



KOGLER & ASSOCIATES  
 ENVIRONMENTAL SERVICES  
 4014 NW THIRTEENTH STREET  
 GAINESVILLE, FLORIDA 32609  
 904/377-5822 • FAX 377-7158

KA 123-94-05

February 14, 1995

Mr. Clair Fancy  
 Florida Department of  
 Environmental Protection  
 Twin Towers Office Building  
 2600 Blair Stone Road  
 Tallahassee, Florida 32399-2400

Subject: Application for Air Construction  
 (Modification) Permit  
 Farmland Hydro, L.P.  
 Sulfuric Acid Plant Nos. 3, 4 and 5  
 Bartow, Florida

Dear Mr. Fancy:

Enclosed are seven signed copies of the permit application and a check for \$7,500 (permit application fee) for the subject plants. The copies for FDEP, EPA and the National Park Service include six diskettes which contain the modeling information for PSD Class 1, PSD Class 2 and FAAQS.

If you have any questions concerning this application, please do not hesitate to contact me.

Very truly yours,

KOGLER & ASSOCIATES

*Pradeep Raval*  
 Pradeep A. Raval

PAR:wa  
 Enc.

c: Mr. Charles Jenkins, Farmland

Farmland Hydro, L.P.  
 P.O. Box 7305  
 Kansas City, Missouri 64116

CHECK NO. 70006861  
 0101190

80-182  
 1019

16 25 F0353 2-16-95  
 CO. BR. VEND. NO. CHECK DATE

PAY EXACTLY \$\*\*\*\*\*7,500 DOLLARS AND 00 CENTS

CHECK AMOUNT  
 \$\*\*\*\*\*7,500.00  
 VOID AFTER 180 DAYS

Boatmen's Bank of Marshall  
 Marshall, Missouri 65340

Farmland Hydro, L.P.

PAY Florida Department of  
 TO THE Environmental Protection  
 ORDER Mr. Clair Fancy  
 OF Twin Towers Office Building  
 2600 Blair Stone Rd  
 Tallahassee, FL 32399-2400

*[Handwritten Signature]*  
*[Handwritten Signature]*

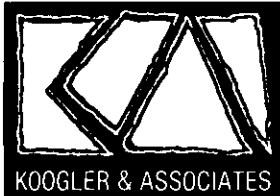
⑈ 70006861 ⑈ ⑆ 101901820 ⑆ 390103000877 ⑈

16 25 F0353 Fla. Dept. of Environmental Protection PERFORMANCE ADVISE CHECK NUMBER 70006861  
 CO. BR. VEND. NO. VENDOR NAME

DESCRIPTION	P.O.	VOUCHER	INVOICE NO.	INV. DATE	INVOICE AMOUNT	DISCOUNT TAKEN	AMOUNT PAID
			239405	021395	7,500.00		7,500.00
<b>TOTALS</b> ➤					7,500.00		7,500.00

FI-6310 (10/91)

Farmland Hydro, L.P.  
 P.O. Box 7305  
 Kansas City, Missouri 64116



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ENVIRONMENTAL SERVICES

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GAINESVILLE, FLORIDA 32609  
904/377-5822 • FAX 377-7158

KA 123-94-05

February 14, 1995

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FEB 21 1995

Bureau of  
Air Regulation

RECEIVED  
DEPT. MAIL ROOM  
1995 FEB 21 AM 9:45

Mr. Clair Fancy  
Florida Department of  
Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

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KOOGLER & ASSOCIATES

*Pradeep Raval* *CWS*  
Pradeep A. Raval

PAR:wa  
Enc.

c: Mr. Charles Jenkins, Farmland





# Department of Environmental Protection **RECEIVED**

DIVISION OF AIR RESOURCES MANAGEMENT FEB 21 1995

APPLICATION FOR AIR PERMIT - LONG FORM Bureau of Air Regulation

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

## I. APPLICATION INFORMATION

This section of the Application for Air Permit form provides general information on the scope of this application, the purpose for which this application is being submitted, and the nature of any construction or modification activities proposed as a part 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 on diskette, this section of the Application for Air Permit must also be submitted in hard-copy.

### Identification of Facility Addressed in This Application


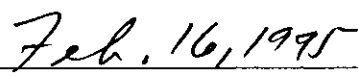
Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility name, if any; and a brief reference to the facility's physical location. If known, also enter the ARMS or AIRS facility identification number. This information is intended to give a quick reference, on the first page of the application form, to the facility addressed in this application. Elsewhere in the form, numbered data fields are provided for entry of the facility data in computer-input format.

**FARMLAND HYDRO, L.P.**  
County Road 640 West  
Bartow, Polk County, Florida

### Application Processing Information (DEP Use)

1. Date of Receipt of Application:	2-21-95
2. Permit Number:	AL53-265755
3. PSD Number (if applicable):	PSD-FL-225
4. Siting Number (if applicable):	

**Owner/Authorized Representative or Responsible Official**

1. Name and Title of Owner/Authorized Representative or Responsible Official: <b>C.M. Farris, Vice President, Operations</b>
2. Owner/Authorized Representative or Responsible Official Mailing Address:  Organization/Firm: <b>Farmland Hydro, L.P.</b> Street Address: <b>County Road 640 West</b> City: <b>Bartow</b> State: <b>Florida</b> Zip Code: <b>33830</b>
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: <b>( 813 ) 533 - 1141</b> Fax: <b>( 813 ) 533 - 8793</b>
4. Owner/Authorized Representative or Responsible Official Statement:  <i>I, the undersigned, am the owner or authorized representative* of the facility (non-Title V source) addressed in this Application for Air Permit or the responsible official, as defined in Chapter 62-213, 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. Further, I agree to operate and maintain the air pollutant emissions units and air pollution control equipment described in this application 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. If the purpose of this application is to obtain an air operation permit or operation permit revision for one or more emissions units which have undergone construction or modification, I 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. 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.



**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 revised: \_\_\_\_\_

- 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 Operation 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:

- 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: **See Attached Report**

- 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:

Attached - Amount: \$7500

Not Applicable.

**Construction/Modification Information**

1. Description of Proposed Project or Alterations:

**For the increase in sulfuric acid production rates of plant Nos. 3, 4 and 5 from a total of 5640 to 7000 tons per day of 100% sulfuric acid; and, a corresponding increase in the molten sulfur handling rates.**

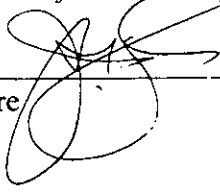
2. Projected or Actual Date of Commencement of Construction (DD-MON-YYYY):

**01-Jul-1995**

3. Projected Date of Completion of Construction (DD-MON-YYYY):

**01-Jul-1996**

**Professional Engineer Certification**

1. Professional Engineer Name: <b>John B. Koogler, Ph.D., P.E.</b> Registration Number: <b>12925</b>
2. Professional Engineer Mailing Address:  Organization/Firm: <b>Koogler &amp; Associates</b> Street Address: <b>4014 NW 13th Street</b> City: <b>Gainesville</b> State: <b>Florida</b> Zip Code: <b>32609</b>
3. Professional Engineer Telephone Numbers: Telephone: <b>(904) 377 - 5822</b> Fax: <b>(904) 377 - 7158</b>
4. Professional Engineer Statement:  <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i>  <i>(1) To the best of my knowledge, there is reasonable assurance (a) 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; or (b) for any application for a Title V source air operation permit, 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;</i>  <i>(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; and</i>  <i>(3) For any application for an air construction permit for one or more proposed new or modified emissions units, 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.</i>  _____ Signature  (seal)   _____ Date <b>2/10/95</b>

\* Attach any exception to certification statement.

**Application Contact**

1. Name and Title of Application Contact:  <p style="text-align: center;"><b>Pradeep Raval</b></p>
2. Application Contact Mailing Address:  Organization/Firm: <b>Koogler &amp; Associates</b> Street Address: <b>4014 NW 13th Street</b> City: <b>Gainesville</b> State: <b>Florida</b> Zip Code: <b>32609</b>
3. Application Contact Telephone Numbers: Telephone: <b>(904) 377 - 5822</b> Fax: <b>(904) 377 - 7158</b>

**Application Comment**

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Name, Location, and Type

1. Facility Owner or Operator: <p style="text-align: center;"><b>Farmland Hydro, L.P.</b></p>			
2. Facility Name: <p style="text-align: center;"><b>Green Bay Complex</b></p>			
3. Facility Identification Number: <span style="float: right;"><input checked="" type="checkbox"/> Unknown</span>			
4. Facility Location Information: Facility Street Address: <b>County Road 640 West</b> City: <b>Bartow</b> County: <b>Polk</b> Zip Code: <b>33830</b>			
5. Facility UTM Coordinates: Zone: <b>17</b> East (km): <b>410.3</b> North (km): <b>3079.7</b>			
6. Facility Latitude/Longitude: Latitude (DD/MM/SS):                      Longitude (DD/MM/SS):			
7. Governmental Facility Code: <p style="text-align: center;"><b>0</b></p>	8. Facility Status Code: <p style="text-align: center;"><b>A</b></p>	9. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Facility Major Group SIC Code: <p style="text-align: center;"><b>28</b></p>
11. Facility Comment:			

#### Facility Contact

1. Name and Title of Facility Contact: <p style="text-align: center;"><b>Charles Jenkins</b></p>			
2. Facility Contact Mailing Address: Organization/Firm: <b>Farmland Hydro, L.P.</b> Street Address: <b>County Road 640 West</b> City: <b>Bartow</b> State: <b>Florida</b> Zip Code: <b>33830</b>			
3. Facility Contact Telephone Numbers: Telephone: <b>(813) 533 - 1141</b> Fax: <b>(813) 533 - 8793</b>			



## B. FACILITY REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of federal, state, and local regulations applicable to the facility as a whole. (Regulations applicable to individual emissions units within the facility are addressed in Subsection III-B of the form.)

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

**The proposed project is subject to the following rules in Chapter 62 of the Florida Administrative Code.**

- 210.300(1) - Construction permit application.**
- 212.300 - General preconstruction review requirement.**
- 212.400 - PSD review of sulfur dioxide and acid mist.**
- 212.410 - BACT review for sulfur dioxide and acid mist.**

**See also discussion on rule applicability in attached report.**





### C. FACILITY POLLUTANT INFORMATION

This subsection of the Application for Air Permit form allows for the reporting of potential and estimated emissions of selected pollutants on a facility-wide basis. It must be completed for each pollutant for which the applicant proposes to establish a facility-wide emissions cap and for each pollutant for which emissions are not reported at the emissions-unit level.

**Facility Pollutant Information:** Pollutant \_\_\_\_\_ of \_\_\_\_\_

1. Pollutant Emitted:	N/A
2. Estimated Emissions:	(tons/year)
3. Requested Emissions Cap:	(lb/hour) (tons/year)
4. Basis for Emissions Cap Code:	
5. Facility Pollutant Comment:	

**Facility Pollutant Information:** Pollutant \_\_\_\_\_ of \_\_\_\_\_

1. Pollutant Emitted: :	N/A
2. Estimated Emissions:	(tons/year)
3. Requested Emissions Cap:	(lb/hour) (tons/year)
4. Basis for Emissions Cap Code:	
5. Facility Pollutant Comment:	

**Facility Pollutant Information:** Pollutant \_\_\_\_\_ of \_\_\_\_\_

1. Pollutant Emitted: :	N/A	
2. Estimated Emissions:		(tons/year)
3. Requested Emissions Cap:	(lb/hour)	(tons/year)
4. Basis for Emissions Cap Code:		
5. Facility Pollutant Comment:		

**Facility Pollutant Information:** Pollutant \_\_\_\_\_ of \_\_\_\_\_

1. Pollutant Emitted: :	N/A	
2. Estimated Emissions:		(tons/year)
3. Requested Emissions Cap:	(lb/hour)	(tons/year)
4. Basis for Emissions Cap Code:		
5. Facility Pollutant Comment:		

### D. FACILITY SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the facility as a whole. (Supplemental information related to individual emissions units within the facility is provided in Subsection III-I of the form.) Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

#### **Supplemental Requirements for All Applications**

1. Area Map Showing Facility Location: <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 2-2</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Facility Plot Plan: <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 2-3</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Process Flow Diagram(s): <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 3-1</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Fugitive Emissions Identification: <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
6. Supplemental Information for Construction Permit Application: <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable

#### **Additional Supplemental Requirements for Category I Applications Only**

N/A

7. List of Insignificant Activities: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
8. List of Equipment/Activities Regulated under Title VI:  <input type="checkbox"/> Attached, Document ID: _____  <input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed  <input type="checkbox"/> Not Applicable

<p>9. Alternative Methods of Operation:  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>10. Alternative Modes of Operation (Emissions Trading):  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>11. Enhanced Monitoring Plan:  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>12. Risk Management Plan Verification:</p> <p><input type="checkbox"/> Plan Submitted to Implementing Agency - Verification Attached,  Document ID: _____</p> <p><input type="checkbox"/> Plan to be Submitted to Implementing Agency by Required Date</p> <p><input type="checkbox"/> Not Applicable</p>
<p>13. Compliance Report and Plan  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>14. Compliance Statement (Hard-copy Required)  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>

**III. EMISSIONS UNIT INFORMATION**

A separate Emissions Unit Information Section (including subsections A through I 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**

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit.

**Type of Emissions Unit Addressed in This Section**

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, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated 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.



**Emissions Unit Information Section 1 of 4**

**Emissions Unit Control Equipment**

**A.**

1. Description:	<b>Double Contact Process</b>
2. Control Device or Method Code:	<b>044</b>

**B.**

1. Description:	<b>Mist Eliminator</b>
2. Control Device or Method Code:	<b>014</b>

**C.**

1. Description:	
2. Control Device or Method Code:	

**Emissions Unit Information Section 1 of 4**

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate:	N/A	mmBtu/hr
2. Maximum Incineration Rate:	N/A lb/hr	tons/day
3. Maximum Process or Throughput Rate:	N/A	
4. Maximum Production Rate:	<b>2100 Tons Produced or Manufactured per Day (TPD).</b>	
5. Operating Capacity Comment:		

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule:			
24	hours/day	7	days/week
52	weeks/year	8760	hours/year



**B. EMISSIONS UNIT REGULATIONS**

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

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

**See Page 11.**



**Emissions Unit Information Section 1 of 4**

**C. EMISSION POINT (STACK/VENT) INFORMATION**

This subsection of the Application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>Sulfuric Acid Plant No. 3</b>		
2. Emission Point Type Code: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4		
3. Descriptions of Emissions Points Comprising this Emissions Unit:  N/A		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:  N/A		
5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W		
6. Stack Height:	<b>100</b>	feet
7. Exit Diameter:	<b>7.5</b>	feet
8. Exit Temperature:	<b>180</b>	°F
9. Actual Volumetric Flow Rate:	<b>105,000</b>	acfm

**Emissions Unit Information Section 1 of 4**

10. Percent Water Vapor :	N/A	%
11. Maximum Dry Standard Flow Rate:	N/A	dscfm
12. Nonstack Emission Point Height:	N/A	feet
13. Emission Point UTM Coordinates: Zone:                      East (km):                      North (km):		
14. Emission Point Comment:		

**Emissions Unit Information Section 1 of 4**

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

**Segment Description and Rate:** Segment \_\_\_\_\_ of \_\_\_\_\_

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):  <b>Sulfuric Acid Production</b>	
2. Source Classification Code (SCC): <b>3-01-023-04</b>	
3. SCC Units: <b>Tons Produced or Manufactured</b>	
4. Maximum Hourly Rate: <b>87.5</b>	5. Maximum Annual Rate: <b>766,500</b>
6. Estimated Annual Activity Factor: <b>N/A</b>	
7. Maximum Percent Sulfur: <b>N/A</b>	8. Maximum Percent Ash: <b>N/A</b>
9. Million Btu per SCC Unit: <b>N/A</b>	
10. Segment Comment:	

**Emissions Unit Information Section 1 of 4**

**Segment Description and Rate:** Segment \_\_\_\_\_ of \_\_\_\_\_

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):  N/A	
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:	

**Emissions Unit Information Section 1 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 1 of 3**

1. Pollutant Emitted:	<b>SO2</b>			
2. Total Percent Efficiency of Control:	<b>99.7</b>		%	
3. Primary Control Device Code:	<b>044</b>			
4. Secondary Control Device Code:	<b>N/A</b>			
5. Potential Emissions:	<b>350</b>	lb/hour	<b>1533</b>	tons/year
6. Synthetically Limited?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
7. Range of Estimated Fugitive/Other Emissions:	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year			
8. Emission Factor:	<b>4 lb/ton acid</b>			
Reference:	<b>AP-42</b>			
9. Emissions Method Code:	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			
10. Calculation of Emissions:	<b>See Attached Report.</b>			
11. Pollutant Potential/Estimated Emissions Comment:				

**Emissions Unit Information Section 1 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	<b>Rule</b>
2. Future Effective Date of Allowable Emissions:	<b>N/A</b>
3. Requested Allowable Emissions and Units:	<b>4 lb/ton product</b>
4. Equivalent Allowable Emissions:	<b>350 lb/hour 1533 tons/year</b>
5. Method of Compliance:	<b>EPA Method 8</b>
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	<b>40 CFR 60 Subpart H</b>

**B.**

1. Basis for Allowable Emissions Code:	<b>N/A</b>
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions:	<b>lb/hr tons/year</b>
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	



Emissions Unit Information Section 1 of 4

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 2 of 3**

1. Pollutant Emitted:				
<b>SAM</b>				
2. Total Percent Efficiency of Control:		<b>99</b>	%	
3. Primary Control Device Code:				
<b>014</b>				
4. Secondary Control Device Code:				
<b>N/A</b>				
5. Potential Emissions:	<b>13.1</b>	lb/hour	<b>57.5</b>	tons/year
6. Synthetically Limited?				
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
7. Range of Estimated Fugitive/Other Emissions:				
<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year				
8. Emission Factor: <b>0.15 lb/ton acid</b>				
Reference: <b>CFR</b>				
9. Emissions Method Code:				
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5				
10. Calculation of Emissions:				
<b>See Attached Report.</b>				
11. Pollutant Potential/Estimated Emissions Comment:				

**Emissions Unit Information Section 1 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	<b>Rule</b>		
2. Future Effective Date of Allowable Emissions:	<b>N/A</b>		
3. Requested Allowable Emissions and Units:	<b>0.15 lb/ton product</b>		
4. Equivalent Allowable Emissions:	<b>13.1</b>	lb/hour	<b>57.5</b> tons/year
5. Method of Compliance:	<b>EPA Method 8</b>		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	<b>40 CFR 60 Subpart H</b>		

**B.**

1. Basis for Allowable Emissions Code:	<b>N/A</b>		
2. Future Effective Date of Allowable Emissions:			
3. Requested Allowable Emissions and Units:			
4. Equivalent Allowable Emissions:		lb/hr	tons/year
5. Method of Compliance:			
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):			

**F. VISIBLE EMISSIONS INFORMATION**

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	<b>VE</b>		
2. Basis for Allowable Opacity:	<input checked="" type="checkbox"/> Rule	<input type="checkbox"/> Other	
3. Requested Allowable Opacity:	Normal Conditions: <b>10</b> %	Exceptional Conditions:	%
	Maximum Period of Excess Opacity Allowed:		min/hour
4. Method of Compliance:	<b>EPA Method 9</b>		
5. Visible Emissions Comment:	<b>40 CFR 60 Subpart H</b>		

**Emissions Unit Information Section 2 of 4**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	N/A		
2. Basis for Allowable Opacity:	<input type="checkbox"/> Rule	<input type="checkbox"/> 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:			

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	N/A		
2. Basis for Allowable Opacity:	<input type="checkbox"/> Rule	<input type="checkbox"/> 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:			

**G. CONTINUOUS MONITOR INFORMATION**

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (Fields 1-6) must be completed for each monitoring system required.

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	<b>SO2</b>	
2. CMS Requirement:	<input checked="" type="checkbox"/> Rule	<input type="checkbox"/> Other
3. Monitor Information:		
Manufacturer:	<b>Dupont</b>	
Model Number:	<b>400</b>	Serial Number: <b>3996</b>
4. Installation Date (DD-MON-YYYY):	<b>-Mar-1975</b>	
5. Performance Specification Test Date (DD-MON-YYYY):	<b>05-Nov-1982</b>	
6. Continuous Monitor Comment:		
	<b>40 CFR 60 Subpart H</b>	

**Emissions Unit Information Section 2 of 4**

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A
2. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Monitor Information:	Manufacturer: Model Number: Serial Number:
4. Installation Date (DD-MON-YYYY):	
5. Performance Specification Test Date (DD-MON-YYYY):	
6. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A
2. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Monitor Information:	Manufacturer: Model Number: Serial Number:
4. Installation Date (DD-MON-YYYY):	
5. Performance Specification Test Date (DD-MON-YYYY):	
6. Continuous Monitor Comment:	

## H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissions Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

### 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 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 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.

**Emissions Unit Information Section 2 of 4**

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 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 February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit 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 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.

3. Increment Consuming/Expanding Code: <b>See Report</b>			
PM	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
SO2	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
NO2	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
4. Baseline Emissions: <b>See Report</b>			
PM	lb/hour		tons/year
SO2	lb/hour		tons/year
NO2			tons/year
5. PSD Comment:			



**Emissions Unit Information Section 2 of 4**

**I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION**

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

**Supplemental Requirements for All Applications**

1. Process Flow Diagram <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 3-1</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested <div style="text-align: right;"><b>Previously Submitted</b></div>
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested <div style="text-align: right;"><b>Previously Submitted</b></div>
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
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable

**Additional Supplemental Requirements for Category I Applications Only**

N/A

<p>10. Alternative Methods of Operation  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>11. Alternative Modes of Operation (Emissions Trading)  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>12. Enhanced Monitoring Plan  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>13. Identification of Additional Applicable Requirements  <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable</p>
<p>14. Acid Rain Application (Hard-copy Required)</p> <p><input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))  Attached, Document ID: _____</p> <p><input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)  Attached, Document ID: _____</p> <p><input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.)  Attached, Document ID: _____</p> <p><input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)  Attached, Document ID: _____</p> <p><input type="checkbox"/> Not Applicable</p>

**III. EMISSIONS UNIT INFORMATION**

A separate Emissions Unit Information Section (including subsections A through I 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**

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit.

**Type of Emissions Unit Addressed in This Section**

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, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.
- [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated 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.



**Emissions Unit Control Equipment**

**A.**

1. Description:	<b>Double Contact Process</b>
2. Control Device or Method Code:	<b>044</b>

**B.**

1. Description:	<b>Mist Eliminator</b>
2. Control Device or Method Code:	<b>014</b>

**C.**

1. Description:	
2. Control Device or Method Code:	

**Emissions Unit Information Section 3 of 4**

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate:	N/A	mmBtu/hr
2. Maximum Incineration Rate:	N/A lb/hr	tons/day
3. Maximum Process or Throughput Rate:	N/A	
4. Maximum Production Rate:	<b>2800 Tons Produced or Manufactured per Day (TPD).</b>	
5. Operating Capacity Comment:		

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule:			
24	hours/day	7	days/week
52	weeks/year	8760	hours/year

**B. EMISSIONS UNIT REGULATIONS**

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

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

**See Page 11.**





**C. EMISSION POINT (STACK/VENT) INFORMATION**

This subsection of the Application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>Sulfuric Acid Plant No. 5</b>		
2. Emission Point Type Code: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4		
3. Descriptions of Emissions Points Comprising this Emissions Unit:  N/A		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:  N/A		
5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W		
6. Stack Height:	<b>150</b>	feet
7. Exit Diameter:	<b>8</b>	feet
8. Exit Temperature:	<b>180</b>	°F
9. Actual Volumetric Flow Rate:	<b>133,000</b>	acfm

**Emissions Unit Information Section 3 of 4**

10. Percent Water Vapor :	N/A	%
11. Maximum Dry Standard Flow Rate:	N/A	dscfm
12. Nonstack Emission Point Height:	N/A	feet
13. Emission Point UTM Coordinates: Zone:                      East (km):                      North (km):		
14. Emission Point Comment:		

Emissions Unit Information Section 3 of 4

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):  <b>Sulfuric Acid Production</b>	
2. Source Classification Code (SCC): <b>3-01-023-04</b>	
3. SCC Units: <b>Tons Produced or Manufactured</b>	
4. Maximum Hourly Rate: <b>116.7</b>	5. Maximum Annual Rate: <b>1,022,000</b>
6. Estimated Annual Activity Factor: <b>N/A</b>	
7. Maximum Percent Sulfur: <b>N/A</b>	8. Maximum Percent Ash: <b>N/A</b>
9. Million Btu per SCC Unit: <b>N/A</b>	
10. Segment Comment:	

**Emissions Unit Information Section 3 of 4**

**Segment Description and Rate:** Segment \_\_\_\_\_ of \_\_\_\_\_

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):  N/A	
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:	

Emissions Unit Information Section **3** of **4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 1 of 3**

1. Pollutant Emitted:	<b>SO2</b>			
2. Total Percent Efficiency of Control:	<b>99.7</b>		%	
3. Primary Control Device Code:	<b>044</b>			
4. Secondary Control Device Code:	<b>N/A</b>			
5. Potential Emissions:	<b>466.7</b>	lb/hour	<b>2044</b>	tons/year
6. Synthetically Limited? [ ] Yes      [X] No				
7. Range of Estimated Fugitive/Other Emissions: [X] 1      [ ] 2      [ ] 3      _____ to _____ tons/year				
8. Emission Factor: <b>4 lb/ton acid</b> Reference: <b>AP-42</b>				
9. Emissions Method Code: [ ] 1      [ ] 2      [X] 3      [ ] 4      [ ] 5				
10. Calculation of Emissions:  <b>See Attached Report.</b>				
11. Pollutant Potential/Estimated Emissions Comment:				

**Emissions Unit Information Section 3 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	<b>Rule</b>		
2. Future Effective Date of Allowable Emissions:	<b>N/A</b>		
3. Requested Allowable Emissions and Units:	<b>4 lb/ton product</b>		
4. Equivalent Allowable Emissions:	<b>466.7</b>	<b>lb/hour</b>	<b>2044 tons/year</b>
5. Method of Compliance:	<b>EPA Method 8</b>		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	<b>40 CFR 60 Subpart H</b>		

**B.**

1. Basis for Allowable Emissions Code:	<b>N/A</b>		
2. Future Effective Date of Allowable Emissions:			
3. Requested Allowable Emissions and Units:			
4. Equivalent Allowable Emissions:	<b>lb/hr</b>	<b>tons/year</b>	
5. Method of Compliance:			
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):			

**Emissions Unit Information Section 3 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 2 of 3**

1. Pollutant Emitted:				
<b>SAM</b>				
2. Total Percent Efficiency of Control:		<b>99</b>	%	
3. Primary Control Device Code:				
<b>014</b>				
4. Secondary Control Device Code:				
<b>N/A</b>				
5. Potential Emissions:	<b>17.5</b>	lb/hour	<b>76.7</b>	tons/year
6. Synthetically Limited?				
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
7. Range of Estimated Fugitive/Other Emissions:				
<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year				
8. Emission Factor: <b>0.15 lb/ton acid</b>				
Reference: <b>CFR</b>				
9. Emissions Method Code:				
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5				
10. Calculation of Emissions:				
<b>See Attached Report.</b>				
11. Pollutant Potential/Estimated Emissions Comment:				

**Emissions Unit Information Section 3 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	<b>Rule</b>
2. Future Effective Date of Allowable Emissions:	<b>N/A</b>
3. Requested Allowable Emissions and Units:	<b>0.15 lb/ton product</b>
4. Equivalent Allowable Emissions:	<b>17.5 lb/hour 76.7 tons/year</b>
5. Method of Compliance:	<b>EPA Method 8</b>
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	<b>40 CFR 60 Subpart H</b>

**B.**

1. Basis for Allowable Emissions Code:	<b>N/A</b>
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions:	<b>lb/hr tons/year</b>
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	



**Emissions Unit Information Section 3 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 3 of 3**

1. Pollutant Emitted:				
	<b>NO<sub>x</sub></b>			
2. Total Percent Efficiency of Control:	<b>N/A</b>			%
3. Primary Control Device Code:				
	<b>N/A</b>			
4. Secondary Control Device Code:				
	<b>N/A</b>			
5. Potential Emissions:	<b>14.0</b>	lb/hour	<b>61.3</b>	tons/year
6. Synthetically Limited?				
	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
7. Range of Estimated Fugitive/Other Emissions:				
	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	_____ to _____ tons/year
8. Emission Factor: <b>0.12 lb/ton acid</b>				
	Reference:	<b>DEP Files</b>		
9. Emissions Method Code:				
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5
10. Calculation of Emissions:				
	<b>See Attached Report.</b>			
11. Pollutant Potential/Estimated Emissions Comment:				

**Emissions Unit Information Section 3 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	N/A	
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:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**B.**

1. Basis for Allowable Emissions Code:	N/A	
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**F. VISIBLE EMISSIONS INFORMATION**

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	<b>VE</b>		
2. Basis for Allowable Opacity:	<input checked="" type="checkbox"/> Rule	<input type="checkbox"/> Other	
3. Requested Allowable Opacity:	Normal Conditions: <b>10</b> %	Exceptional Conditions:	%
	Maximum Period of Excess Opacity Allowed:		min/hour
4. Method of Compliance:	<b>EPA Method 9</b>		
5. Visible Emissions Comment:	<b>40 CFR 60 Subpart H</b>		

**Emissions Unit Information Section 3 of 4**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	N/A
2. Basis for Allowable Opacity:	<input type="checkbox"/> Rule <input type="checkbox"/> 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:	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	N/A
2. Basis for Allowable Opacity:	<input type="checkbox"/> Rule <input type="checkbox"/> 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:	

**G. CONTINUOUS MONITOR INFORMATION**

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (Fields 1-6) must be completed for each monitoring system required.

