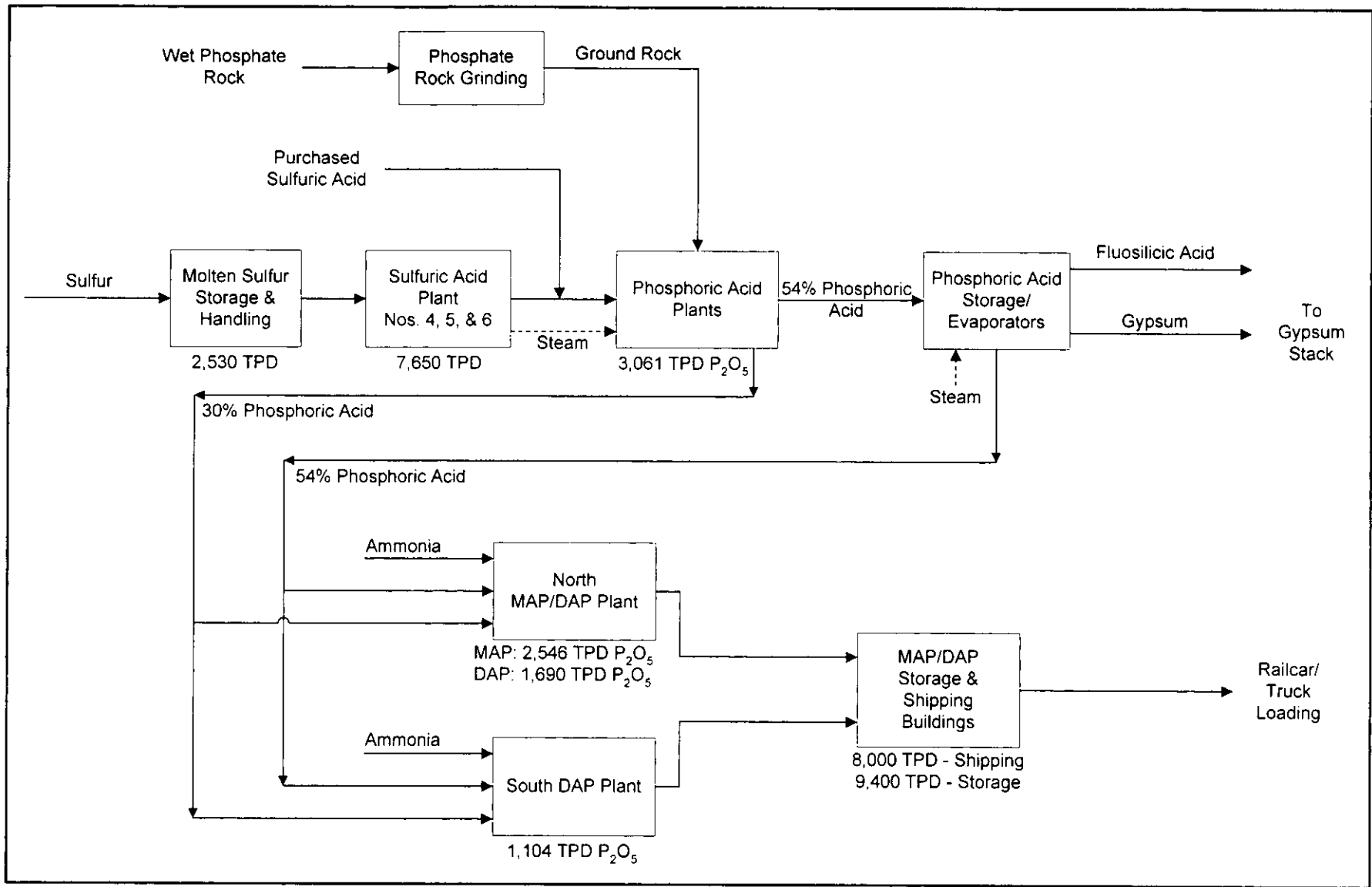
1. SOUTH DRY PRODUCTS-DRYER SCRUBBER STACK (STACK B)
2. SOUTH DRY PRODUCTS-REACTOR/GRANULATOR SCRUBBER STACK (STACK A)
3. NORTH DRY PRODUCTS-DRYER SCRUBBER STACK
4. NORTH DRY PRODUCTS-REACTOR/GRANULATOR SCRUBBER STACK
5. STORAGE AND SHIPPING SCRUBBER STACK
6. PHOSPHORIC ACID STORAGE TANK VENT
7. NO.1 PHOSPHORIC ACID PLANT-SOUTH SCRUBBER STACK
8. NO.1 PHOSPHORIC ACID PLANT-NORTH SCRUBBER STACK
9. SUPER PHOSPHORIC ACID PLANT-THERMINOL HEATER STACK
10. GREEN SUPER ACID PLANT-SCRUBBER STACK (NOT IN USE)
11. PHOSPHORIC ACID TANK VENT
12. NO.2 PHOSPHORIC ACID PLANT-SCRUBBER STACK
13. BLEND ACID TANK SCRUBBER
14. SULFURIC ACID PLANT NO.4 STACK
15. SULFURIC ACID PLANT NO.5 STACK
16. WEST SULFUR STORAGE TANK VENT
17. EAST SULFUR STORAGE TANK VENT
18. SULFUR UNLOADING PIT VENT
19. SULFUR UNLOADING PIT VENT
20. WEST SULFUR TANK VENT
21. EAST SULFUR TANK VENT
22. SULFUR PIT VENT
23. SULFURIC ACID PLANT NO.6 STACK
24. SULFUR PIT VENT