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	<b>SO2</b>	
2. CMS Requirement:	<input checked="" type="checkbox"/> Rule	<input type="checkbox"/> Other
3. Monitor Information:		
Manufacturer:	<b>Dupont</b>	
Model Number:	<b>460</b>	Serial Number: <b>7345</b>
4. Installation Date (DD-MON-YYYY):	<b>-Dec-1990</b>	
5. Performance Specification Test Date (DD-MON-YYYY):	<b>18-Jun-1991</b>	
6. Continuous Monitor Comment:		
	<b>40 CFR 60 Subpart H</b>	

**Emissions Unit Information Section 3 of 4**

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A
2. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Monitor Information:	Manufacturer: Model Number: Serial Number:
4. Installation Date (DD-MON-YYYY):	
5. Performance Specification Test Date (DD-MON-YYYY):	
6. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A
2. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Monitor Information:	Manufacturer: Model Number: Serial Number:
4. Installation Date (DD-MON-YYYY):	
5. Performance Specification Test Date (DD-MON-YYYY):	
6. Continuous Monitor Comment:	

## H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissions Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

### 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 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 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.

**Emissions Unit Information Section 3 of 4**

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 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 February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit 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 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.

3. Increment Consuming/Expanding Code: <b>See Report</b>			
PM	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
SO2	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
NO2	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
4. Baseline Emissions: <b>See Report</b>			
PM	lb/hour		tons/year
SO2	lb/hour		tons/year
NO2			tons/year
5. PSD Comment:			



Emissions Unit Information Section **3** of **4**

**I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION**

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

**Supplemental Requirements for All Applications**

1. Process Flow Diagram <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 3-1</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested <div style="text-align: right;"><b>Previously Submitted</b></div>
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested <div style="text-align: right;"><b>Previously Submitted</b></div>
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
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable

**Additional Supplemental Requirements for Category I Applications Only**

N/A

10. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
12. Enhanced Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
14. Acid Rain 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"/> Not Applicable

### III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I 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

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit.

##### Type of Emissions Unit Addressed in This Section

Check one:

- 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, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.
- This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated 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.

**Emissions Unit Information Section 4 of 4**

**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section:  <p style="text-align: center;"><b>Molten Sulfur System</b></p>		
2. ARMS Identification Number: <input type="checkbox"/> No Corresponding ID <input checked="" type="checkbox"/> Unknown		
3. Emissions Unit Status Code: <p style="text-align: center;">A</p>	4. Acid Rain Unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Emissions Unit Major Group SIC Code: <p style="text-align: center;">28</p>
6. Initial Startup Date (DD-MON-YYYY):		N/A
7. Long-term Reserve Shutdown Date (DD-MON-YYYY):		N/A
8. Package Unit: Manufacturer:	N/A	Model Number:
9. Generator Nameplate Rating:	N/A	MW
10. Incinerator Information:                    N/A		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature :	°F
11. Emissions Unit Comment:		

**Emissions Unit Information Section 4 of 4**

**Emissions Unit Control Equipment**

**A.**

1. Description:  N/A
2. Control Device or Method Code:

**B.**

1. Description:
2. Control Device or Method Code:

**C.**

1. Description:
2. Control Device or Method Code:

**Emissions Unit Information Section 4 of 4**

**Emissions Unit Operating Capacity**

1. Maximum Heat Input Rate:	N/A	mmBtu/hr
2. Maximum Incineration Rate:	N/A lb/hr	tons/day
3. Maximum Process or Throughput Rate:	<b>2525 tons per day</b>	
4. Maximum Production Rate:	N/A	
5. Operating Capacity Comment:		

**Emissions Unit Operating Schedule**

Requested Maximum Operating Schedule:			
	<b>24</b>	hours/day	<b>7</b> days/week
	<b>52</b>	weeks/year	<b>8760</b> hours/year

**Emissions Unit Information Section 4 of 4**

**B. EMISSIONS UNIT REGULATIONS**

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

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

**See Page 11**





**C. EMISSION POINT (STACK/VENT) INFORMATION**

This subsection of the Application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>Molten Sulfur System</b>		
2. Emission Point Type Code: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4		
3. Descriptions of Emissions Points Comprising this Emissions Unit: <b>Vents associated with :</b> <b>a. Rail Pit</b> <b>b. Truck Pit</b> <b>c. 6000 ton Tank</b> <b>d. 2500 ton Tank</b> <b>e. 3 &amp; 4 Supply Pits</b> <b>f. 5 Supply Pit</b>		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:  <p style="text-align: center;">N/A</p>		
5. Discharge Type Code: <input type="checkbox"/> D <input checked="" type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input type="checkbox"/> V <input type="checkbox"/> W		
6. Stack Height:	N/A	feet
7. Exit Diameter:	N/A	feet
8. Exit Temperature:	200	°F
9. Actual Volumetric Flow Rate:	N/A	acfm

**Emissions Unit Information Section 4 of 4**

10. Percent Water Vapor :	N/A	%
11. Maximum Dry Standard Flow Rate:	N/A	dscfm
12. Nonstack Emission Point Height:	<b>10</b>	feet
13. Emission Point UTM Coordinates:	N/A	
Zone:	East (km):	North (km):
14. Emission Point Comment:		

**Emissions Unit Information Section 4 of 4**

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

**Segment Description and Rate:** Segment \_\_\_\_\_ of \_\_\_\_\_

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):  <b>Molten Sulfur Storage and Handling</b>	
2. Source Classification Code (SCC): <b>3-01-070-02</b>	
3. SCC Units: <b>Tons Product Transferred</b>	
4. Maximum Hourly Rate: <b>580</b>	5. Maximum Annual Rate: <b>840,000</b>
6. Estimated Annual Activity Factor: <b>N/A</b>	
7. Maximum Percent Sulfur: <b>N/A</b>	8. Maximum Percent Ash: <b>N/A</b>
9. Million Btu per SCC Unit: <b>N/A</b>	
10. Segment Comment:	

**Emissions Unit Information Section 4 of 4**

**Segment Description and Rate:** Segment \_\_\_\_\_ of \_\_\_\_\_

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):  N/A	
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:	

**Emissions Unit Information Section 4 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 1 of 5**

1. Pollutant Emitted:			
<b>PM</b>			
2. Total Percent Efficiency of Control:	N/A	%	
3. Primary Control Device Code:	N/A		
4. Secondary Control Device Code:	N/A		
5. Potential Emissions:	N/A	lb/hour	tons/year
6. Synthetically Limited?			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
7. Range of Estimated Fugitive/Other Emissions:			
<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year			
8. Emission Factor:			
<b>See Attached Report</b>			
Reference:			
9. Emissions Method Code:			
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5			
10. Calculation of Emissions:			
<b>See Attached Report</b>			
11. Pollutant Potential/Estimated Emissions Comment:			

**Emissions Unit Information Section 4 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	N/A	
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:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**B.**

1. Basis for Allowable Emissions Code:	N/A	
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**Emissions Unit Information Section 4 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 2 of 5**

1. Pollutant Emitted:	<b>PM 10</b>		
2. Total Percent Efficiency of Control:	N/A		%
3. Primary Control Device Code:	N/A		
4. Secondary Control Device Code:	N/A		
5. Potential Emissions:	N/A	lb/hour	tons/year
6. Synthetically Limited? [ ] Yes [X] No			
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [X] 2 [ ] 3 _____ to _____ tons/year			
8. Emission Factor: Reference:	<b>See Attached Report</b>		
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5			
10. Calculation of Emissions:	<b>See Attached Report</b>		
11. Pollutant Potential/Estimated Emissions Comment:			

**Emissions Unit Information Section 4 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	N/A	
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:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**B.**

1. Basis for Allowable Emissions Code:	N/A	
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		



**Emissions Unit Information Section 4 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 3 of 5**

1. Pollutant Emitted:	<b>SO2</b>		
2. Total Percent Efficiency of Control:	<b>N/A</b>		<b>%</b>
3. Primary Control Device Code:	<b>N/A</b>		
4. Secondary Control Device Code:	<b>N/A</b>		
5. Potential Emissions:	<b>N/A</b>	<b>lb/hour</b>	<b>tons/year</b>
6. Synthetically Limited? [ ] Yes [X] No			
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [X] 2 [ ] 3 _____ to _____ tons/year			
8. Emission Factor: Reference:	<b>See Attached Report</b>		
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5			
10. Calculation of Emissions:	<b>See Attached Report</b>		
11. Pollutant Potential/Estimated Emissions Comment:			

**Emissions Unit Information Section 4 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	N/A	
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:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**B.**

1. Basis for Allowable Emissions Code:	N/A	
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 4 of 5**

1. Pollutant Emitted:			
<b>H<sub>2</sub>S</b>			
2. Total Percent Efficiency of Control:	N/A	%	
3. Primary Control Device Code:	N/A		
4. Secondary Control Device Code:	N/A		
5. Potential Emissions:	N/A	lb/hour	tons/year
6. Synthetically Limited?			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
7. Range of Estimated Fugitive/Other Emissions:			
<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year			
8. Emission Factor:			
<b>See Attached Report</b>			
Reference:			
9. Emissions Method Code:			
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5			
10. Calculation of Emissions:			
<b>See Attached Report</b>			
11. Pollutant Potential/Estimated Emissions Comment:			

**Emissions Unit Information Section 4 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	N/A	
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:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**B.**

1. Basis for Allowable Emissions Code:	N/A	
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**Emissions Unit Information Section 4 of 4**

**E. POLLUTANT INFORMATION**

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

**Pollutant Potential/Estimated Emissions: Pollutant 5 of 5**

1. Pollutant Emitted:			
<b>VOC</b>			
2. Total Percent Efficiency of Control:	N/A		%
3. Primary Control Device Code:	N/A		
4. Secondary Control Device Code:	N/A		
5. Potential Emissions:	N/A	lb/hour	tons/year
6. Synthetically Limited?			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
7. Range of Estimated Fugitive/Other Emissions:			
<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year			
8. Emission Factor:			
Reference: <b>See Attached Report</b>			
9. Emissions Method Code:			
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5			
10. Calculation of Emissions:			
<b>See Attached Report</b>			
11. Pollutant Potential/Estimated Emissions Comment:			

**Emissions Unit Information Section 4 of 4**

**Allowable Emissions** (Pollutant identified on front of page)

**A.**

1. Basis for Allowable Emissions Code:	N/A	
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:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**B.**

1. Basis for Allowable Emissions Code:	N/A	
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

**F. VISIBLE EMISSIONS INFORMATION**

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	<b>VE</b>		
2. Basis for Allowable Opacity:	<input checked="" type="checkbox"/> Rule	<input type="checkbox"/> Other	
3. Requested Allowable Opacity:	Normal Conditions: <b>20</b> %	Exceptional Conditions:	%
	Maximum Period of Excess Opacity Allowed:		min/hour
4. Method of Compliance:	<b>EPA Method 9</b>		
5. Visible Emissions Comment:	<b>62-296.411, FAC</b>		

**Emissions Unit Information Section 4 of 4**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	N/A		
2. Basis for Allowable Opacity:	<input type="checkbox"/> Rule	<input type="checkbox"/> 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:			

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	N/A		
2. Basis for Allowable Opacity:	<input type="checkbox"/> Rule	<input type="checkbox"/> 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:			



**G. CONTINUOUS MONITOR INFORMATION**

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (Fields 1-6) must be completed for each monitoring system required.

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A	
2. CMS Requirement:	<input type="checkbox"/> Rule	<input type="checkbox"/> Other
3. Monitor Information:		
Manufacturer:		
Model Number:	Serial Number:	
4. Installation Date (DD-MON-YYYY):		
5. Performance Specification Test Date (DD-MON-YYYY):		
6. Continuous Monitor Comment:		

**Emissions Unit Information Section 4 of 4**

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A	
2. CMS Requirement:	<input type="checkbox"/> Rule	<input type="checkbox"/> Other
3. Monitor Information:		
Manufacturer:		
Model Number:	Serial Number:	
4. Installation Date (DD-MON-YYYY):		
5. Performance Specification Test Date (DD-MON-YYYY):		
6. Continuous Monitor Comment:		

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_\_ of \_\_\_\_\_

1. Parameter Code:	N/A	
2. CMS Requirement:	<input type="checkbox"/> Rule	<input type="checkbox"/> Other
3. Monitor Information:		
Manufacturer:		
Model Number:	Serial Number:	
4. Installation Date (DD-MON-YYYY):		
5. Performance Specification Test Date (DD-MON-YYYY):		
6. Continuous Monitor Comment:		

## H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissions Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

### **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.

- ] 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 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 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.

**Emissions Unit Information Section 4 of 4**

**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 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 February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit 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 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.

<b>3. Increment Consuming/Expanding Code: See Report</b>			
PM	<input type="checkbox"/> ] C	<input type="checkbox"/> ] E	<input type="checkbox"/> ] Unknown
SO2	<input type="checkbox"/> ] C	<input type="checkbox"/> ] E	<input type="checkbox"/> ] Unknown
NO2	<input type="checkbox"/> ] C	<input type="checkbox"/> ] E	<input type="checkbox"/> ] Unknown
<b>4. Baseline Emissions: See Report</b>			
PM	lb/hour	tons/year	
SO2	lb/hour	tons/year	
NO2		tons/year	
<b>5. PSD Comment:</b>			

Emissions Unit Information Section 4 of 4

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

**Supplemental Requirements for All Applications**

1. Process Flow Diagram <input checked="" type="checkbox"/> Attached, Document ID: <b>Fig. 3-2</b> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> 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
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input checked="" type="checkbox"/> Attached, Document ID: <b>Report</b> <input type="checkbox"/> Not Applicable

**Emissions Unit Information Section 4 of 4**

**Additional Supplemental Requirements for Category I Applications Only**

10. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
12. Enhanced Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
14. Acid Rain 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"/> Not Applicable

A REPORT IN SUPPORT OF  
PSD PERMIT APPLICATION

PREPARED FOR:

FARMLAND HYDRO, L.P.  
GREEN BAY COMPLEX  
POLK COUNTY, FLORIDA

FEBRUARY 1995

PREPARED BY:

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4014 N.W. 13TH STREET  
GAINESVILLE, FLORIDA 32609  
(904) 377-5822

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Current Air Permits; and, Compliance Test Data.

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## 1.0 SYNOPSIS OF APPLICATION

### 1.1 APPLICANT

Farmland Hydro, L.P.  
Green Bay Complex  
P.O. Box 960  
Bartow, FL 33830

### 1.2 FACILITY LOCATION

Farmland Hydro, L.P. (Farmland), Green Bay Complex, consists of a phosphate chemical fertilizer manufacturing facility approximately six miles southwest of Bartow, Florida, on State Road 640 in Polk County. The UTM coordinates of Farmland's sulfuric acid manufacturing complex are Zone 17, 410.33 km east and 3079.66 km north.

### 1.3 PROJECT DESCRIPTION

Farmland proposes to increase the permitted sulfuric acid production rate of the three existing double absorption sulfuric acid plants from a total of 5640 to 7000 tons per day (TPD) of 100% H<sub>2</sub>SO<sub>4</sub>, or an increase of about 25 percent. Correspondingly, a 25 percent increase is also requested for the molten sulfur handling rates; from a maximum rate of 2020 to 2525 TPD, or from a maximum rate of 670,000 TPY to 840,000 TPY.

The proposed project will result in a significant net increase (in accordance with Table 212.400-2 of Chapter 17-212, Florida Administrative Code, FAC) in the emission rates of sulfur dioxide and sulfuric acid mist; and, a less than significant increase in the emission rate of nitrogen oxides.

Farmland is submitting this report in support of the application to the Florida Department of Environmental Protection (FDEP) for an increase in the molten sulfur handling rate, and an increase in sulfuric acid production rate at the Green Bay facility. The report includes a description of the existing facility and the proposed project, a review of Best Available Control Technology, an ambient air quality analysis and an evaluation of the impact of the proposed project on soils, vegetation, visibility, and the Class I area.

## 2.0 FACILITY DESCRIPTION

The Farmland fertilizer manufacturing facility is located near Bartow in Polk County, Florida. The site location and area location maps are presented in Figures 2-1 and 2-2, respectively.

### 2.1 EXISTING FACILITY

The existing fertilizer complex processes wet phosphate rock into several different fertilizer products. This is accomplished by reacting the phosphate rock with sulfuric acid to produce phosphoric acid and then converting the phosphoric acid to fertilizer products. The chemical complex includes sulfuric acid plants, phosphoric acid plants, super phosphoric acid plant, monoammonium phosphate (MAP) and diammonium phosphate (DAP) plants, and storage, handling, grinding and shipping facilities for phosphate rock, ammonia, sulfur, and fertilizer products. Figure 2-3, Plot Plan, shows the location of the existing plants.

The facility currently purchases additional sulfuric acid to meet the fertilizer production requirements. The requested increase in sulfuric acid manufacture at Farmland will reduce the amount of acid that would have to be purchased.

#### 2.1.1 Sulfuric Acid Plant

All three existing sulfuric acid plants utilize the double absorption process. Molten sulfur is fired into a furnace producing sulfur dioxide.

Multiple beds of catalyst convert the sulfur dioxide to sulfur trioxide. Dual absorption towers use sulfuric acid to absorb the sulfur trioxide forming concentrated acid (product). A significant amount of process waste heat is recovered by heat exchangers. The emissions of sulfur dioxide are controlled by the dual absorption towers. The emissions of acid mist are controlled by mist eliminators. There are also some nitrogen oxides emitted from the sulfur combustion process.

The existing Nos. 3 and 4 sulfuric acid plants are each permitted to produce 1620 TPD of 100 percent  $H_2SO_4$ . The No. 5 sulfuric acid plant is permitted to produce 2400 TPD of 100 percent  $H_2SO_4$ . The plants are subject to federal New Source Performance Standards as set forth in 40 CFR 60, Subpart H. The applicable emission limiting standards for the plants are: 4 pounds per ton of 100 percent acid, for sulfur dioxide; 0.15 pound per ton of 100 percent acid, for acid mist; and 10 percent opacity, for visible emissions. The state of Florida has identical emission limiting standards for new sulfuric acid plants as set forth in Rule 62-296.402, FAC.

The following are the current FDEP air permits for the sulfuric acid plants:

Sulfuric Acid Plant No. 3 - A0 53-217563, expires 7-2-95.

Sulfuric Acid Plant No. 4 - A0 53-217564, expires 7-2-95.

Sulfuric Acid Plant No. 5 - A0 53-200485, expires 7-2-95.

It is expected that the above permit expiration dates will be

automatically extended to sixty days past the proposed Title V permit application submittal date.

The estimated actual emissions of sulfur dioxide, sulfuric acid mist (SAM), and nitrogen oxides from the sulfuric acid plants are presented in Table 2-1. Nitrogen oxide emissions from the sulfuric acid plants have been estimated by using an emission factor of 0.12 pound per ton of 100 percent H<sub>2</sub>SO<sub>4</sub> produced, an emission factor used by FDEP in recent permitting of similar plants. Limited initial test data at one of the fertilizer plants indicate that the actual emissions of nitrogen oxides are consistently below the "generic" emission factor used in past permit applications. However, it is recognized that emissions can vary from site to site. Therefore, the same "generic" emission factor is utilized for evaluating the proposed project.

#### 2.1.2 Molten Sulfur System

Molten sulfur is unloaded from railcars and trucks into pits. The rail and truck pits pump the sulfur to storage tanks. The molten sulfur is supplied to the sulfuric acid plants as needed. There are negligible air emissions from the molten sulfur system and as a result there is no add-on pollution control equipment.

The existing molten sulfur system is permitted to receive/handle upto 2020 TPD and 670,000 TPY of sulfur. The molten sulfur system is subject to the emission limiting standards as set forth in Rule 62-296.411, FAC. The standards require the use of specific work practices and limit visible emissions to 20 percent opacity. The current FDEP air permit for the molten sulfur system is A053-218118 (expires 11-15-95).





# BRADLEY JUNCTION, FLA.

N2745-W8152.5/7.5

1949  
PHOTOREVISED 1972  
AMS 4639 IV SW-SERIES V847

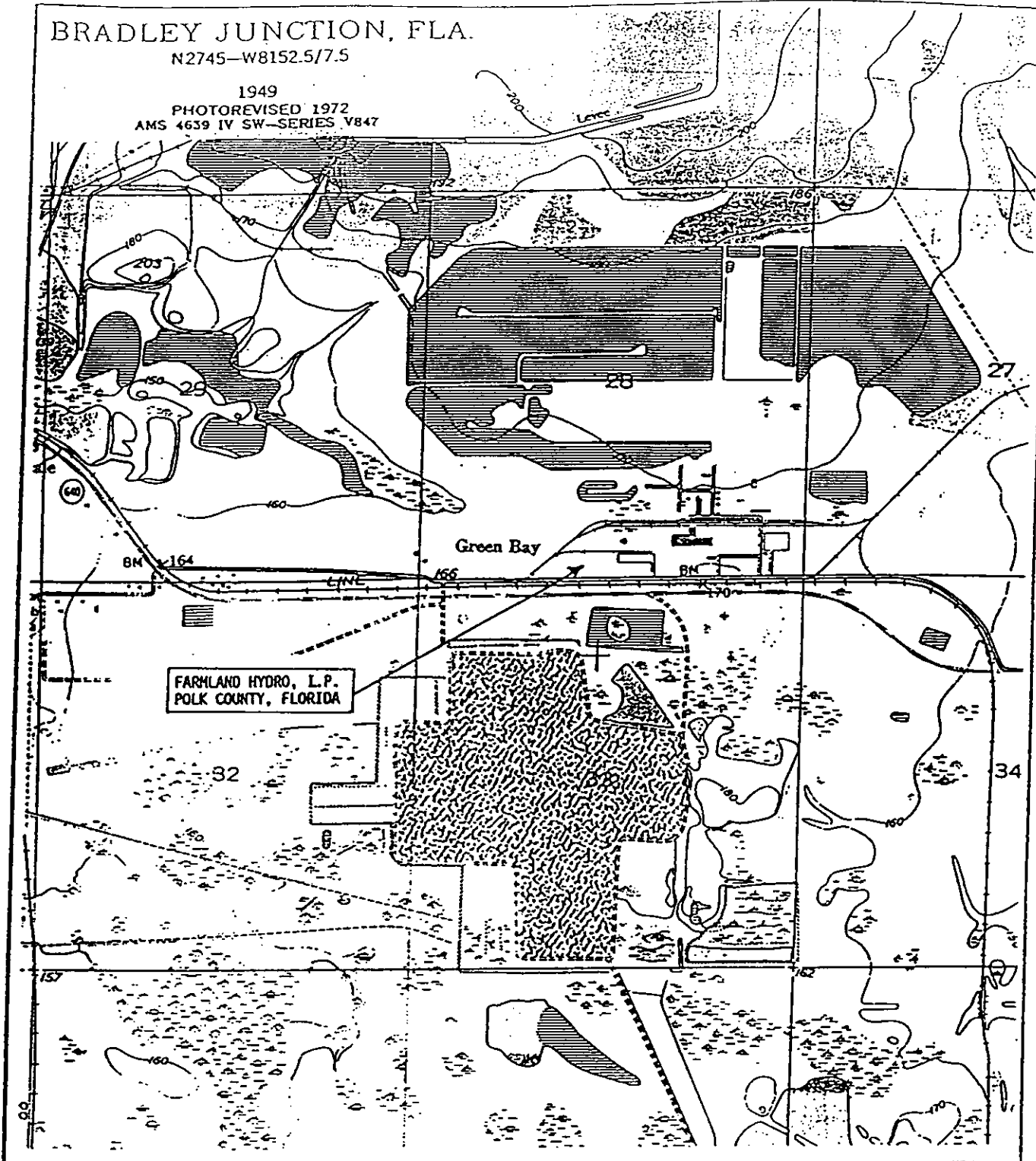
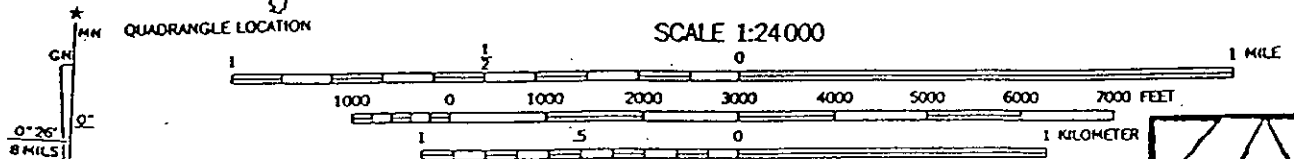


FIGURE 2-2  
AREA LOCATION MAP

SCALE 1:24000



CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL

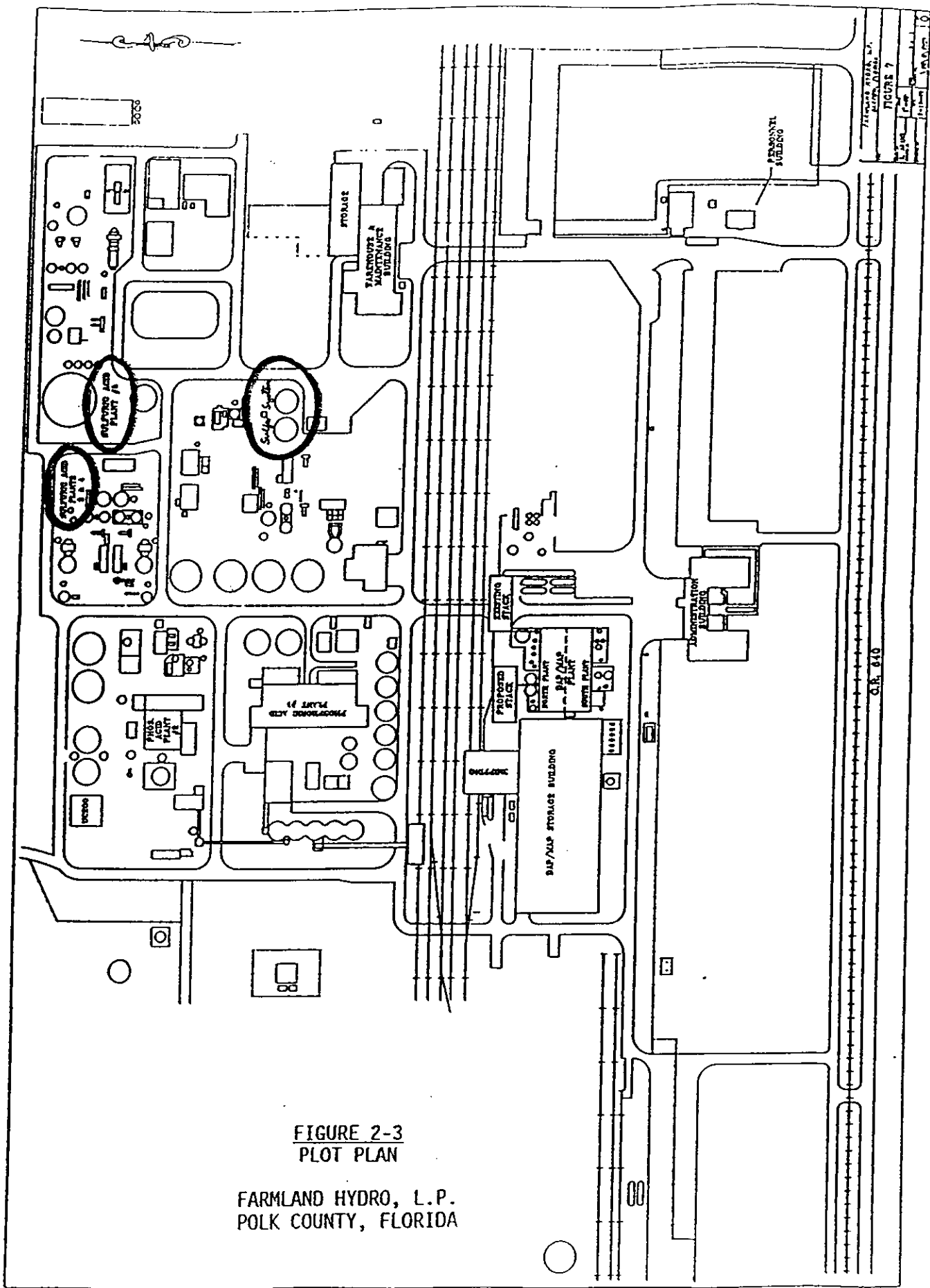


FIGURE 2-3  
PLOT PLAN

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

DATE	1/10/00
BY	J. L. ...
CHECKED	...
APPROVED	...
TITLE	FIGURE 7
PROJECT	...
SCALE	...
PROJECT NO.	...
DATE	1/10/00

TABLE 2-1

SUMMARY OF ACTUAL EMISSIONS(1)  
SULFURIC ACID PLANTS AND SULFUR SYSTEM

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

POLLUTANT	ESTIMATED ACTUAL EMISSIONS (TPY)				
	Sulfuric Acid Plants			Sulfur System	TOTAL
	No.3	No.4	No.5		
SO2	661.4	695.7	803.5	14.22	2174.8
SAM	22.5	19.5	34.4	-	76.4
NOx	34.1	34.3	46.2	-	114.6
PM	-	-	-	7.71	7.7
H2S	-	-	-	9.45	9.5
VOC	-	-	-	14.02	14.0

## NOTES:

- (1) Sulfuric acid plant emissions estimated using compliance tests results and representative hours of operation. Nitrogen oxides emissions estimated using emission factor.
- (2) Sulfur system emissions are estimated to be equal to permitted emissions.
- (3) Emission calculations are presented in the Appendix.