NOTE: ALL OFFSITES ARE IN AREA 90

ATTACHMENT CG-FI-G2. FACILITY

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.	SCALE	DATE	CARGILL FERTILIZER, INC. Green Bay Facility 4300 CF 400 West Green Bay, WI 54303 Telephone: 920-860-0000
	DESIGNED BY	DATE	
	CHECKED BY	DATE	PROJECT
	APPROVED BY	DATE	PROJECT
REFERENCE DRAWINGS NO. DATE REVISION BY CHK. APP.	GREEN BAY FACILITY PLOT PLAN 90-G-016		

**ATTACHMENT CG-FI-C3
PROCESS FLOW DIAGRAM**



Attachment CG-FI-C3
 Cargill - Green Bay
 Future Facility Flow Diagram

Process Flow Legend

- Solid/Liquid
- Gas
- Steam

Filename: 0337506/4/4.4/4.4.1 South DAP/CG-FI-C3.VSD

Date: 05/23/03



III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J 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.

**A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)**

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one) <input checked="" type="checkbox"/> 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). <input type="checkbox"/> 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. <input type="checkbox"/> 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.					
2. Regulated or Unregulated Emissions Unit? (Check one) <input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit. <input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.					
3. Description of Emissions Unit Addressed in This Section (limit to 60 characters): South DAP Plant					
4. Emissions Unit Identification Number: <table style="width: 100%; border: none;"> <tr> <td style="width: 60%; border: none;">ID: 007</td> <td style="width: 40%; border: none;"> <input type="checkbox"/> No ID <input type="checkbox"/> ID Unknown </td> </tr> </table>				ID: 007	<input type="checkbox"/> No ID <input type="checkbox"/> ID Unknown
ID: 007	<input type="checkbox"/> No ID <input type="checkbox"/> ID Unknown				
5. Emissions Unit Status Code: A	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 28	8. Acid Rain Unit? []		
9. Emissions Unit Comment: (Limit to 500 Characters)					

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

053 Five Venturi/Cyclonic Scrubbers

2. Control Device or Method Code(s): **053**

Emissions Unit Details

1. Package Unit:		
Manufacturer:		Model Number:
2. Generator Nameplate Rating:		MW
3. Incinerator Information:		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

**B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)****Emissions Unit Operating Capacity and Schedule**

1. Maximum Heat Input Rate:	60	mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:	1,104 TPD (100% P₂O₅)	
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:		
	24 hours/day	7 days/week
	52 weeks/year	8,760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		

**C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

List of Applicable Regulations

40 CFR 60 Appendix C, Determination of an Emission Rate Change
40 CFR 63.620(a) NESHAPS for Phosphate Fertilizer Plants
40 CFR 63.620(b)(1) NESHAPS for Phosphate Fertilizer Plants
40 CFR 63.620(e) NESHAPS for Phosphate Fertilizer Plants
40 CFR 63.622(a) Standards for existing DAP/MAP Plants
40 CFR 63.624 Wet Scrubber operating requirements
40 CFR 63.625(a) Monitoring requirements
40 CFR 63.625(b) Monitoring requirements
40 CFR 63.625(c) Monitoring requirements
40 CFR 63.625(f) Monitoring requirements
40 CFR 63.626(a)(1) Performance tests and compliance
40 CFR 63.626(b) Performance tests and compliance
40 CFR 63.626(c) Performance tests and compliance
40 CFR 63.627(a) Notification, recordkeeping, and reporting
40 CFR 63.627(b) Notification, recordkeeping, and reporting
40 CFR 63.627(c) Notification, recordkeeping, and reporting
40 CFR 63.628 Applicability of general provisions
40 CFR 63.630(a) Compliance dates
40 CFR 63.631 Exemption from NSPS
62-212.300 General Preconstruction Review Requirements
62-296.320(b) General VE Standard
62-296.403 Phosphate processing
62-297.310 Compliance Testing
62-297.401 Compliance Test Methods

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

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? South DAP Plant		2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Stack A Stack B			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V	6. Stack Height: 129.5 feet	7. Exit Diameter: 7.5 feet	
8. Exit Temperature: 107 °F	9. Actual Volumetric Flow Rate: 144,500 acfm	10. 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): Stack/vent information represents Stack B while operating in MAP mode. Stack/vent information for Stack A while operating in MAP mode is as follows: Discharge Type Code: V Stack Height: 130 feet Exit Diameter: 6 feet Exit Temperature: 191°F Actual Volumetric Flow Rate: 40,000 acfm			