### 3.0 PROPOSED PROJECT

#### 3.1 PROJECT DESCRIPTION

Farmland proposes to increase the permitted sulfuric acid production rate of the three existing double absorption sulfuric acid plants from a total of 5640 to 7000 tons per day (TPD) of 100% H<sub>2</sub>SO<sub>4</sub>. The proposed project may involve an increase in the amount of catalyst utilized in the process, if necessary, without any equipment changes to plant Nos. 3 and 4. Production increase on plant No. 5, however, will require replacement of a small heat exchange unit with a larger heat exchange unit. It should be noted that the heat exchanger is not a source of air emissions.

The emission limits for the sulfuric acid plants will be in accordance with the Federal NSPS and Rule 17-296.402, FAC; i.e., the sulfur dioxide and acid mist emission limits will be 4.0 pounds per ton and 0.15 pounds per ton of 100 percent sulfuric acid, respectively.

The molten sulfur handling rates will increase from 2020 to 2525 TPD, or from 670,000 TPY to 840,000 TPY. The proposed project will involve no physical changes to the molten sulfur system. The emission limits for the molten sulfur system will be in accordance with Rule 17-296.411, FAC, limiting visible emissions to 20% opacity and maintaining proper operation practices.

The facility currently purchases additional sulfuric acid to meet the

fertilizer production demands. The proposed increase in sulfuric acid production will simply reduce purchase requirements. Therefore, the proposed project will not affect the operation of any other plants at the facility.

Process flow diagrams, for the sulfuric acid plant and the molten sulfur system, are presented in Figures 3-1 and 3-2.

A summary of the permitted, actual and proposed operating characteristics of the two systems are presented in Table 3-1. The net emission changes as a result of the proposed project are summarized in Table 3-2.

The information presented in Table 3-2 shows there will be a significant net increase in the annual emissions of sulfur dioxide and sulfuric acid mist, and a less than significant increase in the annual emissions of nitrogen oxides (as defined by Table 212.400-2, Chapter 62-212, FAC).

### 3.2 RULE REVIEW

The following are the state and federal air regulatory requirements that apply to new or modified sources subject to a Prevention of Significant Deterioration (PSD) review.

In accordance with EPA and state of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) are subject to preconstruction review. Florida's State Implementation Plan (SIP), approved by the EPA, authorizes the Florida Department of Environmental Protection (FDEP) to manage the air pollution program in Florida.

The PSD review determines whether or not significant air quality deterioration will result from a new or modified facility. Federal PSD regulations are contained in 40CFR52.21, Prevention of Significant Deterioration of Air Quality. The state of Florida has adopted PSD regulations which are essentially identical to the federal regulations and are contained in Chapter 62-212 of the Florida Administration Code (FAC). All new major facilities and major modifications to existing facilities are subject to control technology review, source impact analysis, air quality analysis and additional impact analyses for each pollutant subject to a PSD review. A facility must also comply with the Good Engineering Practice (GEP) stack height rule.

A major facility is defined in the PSD rules as any one of the 28 specific

source categories (see Table 3-3) which has the potential to emit 100 tons per year (tpy) or more, or any other stationary facility which has the potential to emit 250 tpy or more, of any pollutant regulated under the CAA. A major modification is defined in the PSD rules as a change at an existing major facility which increases the actual emissions by greater than significant amounts (see Table 3-4).

### 3.2.1 Ambient Air Quality Standards

The EPA and the state of Florida have developed/adopted ambient air quality standards, AAQS (see Table 3-5). Primary AAQS protect the public health while the secondary AAQS protect the public welfare from adverse effects of air pollution. Areas of the country have been designated as attainment or nonattainment for specific pollutants. Areas not meeting the AAQS for a given pollutant are designated as nonattainment areas for that pollutant. Any new source or expansion of existing sources in or near these nonattainment areas are usually subject to more stringent air permitting requirements. Projects proposed in attainment areas are subject to air permit requirements which would ensure continued attainment status.

### 3.2.2 PSD Increments

In promulgating the 1977 CAA Amendments, Congress quantified concentration increases above an air quality baseline concentration levels for sulfur dioxide (SO<sub>2</sub>) and particulate matter (PM/TSP) which would constitute



significant deterioration. The size of the allowable increment depends on the classification of the area in which the source would be located or have an impact. Class I areas include specific national parks, wilderness areas and memorial parks. Class II areas are all areas not designated as Class I areas and Class III areas are industrial areas in which greater deterioration than Class II areas would be allowed. There are no designated Class III areas in Florida.

In 1988, EPA promulgated PSD regulations for nitrogen oxides (NO<sub>x</sub>) and PSD increments for nitrogen dioxide (NO<sub>2</sub>) concentrations. FDEP adopted the NO<sub>2</sub> increments in July 1990 (see Table 3-6 for PSD increments).

In the PSD regulations, as amended August 7, 1980, baseline concentration is defined as the ambient concentration level for a given pollutant which exists in the baseline area at the time of the applicable baseline date and includes the actual emissions representative of facilities in existence on the applicable baseline date, and the allowable emissions of major stationary facilities which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

The emissions not included in the baseline concentration and, therefore, affecting PSD increment consumption are the actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO<sub>2</sub> and PM (TSP) and February 8, 1988, for NO<sub>2</sub>, and the actual emission increases and decreases at any stationary facility occurring after the baseline date.

### 3.2.3 Control Technology Evaluation

The PSD control technology review requires that all applicable federal and state emission limiting standards be met and that Best Available Control Technology (BACT) be applied to the source. The BACT requirements are applicable to all regulated pollutants subject to a PSD review.

BACT is defined in Chapter 62-212, FAC as an emission limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case-by-case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of such pollutant. If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead, to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation. Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.

The reason for evaluating the BACT is to minimize as much as possible the consumption of PSD increments and to allow future growth without significantly degrading air quality. The BACT review also analyzes if the most current control systems are incorporated in the design of a proposed facility. The BACT, as a minimum, has to comply with the applicable New Source Performance Standard for the source. The BACT analysis requires the evaluation of the available air pollution control methods including a cost-benefit analysis of the alternatives. The cost-benefit analysis includes consideration of materials, energy, and economic penalties associated with the control systems, as well as environmental benefits derived from the alternatives.

EPA recently determined that the bottom-up approach (starting at NSPS and working up to BACT) was not providing the level of BACT originally intended. As a result, in December 1987, EPA strongly suggested changes in the implementation of the PSD program including the "top-down" approach to BACT. The top-down approach requires an applicant to start with the most stringent control alternative, often Lowest Achievable Emission Rate (LAER), and justify its rejection or acceptance as BACT. Rejection of control alternatives may be based on technical or economical infeasibility, physical differences, locational differences, and environmental or energy impact differences when comparing a proposed project with a project previously subject to that BACT.

#### 3.2.4 Air Quality Monitoring

An application for a PSD permit requires an analysis of ambient air quality in the area affected by the proposed facility or major modification. For a new major facility, the affected pollutants are those that the facility would potentially 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 one year, but no less than four months, is required. Existing ambient air data for a location in the vicinity of the proposed project is acceptable if the data meet FDEP quality assurance requirements. If not, additional data would need to be gathered. There are guidelines available for designing a PSD air monitoring network in EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration."

FDEP may exempt a proposed major stationary facility or major modification from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause air quality impacts less than the de minimis levels (see Table 3-4).

### 3.2.5 Ambient Impact Analysis

A source impact analysis is required for a proposed major source subject to PSD for each pollutant for which the increase in emissions exceeds the significant emission rate. Specific atmospheric dispersion models are required in performing the impact analysis. The analysis should demonstrate the project's compliance with AAQS and allowable PSD increments. The impact analysis for criteria pollutants may be limited to only the new or modified source if the net increase in impacts due to the new or modified source is below significant impact levels.

Typically, a five-year period is used for the evaluation of the highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The term "highest, second-highest" refers to the highest of the second-highest concentrations at all receptors. The second-highest concentration is considered because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If less than five years of meteorological data are used in the modeling analysis, the highest concentration at each receptor is normally used.

### 3.2.6 Additional Impact Analysis

The PSD rules also require analyses of the impairment to visibility and the impact on soils and vegetation that would occur as a result of the project. A visibility impairment analysis must be conducted for PSD Class I areas. Impacts due to commercial, residential, industrial, and other

growth associated with the source must be addressed.

### 3.2.7 Good Engineering Practice Stack Height

In accordance with Rule 62-210.550, FAC, the degree of emission limitation required for control of any pollutant should not be affected by a stack height that exceeds GEP, or any other dispersion technique. GEP stack height is defined as the greater of:

1. 65 meters (m), or
2. A height established by applying the formula:

$$H_g = H + 1.5 L$$

where:

$H_g$  - GEP stack height,

$H$  - Height of the structure or nearby structure, and

$L$  - Lesser dimension, height or projected width of nearby structure(s)

3. A height demonstrated by a model or field study.

The GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height. The actual stack height may be higher or lower.

### 3.3 RULE APPLICABILITY

The sulfuric acid plant production increases at Farmland are classified as a major modification to a major source subject to both state and federal regulations as set forth in Rule 62-212, FAC. The facility is located in an area classified as attainment for each of the regulated air pollutants in accordance with Rule 62-275, FAC. The proposed project will result in significant increases in the emissions of sulfur dioxide and acid mist, as defined in Rule 62-212, FAC; and, will therefore be subject to PSD preconstruction review requirements (see Table 3-2). This will include a determination of Best Available Control Technology, an air quality review, Good Engineering Practice stack height analysis and an evaluation of impacts on soils, vegetation and visibility.

No PSD preconstruction review is required for the emissions of nitrogen oxides as the estimated emissions increase will be less than significant.

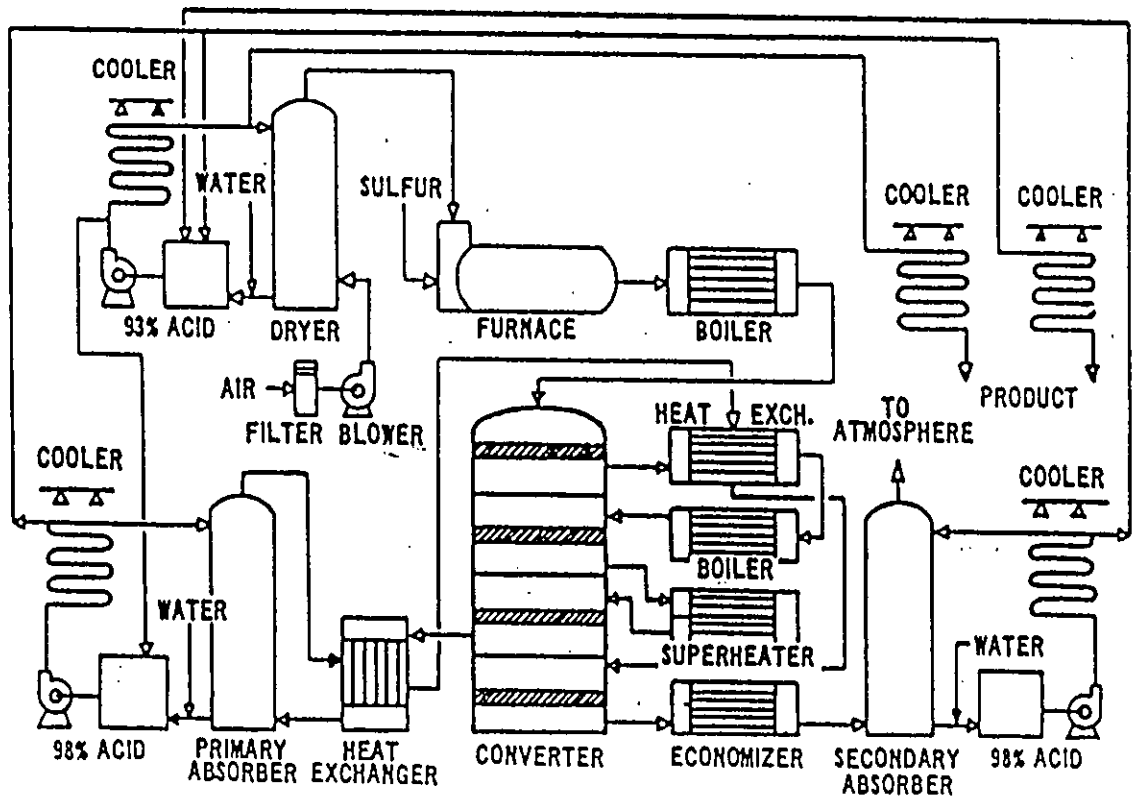


FIGURE 3-1  
TYPICAL SULFURIC ACID  
DOUBLE ABSORPTION PLANT  
PROCESS FLOW DIAGRAM

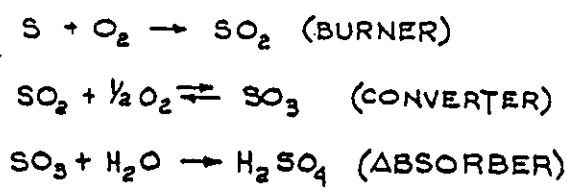




FIGURE 3-2

SULFUR HANDLING SYSTEM

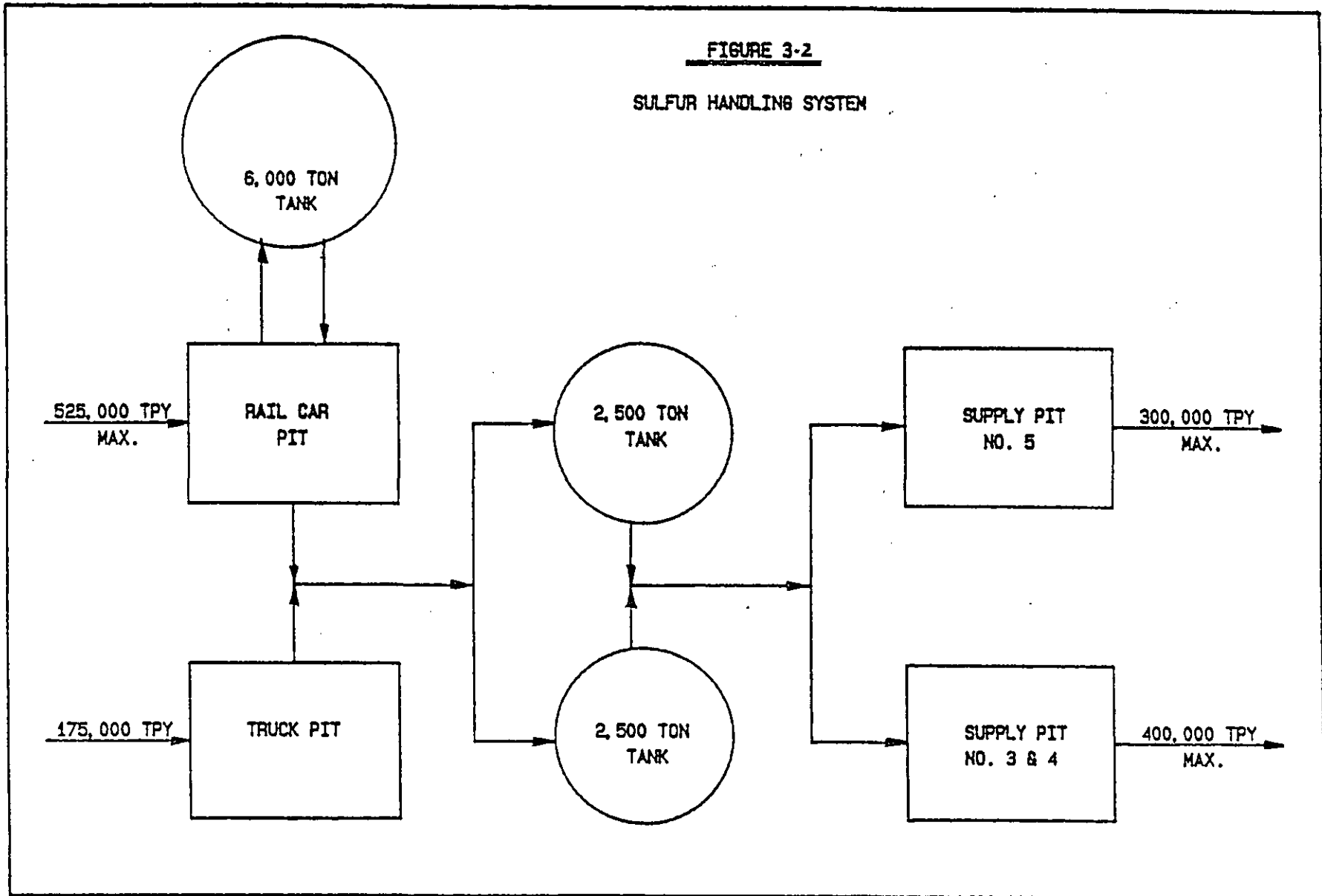


TABLE 3-1  
SUMMARY OF EMISSION RATES

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

	EMISSIONS					
	PERMITTED		ACTUALS		PROPOSED	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
<u>Sulfuric Acid Plant No. 3</u>						
Sulfur Dioxide	270.0	1183.0	157.0	661.4	350.0	1533.0
Acid Mist	10.1	54.7	5.4	22.5	13.1	57.5
Nitrogen Oxides	-	-	8.1	34.1	10.5	46.0
Annual Operating Hours	8760		8425		8760	
<u>Sulfuric Acid Plant No. 4</u>						
Sulfur Dioxide	270.0	1460.3	164.3	695.7	350.0	1533.0
Acid Mist	10.1	54.7	4.6	19.5	13.1	57.5
Nitrogen Oxides	-	-	8.1	34.3	10.5	46.0
Annual Operating Hours	8760		8471		8760	
<u>Sulfuric Acid Plant No. 5</u>						
Sulfur Dioxide	400.0	1460.3	189.4	803.5	466.7	2044.0
Acid Mist	15.0	54.7	8.1	34.4	17.5	76.7
Nitrogen Oxides	-	-	10.9	46.2	14.0	61.3
Annual Operating Hours	8760		8485		8760	
<u>Sulfur System</u>						
Sulfur Dioxide	-	14.2	-	14.2	-	17.9
Particulate Matter	-	7.7	-	7.7	-	9.7
Reduced Sulfur Cpds.	-	9.5	-	9.5	-	11.9
Volatile Organic Cpds.	-	14.0	-	14.0	-	17.7
Annual Operating Hours	8760		8760		8760	

NOTE: See Appendix for calculations of emission rates.

TABLE 3-2  
NET EMISSION INCREASES(1)

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

Pollutant	Net Emissions Increase (TPY)	Significant Increase (TPY)	PSD Review
Acid Mist	115.3	7	YES
Nitrogen Oxides	38.7	40	NO
Particulate Matter	2.0	25	NO
Reduced Sulfur Cpds.	2.4	10	NO
Sulfur Dioxide	2953.1	40	YES
Volatile Organic Cpds.	3.7	40	NO

NOTE: Calculations are presented in the Appendix.

TABLE 3-3  
MAJOR FACILITY CATEGORIES

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

Fossil fuel fired steam electric plants of more than 250 MMBTU/hr heat input  
Coal cleaning plants (with thermal dryers)  
Kraft pulp mills  
Portland cement plants  
Primary zinc smelters  
Iron and steel mill plants  
Primary aluminum ore reduction plants  
Primary copper smelters  
Municipal incinerators capable of charging more than 250 tons of refuse per day  
Hydrofluoric acid plants  
**Sulfuric acid plants**  
Nitric acid plants  
Petroleum refineries  
Lime plants  
Phosphate rock processing plants  
Coke oven batteries  
Sulfur recovery plants  
Carbon black plants (furnace process)  
Primary lead smelters  
Fuel conversion plants  
Sintering plants  
Secondary metal production plants  
Chemical process plants  
Fossil fuel boilers (or combinations thereof) totaling more than 250 million  
BTU/hr heat input  
Petroleum storage and transfer units with total storage capacity exceeding  
300,000 barrels  
Taconite ore processing plants  
Glass fiber processing plants  
Charcoal production plants

TABLE 3-4  
 REGULATED AIR POLLUTANTS - SIGNIFICANT EMISSION RATES

FARMLAND HYDRO, L.P.  
 POLK COUNTY, FLORIDA

Pollutant	Significant Emission Rate tons/yr	De Minimis Ambient Impacts $\mu\text{g}/\text{m}^3$
CO	100	575 (8-hour)
NOx	40	14 (NO <sub>2</sub> , Annual)
SO <sub>2</sub>	40	13 (24-hour)
Ozone	40 (VOC)	-
PM	25	10 (24-hour)
PM10	15	10 (24-hour)
TRS (including H <sub>2</sub> S)	10	0.2 (1-hour)
H <sub>2</sub> SO <sub>4</sub> mist	7	-
Fluorides	3	0.25 (24-hour)
Vinyl Chloride	1	15 (24-hour)
	<u>pounds/yr</u>	
Lead	1200	0.1 (Quarterly avg)
Mercury	200	0.25 (24-hour)
Asbestos	14	-
Beryllium	0.8	0.001 (24-hour)

TABLE 3-5  
 AMBIENT AIR QUALITY STANDARDS

FARMLAND HYDRO, L.P.  
 POLK COUNTY, FLORIDA

Pollutant	FDEP (State)		USEPA (National)			
			Primary		Secondary	
	$\mu\text{g}/\text{m}^3$	PPM	$\mu\text{g}/\text{m}^3$	PPM	$\mu\text{g}/\text{m}^3$	PPM
SO <sub>2</sub> , 3-hour 24-hour Annual	1,300	0.5	-	-	1300	0.5
	260	0.1	365	0.14	-	-
	60	0.02	80	0.03	-	-
PM10, 24-hour Annual	150	-	150	-	150	-
	50	-	50	-	50	-
CO, 1-hour 8-hour	40,000	35	40,000	35	-	-
	10,000	9	10,000	9	-	-
Ozone, 1-hour	235	0.12	235	0.12	235	0.12
NO <sub>2</sub> , Annual	100	0.053	100	-	100	-
Lead, Quarterly	1.5	-	1.5	-	1.5	-

TABLE 3-6  
PSD INCREMENTS

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

Pollutant	Allowable PSD Increments (State/National)		
	Class I $\mu\text{g}/\text{m}^3$	Class II $\mu\text{g}/\text{m}^3$	Class III $\mu\text{g}/\text{m}^3$
TSP, Annual	5	19	37
24-hour	10	37	75
SO <sub>2</sub> , Annual	2	20	40
24-hour	5	91	182
3-hour	25	512	700
NO <sub>2</sub> , Annual	2.5	25	50

#### 4.0 BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology (BACT) is required to control air pollutants emitted from newly constructed major sources or from modification to the major emitting facilities if the modification results in significant increase in the emission rate of regulated pollutants (see Table 3-4 for significant emission levels). The emission rate increases proposed by Farmland have been summarized in Table 3-2. A BACT analysis will be required for sulfur dioxide and sulfuric acid mist.

#### 4.1 EMISSION STANDARDS

##### 4.1.1 Sulfuric Acid Plant

Federal New Source Performance Standards (NSPS) for sulfuric acid plants became effective on August 17, 1971. These standards are codified in 40CFR60, Subpart H and require sulfur dioxide emissions to be limited to no more than 4.0 pounds per ton of 100 percent acid produced and require that sulfuric acid mist emissions be limited to no more than 0.15 pounds per ton of 100 percent acid produced. Additionally, the standards limit the opacity of the emissions from new sulfuric acid plants to less than 10 percent. There are no emission standards for nitrogen oxides from sulfuric acid plants.

When EPA reviewed the NSPS for sulfuric acid plants most recently, it was concluded that because of the expected variations in sulfur dioxide emissions "... the level of SO<sub>2</sub> emissions as specified in the current NSPS (should) not be changed at this time." Regarding the NSPS for sulfuric acid mist, EPA concluded, "Making the acid mist standard more stringent is not believed to be practical at this time because of the need to provide a margin of safety due to in-plant operating fluctuations, which introduce variable quantities of moisture into the sulfuric acid production line." It is our understanding that there has been no recent change in EPA philosophy related to sulfuric acid plants.



A review of BACT/LAER determinations published in the EPA Clearinghouse, and those of recent projects in Florida, indicate that the double absorption process is considered BACT. No new demonstrated control alternatives have been applied to sulfuric acid plants that would result in a consistent reduction in sulfur dioxide emission below 4.0 pounds per ton of acid nor would result in a consistent reduction of sulfuric acid mist emissions below 0.15 pounds per ton of acid.

#### 4.1.2 Molten Sulfur System

The molten sulfur system is subject to the emission limiting standards as set forth in Rule 62-296.411, FAC. The standards require the use of specific work practices and limit visible emissions to 20 percent opacity. No control technologies for a molten sulfur system are discussed in either the NSPS review or in BACT/LAER determinations.