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Chemical Manufacturing; Ammonium Phosphates; Ammoniator/Granulator.		
2. Source Classification Code (SCC): 3-01-030-02		3. SCC Units: Tons P₂O₅ Produced
4. Maximum Hourly Rate: 46	5. Maximum Annual Rate: 277,667	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters): Maximum Hourly Rate based on a maximum daily P₂O₅ input rate of 1,104 TPD.		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type) (limit to 500 characters): In-Process Fuel Use; Distillate Oil; Phosphate Fertilizer Dryer.		
2. Source Classification Code (SCC): 3-90-005-99		3. SCC Units: 1000 Gallons Burned
4. Maximum Hourly Rate: 0.444	5. Maximum Annual Rate: 3,893	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.05	8. Maximum % Ash:	9. Million Btu per SCC Unit: 135
10. Segment Comment (limit to 200 characters): Maximum Hourly Rate based on heat input rate of 60 MMBtu/hr.		

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type) (limit to 500 characters): In-Process Fuel Use; Natural Gas; Phosphate Fertilizer Dryer.		
2. Source Classification Code (SCC): 3-90-006-99		3. SCC Units: Million Cubic Feet Burned
4. Maximum Hourly Rate: 0.06	5. Maximum Annual Rate: 525.6	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,000
10. Segment Comment (limit to 200 characters): Maximum hourly rate based on heat input rate of 60.0 MMBtu/hr.		

Segment Description and Rate: Segment of

1. Segment Description (Process/Fuel Type) (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 % Sulfur: *	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

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

Potential/Fugitive Emissions

1. Pollutant Emitted: PM		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 12.37 lb/hour		4. Synthetically Limited? <input checked="" type="checkbox"/> [X]	
		37.3 tons/year	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 0.269 lb/ton P₂O₅ Reference: Proposed Limit		7. Emissions Method Code: 0	
8. Calculation of Emissions (limit to 600 characters): $0.269 \text{ lb/ton P}_2\text{O}_5 \times 46 \text{ ton/hr P}_2\text{O}_5 = 12.37 \text{ lb/hr}$ $277,667 \text{ TPY P}_2\text{O}_5 \times 0.269 \text{ lb/ton P}_2\text{O}_5 \times 1 \text{ ton}/2000 \text{ lb} = 37.3 \text{ TPY}$			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Represents total emissions from Stacks A and B combined.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESC PSD		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.269 lb/ton P₂O₅		4. Equivalent Allowable Emissions: 12.37 lb/hour 37.3 tons/year	
5. Method of Compliance (limit to 60 characters): Annual Stack Emission Test using EPA Method 5.			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):			

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

Potential/Fugitive Emissions

1. Pollutant Emitted: PM₁₀		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 12.37 lb/hour 37.2 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 0.269 lb/ton P₂O₅ Reference: Proposed Limit		7. Emissions Method Code:	
8. Calculation of Emissions (limit to 600 characters): 0.269 lb/ton P₂O₅ x 46 ton/hr P₂O₅ = 12.37 lb/hr 277,667 TPY P₂O₅ x 0.269 lb/ton P₂O₅ x 1 ton/2000 lb = 37.3 TPY			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Represents total emissions from Stacks A and B combined.			

Allowable Emissions Allowable Emissions _____ of _____

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. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):			

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

Potential/Fugitive Emissions

1. Pollutant Emitted: FL		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 2.76 lb/hour 8.33 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 to tons/year			
6. Emission Factor: 0.06 lb/ton P₂O₅ Reference: MACT Limit		7. Emissions Method Code: 0	
8. Calculation of Emissions (limit to 600 characters): $0.06 \text{ lb/ton P}_2\text{O}_5 \times 45 \text{ ton/hr P}_2\text{O}_5 = 2.76 \text{ lb/hr}$ $277,667 \text{ TPY P}_2\text{O}_5 \times 0.06 \text{ lb/ton P}_2\text{O}_5 \times 1 \text{ ton/2000 lb} = 8.33 \text{ TPY}$			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Represents total emissions from Stacks A and B combined.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESC PSD		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.06 lb/ton P₂O₅		4. Equivalent Allowable Emissions: 2.76 lb/hour 8.33 tons/year	
5. Method of Compliance (limit to 60 characters): Annual stack emissions test using EPA Method 13A or 13B.			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):			

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

Potential/Fugitive Emissions

1. Pollutant Emitted: SO₂	2. Total Percent Efficiency of Control:	
3. Potential Emissions: 3.16 lb/hour 13.82 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 to tons/year		
6. Emission Factor: 142 S lb/Mgal Reference: AP-42	7. Emissions Method Code: 0	
8. Calculation of Emissions (limit to 600 characters): See Part B		
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): S = 0.05 %		

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.05 % Sulfur Fuel Oil	4. Equivalent Allowable Emissions: 3.16 lb/hour 13.82 tons/year	
5. Method of Compliance (limit to 60 characters): Fuel oil analysis and usage.		
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Based on fuel oil firing.		