### 4.2 EMISSION CONTROL TECHNOLOGIES

#### 4.2.1 Sulfuric Acid Plant

The control of sulfur dioxide and sulfuric acid mist emissions from sulfuric acid plants can be achieved by various processes. The process of choice for sulfur dioxide control has been dual absorption and the process of choice for controlling sulfuric acid mist emission has been one of the various types of fiber mist eliminators. These processes have been selected based on cost, product recovery, the formation of no undesirable by-products and the fact that neither introduces operating processes that are foreign to plant personnel.

In the March 1985 review (EPA-450/3-85-012), EPA reviewed the control technologies that had been used to control sulfur dioxide and sulfuric acid mist emissions from sulfuric acid plants. The alternatives included the dual absorption process, ammonia scrubbing, sodium sulfite-bisulfite scrubbing, and molecular sieves for sulfur dioxide control and filter type mist eliminators and electrostatic precipitators for sulfuric acid mist

control. A review of the EPA BACT/LAER Clearinghouse information on sulfuric acid plants indicated that all the recent determinations have concluded that the double absorption process represents BACT for sulfur dioxide emissions; and, mist eliminators represent BACT for acid mist emissions.

In a 1985 report on review of NSPS for sulfuric acid plants, EPA reviewed 46 sulfuric acid plants built between 1971 and 1985. Of these 46 plants, 40 used the dual absorption process for sulfur dioxide control with the remaining six using some type of acid gas scrubbing. The advantages of the dual absorption process over other SO<sub>2</sub> control technologies are:

- a. 99.4 percent of the sulfur is converted to sulfuric acid compared with 97.7 percent conversion with a single absorption plant followed by scrubbing;
- b. there are no by-products produced;
- c. there are no new operating processes that plant personnel must become familiar with;
- d. the process permits higher inlet sulfur dioxide concentrations resulting in a reduction in equipment size;
- e. there is no reduction in overall plant operating time efficiency; and
- f. there is no increase in manpower requirements.

The dual absorption process is capable of reducing sulfur dioxide emission rates to within 4.0 pounds per ton of acid as required by New Source Performance Standards. Recent BACT determinations (in 1992-94) also reflect a sulfur dioxide emission limit of 4.0 pounds per ton using the double absorption process.

All of 46 plants reviewed by EPA used the high efficiency mist eliminators which are capable of reducing sulfuric acid mist emission rates to within 0.15 pounds per ton of acid as required by NSPS. The mist eliminators are the control of choice for sulfuric acid mist within the sulfuric acid industry because they require very little operation and maintenance attention and because of the small space requirement associated with these devices. The disadvantage of this type of mist eliminator is that the pressure drop across the elements varies from five to 15 inches of water; resulting in an increase in operating utility costs. Recent BACT determinations (in 1992-94) reflect an emission limit based on the NSPS.

#### 4.2.2 Molten Sulfur System

No add-on control technologies have been required or recommended by EPA or FDEP for molten sulfur systems as the emissions of air pollutants are negligible.

#### 4.3 CONCLUSION

Based upon the above discussion, the dual absorption process is selected by Farmland as the control alternative for sulfur dioxide to limit emissions to 4.0 lb/ton 100% acid; and, high efficiency mist eliminators for sulfuric acid mist to limit emissions to 0.15 lb/ton 100% acid. Emission limits lower than NSPS are not proposed in order to maintain an operation margin that will allow for the fluctuation in the emission rates.

The emission limits for the molten sulfur system reflecting BACT will be in accordance with Rule 62-296.411, FAC, limiting visible emissions to 20% opacity and maintaining proper operation practices.

## 5.0 AIR QUALITY REVIEW

The air quality review required of a PSD construction permit application potentially requires both air quality modeling and air quality monitoring. The air quality monitoring is required when the impact of air pollutant emission increases and decreases associated with a proposed project exceed the de minimis impact levels (see Table 3-4) or in cases where an applicant wishes to define existing ambient air quality by monitoring rather than by air quality modeling. The air quality modeling is required to provide assurance that the increases and decreases in air pollutant emissions associated with the project, combined with all other applicable air pollutant emission rate increases and decreases associated with new sources affecting the project area, will not cause or contribute to an exceedance of the applicable ambient air quality standards.

The air quality review for the proposed project included emission increases associated with the sulfuric acid plant and the molten sulfur system. The pollutants evaluated include sulfur dioxide and sulfuric acid mist.

### 5.1 AIR QUALITY MODELING FOR SULFUR DIOXIDE

#### 5.1.1 Area of Significant Impact

The emission rates of sulfur dioxide used for air quality modeling purposes to determine the area of significant impact (ASI) represent the proposed net increase in the emission rate associated with the increased sulfuric acid production rates. It should be noted that the sulfur dioxide emissions from the molten sulfur system were not included as there will be no change in the hourly emissions. A positive emission rate representing proposed sulfur dioxide emissions from the sulfur system would simply offset an identical negative emission rate representing current emissions. Table 5-1 contains modeling input parameters used in the ambient air quality impacts analysis.

The impact analysis of the net increase in sulfur dioxide emissions was conducted using the Industrial Source Complex-Short Term 2 (ISC-ST2) air quality model, Version 93109, in accordance with guidelines established by EPA and published in the document, Guideline for Air Quality Modeling. The meteorological data used with the model were for Tampa, Florida and represented the period 1987-1991.

The sulfur dioxide emissions from sulfuric acid plants 3, 4, and 5 were modeled to determine the ASI. The currently permitted sulfur dioxide emission rates were represented as a negative input while the proposed sulfur dioxide emission rate was represented as a positive input to the model.

The ASI modeling included discrete receptors at the facility property boundary and additional receptors established by the polar grid system extending to 13 kilometers from the plant. The discrete receptors were placed along the property boundary at 100 meter intervals. Twelve sets of receptor rings were placed at distances ranging from about 500 to 13,000 meters from the plant with receptors placed at 10 degree intervals from 10° to 360° on each receptor ring, with the exclusion of receptors within Farmland's property boundary. The downwind receptor distances were selected in order to provide a higher concentration of receptors closer to the source where the maximum impacts were expected. Receptor locations are shown in Figure 5-1.

The results of the ASI modeling, summarized in Table 5-2, demonstrate that the predicted ambient air quality impact of the sulfur dioxide emission increase from the proposed project are greater than significant for the 3-hour, 24-hour and annual periods. The ASI modeling also demonstrated that the predicted impacts from the proposed project are significant upto a distance of about 13 kilometers.

As the predicted sulfur dioxide impacts from the proposed project are significant, additional modeling was required to determine compliance with the ambient air quality standards and allowable PSD increments.

### 5.1.2 Class II Area AAQS and PSD Increment Analysis

The Ambient Air Quality Standards (AAQS) Analysis and the PSD Increment (PSD) Analysis was conducted to determine the combined ambient air impact of the proposed project and other nearby sulfur dioxide emitting sources. The significant facilities to be included in the analysis were determined based on the "20 D Rule" using the facility emission inventory most recently utilized by FDEP, with recent updates provided by FDEP staff.

A list of the significant facilities near the proposed project is presented in Table 5-3. The corresponding sources at the significant facilities which contribute to the ambient air concentration and the PSD increment consumption/expansion in the Class II area are presented in Tables 5-4 and 5-5, respectively. Although the ISC model is not recommended for modeling sources beyond 50 kilometers, some of the borderline sources were included to be conservative.

The results of the AAQS and PSD analysis indicate that the maximum predicted 3-hour and 24-hour period impacts for the Class II area exceed the standards, as shown in Table 5-6. However, additional analyses comparing the contribution of Farmland to the cumulative impacts demonstrate that the proposed project is not expected to cause or significantly contribute to any violation of the ambient air quality standard.

### 5.1.3 Class I Area PSD Increment Analysis

A Class I area PSD increment analysis was performed using the ISC model. The modeling was performed to determine the Class I PSD increment consumption at Chassahowitzka National Wildlife Refuge. All the sources in the Class I area emission inventory, updated by FDEP (see Table 5-7) were included in the modeling. The Class I area receptors recommended by FDEP were used in the modeling.

The modeling results indicate that the maximum predicted impacts exceed

the allowable 3-hour and 24-hour Class I area increments (see Table 5-8). Consequently, additional modeling was conducted to determine the contribution of the proposed project to the overall predicted impacts.

The results of the modeling analyses indicate that the proposed project is not expected to cause or significantly contribute to any violation of the allowable Class I area PSD increment.

## 5.2 AIR QUALITY REVIEW FOR SULFURIC ACID MIST

No ambient air quality standards, PSD increments or significant impact levels have been established for sulfuric acid mist. FDEP's current permitting guideline for air toxics requires temporary facilities to evaluate short-term impacts for comparison with Air Reference Concentrations (ARC) listed in Version 3 of the Air Toxics List. However, permanent facilities have to evaluate annual impacts to compare with the ARCs. As there is no annual ARC for sulfuric acid mist, no comparisons are required.

It should be noted that the maximum sulfuric acid mist impacts from the proposed project are predicted to occur at locations which are both remote and far from the population centers (based on the results of the modeling for sulfur dioxide emissions). Also, the sulfuric acid mist will be controlled by the Best Available Control Technology. As a result, the sulfuric acid mist emissions are not expected to be of concern.

FIGURE 5-1

RECEPTOR LOCATIONS  
USED IN THE AMBIENT AIR QUALITY ANALYSIS

FARMLAND HYDRO, LP  
BARTOW, FLORIDA

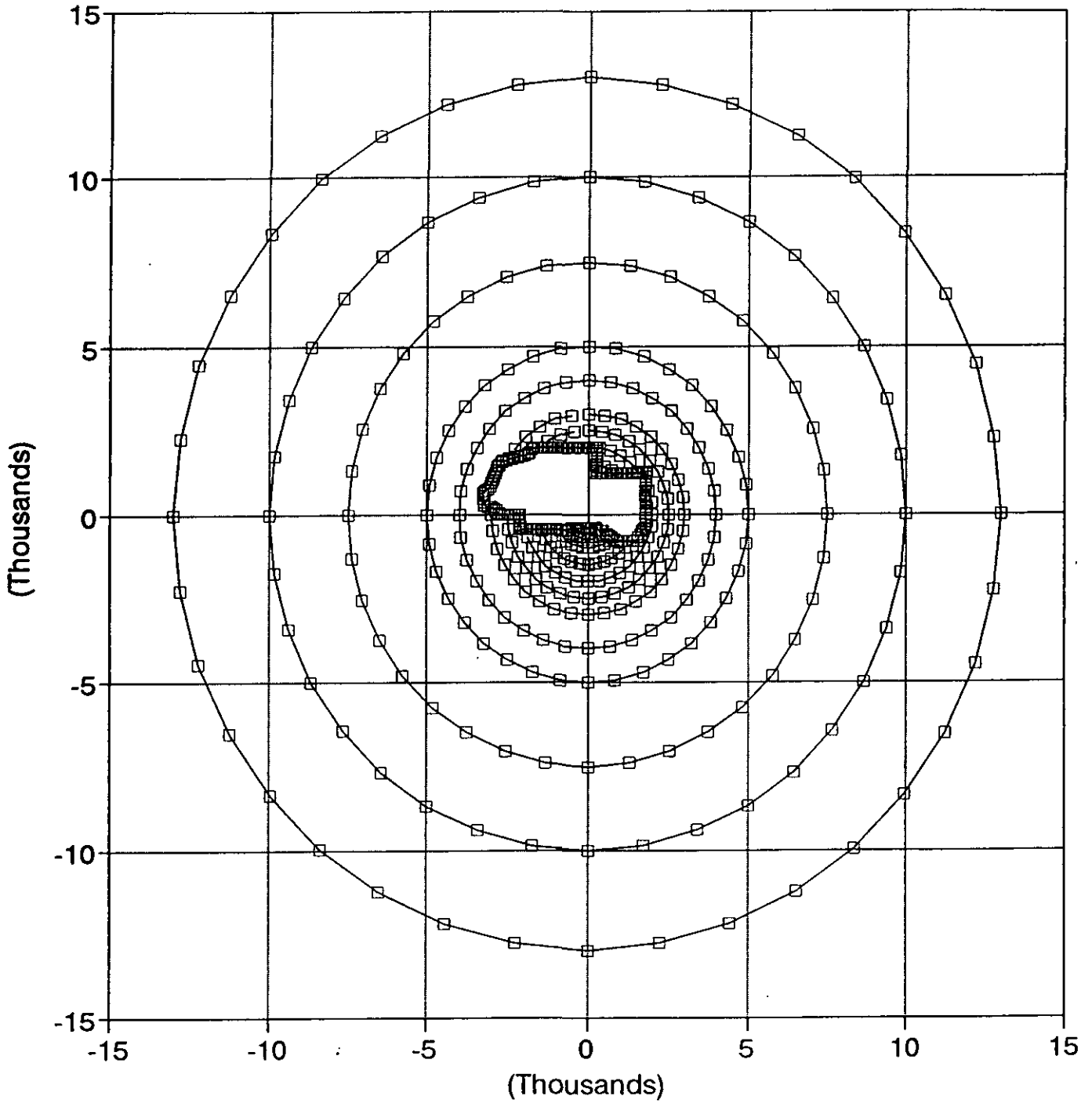




TABLE 5-1

AIR QUALITY MODELING PARAMETERS  
FOR SULFUR DIOXIDEFARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

H <sub>2</sub> SO <sub>4</sub> Plant	SO <sub>2</sub> (g/s)	Ht (m)	Dia (m)	Vel (mps)	Temp (°K)
Existing					
3 SAD	-33.58	30.48	2.29	9.27	355
4 SAD	-33.58	30.48	2.29	9.27	355
5 SAD	-50.40	45.72	2.44	11.50	355
Proposed					
3 SAD	44.10	30.48	2.29	12.02	355
4 SAD	44.10	30.48	2.29	12.02	355
5 SAD	58.80	45.72	2.44	13.42	355

TABLE 5-2

## SUMMARY OF SULFUR DIOXIDE SIGNIFICANT IMPACT ANALYSIS

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	SULFUR DIOXIDE IMPACT ( $\mu\text{g}/\text{m}^3$ )*		
	ANNUAL (1)	3-HOUR (2)	24-HOUR (2)
1987	1.29	57.98	15.65
1988	1.00	63.42	14.97
1989	1.21	62.26	18.60
1990	1.24	67.71	14.50
1991	1.06	58.84	15.22
Significant Impact (Rule 62-212, FAC)	1.0	25.0	5.0
De minimis Impact (Rule 62-212, FAC)	NA	NA	13.0

## NOTE:

- (1) The impact represents the highest-high impact.
- (2) The impact represents the highest second-high impact.
- (3) The impacts are based on the net increase in sulfur dioxide emissions from the proposed project of 29.44 g/s.

**TABLE 5-3**  
**Class II Area SO<sub>2</sub> Emitting**  
**Significant Facilities (20 D Table)**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**

SOURCE DESCRIPTION	UTM Coordinates (km)		Source Location		20-D Emission (TPY)
	EAST	NORTH	SO2 TPY	Distance (Km)	
ASPHALT PAVERS 3	359.900	3162.400	78	97	1938
ASPHALT PAVERS 4	361.400	3168.400	61	101	2027
ATLANTIC SUGAR	553.300	2945.000	567	196	3928
AUBURNDALE	420.800	3103.300	221	26	517
BORDEN DRYER	394.800	3069.600	-225	19	370
BORDEN DRYER	414.500	3109.000	-184	30	593
BREWSTER/IMPERIAL	404.800	3069.500	-670	12	231
CARGILL/GARDINIER MINE	415.300	3063.300	612	17	342
CARGILL/GARDINIER	363.400	3082.400	5870	47	940
CARGILL/SEMINOLE/W.R. GRACE	409.770	3088.990	5007	7	147
CF BARTOW	408.500	3082.500	5145	3	68
CF PLANT CITY	388.000	3116.000	9048	43	853
CITRUS WORLD	441.000	3087.300	1604	32	632
CLM CHLORIDE METALS	361.800	3088.300	731	49	986
CONSOLIDATED MINERALS	393.800	3096.300	943	23	469
COUCH CONST-ODESSA	340.700	3119.500	252	80	1604
COUCH CONST-ZEPHYRHILLS	390.300	3129.400	123	54	1073
DOLIME	404.813	3069.548	-355	12	230
DRIS PAVING	340.600	3119.200	8	80	1603
ER JAHNA	386.700	3155.800	29	80	1595
ESTECH/SWIFT	411.500	3074.200	-4856	6	112
EVANS PACKING	383.300	3135.800	2188	62	1246
FARMLAND	410.330	3079.655	5208	0	0
FDOC	382.200	3166.100	104	91	1818
FLA MINING & MATERIALS	356.200	3169.900	50	105	2105
FLORIDA CRUSHED STONE	360.008	3162.398	3423	97	1937
FPC ANCLOTE	324.400	3118.700	116918	94	1888
FPC BARTOW	342.400	3082.600	65958	68	1360
FPC BAYBORO	338.800	3071.300	6881	72	1440
FPC CRYSTAL RIVER	334.200	3204.500	133484	146	2925
FPC DEBARY	467.500	3197.200	16224	131	2614
FPC HIGGINS	336.500	3098.400	12082	76	1523
FPC INTERSESSION CITY	446.300	3126.000	8168	59	1173
FPC OSCEOLA	446.300	3126.000	4380	59	1173
FPC POLK	414.400	3073.910	1720	7	141
FPL FT MYERS	422.100	2952.900	26872	127	2546
FPL MANATEE	367.200	3054.100	83410	50	1003
GAINESVILLE REGIONAL UTILITIES	365.500	3292.700	197	218	4354
GEN. PORT. CEMENT	358.000	3090.600	-4602	53	1069
GOLD BOND	347.300	3082.700	320	63	1262
GULF COAST RECYCLING	364.000	3093.500	1711	48	967
HARDEE	404.800	3057.400	9657	23	459
HILLS. CO. RESOURCE RECOVERY	368.200	3092.700	744	44	882
HOSP CORP OF AMERICA	333.400	3141.000	6	98	1968
IMC - AGRICO /NICHOLS/CONSERVE	398.400	3084.200	1978	13	255
IMC-AGRICO/NEW WALES	396.600	3078.900	11416	14	275
IMC-AGRICO/NORALYN	414.700	3080.300	504	4	88
IMC-AGRICO/PIERCE	404.100	3078.950	-1646	6	125
IMC-AGRICO/SO. PIERCE	407.500	3071.300	4676	9	176
KISSIMMEE KANE IS.	447.680	3127.920	1023	61	1221
KISSIMMEE UTILITIES	460.100	3129.300	1117	70	1406
LAKE CO. COGEN.	434.000	3198.800	175	121	2429
LAKELAND LARSEN	409.300	3102.800	4944	23	463
LAKELAND MCINTOSH	409.200	3106.200	30563	27	531
MOBIL BIG-4	394.850	3069.770	87	18	367
MOBIL NICHOLS	398.300	3084.300	971	13	258
MOBILE ELECTROPHOS	405.600	3079.400	-3337	5	95

**TABLE 5-3**  
**Class II Area SO<sub>2</sub> Emitting**  
**Significant Facilities (20 D Table)**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**  
**(Concluded)**

SO2 "20 D" SOURCE INVENTORY FOR FARMLAND HYDRO PLANT			Source Location	410.330	3079.655
SOURCE DESCRIPTION	UTM Coordinates (km)		SO2 TPY	Distance (Km)	20-D Emission (TPY)
	EAST	NORTH			
MULBERRY COGENERATION	413.600	3080.600	466	3	68
MULBERRY PROSPHATES/ROYSER	406.700	3085.200	1280	7	133
NEW PORT RICHEY HOSPITAL	331.200	3124.500	3	91	1819
NITRAM	363.100	3089.000	108	48	963
OMAN CONSTRUCTION	359.800	3164.900	73	99	1982
ORLANDO UTIL STANTON	483.500	3150.600	24100	102	2038
OVERSTREET PAVING	355.900	3143.700	128	84	1681
PANDA KATHLEEN	398.700	3101.400	25	25	493
PASCO CO. COGEN.	385.600	3139.000	175	64	1286
PASCO COUNTY RRF	347.100	3139.200	490	87	1737
PINELLAS RRF	335.300	3084.400	2165	75	1504
PINEY POINT/ROYSER	348.700	3057.300	1719	66	1311
REEDY CREEK SERVICES	443.000	3144.300	133	72	1449
RIDGE COGENERATION	416.700	3100.400	480	22	434
SEBRING UTILITIES	464.300	3035.400	3868	70	1396
SECI HARDEE	404.900	3057.400	223	23	458
STAUFFER ROASTER	325.600	3116.700	-2265	92	1849
SUGAR CANE GROWERS	534.900	2953.300	4936	177	3549
SULFUR TERMINALS	358.000	3090.000	104	53	1067
TAMPA GENERAL HOSP	356.400	3091.000	59	55	1102
TAMPA MCKAY BAY RRF	360.000	3091.000	744	52	1032
TECO BIG BEND	361.900	3075.000	372294	49	973
TECO GANNON	360.000	3087.500	127495	51	1019
TECO HOOKERS POINT	358.000	3091.000	13535	54	1071
TECO POLK POWER	402.488	3066.914	4031	15	299
THATCHER GLASS	361.800	3088.300	177	49	986
USS AGRI-CHEM BARTOW	413.200	3086.300	-1580	7	145
USSAC FT MEADE	416.120	3088.620	3217	12	249

NOTE: Facilities with negative emissions represent shutdown facilities.

**TABLE 5-4**  
**SO<sub>2</sub> Class II Area FAAQS Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**

SOURCE DESCRIPTION	A A Q S						
	Emissions	UTM COORDINATES (km)		Height	Temp.	Velocity	Diameter
	(g/s)	EAST	NORTH	(m)	(K)	(m/s)	(m)
CARGILL/GARDINIER DAP	0.96	363.400	3082.400	60.40	320.0	13.40	2.13
CARGILL/GARDINIER GTSP	1.90	363.400	3082.400	38.40	328.0	11.56	2.44
CARGILL/GARDINIER MINE ROCK DRYER	17.60	415.300	3063.300	19.20	290.0	7.00	2.90
CARGILL/GARDINIER SAP #7	46.20	363.400	3082.400	45.60	340.0	12.64	2.29
CARGILL/GARDINIER SAP #8	52.50	363.400	3082.400	45.60	339.0	13.93	2.44
CARGILL/GARDINIER SAP #9	67.20	363.400	3082.400	45.60	350.0	12.66	2.74
CARGILL/SEMINOLE/W.R. GRACE DAP 4	0.30	409.770	3086.990	40.20	316.0	26.20	2.10
CARGILL/SEMINOLE/W.R. GRACE SAP 4, 5 & 6	143.64	409.770	3086.990	60.96	347.0	34.00	1.52
CF BARTOW DAP 1-3	7.93	408.500	3082.500	36.40	339.0	16.11	2.13
CF BARTOW DAP 1-3	3.97	408.500	3082.500	36.40	339.0	16.11	2.13
CF BARTOW SAP 5	50.40	408.500	3082.500	63.41	361.0	10.88	2.13
CF BARTOW SAP 6	50.40	408.500	3082.500	63.41	370.0	7.28	2.13
CF BARTOW SAP 7	42.00	408.500	3082.500	67.10	351.0	9.80	2.40
CF PLANT CITY	19.98	388.000	3116.000	7.62	560.8	17.74	1.07
CF PLANT CITY	0.12	388.000	3116.000	2.44	373.0	0.33	0.61
CF PLANT CITY DAP A	3.00	388.000	3116.000	28.70	326.0	7.90	3.00
CF PLANT CITY DAP X	13.20	388.000	3116.000	54.90	325.0	9.80	2.80
CF PLANT CITY DAP Z	13.20	388.000	3116.000	54.90	331.0	13.10	2.80
CF PLANT CITY GTSP X	13.20	388.000	3116.000	54.90	314.0	7.90	2.80
CF PLANT CITY SAP A&B	88.20	388.000	3116.000	33.50	316.0	19.50	1.52
CF PLANT CITY C & D	109.20	388.000	3116.000	60.35	353.0	17.77	2.44
CITRUS WORLD DRYER 1	8.10	441.000	3087.300	22.90	323.0	10.70	1.00
CITRUS WORLD DRYER 2	19.00	441.000	3087.300	22.90	325.0	12.20	0.80
CITRUS WORLD DRYER 3	19.00	441.000	3087.300	24.40	313.0	21.90	0.80
CONSOLIDATED MINERALS	0.12	393.800	3096.300	6.10	605.2	20.21	0.37
CONSOLIDATED MINERALS FLUID BED REACTOR	11.57	393.800	3096.300	46.33	299.7	12.14	1.77
CONSOLIDATED MINERALS KILNS 3, 4 & 5	15.43	393.800	3096.300	46.33	298.0	13.17	1.77
EVANS BOILER	28.70	383.300	3135.800	12.20	505.0	11.90	1.00
EVANS DRYER	34.00	383.300	3135.800	25.90	346.0	17.30	1.00
EVANS PACKING	0.20	383.300	3135.800	12.30	466.2	9.20	0.40
FARMLAND	2.33	409.500	3079.500	28.96	605.2	3.58	1.68
FARMLAND	0.39	409.500	3079.500	12.19	366.3	2.67	0.61
FARMLAND 2 & 3 SAP	88.20	410.330	3079.655	30.48	355.0	12.02	2.29
FARMLAND 5 SAP	58.80	410.330	3079.655	45.72	355.0	13.42	2.44
FPC BARTOW PEAKING 1-4	286.90	342.400	3082.600	13.70	772.0	22.30	5.30
FPC BARTOW PIPELINE HEATER	1.80	342.400	3082.600	9.10	541.0	5.20	0.90
FPC BARTOW UNIT 1 & 2	896.80	342.400	3082.600	91.40	429.0	36.30	2.70
FPC BARTOW UNIT 3	710.54	342.400	3082.600	91.40	408.0	34.40	3.40
FPC INT. CITY TURBINES/7EA	124.40	446.300	3126.000	15.24	819.8	56.21	4.21
FPC INT. CITY TURBINES/7EA	110.40	446.300	3126.000	15.24	880.8	32.07	7.04
FPC OSCEOLA PEAKING 1,2,4-6	104.90	446.300	3126.000	7.90	704.0	18.00	4.20
FPC OSCEOLA PEAKING 3	21.00	446.300	3126.000	4.60	505.0	18.00	4.20
FPC POLK	49.44	414.400	3073.910	34.40	400.0	40.50	4.10
FPL MANATEE UNIT 1 & 2	2397.80	367.200	3054.100	152.10	426.0	17.10	8.00
GULF COAST RECYCLING	0.75	364.000	3093.500	8.84	309.1	20.85	0.34
GULF COAST RECYCLING	48.45	364.000	3093.500	29.57	344.1	37.59	0.61
HARDEE	277.60	404.800	3057.400	22.90	389.0	23.90	4.88
IMC - AGRICO /NICHOLS/CONSERVE SAP	52.50	398.400	3084.200	45.70	352.0	12.00	2.30
IMC - AGRICO /NICHOLS/CONSERVE DAP DRYER	1.01	398.400	3084.200	24.40	333.0	23.10	1.07
IMC - AGRICO /NICHOLS/CONSERVE DRYER	3.34	398.400	3084.200	24.69	327.4	3.77	2.29
IMC-AGRICO/NEW WALES AFI PLANT	0.20	396.600	3078.900	52.40	322.0	13.10	2.40
IMC-AGRICO/NEW WALES DAP	5.54	396.600	3078.900	36.60	319.1	20.15	1.83
IMC-AGRICO/NEW WALES DAP 1	3.70	396.700	3079.400	40.50	314.0	14.90	2.10

**TABLE 5-4**  
**SO<sub>2</sub> Class II Area FAAQS Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**  
**(Continued)**