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE20	2. Basis for Allowable Opacity: [] Rule [X] Other
3. Requested Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: Annual VE test using EPA Method 9.	
5. Visible Emissions Comment (limit to 200 characters): Rule 62-296.320(4)(b), F.A.C. and Permit No. 1050053-012-AV. Applies to both Stacks A and B.	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

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

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements

1. Process Flow Diagram <input checked="" type="checkbox"/> Attached, Document ID: <u>Part B</u> [] Not Applicable [] Waiver Requested
2. Fuel Analysis or Specification <input checked="" type="checkbox"/> Attached, Document ID: <u>CG-EU1-J2</u> [] Not Applicable [] Waiver Requested
3. Detailed Description of Control Equipment <input checked="" type="checkbox"/> Attached, Document ID: <u>Part B</u> [] Not Applicable [] Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ [<input checked="" type="checkbox"/>] Not Applicable [] Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ [<input checked="" type="checkbox"/>] Not Applicable [] Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ [<input checked="" type="checkbox"/>] Not Applicable [] Waiver Requested
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: <u>Part B</u> [] Not Applicable
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ [<input checked="" type="checkbox"/>] Not Applicable
10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
14. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
15. Acid Rain Part Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID: _____ <input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

ATTACHMENT CG-EU1-J2
FUEL ANALYSIS

ATTACHMENT CG-EU1-J2
SOUTH AP PLANT FUEL ANALYSIS

Fuel	Density	Moisture (%)	Weight % Sulfur	Weight % Nitrogen	Weight % Ash	Heat Capacity
Natural Gas	0.048 lb/scf	<0.01	<0.001	0.62	--	1,000 Btu/scf
No. 2 Fuel Oil	6.83 lb/gal	<0.01	0.05	0.006	<0.01	135,000 Btu/gal

PART B

1.0 Project Description

Cargill Fertilizer, Inc. has recently taken ownership of the Green Bay phosphate fertilizer manufacturing facility previously owned by Farmland Hydro, L.P. The facility is located at 4390 C.R. 640 West, Bartow, Polk County, Florida. Due to extreme market pressures, as well as product quality considerations, Cargill is submitting this Air Construction Permit Application to modify their existing South Diammonium Phosphate (DAP) Fertilizer Plant so that it may also produce monoammonium phosphate (MAP).

Cargill can produce MAP in the South DAP Fertilizer Plant by simply redirecting to the granulator, a portion of the phosphoric acid now added in the reactor. The total amount of phosphoric acid used in the process would not change from current conditions. Ammonia, which is required to be added in the granulator for the production of DAP, is not used in the granulator for the production of MAP, and the total amount of ammonia used in the process would decrease. The only physical change required would be the addition of a phosphoric acid feed pipe to the granulator.

In the existing DAP manufacturing process, phosphoric acid and anhydrous ammonia are reacted in a sealed reaction tank. Ammonia is then further added to the ammoniated acid in a rotary granulator. The granulated, unsized DAP is then dried in a rotary dryer. The dryer is fired at a maximum heat input rate of 60 million British thermal units per hour (MMBtu/hr) by natural gas as the primary fuel and No. 2 fuel oil (maximum sulfur content of 0.05 percent) as the backup fuel.

The dried DAP material is sized and screened, and the oversized and undersized material is recycled back to the granulator. The product is then cooled, screened, and sent to storage in the MAP/DAP Storage Building. A flow diagram of the existing operation is presented in Figure 1. A more detailed description of the DAP production process is presented in Appendix A.

The only physical change to the existing South DAP Fertilizer Plant necessary to also produce MAP is the addition of a phosphoric acid feed pipe to the granulator to redirect a portion of the phosphoric acid fed to the reactor when processing DAP. Note that total P_2O_5 input will not increase with the production of MAP. The total finished product production rate will be reduced due to the reduction in ammonia use during MAP production. A more detailed description of the MAP production process is presented in Appendix A. A diagram showing a mass balance of process inputs and outputs while producing MAP and DAP is presented in Figure A-1 of Appendix A.

2.0 Control Equipment and Emissions

The South DAP Plant currently uses five scrubbers to control emissions. Evacuated air from the reactor and granulator is vented to the reactor/granulator venturi/cyclonic scrubber and then vented through a pond water scrubber. This air stream is then vented through "Stack A". Emissions from the dryer are evacuated through the dryer venturi/cyclonic scrubber. Emissions from the screens and mills are evacuated through the screens and mills venturi/cyclonic scrubber. The air streams exiting the dryer venturi/cyclonic scrubber and the mills and screens venturi/cyclonic scrubber are combined and vented through a cross-flow pond water scrubber. The air stream is then evacuated through "Stack B". The cooler is vented through the cooler equipment venturi/cyclonic scrubber, and is then evacuated through "Stack B". A process flow diagram is presented in Figure 1. The existing control equipment will not be changed as a result of this project.

As currently permitted, allowable fluoride (F) emissions from the South DAP Fertilizer Plant are a function of the P_2O_5 feed rate. No change in the permitted P_2O_5 feed rate is required to accommodate production of MAP in the South DAP Fertilizer Plant. Therefore, allowable fluoride emissions will not change as a result of Cargill's request to modify the South DAP Plant as described.

The allowable particulate matter (PM) emission rate for the South DAP Plant is 46.8 pounds per hour (lb/hr) or that allowed by the Process Weight Table Formula contained in Rule 62-296.320(4)(a), F.A.C., based on the actual process input rate to the dryer, whichever is less. Cargill is not requesting any change to the maximum process input rate to the dryer.