SO2 SOURCE INVENTORY FOR FARMLAND HYRDO PLANT		A A Q S					
SOURCE DESCRIPTION	Emissions (g/s)	UTM COORDINATES (km)		Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
		EAST	NORTH				
IMC-AGRICO/NEW WALES GTSP	9.20	396.700	3079.400	40.50	316.0	20.40	1.80
IMC-AGRICO/NEW WALES MULTIPHOS	4.80	396.600	3078.900	52.40	314.0	15.80	1.40
IMC-AGRICO/NEW WALES SAP #1,2,3	182.85	396.600	3078.900	61.00	350.0	15.31	2.60
IMC-AGRICO/NEW WALES SAP #4,5	121.90	396.600	3078.900	60.70	350.0	15.31	2.60
IMC-AGRICO/NORALYN	13.30	414.700	3080.300	18.30	341.0	8.50	2.80
IMC-AGRICO/NORALYN	1.20	414.700	3080.300	23.20	394.0	17.10	2.00
IMC-AGRICO/SO. PIERCE DAP PLANT	4.41	407.500	3071.330	38.10	328.0	14.60	3.10
IMC-AGRICO/SO. PIERCE GTSP PLANT	16.60	407.500	3071.300	42.70	305.0	10.40	2.70
IMC-AGRICO/SO. PIERCE SAP	113.40	407.500	3071.300	45.73	350.0	39.06	1.60
LAKELAND LARSEN	0.20	409.300	3102.800	9.75	699.7	171.38	1.52
LAKELAND LARSEN 4	93.37	409.300	3102.800	50.29	433.0	5.64	3.05
LAKELAND LARSEN 5	0.40	409.300	3102.800	50.29	444.1	6.47	3.05
LAKELAND LARSEN 6	0.35	409.300	3102.800	50.29	444.1	6.47	3.05
LAKELAND LARSEN 7	18.71	409.300	3102.800	50.29	444.1	6.86	3.05
LAKELAND LARSEN CT	29.11	409.300	3102.800	30.48	783.2	28.22	5.79
LAKELAND MCINTOSH	8.32	409.200	3106.200	10.97	791.3	0.39	2.80
LAKELAND MCINTOSH	2.94	409.200	3106.200	6.10	652.4	23.54	0.79
LAKELAND MCINTOSH 1	341.56	409.300	3106.200	45.72	419.1	23.96	2.74
LAKELAND MCINTOSH 2	25.68	409.200	3106.200	47.55	402.4	21.29	3.17
LAKELAND MCINTOSH 3	500.10	409.200	3106.200	76.20	350.0	19.70	4.88
MOBIL NICHOLS DRYER 1	12.73	398.300	3084.300	25.90	342.0	14.10	2.29
MOBIL NICHOLS DRYER 2	12.73	398.300	3084.300	25.90	342.0	14.10	2.29
MOBIL NICHOLS DRYER 4	2.44	398.300	3084.300	25.90	339.0	16.05	2.29
MULBERRY COGENERATION CT	13.40	413.600	3080.600	51.00	356.0	9.90	2.13
MULBERRY PROSPHATES/ROYSTER SAP	35.70	406.700	3085.200	61.00	360.0	12.20	2.13
MULBERRY PROSPHATES/ROYSTER DAP	1.10	406.700	3085.200	31.10	316.0	7.90	2.70
PINEY POINT/ROYSTER DAP	7.40	348.700	3057.300	61.00	328.0	15.50	3.00
PINEY POINT/ROYSTER SAP	42.02	348.700	3057.300	60.98	350.0	8.08	2.36
RIDGE COGENERATION	13.80	416.700	3100.400	99.10	350.0	14.54	3.05
TECO BIG BEND TURBINE 1	11.30	361.900	3075.000	10.70	816.0	136.20	1.50
TECO BIG BEND TURBINE 2&3	79.18	361.900	3075.000	22.86	770.8	18.74	4.27
TECO BIG BEND UNIT 1	3309.00	361.900	3075.000	149.35	404.7	13.74	7.32
TECO BIG BEND UNIT 2	3275.32	361.900	3075.000	149.35	404.7	13.02	7.32
TECO BIG BEND UNIT 3	3372.92	361.900	3075.000	149.35	410.2	14.47	7.32
TECO BIG BEND UNIT 4	654.70	361.900	3075.000	149.40	342.2	19.81	7.32
TECO GANNON 1 & 2	760.86	360.000	3087.500	93.27	420.8	30.85	3.05
TECO GANNON 3	483.96	360.000	3087.500	93.27	419.7	38.64	3.23
TECO GANNON 4	567.71	360.000	3087.500	93.27	426.9	22.97	3.05
TECO GANNON 5	691.28	360.000	3087.500	93.27	423.6	23.18	4.45
TECO GANNON 6	1149.41	360.000	3087.500	93.27	433.0	24.74	5.36
TECO GANNON TURBINE	11.90	360.000	3087.500	10.67	816.3	136.61	1.52
TECO HOOKERS POINT 1 & 2	82.60	358.000	3091.000	85.30	419.0	6.10	3.40
TECO HOOKERS POINT 3 & 4	114.00	358.000	3091.000	85.30	434.0	7.90	3.70
TECO HOOKERS POINT 5	84.60	358.000	3091.000	85.30	448.0	11.00	3.40
TECO HOOKERS POINT 6	107.90	358.000	3091.000	85.30	434.0	22.30	2.90
TECO POLK POWER	0.016	402.016	3067.640	22.90	1000.0	20.00	1.20
TECO POLK POWER	1.27	402.298	3067.297	60.70	1033.0	9.10	1.10
TECO POLK POWER	49.68	402.450	3067.350	45.72	400.0	16.76	5.79
TECO POLK POWER	8.20	402.328	3067.472	60.70	1033.0	10.70	1.40
TECO POLK POWER	0.30	402.420	3067.320	6.10	533.0	13.10	0.91
TECO POLK POWER	5.42	402.488	3066.954	22.86	812.0	27.43	5.49
TECO POLK POWER 4 CC	17.60	402.450	3067.216	45.72	389.0	16.15	4.42
TECO POLK POWER 5 CT	33.40	402.488	3066.914	22.86	785.0	31.39	5.49

**TABLE 5-4**  
**SO<sub>2</sub> Class II Area FAAQS Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**  
**(Concluded)**

SO2 SOURCE INVENTORY FOR FARMLAND HYRDO PLANT		A A Q S					
SOURCE DESCRIPTION	Emissions (g/s)	UTM COORDINATES (km)		Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
		EAST	NORTH				
TECO POLK POWER	4.41	402.450	3067.212	45.72	389.0	16.15	4.42
TECO POLK POWER	4.41	402.450	3067.070	45.72	389.0	16.15	4.42
TECO POLK POWER	4.41	402.450	3067.030	45.72	389.0	16.15	4.42
TECO POLK POWER	5.42	402.488	3066.954	22.86	812.0	27.43	5.49
TECO POLK POWER	6.68	402.488	3066.914	22.86	785.0	31.39	5.49
TECO POLK POWER	6.68	402.488	3066.807	22.86	785.0	31.39	5.49
TECO POLK POWER	6.68	402.488	3066.768	22.86	785.0	31.39	5.49
TECO POLK POWER	6.68	402.488	3066.692	22.86	785.0	31.39	5.49
TECO POLK POWER	6.68	402.488	3066.652	22.86	785.0	31.39	5.49
TECO POLK POWER	0.30	402.420	3067.320	6.10	533.0	13.10	0.91
TECO POLK POWER	8.20	402.328	3067.472	60.70	1033.0	10.70	1.40
TECO POLK POWER	0.016	402.016	3067.640	22.90	1000.0	20.00	1.20
TECO POLK POWER	1.27	402.298	3067.297	60.70	1033.0	9.10	1.10
USSAC FT MEADE SAP 1 & 2	92.48	416.120	3068.620	53.40	355.0	10.00	2.59

**TABLE 5-5**  
**SO<sub>2</sub> Class II Area PSD Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**

SO2 SOURCE INVENTORY FOR FARMLAND HYDRO PLANT		P S D - C L A S S I I					
SOURCE DESCRIPTION	Emissions (g/s)	UTM COORDINATES (km)		Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
		EAST	NORTH				
BREWSTER/IMPERIAL DRYER	-19.26	404.800	3069.500	27.44	339.0	15.25	2.29
CARGILL/GARDINIER DRYER	-28.89	363.400	3082.400	20.73	310.0	13.12	1.07
CARGILL/GARDINIER SAP #4,5,6	-187.70	363.400	3082.400	22.60	363.0	7.00	1.52
CARGILL/GARDINIER SAP #7	-26.25	363.400	3082.400	45.60	340.0	12.64	2.29
CARGILL/GARDINIER SAP #8	-41.16	363.400	3082.400	45.60	339.0	13.93	2.44
CARGILL/GARDINIER SAP #9	-54.60	363.400	3082.400	45.60	350.0	10.30	2.74
CARGILL/GARDINIER SAP #9	67.20	363.400	3082.400	45.60	350.0	12.66	2.74
CARGILL/SEMINOLE/W.R. GRACE DRYER	-39.66	409.770	3086.990	15.24	327.0	17.32	2.04
CARGILL/SEMINOLE/W.R. GRACE SAP #1 & #2	-216.00	409.770	3086.990	45.72	352.0	16.50	1.37
CARGILL/SEMINOLE/W.R. GRACE SAP #3	-52.50	409.770	3086.990	45.72	311.0	16.70	1.52
CARGILL/SEMINOLE/W.R. GRACE SAP 4, 5 & 6	-121.07	409.770	3086.990	60.96	347.0	25.10	1.52
CARGILL/SEMINOLE/W.R. GRACE SAP 4, 5 & 6	143.64	409.770	3086.990	60.96	347.0	34.00	1.52
CF BARTOW DAP 1-3	3.97	408.500	3082.500	36.40	339.0	16.11	2.13
CF BARTOW SAP 1	-60.90	408.500	3082.500	30.49	350.0	12.20	1.37
CF BARTOW SAP 2	-110.25	408.500	3082.500	30.49	350.0	10.37	1.68
CF BARTOW SAP 3	-107.10	408.500	3082.500	30.49	364.0	4.27	2.74
CF BARTOW SAP 4	-174.83	408.500	3082.500	30.49	358.0	7.93	2.13
CF BARTOW SAP 5	50.40	408.500	3082.500	63.41	361.0	10.88	2.13
CF BARTOW SAP 5	-226.80	408.500	3082.500	63.41	358.0	10.67	2.13
CF BARTOW SAP 6	50.40	408.500	3082.500	63.41	370.0	7.28	2.13
CF BARTOW SAP 6	-170.10	408.500	3082.500	63.41	359.0	10.37	2.13
CF BARTOW SAP 7	42.00	408.500	3082.500	67.10	351.0	9.80	2.40
CF PLANT CITY BASELINE A & B	-105.00	388.000	3116.000	23.80	316.0	18.80	1.52
CF PLANT CITY BASELINE C & D	-100.80	388.000	3116.000	60.35	353.0	16.40	2.44
CF PLANT CITY SAP A&B	88.20	388.000	3116.000	33.50	316.0	19.50	1.52
CF PLANT CITY SAP C & D	109.20	388.000	3116.000	60.35	353.0	17.77	2.44
DOLIME BOILER	-4.52	404.813	3069.548	27.43	494.1	7.25	0.61
DOLIME DRYER	-5.68	404.813	3069.548	27.43	333.0	20.67	1.52
ESTECH/SWIFT DRYER	-23.94	411.500	3074.200	18.29	339.0	8.47	2.95
ESTECH/SWIFT DRYER	-22.80	411.500	3074.200	18.75	340.0	5.06	2.95
ESTECH/SWIFT SAP	-92.87	411.500	3074.200	30.79	358.0	3.90	2.13
EVANS PACKING	0.20	383.300	3135.800	12.30	466.2	9.20	0.40
FARMLAND 1,2 SAP	-83.98	410.330	3079.655	30.48	311.0	20.18	1.37
FARMLAND 2 & 3 SAP	-68.04	410.330	3079.655	30.48	355.0	9.27	2.29
FARMLAND 2 & 3 SAP	88.20	410.330	3079.655	30.48	355.0	12.02	2.29
FARMLAND 5 SAP	-50.40	410.330	3079.655	45.72	355.0	11.55	2.44
FARMLAND 5 SAP	58.80	410.330	3079.655	45.72	355.0	13.42	2.44
FPC INT. CITY TURBINES/7EA	124.40	446.300	3126.000	15.24	819.8	56.21	4.21
FPC INT. CITY TURBINES/7EA	110.40	446.300	3126.000	15.24	880.8	32.07	7.04
FPC POLK	49.44	414.400	3073.910	34.40	400.0	40.50	4.10
GEN. PORT. CEMENT KILN 4	-82.99	358.000	3090.600	35.97	505.2	17.61	2.74
GEN. PORT. CEMENT KILN 5	-69.30	358.000	3090.600	45.42	494.1	5.80	3.81
HARDEE	277.60	404.800	3057.400	22.90	389.0	23.90	4.88
IMC - AGRICO /NICHOLS/CONSERVE SAP 2-UNITS	-54.60	398.400	3084.200	30.50	308.0	18.90	1.80
IMC - AGRICO /NICHOLS/CONSERVE SAP	-42.00	398.400	3084.200	45.70	352.0	10.30	2.30
IMC - AGRICO /NICHOLS/CONSERVE SAP	52.50	398.400	3084.200	45.70	352.0	12.00	2.30
IMC - AGRICO /NICHOLS/CONSERVE ROCK DRYER	-3.88	398.400	3084.200	24.40	339.0	12.90	1.52
IMC-AGRICCO/NEW WALES AFI PLANT	0.20	396.600	3078.900	52.40	322.0	13.10	2.40
IMC-AGRICCO/NEW WALES DAP	5.54	396.600	3078.900	36.60	319.1	20.15	1.83
IMC-AGRICCO/NEW WALES MULTIPHOS	4.80	396.600	3078.900	52.40	314.0	15.80	1.40
IMC-AGRICCO/NEW WALES ROCK DRYER	-34.27	396.600	3078.900	21.00	347.0	18.60	2.13
IMC-AGRICCO/NEW WALES SAP #1,2,3	182.85	396.600	3078.900	61.00	350.0	15.31	2.60
IMC-AGRICCO/NEW WALES SAP #1,2,3 BASELINE	-146.00	396.600	3078.900	61.00	350.0	14.28	2.60
IMC-AGRICCO/NEW WALES SAP #4,5	121.90	396.600	3078.900	60.70	350.0	15.31	2.60
IMC-AGRICCO/PIERCE DRYERS 1,2	-24.32	404.100	3078.950	24.38	339.0	12.94	1.52



**TABLE 5-5**  
**SO<sub>2</sub> Class II Area PSD Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**  
**(Concluded)**

SO2 SOURCE INVENTORY FOR FARMLAND HYDRO PLANT		PSD - CLASS II					
SOURCE DESCRIPTION	Emissions (g/s)	UTM COORDINATES (km)		Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
		EAST	NORTH				
IMC-AGRICO/PIERCE DRYERS 3,4	-23.00	404.100	3078.950	24.38	339.0	18.82	2.43
IMC-AGRICO/SO. PIERCE DAP PLANT	4.41	407.500	3071.330	38.10	328.0	14.60	3.10
IMC-AGRICO/SO. PIERCE SAP	113.40	407.500	3071.300	45.73	350.0	39.06	1.60
IMC-AGRICO/SO. PIERCE SAP	-75.60	407.500	3071.300	45.73	350.0	26.40	1.60
LAKELAND LARSEN CT	29.11	409.300	3102.800	30.48	783.2	28.22	5.79
LAKELAND MCINTOSH 3	500.10	409.200	3106.200	76.20	350.0	19.70	4.88
MOBIL NICHOLS 75 HP BOILER	-0.87	398.300	3084.300	4.00	522.0	1.80	0.80
MOBIL NICHOLS CALCINER	-13.89	398.300	3084.300	28.40	340.0	19.24	1.09
MOBIL NICHOLS DRYER 4	2.44	398.300	3084.300	25.90	339.0	16.05	2.29
MOBILE ELECTROPHOS 400HP BOILER	-6.53	405.600	3079.400	7.32	464.0	3.23	0.91
MOBILE ELECTROPHOS 600HP BOILER	-10.05	405.600	3079.400	6.10	464.0	7.71	0.91
MOBILE ELECTROPHOS CALCINER	-7.11	405.600	3079.400	25.61	306.0	6.97	2.13
MOBILE ELECTROPHOS COKE DRYER	-3.17	405.600	3079.400	18.29	322.0	22.87	0.70
MOBILE ELECTROPHOS FURNACE	-47.25	405.600	3079.400	29.27	314.0	8.52	2.13
MOBILE ELECTROPHOS ROCK DRYER	-21.81	405.600	3079.400	18.29	350.0	6.79	1.83
MULBERRY COGENERATION CT	13.40	413.600	3080.600	51.00	356.0	9.90	2.13
MULBERRY PROSPHATES/ROYSTER SAP	-152.71	406.700	3085.200	51.00	356.0	9.90	2.13
MULBERRY PROSPHATES/ROYSTER SAP	35.70	406.700	3085.200	61.00	360.0	12.20	2.13
RIDGE COGENERATION	13.80	416.700	3100.400	99.10	350.0	14.54	3.05
TECO BIG BEND UNIT 3 (24-HR)	-1218.00	361.900	3075.000	149.40	418.0	14.33	7.32
TECO BIG BEND UNIT 4	654.70	361.900	3075.000	149.40	342.2	19.81	7.32
TECO BIG BEND UNITS 1&2 (24-HR)	-2436.00	361.900	3075.000	149.40	422.0	28.65	7.32
TECO POLK POWER	0.016	402.016	3067.640	22.90	1000.0	20.00	1.20
TECO POLK POWER	0.30	402.420	3067.320	6.10	533.0	13.10	0.91
TECO POLK POWER	1.27	402.298	3067.297	60.70	1033.0	9.10	1.10
TECO POLK POWER	5.42	402.488	3066.954	22.86	812.0	27.43	5.49
TECO POLK POWER	8.20	402.328	3067.472	60.70	1033.0	10.70	1.40
TECO POLK POWER	49.68	402.450	3067.350	45.72	400.0	16.76	5.79
TECO POLK POWER 4 CC	17.60	402.450	3067.216	45.72	389.0	16.15	4.42
TECO POLK POWER 5 CT	33.40	402.488	3066.914	22.86	785.0	31.39	5.49
USS AGRI-CHEM BARTOW DRYER	-3.41	413.200	3086.300	15.80	332.0	10.01	1.83
USS AGRI-CHEM BARTOW SAP	-42.00	413.200	3086.300	28.96	305.0	7.50	2.12
USSAC FT MEADE GTSP	-18.27	416.000	3069.000	28.35	330.0	17.60	1.52
USSAC FT MEADE SAP	-78.80	416.210	3068.740	29.00	314.0	6.77	3.02
USSAC FT MEADE SAP 1 & 2	92.48	416.120	3068.620	53.40	355.0	10.00	2.59

TABLE 5-6  
SUMMARY OF CLASS II AREA SULFUR DIOXIDE IMPACTS ANALYSIS

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

MET. DATA	SULFUR DIOXIDE IMPACT ( $\mu\text{g}/\text{m}^3$ )					
	PSD			AAQS		
	ANNUAL(1)	3-HOUR(2)	24-HOUR(2)	ANNUAL(1)	3-HOUR(2)	24-HOUR(2)
1987	0	490.09	81.27	39.00	533.22	163.26
1988	0	466.37	86.24	34.79	561.91	151.02
1989	0	483.20	59.96	40.61	569.54	205.60
1990	0	415.31	115.91 (3)	39.52	535.01	180.33
1991	0	407.28	81.10	38.55	561.39	154.93
INCREMENT & STD.	20	512	91	60	1300	260

(Rule 62-212 & 275, FAC)

NOTE:

- (1) The impact represents the highest-high impact.
- (2) The impact represents the highest second-high impact.
- (3) Farmland's maximum contribution, of  $0.022 \mu\text{g}/\text{m}^3$ , is less than significant (see analysis in Appendix).

**TABLE 5-7**  
**SO<sub>2</sub> Class I Area PSD Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**

SOURCE DESCRIPTION	PSD - CLASS I						
	Emissions	UTM COORDINATES (km)		Height	Temp.	Velocity	Diameter
	(g/s)	EAST	NORTH	(m)	(K)	(m/s)	(m)
ASPHALT PAVERS 3	2.25	359.900	3162.400	12.20	377.0	10.58	1.37
ASPHALT PAVERS 4	1.76	361.400	3168.400	8.50	357.4	10.95	1.08
AUBURNDALE @ 0.5% SULFUR	6.35	420.800	3103.300	48.80	411.0	14.30	5.49
BORDEN DRYER	-5.29	414.500	3109.000	17.07	333.0	8.26	2.34
BORDEN DRYER	-6.48	394.800	3069.600	30.48	344.0	14.79	1.82
BREWSTER/IMPERIAL DRYER	-19.26	404.800	3069.500	27.44	339.0	15.25	2.29
CARGILL/GARDINIER DRYER	-28.89	363.400	3082.400	20.73	310.0	13.12	1.07
CARGILL/GARDINIER SAP #4,5,6	-187.70	363.400	3082.400	22.60	363.0	7.00	1.52
CARGILL/GARDINIER SAP #7	-26.25	363.400	3082.400	45.60	340.0	12.64	2.29
CARGILL/GARDINIER SAP #8	-41.16	363.400	3082.400	45.60	339.0	13.93	2.44
CARGILL/GARDINIER SAP #9	-54.60	363.400	3082.400	45.60	350.0	10.30	2.74
CARGILL/GARDINIER SAP #9	67.20	363.400	3082.400	45.60	350.0	12.66	2.74
CARGILL/SEMINOLE/W.R. GRACE DRYER	-39.66	409.770	3086.990	15.24	327.0	17.32	2.04
CARGILL/SEMINOLE/W.R. GRACE SAP #1 & #2	-216.00	409.770	3086.990	45.72	352.0	16.50	1.37
CARGILL/SEMINOLE/W.R. GRACE SAP #3	-52.50	409.770	3086.990	45.72	311.0	16.70	1.52
CARGILL/SEMINOLE/W.R. GRACE SAP 4, 5 & 6	143.64	409.770	3086.990	60.96	347.0	34.00	1.52
CARGILL/SEMINOLE/W.R. GRACE SAP 4, 5 & 6	-121.07	409.770	3086.990	60.96	347.0	25.10	1.52
CF BARTOW DAP 1-3	3.97	408.500	3082.500	38.40	339.0	16.11	2.13
CF BARTOW SAP 1	-60.90	408.500	3082.500	30.49	350.0	12.20	1.37
CF BARTOW SAP 2	-110.25	408.500	3082.500	30.49	350.0	10.37	1.68
CF BARTOW SAP 3	-107.10	408.500	3082.500	30.49	364.0	4.27	2.74
CF BARTOW SAP 4	-174.83	408.500	3082.500	30.49	358.0	7.93	2.13
CF BARTOW SAP 5	50.40	408.500	3082.500	63.41	361.0	10.88	2.13
CF BARTOW SAP 5	-226.80	408.500	3082.500	63.41	358.0	10.67	2.13
CF BARTOW SAP 6	50.40	408.500	3082.500	63.41	370.0	7.28	2.13
CF BARTOW SAP 6	-170.10	408.500	3082.500	63.41	359.0	10.37	2.13
CF BARTOW SAP 7	42.00	408.500	3082.500	67.10	351.0	9.80	2.40
CF PLANT CITY BASELINE A & B SAP	-105.00	388.000	3116.000	23.80	316.0	18.80	1.52
CF PLANT CITY BASELINE C & D SAP	-100.80	388.000	3116.000	60.35	353.0	16.40	2.44
CF PLANT CITY SAP A&B	88.20	388.000	3116.000	33.50	316.0	19.50	1.52
CF PLANT CITY PROPOSED C & D SAP	109.20	388.000	3116.000	60.35	353.0	17.77	2.44
CLM CHLORIDE METALS	13.00	361.800	3088.300	30.00	375.0	20.10	0.61
COUCH CONST-ZEPHYRHILLS (ASPHALT)	7.25	340.700	3119.500	9.14	436.0	22.30	1.40
COUCH CONST-ZEPHYRHILLS (ASPHALT)	3.54	390.300	3129.400	6.10	422.0	21.00	1.38
DOLIME BOILER	-4.52	404.813	3069.548	27.43	494.1	7.25	0.61
DOLIME DRYER	-5.68	404.813	3069.548	27.43	333.0	20.67	1.52
DRIS PAVING (ASPHALT)	0.23	340.600	3119.200	12.20	339.0	6.47	3.05
ER JAHNA (LIME DRYER)	0.82	388.700	3155.800	10.67	327.0	8.99	1.83
ESTECH/SWIFT DRYER	-22.80	411.500	3074.200	18.75	340.0	5.06	2.95
ESTECH/SWIFT DRYER	-23.94	411.500	3074.200	18.29	339.0	8.47	2.95
ESTECH/SWIFT SAP	-92.87	411.500	3074.200	30.79	358.0	3.90	2.13
EVANS PACKING	0.20	383.300	3135.800	12.30	466.2	9.20	0.40
FARMLAND 1,2 SAP	-83.98	410.330	3079.655	30.48	311.0	20.18	1.37
FARMLAND 2 & 3 SAP	-68.04	410.330	3079.655	30.48	355.0	9.27	2.29
FARMLAND 2 & 3 SAP	88.20	410.330	3079.655	30.48	355.0	12.02	2.29
FARMLAND 5 SAP	-50.40	410.330	3079.655	45.72	355.0	11.55	2.44
FARMLAND 5 SAP	58.80	410.330	3079.655	45.72	355.0	13.42	2.44
FDOC BOILER #3	2.99	382.200	3166.100	9.14	478.0	4.57	0.61
FLA MINING & MATERIALS KILN 2	1.45	356.200	3169.900	32.01	394.0	9.90	4.27
FLORIDA CRUSHED STONE KILN 1	98.40	360.008	3162.398	97.60	442.0	23.23	4.88
FPC CRYSTAL RIVER 1	-314.00	334.200	3204.500	152.00	422.0	42.10	4.57
FPC CRYSTAL RIVER 2	-1859.00	334.200	3204.500	153.00	422.0	42.10	4.88
FPC CRYSTAL RIVER 4	1008.80	334.200	3204.500	182.90	398.0	21.00	6.90
FPC CRYSTAL RIVER 5	1008.80	334.200	3204.500	182.90	398.0	21.00	6.90
FPC DEBARY TURBINES	466.40	467.500	3197.200	15.24	819.8	56.21	4.21

TABLE 5-7  
SO<sub>2</sub> Class I Area PSD Inventory  
Farmland Hydro, L.P. - Bartow  
Polk County, Florida  
(Continued)

SO2 SOURCE INVENTORY FOR FARMLAND HYDRO PLANT		PSD - CLASS I					
SOURCE DESCRIPTION	Emissions (g/s)	UTM COORDINATES (km)		Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
		EAST	NORTH				
FPC INT. CITY TURBINES/7EA	124.40	446.300	3126.000	15.24	819.8	56.21	4.21
FPC INT. CITY TURBINES/7EA	110.40	446.300	3126.000	15.24	880.8	32.07	7.04
FPC POLK	49.44	414.400	3073.910	34.40	400.0	40.50	4.10
GAINESVILLE REGIONAL UTILITIES	5.65	365.500	3292.700	15.80	811.0	46.02	4.30
GEN. PORT. CEMENT KILN 4	-62.99	358.000	3090.600	35.97	505.2	17.61	2.74
GEN. PORT. CEMENT KILN 5	-69.30	358.000	3090.600	45.42	494.1	5.80	3.81
HARDEE	277.60	404.800	3057.400	22.90	389.0	23.90	4.88
HILLS. CO. RESOURCE RECOVERY	21.40	368.200	3092.700	50.00	491.0	18.30	1.80
HOSP CORP OF AM BOILER #1	0.08	333.400	3141.000	10.98	533.0	4.00	0.31
HOSP CORP OF AM BOILER #2	0.08	333.400	3141.000	10.98	533.0	4.00	0.31
IMC - AGRICO /NICHOLS/CONSERVE SAP 2-UNITS	-54.60	398.400	3084.200	30.50	308.0	18.90	1.80
IMC - AGRICO /NICHOLS/CONSERVE SAP	-42.00	398.400	3084.200	45.70	352.0	10.30	2.30
IMC - AGRICO /NICHOLS/CONSERVE SAP	52.50	398.400	3084.200	45.70	352.0	12.00	2.30
IMC - AGRICO /NICHOLS/CONSERVE ROCK DRYER	-3.88	398.400	3084.200	24.40	339.0	12.90	1.52
IMC-AGRICO/NEW WALES AFI PLANT	0.20	396.600	3078.900	52.40	322.0	13.10	2.40
IMC-AGRICO/NEW WALES DAP	5.54	396.600	3078.900	36.60	319.1	20.15	1.83
IMC-AGRICO/NEW WALES MULTIPHOS	4.80	396.600	3078.900	52.40	314.0	15.80	1.40
IMC-AGRICO/NEW WALES ROCK DRYER	-34.27	396.600	3078.900	21.00	347.0	18.60	2.13
IMC-AGRICO/NEW WALES SAP #1,2,3	182.85	396.600	3078.900	61.00	350.0	15.31	2.60
IMC-AGRICO/NEW WALES SAP #1,2,3 BASELINE	-146.00	396.600	3078.900	61.00	350.0	14.28	2.60
IMC-AGRICO/NEW WALES SAP #4,5	121.90	396.600	3078.900	60.70	350.0	15.31	2.60
IMC-AGRICO/PIERCE DRYERS 1,2	-24.32	404.100	3078.950	24.38	339.0	12.94	1.52
IMC-AGRICO/PIERCE DRYERS 3,4	-23.00	404.100	3078.950	24.38	339.0	18.82	2.43
IMC-AGRICO/SO. PIERCE DAP PLANT	4.41	407.500	3071.330	38.10	328.0	14.60	3.10
IMC-AGRICO/SO. PIERCE SAP	113.40	407.500	3071.300	45.73	350.0	39.06	1.60
IMC-AGRICO/SO. PIERCE SAP	-75.60	407.500	3071.300	45.73	350.0	26.40	1.60
KISSIMMEE KANE IS. @ 0.3% SULFUR	29.40	447.680	3127.920	12.20	654.0	29.10	3.05
KISSIMMEE UTILITIES	32.10	460.100	3129.300	18.30	422.0	38.00	3.66
LAKE CO. COGEN. FACILITY	5.04	434.000	3198.800	30.48	384.3	17.13	3.35
LAKELAND LARSEN CT	29.11	409.300	3102.800	30.48	783.2	28.22	5.79
LAKELAND MCINTOSH 3	500.10	409.200	3106.200	76.20	350.0	19.70	4.88
MOBIL BIG-4 BOILER	0.60	394.800	3069.770	8.20	505.0	7.57	0.41
MOBIL BIG-4 DRYER	1.90	394.850	3069.770	30.50	334.0	7.26	1.82
MOBIL NICHOLS 75 HP BOILER	-0.87	398.300	3084.300	4.00	522.0	1.80	0.80
MOBIL NICHOLS CALCINER	-13.89	398.300	3084.300	28.40	340.0	19.24	1.09
MOBIL NICHOLS DRYER 4	2.44	398.300	3084.300	25.90	339.0	16.05	2.29
MOBILE ELECTROPHOS 400HP BOILER	-6.53	405.600	3079.400	7.32	464.0	3.23	0.91
MOBILE ELECTROPHOS 600HP BOILER	-10.05	405.600	3079.400	6.10	464.0	7.71	0.91
MOBILE ELECTROPHOS CALCINER	-7.11	405.600	3079.400	25.61	306.0	6.97	2.13
MOBILE ELECTROPHOS COKE DRYER	-3.17	405.600	3079.400	18.29	322.0	22.87	0.70
MOBILE ELECTROPHOS FURNACE	-47.25	405.600	3079.400	29.27	314.0	8.52	2.13
MOBILE ELECTROPHOS ROCK DRYER	-21.81	405.600	3079.400	18.29	350.0	6.79	1.83
MULBERRY COGENERATION CT	13.40	413.600	3080.600	51.00	356.0	9.90	2.13
MULBERRY PROSPHATES/ROYSTER SAP	-152.71	406.700	3085.200	51.00	356.0	9.90	2.13
MULBERRY PROSPHATES/ROYSTER SAP	35.70	406.700	3085.200	61.00	360.0	12.20	2.13
NEW PORT RICHEY HOSP BLR#1	0.06	331.200	3124.500	10.98	544.0	3.88	0.31
NEW PORT RICHEY HOSP BLR#2	0.03	331.200	3124.500	10.98	544.0	3.88	0.31
OMAN CONST (ASPHALT)	2.09	359.800	3164.900	7.62	347.0	6.29	1.83
ORLANDO UTIL STANTON 1	601.00	483.500	3150.600	167.60	325.7	21.60	5.80
ORLANDO UTIL STANTON 2 (24-HR)	91.80	483.500	3150.600	167.60	324.2	23.50	5.80
OVERSTREET PAV. (ASPHALT)	3.67	355.900	3143.700	9.14	408.0	16.00	1.30
PANDA KATHLEEN	0.73	398.700	3101.400	45.72	372.0	14.57	5.33
PASCO CO. COGENERATION	5.04	385.600	3139.000	30.48	384.3	17.13	3.35
PASCO COUNTY RRF	14.10	347.100	3139.200	83.82	394.3	15.70	3.05
PINELLAS RRF	62.24	335.300	3084.400	49.10	522.0	27.72	2.74

**TABLE 5-7**  
**SO<sub>2</sub> Class I Area PSD Inventory**  
**Farmland Hydro, L.P. - Bartow**  
**Polk County, Florida**  
**(Concluded)**

SOURCE DESCRIPTION	PSD - CLASS I						
	Emissions (g/s)	UTM COORDINATES (km)		Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
		EAST	NORTH				
REEDY CREEK GENERATORS 1 & 2 EPCOT	3.66	442.000	3139.000	5.20	616.5	44.12	0.55
REEDY CREEK SERVICES	0.15	443.000	3144.300	19.80	414.0	15.56	3.41
RIDGE COGENERATION	13.80	416.700	3100.400	99.10	350.0	14.54	3.05
SECI HARDEE	6.40	404.900	3057.400	27.40	414.0	14.09	5.79
STAUFFER BOILER	-4.86	325.600	3116.700	7.32	464.0	3.23	0.91
STAUFFER DRYER	-1.50	325.600	3116.700	18.29	322.0	22.87	0.70
STAUFFER FURNACE	-50.93	325.600	3116.700	49.00	335.0	3.60	1.20
STAUFFER KILN	-7.36	325.600	3116.700	25.61	306.0	6.97	2.13
STAUFFER ROASTER	-0.45	325.600	3116.700	25.61	322.0	6.97	0.91
TECO BIG BEND UNIT 3 (24-HR)	-1218.00	361.900	3075.000	149.40	418.0	14.33	7.32
TECO BIG BEND UNIT 4	654.70	361.900	3075.000	149.40	342.2	19.81	7.32
TECO BIG BEND UNITS 1&2 (24-HR)	-2436.00	361.900	3075.000	149.40	422.0	28.65	7.32
TECO POLK POWER	49.68	402.450	3067.350	45.72	400.0	16.76	5.79
TECO POLK POWER	8.20	402.328	3067.472	60.70	1033.0	10.70	1.40
TECO POLK POWER	5.42	402.488	3066.954	22.86	812.0	27.43	5.49
TECO POLK POWER	1.27	402.298	3067.297	60.70	1033.0	9.10	1.10
TECO POLK POWER	0.30	402.420	3067.320	6.10	533.0	13.10	0.91
TECO POLK POWER	0.016	402.016	3067.640	22.90	1000.0	20.00	1.20
TECO POLK POWER 4 CC	17.60	402.450	3067.216	45.72	389.0	16.15	4.42
TECO POLK POWER 5 CT	33.40	402.488	3066.914	22.86	785.0	31.39	5.49
USS AGRI-CHEM BARTOW DRYER	-3.41	413.200	3086.300	15.80	332.0	10.01	1.83
USS AGRI-CHEM BARTOW SAP	-42.00	413.200	3086.300	28.96	305.0	7.50	2.12
USSAC FT MEADE GTSP	-18.27	416.000	3069.000	28.35	330.0	17.60	1.52
USSAC FT MEADE SAP	-78.80	416.210	3068.740	29.00	314.0	6.77	3.02
USSAC FT MEADE SAP	92.48	416.120	3068.620	53.40	355.0	10.00	2.59

TABLE 5-8  
SUMMARY OF CLASS I AREA SULFUR DIOXIDE IMPACTS ANALYSIS

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	SULFUR DIOXIDE IMPACT ( $\mu\text{g}/\text{m}^3$ )		
	ANNUAL(1)	3-HOUR(2)	24-HOUR(2)
1987	0	37.60 (3)	7.78 (3)
1988	0	33.82 (3)	6.56 (3)
1989	0	31.16 (3)	5.05 (3)
1990	0	37.87 (3)	6.40 (3)
1991	0	39.74 (3)	7.27 (3)
ALLOWABLE PSD INCREMENT (FAC RULE 17-275)	2	25	5

NOTES:

- (1) The impact represents the highest-high impact.
- (2) The impact represents the highest second-high impact.
- (3) Farmland's maximum contribution to these impacts, of  $0.017 \mu\text{g}/\text{m}^3$  for the 3-hour period, and  $0.056 \mu\text{g}/\text{m}^3$  for the 24-hour period, are less than the significant levels used by the National Park Service as guidelines for permitting (see analysis in Appendix).

## 6.0 GOOD ENGINEERING PRACTICE STACK HEIGHT

The criteria for good engineering practice stack height in Rule 62-210, FAC, states that the height of a stack should not exceed the greater of 65 meters (213) feet or the height of nearby structures plus the lesser of 1.5 times the height or cross-wind width of the nearby structure. This stack height policy is designed to prevent achieving ambient air quality goals solely through the use of excessive stack heights and air dispersion.

Based on this policy, the limiting height for sources addressed in this application is 213 feet. The Farmland sulfuric acid plant stacks are all less than 213 feet in height above-grade. This satisfies the good engineering practice (GEP) stack height criteria.

## 7.0 IMPACTS ON SOILS, VEGETATION AND VISIBILITY

### 7.1 IMPACT ON SOILS AND VEGETATION

The U. S. Environmental Protection Agency was directed by Congress to develop primary and secondary ambient air quality standards. The primary standards were to protect human health and the secondary standards were to:

"... protect the public welfare from any known or anticipated adverse effects of a pollutant."

The public welfare was to include soils, vegetation and visibility.

As a basis for promulgating the air quality standards, EPA undertook studies related to the effects of all major air pollutants and published criteria documents summarizing the results of the studies. The studies included in the criteria documents were related to both acute and chronic effects of air pollutants. Based on the results of these studies, the criteria documents recommended air pollutant concentration limits for various periods of time that would protect against both chronic and acute effects of air pollutants with a reasonable margin of safety.

The air quality modeling that has been conducted as a requirement for the PSD application demonstrates that the levels of sulfur dioxide expected in the vicinity of the proposed project are below the ambient air quality standards. As a result, it is reasonable to conclude that there will be no adverse effect to the soils, vegetation or visibility of the area.

The Farmland plant property and the surrounding areas are comprised of mining lands (phosphate), flatwoods, marshes, and sloughs. The soils of the area are primarily sandy and are typically low in both clay and silt content. These characteristics and the semi-tropic climatic factors of



high temperature and rainfall are the natural factors which determine the terrestrial communities of the region.

The land in the vicinity of the Farmland plant supports various plant communities. Much of the natural vegetation on the site and the surrounding areas has been altered due to mining and industrial use; primarily the phosphate fertilizer industry. As a result of mining and industrial activity, there is very little undisturbed land in existence in the vicinity of the plant. As a result, no adverse impacts from the proposed project are expected on the soils and vegetation in the vicinity of the facility.

## 7.2 GROWTH RELATED IMPACTS

The proposed modification will require no increase in personnel to operate the facility. Also, the increase in fertilizer production may cause a slight increase in delivery truck tanker traffic but will have a negligible impact on traffic in the area as compared with traffic levels that presently exist. Therefore, no additional growth impacts are expected as a result of the proposed project.

## 7.3 VISIBILITY IMPACTS

The proposed project will result in an increase in air emissions and therefore has the potential for adverse impacts on visibility.

A screening approach suggested by EPA (Workbook for Plume Visual Impact Screening and Analysis, 1988) and computerized in a model referred to as VISCREEN was used for the analysis. The emissions of acid mist and nitrogen oxides were input to the model. In the case of sulfur dioxide however, EPA has noted in discussions on visibility models that the sulfates formation resulting from sulfur dioxide emissions becomes a factor beyond 200 kilometers and so the sulfur dioxide emissions were not included in the analysis. The VISCREEN - Level 1 modeling results,

presented in Table 7-1, indicate that there will be no adverse visibility impacts from the proposed project.

#### 7.4 IMPACTS ON AIR QUALITY RELATED VALUES FOR CLASS I AREA

In the previous section, the impact of the air emission increases on air quality related values in the vicinity of the proposed project was addressed. The analysis addressed in this section extends the review of the impact of increased emissions on air quality related values to the Chassahowitzka Class I PSD area; an area in excess of 100 kilometers northwest of the Farmland plant.

##### 7.4.1 Impact on Vegetation

The response of vegetation to air pollutants is influenced by the concentration of the pollutant, the duration of the exposure and the frequency of the exposure. The pattern of exposure expected from a single facility is that of a few episodes of relatively high concentrations interdispersed with long periods of no exposure or extremely low concentrations. This is the pattern of exposure that would be expected from sulfur dioxide and acid mist emissions from the proposed project at Chassahowitzka.

Vegetation responds to a dose of an air pollutant with a dose being defined as the product of the concentration of the pollutant and the duration of the exposure. The impact of the sulfur dioxide emissions on Chassahowitzka regional vegetation was assessed by comparing pollutant doses that have been projected with air quality modeling to threshold doses reported in the literature.

Sulfur dioxide damage to vegetation can be grouped into two general categories: acute and chronic. Acute damage is caused by short-term exposure to relatively high concentrations of sulfur dioxide. This damage is usually characterized by a yellowing of leaf tips with a sharp, well defined separation between the damaged and healthy areas of a leaf. In

pine trees. injury usually first occurs at the base of the youngest needles (the newest tissue on the plant).

Damaged plants typically show decreased growth and yield. These effects vary widely between species but studies have shown a rough correlation between the loss and yield and the exposure dose. These studies showed approximately a 10 percent yield loss for each 10-fold increase in sulfur dioxide dose beyond 260 micrograms per cubic meter-hour.

Susceptibility to acute damage varies widely with plant species and also with the time of exposure. For example, alfalfa can tolerate 3250 micrograms per cubic meter for one hour (3250 micrograms per cubic meter-hour dose), but only 1850 micrograms per cubic meter for two hours (3700 micrograms per cubic meter-hour dose). Table 7-2 shows the sulfur dioxide concentration/time thresholds for several plant species common to Florida.

The vegetation in the Chassahowitzka area is characterized by flatwoods, brackish-water, marine and halothyctic terrestrial species. Predominant tree species are slash pine, laurel oak, sweet gum and palm. Other plants in the area include needlegrass rush, seashore saltgrass, marsh hay and red mangrove.

A study of the tolerance of native Florida species to sulfur dioxide (Woltz and Howe, 1981) demonstrated that cypress, slash pine, live oak and mangrove exposed to 1300 micrograms per cubic meter of sulfur dioxide for 8-hours were not visibly damaged. This is consistent with the results reported in Table 7-2. Another study (McLaughlin and Lee, 1974) demonstrated that approximately 20 percent of a broad range of plants ranging from sensitive to tolerant were visibly injured when exposed to a sulfur dioxide concentration of 920 micrograms per cubic meter for a 3-hour period.

Acute injury results from a plants inability to quickly convert absorbed sulfur dioxide into the sulfate ion; an essential nutrient to plants. Chronic injury, on the other hand, results from a build-up of sulfate in

tissue to the point where it becomes toxic. This sulfate build-up occurs over a relatively long period of time. Symptoms include a reduction in chlorophyll production resulting in decreased photosynthesis and yellow or reddish areas on leaves in a mottled pattern. In pines, sulfate injury is typically shown first at tips of older needles (the oldest tissue in the needle).

Chronic injury can result from sulfur dioxide exposures that are much lower than is required for acute injury. Unfortunately, there is a lack of quantitative experimental data for long term effects of sulfur dioxide exposure. The lowest average concentration for which chronic injury has been shown is 80 micrograms per cubic meter. The Environmental Protection Agency has therefore established an ambient air quality standard of 80 micrograms per cubic meter, annual average. The Florida Department of Environmental Protection adopted a more conservative standard of 60 micrograms per cubic meter, annual average. Although the predicted maximum impacts exceed the Class I PSD increments, the sulfur dioxide impacts from the proposed project are expected to be well below the ambient air quality standards (see Table 5-8).

The maximum expected concentrations of acid mist in the Chassahowitzka area resulting from the increased emissions from Farmland will be less than four percent of the expected sulfur dioxide impacts. Furthermore, it would be expected that by the time acid mist droplets have traveled over 100 kilometers from Farmland to the Chassahowitzka area, the droplets may react with particles in the atmosphere to produce a sulfate salt.

Salt deposition concentrations in coastal areas are in the range of 25-300 pounds per acre per year and may be as high as 4000 pounds per acre per year on exposed shorelines. Sulfates can account for 5 - 6 percent of the total salt; resulting in a deposition rate in the range of 1-200 pounds per acre per year.

One study (Mulchi Armbruster, 1975) demonstrated leaf damage in reduced yields in corn and soybeans with a salt deposition of 169 - 339 pounds per

acre per year. Another study (Curtis, 1975) reported that broad leaf plants absorbed greater amounts of salt than do pines, probably due to leaf shape. It has been found that deciduous trees begin to exhibit adverse effects to salt exposure concentrations in the range of 100 micrograms per cubic meter (DeVine, 1975). The same study reported no observed injury to plants with long-term exposures to salt spray of 40 micrograms per cubic meter.

The sulfate concentrations resulting from acid mist emissions from Farmland are well below concentrations which have been reported to produce vegetation damage.

#### 7.4.2 Impact on Soils

The major soil classification in the Chassahowitzka area is Weeki Wachee-Durbin muck. This is an euic, hyderthermic typic sulfhemist 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 four percent sulfur (USDA, 1991).

Based upon the expected sulfur dioxide and sulfate concentrations in the Chassahowitzka area resulting from the increased emissions from the Farmland plant, it is not expected that there will be any adverse impact on the native soils. A recent study (1994), coordinated by the National Park Service, supports this position.

#### 7.4.3 Impacts on Wildlife

As the predicted sulfur dioxide levels are below those known to affect vegetation, the proposed project is not expected to have any impact on the wildlife in the Chassahowitzka area.

#### 7.4.4. Visibility Impairment Analysis

Visibility impairment analysis was performed to determine potential impact of the proposed project in the Chassahowitzka area. The VISCREEN - Level 1 modeling results, presented in Table 7-1, indicate that no adverse visibility impacts are expected as a result of the proposed project.

TABLE 7-1

VISUAL EFFECTS SCREENING ANALYSIS

SUMMARY OF ALL EMISSIONS AND METEOROLOGICAL INPUT

Emissions for FARMLAND in G /S :

Particulate =	5.510000
NOx =	4.410000
Primary NO2 =	0.000000E+00
Soot =	0.000000E+00
Primary SO4 =	0.000000E+00

Meteorological and Ambient Data for CHASS

Wind speed (m/s) =	1.000000
Stability Index =	6
Visual Range (km) =	25.000000
Ozone Conc. (ppm) =	4.000000E-02
Plume Offset Angle=	11.250000 degrees

Distances Between FARMLAND and CHASS

Source-Observer =	105.000000 km
Min. Source-Class I =	100.000000 km
Max. Source-Class I =	110.000000 km

OVERALL RESULTS OF PLUME VISIBILITY SCREENING

SOURCE: FARMLAND  
CLASS I AREA: CHASS

INSIDE class I area --  
 Time delta E DOES NOT EXCEED screening criterion for SKY background  
 Time delta E DOES NOT EXCEED screening criterion for TERRAIN background  
 Time contrast DOES NOT EXCEED screening criterion for SKY background  
 Time contrast DOES NOT EXCEED screening criterion for TERRAIN background

OUTSIDE class I area --  
 Time delta E DOES NOT EXCEED screening criterion for SKY background  
 Time delta E DOES NOT EXCEED screening criterion for TERRAIN background  
 Time contrast DOES NOT EXCEED screening criterion for SKY background  
 Time contrast DOES NOT EXCEED screening criterion for TERRAIN background

SCREENING CRITERIA: DELTA E = 2.0  
 GREEN CONTRAST = .050

TABLE 7-2

SENSITIVITY OF VEGETATION TO SULFUR DIOXIDE

CONCENTRATION - TIME EXPOSURES TO  
SULFUR DIOXIDE RESULTING IN DAMAGE TO  
SEVERAL SPECIES COMMON TO FLORIDA

Sensitive Plants

Poplar	Radish	Cabbage
Lombardy Poplar	Cucumber	Broccoli
Black Willow	Squash	Spinach
Elm	Bean	Wheat
American Elm	Pea	Begonia
Southern pines	Soybean	Zinnia
Red Oak	Cotton	Rubber plant
Black Oak	Eggplant	Bluegrass
Sumac	Celery	Ryegrass

Intermediate Plants

Basswood	Yellow Poplar	Virginia creeper
Red Oxier Dogwood	Sweetgum	Rose
Maples	Locust	Hibiscus
Red Maple	Eastern Cottonwood	Gladiolus
Elm	Saltgrass	Honeysuckle
Pine	Cucumber	Wisteria
White Oak	Tobacco	Chrysanthemum
Pin Oak	Potato	

Tolerant Plants

Juniper	Pine	Gardenia
Ginkgo	Sumac	Citrus
Dogwood	Cantaloupe	Celery
Oak	Corn	
Live Oak	Lily	

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(Continued)



TABLE 7-2 (CONTINUED)

Exposure Time, Hours	Concentration Needed to Produce Injury ( $\mu\text{g}/\text{m}^3$ )		
	Sensitive	Intermediate	Tolerant
0.5	2,620 - 10,480	9,170 - 31,440	>26,200
1.0	1,310 - 7,860	6,550 - 26,200	>20,960
2.0	655 - 5,240	3,930 - 19,650	>15,720
4.0	262 - 2,620	1,310 - 13,100	>10,480
8.0	131 - 1,310	524 - 6,550	> 5,240

## 8.0 CONCLUSION

It can be concluded from the information in this report that the proposed increase in production rates of Farmland's sulfuric acid plants, and the increase in the molten sulfur system throughput, as described in this report, will not cause or significantly contribute to a violation of any air quality standard, PSD increment, or any other provision of Chapter 17, FAC.

## REFERENCES

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## APPENDIX

## EMISSION RATE CALCULATIONS

### 1.0 PERMITTED EMISSION RATES

#### 1.1 No. 3 SULFURIC ACID PLANT

$$\begin{aligned} \text{SO}_2 &= 270 \text{ lbs/hr} \\ &= 270 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 1183 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{ACID MIST (SAM)} &= 10.1 \text{ lbs/hr} \\ &= 10.1 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 44.3 \text{ TPY} \end{aligned}$$

#### 1.2 No. 4 SULFURIC ACID PLANT

$$\begin{aligned} \text{SO}_2 &= 270 \text{ lbs/hr} \\ &= 270 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 1183 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= 10.1 \text{ lbs/hr} \\ &= 10.1 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 44.3 \text{ TPY} \end{aligned}$$

#### 1.3 No. 5 SULFURIC ACID PLANT

$$\begin{aligned} \text{SO}_2 &= 400 \text{ lbs/hr} \\ &= 400 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 1752 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= 15 \text{ lbs/hr} \\ &= 15 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 65.7 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{NO}_x &= 11.9 \text{ lbs/hr} \\ &= 11.9 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 52.2 \text{ TPY} \end{aligned}$$

#### 1.4 MOLTEN SULFUR SYSTEM

$$\text{PM/PM}_{10} = 7.71 \text{ TPY}$$

$$\text{SO}_2 = 14.22 \text{ TPY}$$

$$\text{H}_2\text{S} = 9.45 \text{ TPY}$$

$$\text{VOC} = 14.02 \text{ TPY}$$

## 2.0 ACTUAL EMISSION RATE CALCULATIONS

### 2.1 No. 3 SULFURIC ACID PLANT

Operating hours for the past five years:

YEAR	PLANT OPERATING HOURS
1990	8337
1991	8488*
1992	8362*
1993	8276
1994	Not compiled
Average	8425*

\* Representative years

$$\begin{aligned} \text{SO}_2 &= (236.3 + 77.7)/2 \text{ lbs/hr} \\ &= \text{x } 8425 \text{ hrs/yr x ton/2000 lbs} \\ &= 661.4 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= (6.9 + 3.8)/2 \text{ lbs/hr} \\ &= \text{x } 8425 \text{ hrs/yr x ton/2000 lbs} \\ &= 22.5 \text{ TPY} \end{aligned}$$

NO<sub>x</sub> emissions based on the nominal permitted production rate and a NO<sub>x</sub> emission factor used previously by FDEP of 0.12 lb/ton:

$$\begin{aligned} \text{NO}_x &= 67.5 \text{ tons/hr x } 0.12 \text{ lb/ton} \\ &= 8.1 \text{ lbs/hr} \\ &= \text{x } 8425 \text{ hrs/yr x ton/2000 lbs} \\ &= 34.1 \text{ TPY} \end{aligned}$$

## 2.2 No. 4 SULFURIC ACID PLANT

Operating hours for the past five years:

YEAR	PLANT OPERATING HOURS
1990	7977
1991	8349
1992	8398*
1993	8544*
1994	Not compiled
Average	8471*

\* Representative years

$$\begin{aligned} \text{SO}_2 &= (140.2 + 188.3)/2 \text{ lbs/hr} \\ &= \text{x } 8471 \text{ hrs/yr x ton/2000 lbs} \\ &= 695.7 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= (2.9 + 6.3)/2 \text{ lbs/hr} \\ &= \text{x } 8471 \text{ hrs/yr x ton/2000 lbs} \\ &= 19.5 \text{ TPY} \end{aligned}$$

NOx emissions based on the nominal permitted production rate and a NOx emission factor used previously by FDEP of 0.12 lb/ton:

$$\begin{aligned} \text{NOx} &= 67.5 \text{ tons/hr x } 0.12 \text{ lb/ton} \\ &= 8.1 \text{ lbs/hr} \\ &= \text{x } 8471 \text{ hrs/yr x ton/2000 lbs} \\ &= 34.3 \text{ TPY} \end{aligned}$$

### 2.3 No. 5 SULFURIC ACID PLANT

Operating hours for the past five years:

YEAR	PLANT OPERATING HOURS
1990	1386
1991	8476
1992	8020
1993	8699*
1994	8270*
Average	8485*

\* Representative years

$$\begin{aligned} \text{SO}_2 &= (212.6 + 166.2)/2 \text{ lbs/hr} \\ &= 803.5 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= (6.9 + 9.3)/2 \text{ lbs/hr} \\ &= 34.4 \text{ TPY} \end{aligned}$$

NOx emissions based on the production rate and a NOx emission factor used previously by FDEP of 0.12 lb/ton (a factor representative of No. 5 sulfuric acid plant operation):

$$\begin{aligned} \text{NOx} &= 90.7 \text{ tons/hr} \times 0.12 \text{ lb/ton} \\ &= 10.9 \text{ lbs/hr} \\ &= 46.2 \text{ TPY} \end{aligned}$$

### 2.4 MOLTEN SULFUR SYSTEM

(Same as permitted emissions)

$$\begin{aligned} \text{PM/PM10} &= 7.71 \text{ TPY} \\ \text{SO}_2 &= 14.22 \text{ TPY} \\ \text{H}_2\text{S} &= 9.45 \text{ TPY} \\ \text{VOC} &= 14.02 \text{ TPY} \end{aligned}$$



### 3.0 PROPOSED EMISSION RATE CALCULATIONS:

#### 3.1 No. 3 SULFURIC ACID PLANT

$$\begin{aligned} \text{SO}_2 &= 2100 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 4.0 \text{ lbs/ton} \\ &= 350 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 1533 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= 2100 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 0.15 \text{ lb/ton} \\ &= 13.1 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 57.5 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{NO}_x &= 2100 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 0.12 \text{ lb/ton} \\ &= 10.5 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 46.0 \text{ TPY} \end{aligned}$$

#### 3.2 No. 4 SULFURIC ACID PLANT

$$\begin{aligned} \text{SO}_2 &= 2100 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 4.0 \text{ lbs/ton} \\ &= 350 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 1533 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{SAM} &= 2100 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 0.15 \text{ lb/ton} \\ &= 13.1 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 57.5 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{NO}_x &= 2100 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 0.12 \text{ lb/ton} \\ &= 10.5 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 46.0 \text{ TPY} \end{aligned}$$

#### 3.3 No. 5 SULFURIC ACID PLANT

$$\begin{aligned} \text{SO}_2 &= 2800 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 4.0 \text{ lbs/ton} \\ &= 466.7 \text{ lbs/hr} \\ &= 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 2044 \text{ TPY} \end{aligned}$$

$$\begin{aligned}
 \text{SAM} &= 2800 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 0.15 \text{ lb/ton} \\
 &= 17.5 \text{ lbs/hr} \\
 &= 17.5 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 76.7 \text{ TPY}
 \end{aligned}$$

$$\begin{aligned}
 \text{NOx} &= 2800 \text{ tons/day} \times \text{day}/24 \text{ hrs} \times 0.12 \text{ lb/ton} \\
 &= 14.0 \text{ lbs/hr} \\
 &= 14.0 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 61.3 \text{ TPY}
 \end{aligned}$$

### 3.2 MOLTEN SULFUR SYSTEM

Based on the increase in TPY sulfur throughput = (850,000/670,000) = 1.26

$$\begin{aligned}
 \text{PM/PM}_{10} &= 7.71 \text{ TPY} \times 1.26 = 9.7 \text{ TPY} \\
 \text{SO}_2 &= 14.22 \text{ TPY} \times 1.26 = 17.9 \text{ TPY} \\
 \text{H}_2\text{S} &= 9.45 \text{ TPY} \times 1.26 = 11.9 \text{ TPY} \\
 \text{VOC} &= 14.02 \text{ TPY} \times 1.26 = 17.7 \text{ TPY}
 \end{aligned}$$

### 4.0 NET ANNUAL EMISSION CHANGES

Net Emission Change = Proposed Emissions - Actual Emissions

POLLUTANT	ESTIMATED EMISSIONS (TPY)					TOTAL	NET
	No.3	No.4	No.5	S.S.			
SO <sub>2</sub> (1)	661.4	695.7	803.5	14.22		2174.8	
(2)	1533.0	1533.0	2044.0	17.9		5127.9	2953.1
SAM (1)	22.5	19.5	34.4	-		76.4	
(2)	57.5	57.5	76.7	-		191.7	115.3
NO <sub>x</sub> (1)	34.1	34.3	46.2	-		114.6	
(2)	46.0	46.0	61.3	-		153.3	38.7
PM (1)	-	-	-	7.71		7.7	
(2)	-	-	-	9.7		9.7	2.0
H <sub>2</sub> S (1)	-	-	-	9.45		9.5	
(2)	-	-	-	11.9		11.9	2.4
VOC (1)	-	-	-	14.02		14.0	
(2)	-	-	-	17.7		17.7	3.7

NOTE: (1) Represents estimated actual emissions and (2) represents proposed emissions.