To avoid triggering new source review requirements under prevention of significant deterioration (PSD) regulations, Cargill is proposing the following permit limits for the modified South DAP Fertilizer Plant while maintaining the current hourly production rate of 46 TPH of P_2O_5 for either DAP or MAP:

1. Restrict the type of fuel that can be fired in the dryer to natural gas or fuel oil with a maximum sulfur content of 0.05 percent.
2. Limit annual production for the South DAP Fertilizer Plant to 277,667 TPY of P_2O_5 .
3. Limit F emissions to 0.06 lb/ton of P_2O_5 (equivalent hourly and annual F emission limits of 2.76 lb/hr and 8.33 TPY).
4. Limit PM/PM₁₀ emissions to 0.269 lb/ton of P_2O_5 (equivalent hourly and annual PM/PM₁₀ emission limits of 12.37 lb/hr and 37.3 TPY).

A PSD applicability analysis, using Cargill's proposed annual emission limits, is presented in Table 1. Potential annual emission rates for sulfur dioxide (SO₂), sulfuric acid mist (SAM), nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOCs) are presented in Table 1, were calculated based on combustion of natural gas or No. 2 fuel oil (maximum sulfur content of 0.05 percent) in the dryer and AP-42 emissions factors. These calculations are summarized in Table 2.

Annual future potential emission rates of F and PM/PM₁₀ were synthetically limited to avoid PSD review by maintaining the difference between actual annual and future potential annual emissions below PSD significant emission rates. Actual annual emissions (2001–2002) from the South DAP Plant are shown in Table 1. Based on this procedure, future F emissions will be limited to 8.33 TPY, and future annual PM/PM₁₀ emissions will be limited to 37.3 TPY to avoid triggering PSD review. Rule 62-296.403(1) and 40 CFR 63, Subpart BB limits F emissions from DAP production to 0.06 lb/ton P₂O₅. The following calculation was used to determine the amount of P₂O₅ that could be produced annually without triggering PSD review:

$$8.33 \text{ TPY F} \times 2,000 \text{ lb/ton} / 0.06 \text{ lb/ton P}_2\text{O}_5 = 277,667 \text{ TPY P}_2\text{O}_5$$

Similar calculations were performed for PM/PM₁₀ using reasonably attainable emission limits; however, F was determined to be the limiting pollutant. The following calculation was used to determine the maximum PM/PM₁₀ emission limit without triggering PSD review:

$$37.3 \text{ TPY PM/PM}_{10} \times 2,000 \text{ lb/ton} / 277,667 \text{ TPY P}_2\text{O}_5 = 0.269 \text{ lb/ton P}_2\text{O}_5$$

Based on limiting emissions in this fashion, the proposed project is not subject to PSD review.

Since the amount of phosphoric acid used to produce MAP is less than the amount needed for DAP, emission rates from upstream emissions units will be not affected by the requested modification of the South DAP Plant. Similarly, since there is no production rate increase, downstream emission units will not be affected. Cargill believes that actual emissions from the South DAP Plant will not increase as a result of the change to MAP (see Appendix A for further information).

Emissions of SO₂, NO_x, CO, VOCs, and SAM, result from the combustion of various fossil fuels in the dryer. PM/PM₁₀ emissions from the firing of fossil fuels in the dryer are already accounted for in the proposed emission limit of 0.269 lb/ton of P₂O₅, previously presented. To avoid New Source Review under PSD regulations for this project, Cargill agrees to lower the sulfur content of fuel oil fired in the dryer from 0.5 to 0.05 percent. These limits on fuel usage reduce the difference between current actual emissions and future potential emissions to below significant emission rates.

Since the emission increase as a result of this project will be below significant emission rates and there will be no debottlenecking of upstream or downstream emission units, New Source Review under PSD regulations is not applicable to the proposed project.

The proposed modification to the South DAP Plant is subject to the applicable provisions of Chapter 403, Florida Statutes, Chapters 62-4, 62-212 and 62-296, Florida Administrative Code (F.A.C.). The facility is located in an area designated attainment or maintenance for all criteria pollutants in accordance with F.A.C. Rule 62-275.400.

Rule 62-296.403, F. A. C., Phosphate Processing, requires that existing MAP plants meet BACT or a fluoride limit for the entire plant complex of 0.4 lb/ton P₂O₅. The Green Bay plant will meet this latter requirement.

The maximum achievable control technology (MACT) standards promulgated by EPA for Phosphate Fertilizers Production Plants (40 CFR 63, Subpart BB) apply to the South DAP Fertilizer Plant. EPA recognizes both DAP and MAP as "ammoniated phosphates", and note that most facilities can produce either product in the same process train. Therefore, EPA promulgated one MACT emission standard for ammoniated phosphates. The standard is for F, and is 0.06 lb/ton of equivalent P₂O₅ feed. The South DAP Plant will satisfy Subpart BB requirements for emissions and monitoring. Cargill has already implemented the monitoring requirements of Subpart BB at the South DAP Plant. The monitoring consists of continuously measuring and recording the pressure drop across each scrubber and the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system used for F control. These monitoring systems are certified by the manufacturer to have an accuracy of ±5 percent of its operating range.