MODELING OUTPUT ON DISK

SUMMARY OF CLASS I AREA SULFUR DIOXIDE IMPACTS ANALYSIS

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	SULFUR DIOXIDE IMPACT ( $\mu\text{g}/\text{m}^3$ )		
	ANNUAL(1)	3-HOUR(2)	24-HOUR(2)
1987	0	37.60 (3)	7.78 (3)
1988	0	33.82 (3)	6.56 (3)
1989	0	31.16 (3)	5.05 (3)
1990	0	37.87 (3)	6.40 (3)
1991	0	39.74 (3)	7.27 (3)
ALLOWABLE PSD INCREMENT (FAC RULE 17-275)	2	25	5

NOTES:

- (1) The impact represents the highest-high impact.
- (2) The impact represents the highest second-high impact.
- (3) Farmland's maximum contribution to these impacts, of  $0.017 \mu\text{g}/\text{m}^3$  for the 3-hour period, and  $0.056 \mu\text{g}/\text{m}^3$  for the 24-hour period, are less than the significant levels used by the National Park Service as guidelines for permitting (see analysis in Appendix).

SUMMARY OF CLASS II AREA SULFUR DIOXIDE IMPACTS ANALYSIS

FARMLAND HYDRO, L.P.  
POLK COUNTY, FLORIDA

MET. DATA	SULFUR DIOXIDE IMPACT ( $\mu\text{g}/\text{m}^3$ )					
	PSD			AAQS		
	ANNUAL(1)	3-HOUR(2)	24-HOUR(2)	ANNUAL(1)	3-HOUR(2)	24-HOUR(2)
1987	0	490.09	81.27	39.00	533.22	163.26
1988	0	466.37	86.24	34.79	561.91	151.02
1989	0	483.20	59.96	40.61	569.54	205.60
1990	0	415.31	115.91 (3)	39.52	535.01	180.33
1991	0	407.28	81.10	38.55	561.39	154.93
INCREMENT & STD.	20	512	91	60	1300	260

(Rule 62-212 & 275, FAC)

NOTE:

- (1) The impact represents the highest-high impact.
- (2) The impact represents the highest second-high impact.
- (3) Farmland's maximum contribution, of  $0.022 \mu\text{g}/\text{m}^3$ , is less than significant (see analysis in Appendix).

SUMMARY OF FARMLAND CONTRIBUTION  
TO SULFUR DIOXIDE CLASS I AND II AREA IMPACTS  
(SEE DETAILED ANALYSIS ON DISK)

MET. YEAR	MAXIMUM PREDICTED IMPACTS ( $\mu\text{g}/\text{m}^3$ )		
	MAX. FARMLAND CONTRIBUTION (1)	ALL SOURCES (2)	
Class I Area 3-hour		Class I Receptor	
1987	0.0099	27.25	9
1988	0.0005	25.85	10
1989	0.0168	25.82	9
1990	0.0002	33.19	9
1991	0.0018	25.79	5
<b>MAX</b>	<b>0.0168</b>		
Class I Area 24-hour		Class I Receptor	
1987	0.0098	5.08	5
1988	0.0557	5.07	7
1989	0.0002	5.21	7
1990	0.0273	5.47	4
1991	0.0112	5.38	5
<b>MAX</b>	<b>0.0557</b>		
Class II Area 24-hour			
1990	0.0223	92.65	
<b>MAX</b>	<b>0.0223</b>		

NOTE:

- (1) This sulfur dioxide impact represents the maximum Farmland contribution to a predicted impact over the Class I and Class II PSD increment at a given receptor at a given period.
- (2) This sulfur dioxide impact represents the predicted impact from all significant facilities when the Farmland contribution, indicated in (1), occurs.

POLK COUNTY - AP FARMLAND HYDRO. L.P. PERMIT AMENDMENT REQUEST MODELING IS CONTAINED ON THESE 6- 3½" DISKETTES. MODELING FOR:

PSD CLASS 1  
PSD CLASS 2  
FAAQS.

ARE ON THESE DISKS IN SELF EXTRACTING ARCHIVED FORMAT. TO UNARCHIVE THESE FILES COPY THE FILES OF INTEREST TO A HARD DISK DRIVE AND TYPE THE FILE NAME. FOR EXAMPLE TO UNARCHIVE THE ISCST2 OUTPUT FILES, FOR FAAQS MODELING COPY THE FRM-FAQS.EXE FILE FROM DISK 6 TO A HARD DISK DRIVE AND TYPE "FRM-FAQS.EXE" AND PRESS ENTER. THE FILES WILL AUTOMATICALLY UNARCHIVE TO THE HARD DISK DRIVE.

THE CONTENTS OF THE 6 DISKS ARE DESCRIBED AS FOLLOWS:

DISK 1 CONTAINS THE FILES:

3-HR87	EXE	595,981	01-28-95	(3-HR CLASS 1 PSD ANALYSIS IN LOTUS 123 FORMAT FOR THE YEAR 1987)
3-HR88	EXE	623,203	01-28-95	(3-HR CLASS 1 PSD ANALYSIS IN LOTUS 123 FORMAT FOR THE YEAR 1988)

DISK 2 CONTAINS THE FILES:

3-HR89	EXE	637,929	01-28-95	(3-HR CLASS 1 PSD ANALYSIS IN LOTUS 123 FORMAT FOR THE YEAR 1989)
3-HR90	EXE	617,546	01-28-95	(3-HR CLASS 1 PSD ANALYSIS IN LOTUS 123 FORMAT FOR THE YEAR 1990)

DISK 3 CONTAINS THE FILES:

3-HR91	EXE	606,536	01-28-95	(3-HR CLASS 1 PSD ANALYSIS IN LOTUS 123 FORMAT FOR THE YEAR 1991)
3HR-DONE	EXE	635,390	01-28-95	(3-HR CLASS 1 PSD POSTFILE PLOT FILES IN A POST PROCESSED ASCII FORMAT FOR THE YEARS 1987 TO 1991)

DISK 4 CONTAINS THE FILES:

C1FRMPRN	EXE	696,725	02-07-95	(3-HR CLASS 1 PSD POSTFILE PLOT FILES IN A PREPROCESSED (RAW) ASCII FORMAT FOR THE YEARS 1987 TO 1991 FOR THE FARMLAND CONTRIBUTION ONLY)
24HR-WK1	EXE	493,111	01-28-95	(24-HR CLASS 1 PSD ANALYSIS IN LOTUS 123 FORMAT FOR THE YEARS 1987 TO 1991)

DISK 5 CONTAINS THE FILES:

C1PSDPRN	EXE	1,254,655	02-07-95	(3-HR CLASS 1 PSD POSTFILE PLOT FILES IN A PREPROCESSED (RAW) ASCII FORMAT FOR THE YEARS 1987 TO 1991 FOR THE CLASS 1 INVENTORY)
24HRDONE	EXE	128,155	01-28-95	(24-HR CLASS 1 PSD POSTFILE PLOT FILES IN A POST PROCESSED ASCII FORMAT FOR THE YEARS 1987 TO 1991)

DISK 6 CONTAINS THE FILES:

C1PSD24H EXE	313,875	02-07-95	(ALL 24-HR CLASS 1 PSD POSTFILE PLOT FILES IN A PREPROCESSED (RAW) ASCII FORMAT FOR THE YEARS 1987 TO 1991)
CLASS2 EXE	506,556	02-12-95	(CLASS 2 PSD ISCST2 OUTPUT FILES IN ASCII FORMAT)
FRM-FAQS EXE	384,471	02-12-95	(FAAQS ISCST2 OUTPUT FILES IN ASCII FORMAT)
CLAS1OUT EXE	102,864	01-26-95	(CLASS 1 PSD ISCST2 OUTPUT FILES IN ASCII FORMAT)

IN GENERAL ALL ISCST2 OUTPUT FILES ARE ON DISK 6, AND CLASS 1 PSD ANALYSIS FILES ARE ON ALL 6 DISKS. THE CONTENTS OF EACH FILE IS DESCRIBED AS FOLLOWS:

CLAS1OUT EXE CONTAINS THE FOLLOWING ISCST2 OUTPUT FILES IN ASCII FORMAT:

CL1PSD87 OUT	95,549	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1987
CL1PSD88 OUT	95,549	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1988
CL1PSD89 OUT	95,549	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1989
CL1PSD90 OUT	95,549	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1990
CL1PSD91 OUT	95,549	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1991
FRMCL187 OUT	53,488	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
FRMCL188 OUT	53,488	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
FRMCL189 OUT	53,488	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989
FRMCL190 OUT	53,488	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
FRMCL191 OUT	53,488	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991

C1FRMPRN EXE CONTAINS THE FOLLOWING ISCST2 PREPROCESSED (RAW) POST FILE PLOT FILES IN ASCII FORMAT FOR THE 3-HOUR AVERAGING PERIOD:

FRM03-87 PRN	3,075,318	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1987
FRM03-88 PRN	3,083,742	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1988
FRM03-89 PRN	3,075,318	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1989
FRM03-90 PRN	3,075,318	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1990
FRM03-91 PRN	3,075,318	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1991

C1PSDPRN EXE CONTAINS THE FOLLOWING ISCST2 PREPROCESSED (RAW) POST FILE PLOT FILES IN ASCII FORMAT FOR THE 3-HOUR AVERAGING PERIOD:

C1P03-87 PRN	3,075,318	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
C1P03-88 PRN	3,083,742	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
C1P03-89 PRN	3,075,318	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989
C1P03-90 PRN	3,075,318	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
C1P03-91 PRN	3,075,318	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991



3HR-DONE EXE CONTAINS THE FOLLOWING ISCST2 POST PROCESSED (SPREADSHEET READY)  
POST FILE PLOT FILES IN ASCII FORMAT FOR THE 3-HOUR AVERAGING PERIOD:

C1P03-87 PRN	537,282	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1987
C1P03-88 PRN	538,754	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1988
C1P03-89 PRN	537,282	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1989
C1P03-90 PRN	537,282	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1990
C1P03-91 PRN	537,282	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1991

FRM03-87 PRN	537,282	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
FRM03-88 PRN	538,754	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
FRM03-89 PRN	537,282	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989
FRM03-90 PRN	537,282	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
FRM03-91 PRN	537,282	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991

3-HR87 EXE CONTAINS THE FILE:

3HRCLI87 WK1 3,685,190 01-28-95  
THE 1987, CLASS 1 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE  
3-HOUR AVERAGING PERIOD

3-HR88 EXE CONTAINS THE FILE:

3HRCLI88 WK1 3,713,756 01-28-95  
THE 1988, CLASS 1 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE  
3-HOUR AVERAGING PERIOD

3-HR89 EXE CONTAINS THE FILE:

3HRCLI89 WK1 3,714,668 01-28-95  
THE 1989, CLASS 1 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE  
3-HOUR AVERAGING PERIOD

3-HR90 EXE CONTAINS THE FILE:

3HRCLI90 WK1 3,714,668 01-28-95  
THE 1990, CLASS 1 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE  
3-HOUR AVERAGING PERIOD

3-HR91 EXE CONTAINS THE FILE:

3HRCLI90 WK1 3,714,668 01-28-95  
THE 1991, CLASS 1 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE  
3-HOUR AVERAGING PERIOD

C1PSD24H EXE CONTAINS THE FOLLOWING ISCST2 PREPROCESSED (RAW) POST FILE PLOT  
FILES IN ASCII FORMAT FOR THE 24-HOUR AVERAGING PERIOD:

C1P24-87 PRN	384,903	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1987
C1P24-88 PRN	385,956	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1988
C1P24-89 PRN	384,903	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1989
C1P24-90 PRN	384,903	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1990
C1P24-91 PRN	384,903	01-26-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1991
FRM24-87 PRN	384,903	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
FRM24-88 PRN	385,956	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
FRM24-89 PRN	384,903	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989

FRM24-90 PRN	384,903	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
FRM24-91 PRN	384,903	01-26-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991

24HRDONE EXE CONTAINS THE FOLLOWING ISCST2 POST PROCESSED (SPREADSHEET READY) POST FILE PLOT FILES IN ASCII FORMAT FOR THE 24-HOUR AVERAGING PERIOD:

C1P24-87 PRN	67,162	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1987
C1P24-88 PRN	67,346	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1988
C1P24-89 PRN	67,162	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1989
C1P24-90 PRN	67,162	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1990
C1P24-91 PRN	67,162	01-28-95	CLASS 1 PSD INVENTORY FOR THE YEAR 1991
FRM24-87 PRN	67,162	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
FRM24-88 PRN	67,347	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
FRM24-89 PRN	67,162	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989
FRM24-90 PRN	67,162	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
FRM24-91 PRN	67,162	01-28-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991

24HR-WK1 EXE CONTAINS THE CLASS 1 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE 24-HOUR AVERAGING PERIOD:

24CLI-87 WK1	443,740	01-28-95	FOR THE YEAR 1987
24CLI-88 WK1	447,213	01-28-95	FOR THE YEAR 1988
24CLI-89 WK1	448,280	01-28-95	FOR THE YEAR 1989
24CLI-90 WK1	445,246	01-28-95	FOR THE YEAR 1990
24CLI-91 WK1	444,856	01-28-95	FOR THE YEAR 1991

CLASS2 EXE CONTAINS THE FOLLOWING PSD CLASS 2 ISCST2 OUTPUT FILES IN ASCII FORMAT:

CL2PSD87 OUT	256,692	01-24-95	CLASS 2 PSD INVENTORY FOR THE YEAR 1987
CL2PSD88 OUT	256,692	01-24-95	CLASS 2 PSD INVENTORY FOR THE YEAR 1988
CL2PSD89 OUT	256,692	01-24-95	CLASS 2 PSD INVENTORY FOR THE YEAR 1989
CL2PSD90 OUT	256,692	01-24-95	CLASS 2 PSD INVENTORY FOR THE YEAR 1990
CL2PSD91 OUT	256,692	01-24-95	CLASS 2 PSD INVENTORY FOR THE YEAR 1991
FRMCL287 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
FRMCL288 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
FRMCL289 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989
FRMCL290 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
FRMCL291 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991

C2-CMP90 WK1 343,652 02-09-95 1990, CLASS 2 ANALYSIS IN SPREADSHEET LOTUS 123 FORMAT FOR THE 24-HOUR AVERAGING PERIOD

AND THE FOLLOWING PREPROCESSED (RAW) POST FILE PLOT FILES IN ASCII FORMAT FOR THE 24-HOUR AVERAGING PERIOD:

C2S24-90 PRN	71,177	02-09-95	CLASS 2 PSD INVENTORY FOR THE YEAR 1990
FMS24-90 PRN	71,905	02-09-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990

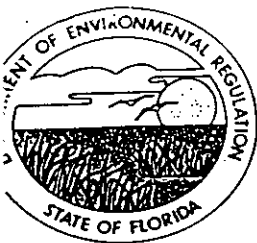
FRM-FAQS EXE CONTAINS THE FOLLOWING ISCST2 OUTPUT FILES FOR THE FAAQS MODELING IN ASCII FORMAT:

CL2NQS87 OUT	262,285	01-23-95	FAAQS INVENTORY FOR THE YEAR 1987
CL2NQS88 OUT	262,285	01-23-95	FAAQS INVENTORY FOR THE YEAR 1988
CL2NQS89 OUT	262,285	01-23-95	FAAQS INVENTORY FOR THE YEAR 1989
CL2NQS90 OUT	262,285	01-23-95	FAAQS INVENTORY FOR THE YEAR 1990
CL2NQS91 OUT	262,285	01-23-95	FAAQS INVENTORY FOR THE YEAR 1991
FRMCL287 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1987
FRMCL288 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1988
FRMCL289 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1989
FRMCL290 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1990
FRMCL291 OUT	221,404	01-23-95	FARMLANDS CONTRIBUTION FOR THE YEAR 1991
FARM14KM OUT	31,368	01-30-95	FARMLANDS CONTRIBUTION AT 14 KM

IF THERE ARE ANY QUESTIONS OR IF ADDITIONAL FILES ARE REQUIRED PLEASE CALL ME.

MARK KOLETZKE  
KOOGLER AND ASSOCIATES  
(904) 377-5822

CURRENT AIR PERMITS



# Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347

Lawton Chiles, Governor

813-620-6100

Carol M. Browner, Secretary

## PERMITTEE:

Farmland Hydro, L.P.  
P.O. Box 960  
Bartow, Florida 33830

## PERMIT/CERTIFICATION:

Permit No: A053-218118  
County: Polk  
Expiration Date: 09/14/97  
Project: Molten Sulfur Storage  
and Handling System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. 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 a molten sulfur storage and handling system for the unloading, transfer and storage of molten sulfur delivered to the plant by railcars and trucks. The system is permitted for a maximum throughput (receiving/unloading rate) of 2,020 tons per day and 670,000 tons per year. The system consists of the following sources and maximum transfer (loading/unloading) rates:

Description/Capacity	Max. Transfer Rate	Point ID
91 ton railcar unloading pit	578 TPH	34
72 ton truck unloading pit	167 TPH	33
6,000 ton storage tank	448 TPH	30
2,500 ton storage tank (east)	297 TPH	31
2,500 ton storage tank (west)	297 TPH	32
Molten sulfur supply pit No. 3 & 4	48.1 TPH	36

Also included are the associated transfer pumps and piping.

**Location:** Green Bay Complex, State Road 640 West, Bartow

**UTM:** 17-409.5 E 3079.5 N **NEDS No:** 0053 **Point ID No:**

**Replaces Permit No.:** AC53-190667

PERMITTEE

Farmland Hydro L.P.  
P.O. Box 960  
Bartow, FL 33830

PERMIT/PROJECT

Permit No.: A053-218118  
County: Polk  
Project: Molten Sulfur Storage  
and Handling System

**Specific Conditions:**

1. A part of this permit is the attached 15 General Conditions.
2. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state or local law.  
[Rule 17-2.210, F.A.C.].
3. Visible emissions from any emission point in the molten sulfur handling and storage system shall not exceed 20% opacity (six minute average).  
[Rule 17-2.600(11)(a)7., F.A.C.]
4. The sources included on this permit are allowed to operate continuously (8760 hrs/yr).  
[Construction Permit No. AC53-190667].
5. The maximum molten sulfur throughput (i.e. unloaded from railcars and trucks) rate shall neither exceed 2,020 tons per day, nor 670,000 tons per year. The maximum unloading/loading/transfer rates shall not exceed those shown on Page 1 of this permit. No more than four (4) railcars may be unloaded simultaneously at the railcar pit (at a maximum rate of 578 tons per hour), and no more than two (2) trucks may be unloaded simultaneously at the truck pit (at a maximum rate of 167 tons per hour).  
[Construction Permit No. AC53-190667].
6. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.  
[Rule 17-2.620(2), F.A.C.].
7. The molten sulfur handling and storage system shall be tested for visible emissions within 120 days prior to applying for a renewed operating permit. A copy of the test report shall be submitted to the Air Section of the Southwest District Office of the Department within 45 days of the testing, or with the operating permit renewal application, whichever is earlier.  
[Rules 17-2.700(2) and 17-2.700(7), F.A.C.].
8. Compliance with the visible emission limitation of Specific Condition No. 3 shall be determined using DER Method 9 and shall be conducted by a certified observer. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Section 17-2.700, F.A.C. and 40 CFR 60, Appendix A.  
[Rule 17-2.700, F.A.C.].

PERMITTEE

Farmland Hydro L.P.  
P.O. Box 960  
Bartow, FL 33830

PERMIT/PROJECT

Permit No.: A053-218118  
County: Polk  
Project: Molten Sulfur Storage  
and Handling System

**Specific Conditions:**

9. The visible emissions tests shall be conducted during simultaneous unloading of four railcars and two trucks and with transfer rates at 90-100% of those shown on Page 1 of this permit. Visible emissions tests shall be conducted at the two sulfur receiving pits, at each vent of the three sulfur storage tanks and at the vent for the No. 3 & 4 supply pit. Visible emissions shall be conducted during the entire time it takes to completely unload the trucks and railcars. The unloading/transfer rates and a description of the unloading operations during the test shall be included with the test results. Failure to submit the actual operating conditions may invalidate the test and fail to provide reasonable assurance of compliance.

[Construction Permit No. AC53-190667 and Rules 17-4.070(3), and 17-2.700(1)(b)(i), F.A.C.].

10. The permittee shall notify the Southwest District Office of the Department 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 17-2.700(2)(a)9., F.A.C.].

11. The permittee shall implement the necessary recordkeeping, maintenance, and operational procedures to minimize emissions from the molten sulfur system pursuant to the applicable requirements of Rule 17-2.600(11)(a), F.A.C., "Molten Sulfur Storage and Handling Facilities".

12. In order to document compliance with the requirements of Specific Condition No. 5, the permittee shall maintain the following records and make them available to the Department upon request:

- A. Daily molten sulfur receiving rate (tons/day);
- b. Monthly total sulfur receiving rate (tons/month) and cumulative total for the most recent 12 consecutive month period (tons/yr);
- C. Sulfuric acid plants daily molten sulfur utilization rate (tons/day);
- D. Sulfuric acid plants monthly total molten sulfur utilization rate (tons/month) and cumulative total for the most recent 12 consecutive month period (tons/yr).

[Rule 17-4.070(3), F.A.C.].

PERMITTEE

Farmland Hydro L.P.  
P.O. Box 960  
Bartow, FL 33830

PERMIT/PROJECT

Permit No.: A053-218118  
County: Polk  
Project: Molten Sulfur Storage  
and Handling System

**Specific Conditions:**

13. For emission inventory and PSD purposes, the estimated maximum emissions from the sources in the molten sulfur storage and handling system are:

Pollutant	Total Emissions
Particulate Matter	7.71 TPY
TRS (measured as H2S)	9.45 TPY
Sulfur dioxide	14.22 TPY
Volatile organic compounds	14.02 TPY

[Construction Permit No. AC53-190667].

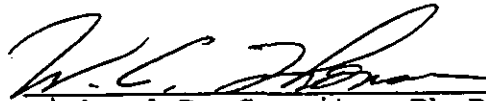
14. Submit to the Southwest District Office of the Department each calendar year on or before March 1, an emission report for this source for the preceding calendar year containing the following information pursuant to Subsection 403.061(13), F.S.:

- A. Annual amount of materials and/or fuels utilized;
- B. Annual emissions of PM, TRS, SO2 and VOC (include calculation sheet and note basis for calculations);
- C. Any changes in the information contained in the permit application.

15. Any change in the method of operation or equipment which will cause an increase in the actual emissions may be considered a modification and must be reported to the SW District Office of the Department for proper processing prior to implementing the change.

16. Two applications to renew this operating permit shall be submitted to the Southwest District Office of the Department no later than July 16, 1997 (60 days prior to the expiration date of this permit). [Rule 17-4.090(1), F.A.C.].