Table 1. PSD Applicability Analysis for South DAP Plant Project, Cargill Green Bay

Source Description	Pollutant Emission Rate (TPY)								
	SO ₂	NO _x	CO	PM	PM ₁₀	VOC	TRS	SAM	Fluoride
Future Potential Emissions from Modified South DAP Fertilizer	13.82	38.93	22.08	37.30	37.30	1.45	--	0.23	8.33
Actual Emission for Existing South DAP Fertilizer Plant ^a	0.03	7.37	2.94	24.15	22.41	0.25	--	--	5.44 ^b
TOTAL CHANGE DUE TO PROPOSED PROJECT	13.79	31.56	19.15	13.15	14.89	1.20	0.00	0.23	2.89
PSD SIGNIFICANT EMISSION RATE	40	40	100	25	15	40	10	7	3
PSD REVIEW TRIGGERED?	No	No	No	No	No	No	No	No	No

Footnotes:

^a Based on the actual emissions for calendar years 2002 and 2001 presented below:

	Pollutant Emission Rate (TPY)								
	SO ₂	NO _x	CO	PM	PM ₁₀	VOC	TRS	SAM	Fluoride
Calendar Year 2001	0.04	9.07	1.10	25.48	22.00	0.18	--	--	7.31
Calendar Year 2002	0.03	5.67	4.77	22.82	22.82	0.31	--	--	5.18
Average	0.03	7.37	2.94	24.15	22.41	0.25	--	--	6.25 ^b

Fluoride emissions reported in the 2001 and 2002 Annual Operating Reports are representative of DAP production only. The amount of fluoride contained in the phosphoric acid fed to the process is different depending on whether DAP or MAP is being produced. To calculate fluoride emissions from MAP production, the average annual fluoride emission rate for DAP production, of 6.25 TPY was multiplied by the ratio of fluoride in the phosphoric acid when producing MAP versus DAP of 71.5/82.2, as shown below.

$$6.25 \text{ TPY} \times 71.5/82.2 = 5.44 \text{ TPY}$$

Table 2. Maximum Emission Rates Due to Fuel Combustion for the Dryer at the South DAP Plant, Cargill Green Bay

Parameter	Units	No. 2 Fuel Oil	Natural Gas
<u>Operating Data</u>			
Annual Operating Hours	hr/yr	8,760	8,760
Maximum Heat Input Rate	10 ⁶ Btu/hr	60	60
Hourly Fuel Oil Usage ^a	10 ³ gal/hr	0.44	N/A
Annual Fuel Oil Usage	10 ³ gal/yr	3,893	N/A
Maximum Sulfur Content	Weight %	0.05	N/A
Hourly Natural Gas Usage ^b	10 ⁶ scf/hr	N/A	0.060
Annual Natural Gas Usage	10 ⁶ scf/yr	N/A	525.6
Maximum Sulfur Content	gr/100 ft ³	N/A	N/A
Hourly LPG Usage ^f	10 ³ gal/hr	N/A	N/A
Annual LPG Usage	10 ³ gal/yr	N/A	N/A

Pollutant	AP-42 Emissions Factor ^c	No. 2 Fuel Oil		Natural gas		Maximum Emission Rate	
		Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (TPY)
<u>Sulfur Dioxide</u>							
Fuel oil	142 *(S) lb/10 ³ gal ^d	3.16	13.82	--	--	--	--
Natural gas	0.6 lb/10 ⁶ ft ³	--	--	0.04	0.16	--	--
Worse-Case Combination of Fuels		--	--	--	--	3.16	13.82
<u>Sulfuric Acid Mist</u>							
Fuel oil	2.4 *(S) lb/10 ³ gal ^{d,e}	0.05	0.23	--	--	0.053	0.23
<u>Nitrogen Oxides</u>							
Fuel oil	20 lb/10 ³ gal	8.89	38.93	--	--	--	--
Natural gas	100 lb/10 ⁶ ft ³	--	--	6.00	26.28	--	--
Worse-Case Combination of Fuels		--	--	--	--	8.89	38.93
<u>Carbon Monoxide</u>							
Fuel oil	5 lb/10 ³ gal	2.22	9.73	--	--	--	--
Natural gas	84 lb/10 ⁶ ft ³	--	--	5.04	22.08	--	--
Worse-Case Combination of Fuels		--	--	--	--	5.04	22.08
<u>Volatile Organic Compounds</u>							
Fuel oil	0.2 lb/10 ³ gal	0.09	0.39	--	--	--	--
Natural gas	5.5 lb/10 ⁶ ft ³ ^f	--	--	0.33	1.45	--	--
Worse-Case Combination of Fuels		--	--	--	--	0.33	1.45

Footnotes:

^a Based on the heat content of fuel oil of 135,000 Btu/gallon.^b Based on the heat content of natural gas of 1,000 Btu/scf.^c Emission factors for fuel oil are based on AP-42, Section 1.3, September 1998. Emission factors for natural gas are based on AP-42, Section 1.4, July 1998.^d S denotes the weight-percent of Sulfur in fuel oil; Maximum sulfur content = 0.05%.^e Sulfuric acid mist emission factor based on emission factor for SO₂ (AP-42, Section 1.3) converted to H₂SO₄ using molecular weight.^f Based on methane comprised 52% of total VOC.

APPENDIX A

Process Engineering Evaluation of Emissions Changes Resulting from Conversion of South DAP Granulation Train Operation from DAP Production to MAP Production

General Process Description

The South granulation train at Green Bay currently produces diammonium phosphate (DAP) via the Tennessee Valley Authority (TVA) granulation process. In this process, phosphoric acid and scrubber recovery solution are partially neutralized by ammonia in the reactor. The resulting slurry is sprayed onto a bed of recycle in the granulator where neutralization is completed with additional ammonia. The product from the granulator is dried, screened, and milled. The material with the desired particle size is cooled and conveyed to storage. Material not of the desired particle size is recycled to the granulator. Off gases from the process are scrubbed with an acidic scrubber solution to recover ammonia and particulate matter and then with process water to control fluoride emissions.

Production of monammonium phosphate (MAP) uses the same process as DAP with the exception that neutralization in the granulator uses phosphoric acid instead of ammonia. The conditions in the reactor and scrubbing system are the same as for DAP production. The recycle and cooling system is not altered.

Differences Between DAP and MAP Production

Overall Balance

The overall mass balance per ton of P_2O_5 input to the process is attached as Figure A-1. Because of the shift from ammonia for DAP to phosphoric acid for MAP for neutralization in the granulator, the fraction of feed P_2O_5 flowing to the reactor is reduced during MAP production. The acid fed to the granulator for MAP is evaporated acid, so the ratio of filter acid to evaporator acid fed to the plant during MAP production is reduced. The fluoride level in evaporated acid is lower than in filter acid so the total fluoride input to the plant is reduced during MAP production. MAP contains more P_2O_5 per ton than DAP, reducing the net product flow at a constant P_2O_5 content. MAP contains less nitrogen than DAP, reducing the required ammonia input to the plant. There will be no change in the total P_2O_5 feed rate to the process (46 TPH max per the Title V permit).

Reactor

There are no differences in the operating conditions (e.g., Specific Gravity and mole ratio) of the reactor between DAP and MAP production. The fraction of input P_2O_5 which flows through the reactor is reduced during the production of MAP due to the feed of phosphoric acid to the granulator. When producing MAP the lower reactor throughput will require less scrubber recovery solution, evaporated acid, and ammonia feed to maintain the same reactor conditions as when producing DAP.

Granulator

Reaction of the slurry in the granulator uses ammonia during DAP production and phosphoric acid during MAP production. During DAP production, the sparging of ammonia into the

granulator bed leads to ammonia vapor carry-over to the scrubbing system. When using phosphoric acid during MAP production, the ammonia carry-over to the scrubbers is significantly reduced.

Recycle and Cooling

The recycle and cooling systems are the same for DAP and MAP production. Both products have the same physical requirements and require the same equipment and operating conditions to attain them. When producing DAP, more product tons are produced per ton of P_2O_5 input due to the lower P_2O_5 content of DAP compared to MAP. When producing MAP, the amount of material handled by the recycle and cooling system will be lower than during DAP production. Particulate matter loading to the scrubbers is expected to decrease during MAP production due to the reduced amount of material handled by the recycle system. The reduction in particulate loading to the scrubber is expected to reduce particulate emissions.

Scrubbing

The conditions of the scrubber operation are the same for DAP or MAP production. However, the ammonia input to the scrubbers will be reduced during MAP operation as discussed above. Reduced ammonia loading to the scrubbers will require less phosphoric acid input to the scrubbers to maintain the same parameters as during DAP production. Lower phosphoric acid input to the scrubbers will reduce fluoride input to the scrubbers and reduce the amount of fluoride stripped out of the phosphoric acid. This will in turn reduce the fluoride loading to the tail gas scrubbers. Reduced loading of fluoride to the tail gas scrubbers is expected to result in reduced fluoride emissions during MAP production.

Emissions Summary

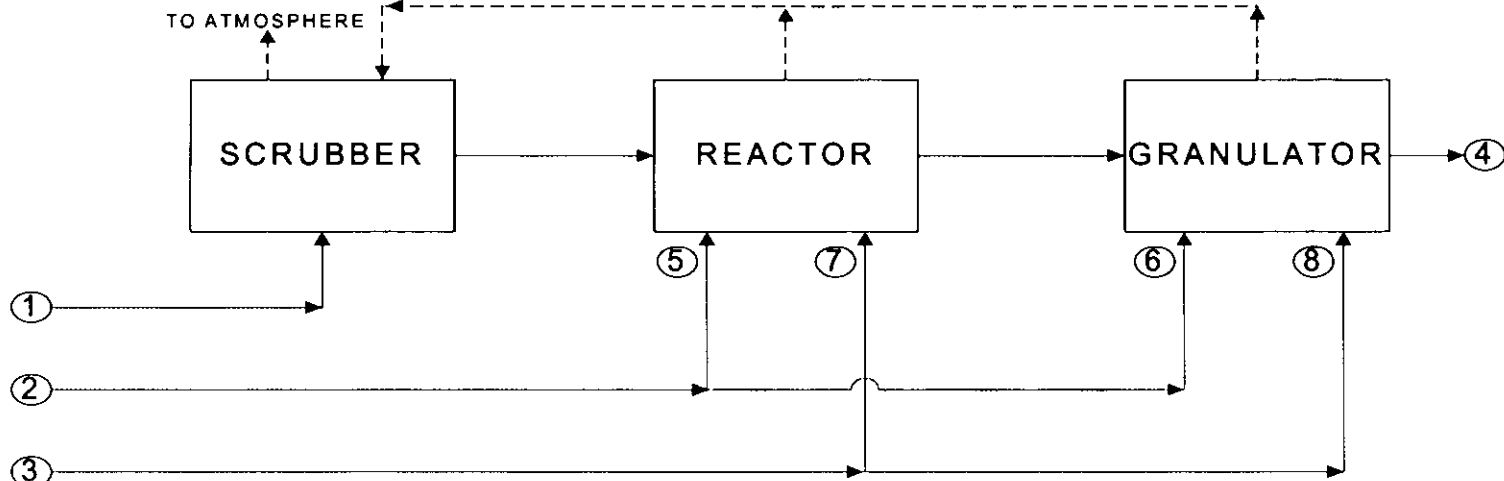
Fluoride

The addition of phosphoric acid to the granulator instead of ammonia for MAP production reduces the ratio of filter acid to evaporated acid fed to the plant. Filter acid contains more fluoride than evaporated acid so the net input of fluoride to the process is reduced. Lower ammonia input to the scrubbers during MAP production requires less phosphoric acid input to the scrubbers and concurrently less fluoride input to the scrubbers. These two factors are expected to reduce fluoride emissions during MAP production.

Particulate

The P_2O_5 content of MAP is greater than DAP resulting in less total production of MAP per ton of P_2O_5 processed. The recycle system will handle fewer tons of material per ton P_2O_5 processed during MAP production. The particulate input to the scrubber is expected to decrease during MAP production due to the reduced material handling in the recycle and cooling system. Decreased inlet loading to the scrubbers will result in reduced emissions during MAP production. Particulate emissions from downstream product handling will also be reduced during MAP production due to fewer total product tons handled per ton P_2O_5 input.

GREEN BAY PLANT



<u>STREAM</u>	<u>CASE I DAP</u>	<u>CASE II MAP</u>	
① Filter Acid Feed	0.28	0.19	Ton P ₂ O ₅
	46.2	30.8	lb F
② Evaporated Acid Feed	0.72	0.81	Ton P ₂ O ₅
	36.0	40.7	lb F
Total F Input	82.2	71.5	lb F
③ Ammonia Feed	0.48	0.26	Ton NH ₃
④ Granular Product	1.00	1.00	Ton P ₂ O ₅
⑤ Evaporated Acid to Reactor	0.72	0.48	Ton P ₂ O ₅
⑥ Evaporated Acid to Granulator	0.00	0.33	Ton P ₂ O ₅
⑦ Ammonia to Reactor	0.33	0.26	Ton NH ₃
⑧ Ammonia to Granulator	0.14	0.00	Ton NH ₃

<u>LEGEND</u>	
---	GAS FLOW
—	MATERIAL FLOW



Figure A-1
Process Flow Diagram for MAP and DAP Production

Source: Golder, 2003.



Engineering Certification

RE: Evaluation of Environmental Emissions Associated with Conversion of the Cargill Green Bay South DAP Plant to manufacture of MAP

The attached process engineering evaluation provides a review of anticipated air emission changes resulting from conversion of the Green Bay South Granulation Plant operation from DAP production to MAP production.

To the best of my knowledge, based an understanding of the basic operating conditions of the process and pollution control equipment, the proposed conversion will not result in a significant increase in regulated pollutants.

Date: 5-28-03

Signature: David B. Jellerson (seal)

Florida P.E. No.: 38676
David B. Jellerson, P.E.
Cargill Fertilizer, Inc.
8813 U.S. Highway 41, South
Riverview, FL 33569



RECEIVED

JUN 03 2003

BUREAU OF AIR REGULATION

May 30, 2003

Airbill No. 1090373340

Mr. Al Linero
New Source Review Section
Florida Department of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

Dear Al:

**RE: Cargill Crop Nutrition - Green Bay Facility
South Granulation Plant - MAP Production**

Per our meeting last week, please find enclosed four copies of a construction permit application for modification of the existing South Granulation Plant to enable the production of mono-ammonium phosphate. This change will not result in significant increases in emissions of any pollutant when comparing past actual emissions to future allowable emissions.

We greatly appreciate the Department's efforts and prompt attention to this issue as we continue to improve conditions at this recently acquired facility.

Should you have any questions or need additional information, please feel free to contact me by phone at 813-671-6297 or e-mail at david_b_jellerson@cargill.com.

Sincerely,

David B. Jellerson, P.E.
Environmental Manager

cc: D.Buff, Golder Associates
T. Abel