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

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





# Florida Department of Environmental Regulation

Southwest District

3804 Coconut Palm

Tampa, Florida 33619

Lawton Chiles, Governor

813-744-6100

Carol M. Browner, Secretary

## PERMITTEE:

Island Hydro, L.P.  
Office Box 960  
Bartow, FL 33830

## PERMIT/CERTIFICATION:

Permit No.: A053-217563  
County: Polk  
Expiration Date: 11-19-97  
Project: Sulfuric Acid  
Plant No. 3

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The 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:

the operation of a double absorption sulfuric acid plant designated No. 3. Emissions from this plant are controlled by venting the gases through demisting equipment at an average flow rate of 91,557

Location: County Road 640 West, (Green Bay Plant), near Bartow, Polk County

17-409.5 E 3079.5 N NEDS NO: 0053 - Point ID: 03

Reference Permit No.: A053-138909

PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217563  
Project: Sulfuric Acid  
Plant No. 3

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. A part of this permit is the attached Memorandum of Understanding Regarding Best Operational Start-Up Practices for Sulfuric Acid Plants.
3. This source shall comply with all the requirements of 40 CFR 60, Subpart H - Standards of Performance for Sulfuric Acid Plants (Rule 17-2.660, F.A.C.).
4. The maximum sulfuric acid production rate of this plant, measured as 100% H<sub>2</sub>SO<sub>4</sub>, is 67.5 tons/hour.
5. Visible emissions shall not be equal to or greater than 10% opacity (Rule 17-2.660, F.A.C., and 40 CFR 60.83(a)(2)).
6. Sulfur dioxide emissions shall not exceed any of the following limits:
  - A. 4.0 pounds per ton of 100% H<sub>2</sub>SO<sub>4</sub> produced.
  - B. 270 pounds per hour.
  - C. 1,183 tons per year(Rule 17-2.660, F.A.C., and 40 CFR 60.82(a)).
7. Acid mist emissions shall not exceed any of the following limits:
  - A. 0.15 pounds per ton of 100% H<sub>2</sub>SO<sub>4</sub> produced.
  - B. 10.1 pounds per hour.
  - C. 44.3 tons per year.(Rule 17-2.660, F.A.C., and 40 CFR 60.83(a)(1)).
8. Farmland Hydro, L.P., shall not cause, suffer, allow or permit the discharge or air pollutants which cause or contribute to an objectionable odor (Rule 17-2.620(2), F.A.C.).
9. The hours of operation are not restricted.
10. Test the emissions for the following pollutant(s) at intervals of 12 months from the date of December 3, 1991 and submit a copy of test data to the Air Section of the Southwest District Office of the Department of Environmental Regulation within 45 days of such testing (Rule 17-2.700(7), F.A.C.):

(X) Sulfur Dioxide            (X) Acid Mist            (X) Opacity

PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217563  
Project: Sulfuric Acid  
Plant No. 3

11. Testing of emissions to show compliance shall be conducted within 90-100% of the permitted rate of 67.5 ton/hour of 100% H<sub>2</sub>SO<sub>4</sub> produced. A compliance test submitted at an operating rate less than 90% of the permitted rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance, at a higher rate, is submitted. Any time the permitted rate of the source is exceeded by more than 10%, a compliance test shall be performed within 30 days of initiation of the higher rate and the results of the tests shall be submitted to the Air Section of the Southwest District Office of the Department within 45 days of testing. Acceptance of said tests by the Department will constitute an amended permit at the higher rate, not to exceed 67.5 tons/hour of 100% H<sub>2</sub>SO<sub>4</sub> produced. The emission limitations in Specific Conditions No. 5, 6 and 7 shall not change. Failure to submit the production rate and actual operating conditions in the test report may invalidate the test and fail to provide reasonable assurance of compliance (Rule 17-2.070(3), F.A.C.).

12. Compliance with the emission limitations of Specific Conditions No. 5, 6 and 7 shall be determined in accordance with 40 CFR 60.85 using EPA Methods 1, 2, 3, 8 & 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 17-2.700, F.A.C., and 40 CFR 60, Appendix A.

13. Farmland Hydro, L.P. shall notify the Air Section of the Southwest District Office of the Department of Environmental Regulation in writing at least 15 days prior to the date on which each compliance stack test is to begin of the date, time, and place of each test, and the test contact person who will be responsible for coordinating and having each test conducted (Rule 17-2.700(2)(a)9., F.A.C.).

14. The continuous monitoring system for the measurement of sulfur dioxide shall be calibrated, maintained and operated as specified in 40 CFR 60.84. The span value of the continuous monitor shall be set at 1000 PPM (Rule 17-2.660 and 17-2.710(1)(b), F.A.C.).

15. In accordance with 40 CFR 60.7(b), Farmland Hydro, L.P. shall maintain records of any periods during which the sulfur dioxide monitor system is inoperative. Records of the monitoring system performance evaluations, calibrations, and maintenance shall be maintained in accordance with 40 CFR 60.7(d). All of the above records shall be retained for at least the most recent two year period and be made available for inspection by the Department on request.

PERMITTEE:

Farmland Hydro, L.P.

Permit No.: A053-217563

Project: Sulfuric Acid

Plant No. 3

6. Farmland Hydro, L.P. shall submit a written report of excess sulfur dioxide emissions for every calendar quarter in accordance with 40 CFR 60.7 (b) and (c). Periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standard under 40 CFR 60.82. The excess emission report shall also include a statement of all periods during the quarter when the sulfur dioxide monitoring system was nonoperative. Duplicate copies of the quarterly sulfur dioxide excess emission report shall be submitted to the Bureau of Air Regulation in Tallahassee and to the Southwest District Office in Tampa (Rule 17-2.660, F.A.C. and 40 CFR 60.84(e)).

7. Farmland Hydro, L.P. shall maintain records of occurrences and duration of any startup, shutdown, or malfunction in the operation of the sulfuric acid plant; and any malfunction of the air pollution control equipment. The records shall be recorded in a permanent form suitable for inspection and shall be retained for at least the most recent two year period (Rule 17-2.660(3)(a), F.A.C. and 40 CFR 60.7).

8. Excess emission resulting from startup, shutdown or malfunction are permitted providing: (1) best operational practices to minimize emissions are adhered to and; (2) the duration of excess emissions are minimized (Rule 17-2.250(1), F.A.C.). Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited (Rule 17-2.250(4), F.A.C.). In case of excess emissions resulting from malfunctions, Farmland Hydro, L.P. shall notify the Department in accordance with Rule 17-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department (Rule 17-2.250(6), F.A.C.).

9) This permit acknowledges that leaks of sulfur dioxide and sulfur trioxide or other fugitive process emissions that do not pass through a stack may occur as a part of routine operations. Best operational practices to minimize these emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions.

10. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Rule 17-2.610(3), 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.

PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217563  
Project: Sulfuric Acid  
Plant No. 3

21. Farmland Hydro, L.P. shall follow the attached Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants (Signed October 24, 1989).

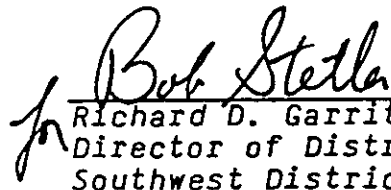
22. Submit for this source, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Chapter 403.061(13), Florida Statutes:

- (A) Annual amount of materials and/or fuels utilized.
- (B) Annual emissions (note calculation basis).
- (C) Any changes in the information contained in the permit application.

23. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Rule 17-2, F.A.C., or other requirements under federal, state, or local law. Future regulations may impact this source at some future date. Farmland Hydro, L.P. shall comply with any applicable future regulation when they become effective (Rule 17-2.210, F.A.C.).

24. Four applications to renew this operating permit shall be submitted to the Air Section of the Southwest District Office of the Department of Environmental Regulation at least 60 days prior to its expiration date (Rule 17-4.090, F.A.C.).

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

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

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

MEMORANDUM OF UNDERSTANDING  
REGARDING BEST OPERATIONAL START-UP PRACTICES  
FOR SULFURIC ACID PLANTS



# Florida Department of Environmental Regulation

Southwest District

3804 Coconut Palm

Tampa, Florida 33619

Lawton Chiles, Governor

813-744-6100

Carol M. Browner, Secretary

## PERMITTEE:

Land Hydro, L.P.  
Post Office Box 960  
Bartow, FL 33830

## PERMIT/CERTIFICATION:

Permit No.: A053-217564  
County: Polk  
Expiration Date: 11-19-97  
Project: Sulfuric Acid  
Plant No. 4

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. 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 a double absorption sulfuric acid plant designated No. 4. Emissions from this plant are controlled by venting the gases through demisting equipment at an average flow rate of 92,645 CFM.

Location: County Road 640 West, (Green Bay Plant), near Bartow, Polk County

Coordinates: 17-409.5 E 3079.5 N NEDS NO: 0053 Point ID: 04

Replaces Permit No.: A053-138910

PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217564  
Project: Sulfuric Acid  
Plant No. 4

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. A part of this permit is the attached Memorandum of Understanding Regarding Best Operational Start-Up Practices for Sulfuric Acid Plants.
3. This source shall comply with all the requirements of 40 CFR 60, Subpart H - Standards of Performance for Sulfuric Acid Plants (Rule 17-2.660, F.A.C.).
4. The maximum sulfuric acid production rate of this plant, measured as 100% H<sub>2</sub>SO<sub>4</sub>, is 67.5 tons/hour.
5. Visible emissions shall not be equal to or greater than 10% opacity (Rule 17-2.660, F.A.C., and 40 CFR 60.83(a)(2)).
6. Sulfur dioxide emissions shall not exceed any of the following limits:
  - A. 4.0 pounds per ton of 100% H<sub>2</sub>SO<sub>4</sub> produced.
  - B. 270 pounds per hour.
  - C. 1,183 tons per year(Rule 17-2.660, F.A.C., and 40 CFR 60.82(a)).
7. Acid mist emissions shall not exceed any of the following limits:
  - A. 0.15 pounds per ton of 100% H<sub>2</sub>SO<sub>4</sub> produced.
  - B. 10.1 pounds per hour.
  - C. 44.3 tons per year.(Rule 17-2.660, F.A.C., and 40 CFR 60.83(a)(1)).
8. Farmland Hydro, L.P., shall not cause, suffer, allow or permit the discharge or air pollutants which cause or contribute to an objectionable odor (Rule 17-2.620(2), F.A.C.).
9. The hours of operation are not restricted.
10. Test the emissions for the following pollutant(s) at intervals of 12 months from the date of April 2, 1992 and submit a copy of test data to the Air Section of the Southwest District Office of the Department of Environmental Regulation within 45 days of such testing (Rule 17-2.700(7), F.A.C.):

(X) Sulfur Dioxide            (X) Acid Mist            (X) Opacity



PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217564  
Project: Sulfuric Acid  
Plant No. 4

11. Testing of emissions to show compliance shall be conducted within 90-100% of the permitted rate of 67.5 ton/hour of 100% H<sub>2</sub>SO<sub>4</sub> produced. A compliance test submitted at an operating rate less than 90% of the permitted rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance, at a higher rate, is submitted. Any time the permitted rate of the source is exceeded by more than 10%, a compliance test shall be performed within 30 days of initiation of the higher rate and the results of the tests shall be submitted to the Air Section of the Southwest District Office of the Department within 45 days of testing. Acceptance of said tests by the Department will constitute an amended permit at the higher rate, not to exceed 67.5 tons/hour of 100% H<sub>2</sub>SO<sub>4</sub> produced. The emission limitations in Specific Conditions No. 5, 6 and 7 shall not change. Failure to submit the production rate and actual operating conditions in the test report may invalidate the test and fail to provide reasonable assurance of compliance (Rule 17-2.070(3), F.A.C.).

12. Compliance with the emission limitations of Specific Conditions No. 5, 6 and 7 shall be determined in accordance with 40 CFR 60.85 using EPA Methods 1, 2, 3, 8 & 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 17-2.700, F.A.C., and 40 CFR 60, Appendix A.

13. Farmland Hydro, L.P. shall notify the Air Section of the Southwest District Office of the Department of Environmental Regulation in writing at least 15 days prior to the date on which each compliance stack test is to begin of the date, time, and place of each test, and the test contact person who will be responsible for coordinating and having each test conducted (Rule 17-2.700(2)(a)9., F.A.C.).

14. The continuous monitoring system for the measurement of sulfur dioxide shall be calibrated, maintained and operated as specified in 40 CFR 60.84. The span value of the continuous monitor shall be set at .000 PPM (Rule 17-2.660 and 17-2.710(1)(b), F.A.C.).

15. In accordance with 40 CFR 60.7(b), Farmland Hydro, L.P. shall maintain records of any periods during which the sulfur dioxide monitor system is inoperative. Records of the monitoring system performance evaluations, calibrations, and maintenance shall be maintained in accordance with 40 CFR 60.7(d). All of the above records shall be retained for at least the most recent two year period and be made available for inspection by the Department on request.

PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217564  
Project: Sulfuric Acid  
Plant No. 4

16. Farmland Hydro, L.P. shall submit a written report of excess sulfur dioxide emissions for every calendar quarter in accordance with 40 CFR 60.7 (b) and (c). Periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standard under 40 CFR 60.82. The excess emission report shall also include a statement of all periods during the quarter when the sulfur dioxide monitoring system was inoperative. Duplicate copies of the quarterly sulfur dioxide excess emission report shall be submitted to the Bureau of Air Regulation in Tallahassee and to the Southwest District Office in Tampa (Rule 17-2.660, F.A.C. and 40 CFR 60.84(e)).

17. Farmland Hydro, L.P. shall maintain records of occurrences and duration of any startup, shutdown, or malfunction in the operation of the sulfuric acid plant; and any malfunction of the air pollution control equipment. The records shall be recorded in a permanent form suitable for inspection and shall be retained for at least the most recent two year period (Rule 17-2.660(3)(a), F.A.C. and 40 CFR 60.7).

18. Excess emission resulting from startup, shutdown or malfunction are permitted providing: (1) best operational practices to minimize emissions are adhered to and; (2) the duration of excess emissions are minimized (Rule 17-2.250(1), F.A.C.). Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited (Rule 17-2.250(4), F.A.C.). In case of excess emissions resulting from malfunctions, Farmland Hydro, L.P. shall notify the Department in accordance with Rule 17-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department (Rule 17-2.250(6), F.A.C.).

19. This permit acknowledges that leaks of sulfur dioxide and sulfur trioxide or other fugitive process emissions that do not pass through a stack may occur as a part of routine operations. Best operational practices to minimize these emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions.

20. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Rule 17-2.610(3), 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.

PERMITTEE:  
Farmland Hydro, L.P.

Permit No.: A053-217564  
Project: Sulfuric Acid  
Plant No. 4

21. Farmland Hydro, L.P. shall follow the attached Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants (Signed October 24, 1989).

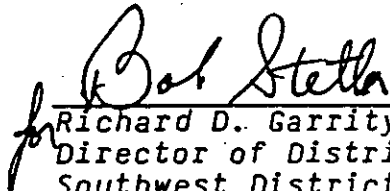
22. Submit for this source, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Chapter 403.061(13), Florida Statutes:

- (A) Annual amount of materials and/or fuels utilized.
- (B) Annual emissions (note calculation basis).
- (C) Any changes in the information contained in the permit application.

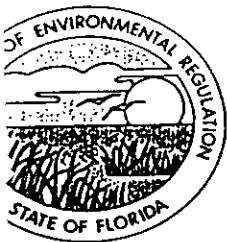
23. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Rule 17-2, F.A.C., or other requirements under federal, state, or local law. Future regulations may impact this source at some future date. Farmland Hydro, L.P. shall comply with any applicable future regulation when they become effective (Rule 17-2.210, F.A.C.).

24. Four applications to renew this operating permit shall be submitted to the Air Section of the Southwest District Office of the Department of Environmental Regulation at least 60 days prior to its expiration date (Rule 17-4.090, F.A.C.).

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

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

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



# Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347

Lawton Chiles, Governor

813-623-5561

Carol M. Browner, Secretary

## PERMITTEE:

Farmland Industries, Inc.  
P.O. Box 960  
Bartow, Florida 33830-0960

## PERMIT/CERTIFICATION

Permit No: A053-200485  
County: Polk  
Expiration Date: 12/17/96  
Project: Sulfuric Acid Plant #5

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. 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 sulfuric acid plant No. 5. This plant is a Monsanto Enviro-Chem double absorption sulfuric acid plant designed to produce 2,400 short tons per day of 100% H<sub>2</sub>SO<sub>4</sub>. Sulfur dioxide emissions are controlled by the absorbing towers which are part of the production process. Acid mist is controlled by Monsanto Enviro-Chem high efficiency mist eliminators.

Location: State Road 640, 6 miles southwest of Bartow, FL.

UTM: 17-409.5 E 3079.5 N NEDS NO: 0053 Point ID: 05

Replaces Permit No.: AC53-185490

PERMITTEE:  
Farmland Industries, Inc.  
Bartow, Florida 33830-0960

PERMIT/CERTIFICATION  
Permit No: AO53-200485  
County: Polk  
Expiration Date: 12/17/96  
Project: Sulfuric Acid Plant #5

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. A part of this permit is the attached Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants.
3. This source shall comply with all of the requirements of 40 CFR 60.80, Subpart H - Standards of Performance for Sulfuric Acid Plants. [Rule 17-2.660, F.A.C.].
4. The maximum production rate of the No. 5 sulfuric acid plant shall not exceed 2,400 tons per day based on 100% H<sub>2</sub>SO<sub>4</sub>. [Permit AC53-185490].
5. Visible emissions shall not be equal to or greater than 10% opacity. [Rule 17-2.660, F.A.C. and 40 CFR 60.83(a)(2)].
6. Sulfur dioxide emissions shall not exceed any of the following limits.
  - A. 4 pounds per ton of 100% acid produced.
  - B. 400. pounds per hour.
  - C. 1,752. tons per year.[Rule 17-2.660, F.A.C., 40 CFR 60.82(a), and AC53-185490].
7. Acid mist emissions shall not exceed any of the following limits.
  - A. 0.15 pounds per ton of 100% acid produced.
  - B. 15.0 pounds per hour.
  - C. 65.7 tons per year.[Rule 17-2.660, F.A.C., 40 CFR 60.83(a)(1), and AC53-185490].
8. Nitrogen oxides emissions shall not exceed any of the following limits.
  - A. 0.12 pounds per ton of 100% acid produced.
  - B. 11.9 pounds per hour.
  - C. 52.2 tons per year.[Permit AC53-185490].

PERMITTEE:  
Farmland Industries, Inc.  
Bartow, Florida 33830-0960

PERMIT/CERTIFICATION  
Permit No: A053-200485  
County: Polk  
Expiration Date: 12/17/96  
Project: Sulfuric Acid Plant #5

SPECIFIC CONDITIONS:

9. Farmland Industries, Inc. shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 17-2.620(2), F.A.C.].

10. The hours of operation are not restricted.

11. Test the emissions for the following pollutant(s) at intervals of 12 months  $\pm$  1 month from the date June 26, 1991 and submit a copy of the test data to the Air Section of the Southwest District Office within 45 days of such testing.

- A. Opacity
- B. Sulfur Dioxide
- C. Acid Mist
- D. Nitrogen Oxides

[Rules 17-2.700(2) and 17-2.700(7), F.A.C., and Permit AC53-185490].

12. Testing of emissions to show compliance shall be conducted within 10% of the permitted rate. A compliance test submitted at an operating rate less than 90% of the permitted rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance at a higher rate, is submitted. Any time the permitted rate of the source is exceeded by more than 10%, a compliance test shall be performed within 30 days of initiation of the higher rate and the test results shall be submitted to the Department within 45 days of testing. Acceptance of the test by the Department will constitute an amended permit at the higher rate, not to exceed the maximum production rate of 2,400 tons per day. The emission limitations in Specific Condition Nos. 6, 7, and 8 shall not change. Failure to submit the production rate or actual operating conditions in the test report may invalidate the test and fail to provide reasonable assurance of compliance. [Rule 17-4.070(3), F.A.C.].

13. Compliance with the emission limitations of Specific Condition Nos. 5, 6, and 7 shall be determined in accordance with 40 CFR 60.85 using EPA Methods 1, 2, 3, 8 and 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C. Compliance with the emission limitations of Specific Condition No. 8 shall be determined using EPA Method 7E contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

PERMITTEE:  
Farmland Industries, Inc.  
Bartow, Florida 33830-0960

PERMIT/CERTIFICATION  
Permit No: A053-200485  
County: Polk  
Expiration Date: 12/17/96  
Project: Sulfuric Acid Plant #5

SPECIFIC CONDITIONS:

14. Farmland Industries, Inc. shall notify the Southwest District Office of the Department 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 17-2.700(2)(a)9., F.A.C.].

15. A continuous emission monitoring system for the measurement of sulfur dioxide shall be calibrated, maintained and operated as specified in 40 CFR 60.84. The span value of the continuous monitor shall be set at 1000 ppm. [Rules 17-2.660 and 17-2.710(1)(b), F.A.C.].

16. In accordance with 40 CFR 60.7(b), Farmland Industries, Inc. shall maintain records of any periods during which the sulfur dioxide monitor system is inoperative. Records on monitoring system performance evaluations, calibrations and maintenance shall be maintained in accordance with 40 CFR 60.7(d). All of the above records shall be retained for at least the most recent 2 year period and made available to the Department upon request.

17. Farmland Industries, Inc. shall submit a written report of excess sulfur dioxide emissions for every calendar quarter in accordance with 40 CFR 60.7 (b) and (c). Periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standard under 40 CFR 60.82. The excess emission report shall also include a statement of all periods during the quarter when the sulfur dioxide monitoring system was inoperative. Duplicate copies of the quarterly sulfur dioxide excess emission report shall be submitted to the Bureau of Air Regulation in Tallahassee and to the Southwest District Office in Tampa. [Rule 17-2.660, F.A.C and 40 CFR 60.84(e)].

18. Farmland Industries, Inc. shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the sulfuric acid plant; or any malfunction of the air pollution control equipment. The records shall be recorded in a permanent form suitable for inspection and shall be retained for at least two years. [Rule 17-2.660(3)(a), F.A.C. and 40 CFR 60.7].

PERMITTEE:  
Farmland Industries, Inc.  
Bartow, Florida 33830-0960

PERMIT/CERTIFICATION  
Permit No: AO53-200485  
County: Polk  
Expiration Date: 12/17/96  
Project: Sulfuric Acid Plant #5

SPECIFIC CONDITIONS:

19. Excess emissions resulting from startup, shutdown, or malfunction are permitted providing: (1) best operational practices to minimize emissions are adhered to and; (2) the duration of excess emissions are minimized. [Rule 17-2.250(1), F.A.C.]. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 17-2.250(4), F.A.C.]. In case of excess emissions resulting from malfunctions, Farmland Industries, Inc. shall notify the Department in accordance with Rule 17-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 17-2.250(6), F.A.C.].

20. This permit acknowledges that leaks of sulfur dioxide and sulfur trioxide, or other fugitive process emissions that do not pass through a stack, may occur as part of routine operations. Best operational practices to minimize these emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions.

21. Farmland Industries, Inc. shall follow the attached Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants. [Signed on October 24, 1989 and re-affirmed in a letter dated August 26, 1991].

22. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provisions in Rule 17-2.610(3), 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.

23. Submit to the Department, each calendar year, on or before March 1, an emission report for this source for the preceding calendar year containing the following information pursuant to Subsection 403.061(13), F.S.:

- (A) Annual amount of materials and/or fuels utilized;
- (B) Annual emissions (note calculation basis);
- (C) Any changes in the information contained in the permit.

24. Sulfuric acid plants No. 1 and No. 2 shall not operate. [Permit AC53-185490].



PERMITTEE:  
Farmland Industries, Inc.  
Bartow, Florida 33830-0960

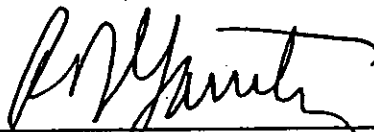
PERMIT/CERTIFICATION  
Permit No: A053-200485  
County: Polk  
Expiration Date: 12/17/96  
Project: Sulfuric Acid Plant #5

SPECIFIC CONDITIONS:

25. Issuance of this permit does not relieve Farmland Industries, Inc. from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state, or local law. Future regulations may impact this source at some future date. Farmland Industries, Inc. shall comply with any applicable future regulations when they become effective. [Rule 17-2.210, F.A.C.].

26. Four applications to renew this operation permit shall be submitted to the Southwest District Office of the Department of Environmental Regulation by October 18, 1996. [Rule 17-4.090 and 17-4.050(2), F.A.C.].

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION



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Dr. Richard D. Garrity  
Director of District Management  
4520 Oak Fair Boulevard  
Tampa, Florida 33610-7347  
Phone (813) 620-6100

COMPLIANCE TEST DATA FOR THE  
REPRESENTATIVE YEARS INDICATED IN THE REPORT

PLANT OPERATING SUMMARY SHEET

PLANT: SAD\_3  
 STACK: SAD\_3  
 TEST DATE: Feb 6, 1991

PERMIT NO. AO53-138909  
 LIMITS 4 LB SO2 & 0.15 LB ACID MIST/TON  
 270 LB SO2 & 10.1 LB ACID MIST/H

	RUN NO. 1	RUN NO. 2	RUN NO. 3	AVERAGE
TACK DIAMETER (ft.)	7.500	7.500	7.500	7.500
NOZZLE DIAMETER (inches)	0.241	0.241	0.241	0.241
SAMPLING TIME (min.)	84	72	72	76
TACK TEMPERATURE (deg. F)	165.00	165.00	165.00	165.00
TACK STATIC PRESSURE (WC)	-0.180	-0.180	-0.180	-0.180
VOLUME SAMPLED (ACF)	48.728	41.785	42.404	44.306
VOLUME SAMPLED (SCF)	48.198	41.101	41.485	43.594
TACK MOISTURE (%)	0.000	0.000	0.000	0.000
TACK VELOCITY (ft./sec.)	34.854	34.442	34.914	34.737
VOLUMETRIC FLOWRATE (ACFM)	92387.98	91296.97	92546.09	92077.01
VOLUMETRIC FLOWRATE (SCFM)	78758.37	77828.31	78893.16	78493.28
SO2 (mg. collected)	402.290	349.500	232.500	328.097
ACID MIST (mg. collected)	14.490	18.440	14.520	15.817
SO2 (lbs./hour)	86.970	87.558	58.497	77.675
ACID MIST (lbs./hour)	3.133	4.620	3.653	3.802
TACK GAS MOLECULAR WT.	30.000	30.000	30.000	30.000
DYNAMIC VARIATION %	101.623	102.310	101.872	101.935
PRODUCTION RATE (TPH H2SO4)	65.3	65.3	65.3	65.3
2 (lbs./ton)	1.332	1.341	0.896	1.190
ACID MIST (lbs./ton)	0.048	0.071	0.056	0.058

STACK SAMPLE SUMMARY SHEET

PLANT: SAD\_3  
 STACK: SAD\_3  
 TEST DATE: Dec 3, 1991

PERMIT NO. AO53-138909  
 LIMITS 4 LB SO2 & 0.15 LB ACID MIST/TON  
 270 LB SO2 & 10.1 LB ACID MIST/H

	RUN NO. 1	RUN NO. 2	RUN NO. 3	AVERAGE
STACK DIAMETER (ft.)	7.500	7.500	7.500	7.500
NOZZLE DIAMETER (inches)	0.243	0.243	0.243	0.243
SAMPLING TIME (min.)	72	72	72	72
STACK TEMPERATURE (deg. F)	185.00	185.00	185.00	185.00
STACK STATIC PRESSURE (WC)	0.070	0.070	0.070	0.070
VOLUME SAMPLED (ACF)	42.923	44.554	41.795	43.091
VOLUME SAMPLED (SCF)	41.124	42.462	41.334	41.640
STACK MOISTURE (%)	0.286	0.277	0.431	0.331
STACK VELOCITY (ft./sec.)	34.421	34.062	33.616	34.033
VOLUMETRIC FLOWRATE (ACFM)	91241.91	90289.18	89106.85	90212.65
VOLUMETRIC FLOWRATE (SCFM)	74702.20	73928.83	73430.31	74020.45
SO2 (mg. collected)	996.130	1023.040	994.530	1004.567
ACID MIST (mg. collected)	25.990	32.860	28.930	29.260
SO2 (lbs./hour)	239.396	235.650	233.746	236.264
ACID MIST (lbs./hour)	6.246	7.569	6.799	6.872
STACK GAS MOLECULAR WT.	29.966	29.967	29.948	29.960
DYNAMIC VARIATION %	104.903	109.449	107.266	107.206
PRODUCTION RATE (TPH H2SO4)	70.5	70.5	71.3	70.8
2 (lbs./ton)	3.396	3.343	3.278	3.339
ACID MIST (lbs./ton)	0.089	0.107	0.095	0.097

## STACK SAMPLE SUMMARY SHEET

PLANT: SAD\_4  
 STACK: SAD\_4  
 TEST DATE: April 2, 1992

PERMIT NO. AO53-138910  
 LIMITS 4 LB SO<sub>2</sub> & 0.15 LB ACID MIST/TON  
 270 LB SO<sub>2</sub> & 10.1 LB ACID MIST/H

	RUN NO. 1	RUN NO. 2	RUN NO. 3	AVERAGE
	-----	-----	-----	-----
STACK DIAMETER (ft.)	7.500	7.500	7.500	7.500
NOZZLE DIAMETER (inches)	0.245	0.245	0.245	0.245
SAMPLING TIME (min.)	72	72	72	72
STACK TEMPERATURE (deg. F)	164.00	164.00	164.00	164.00
STACK STATIC PRESSURE (WC)	-0.250	-0.250	-0.250	-0.250
VOLUME SAMPLED (ACF)	42.470	43.396	43.856	43.241
VOLUME SAMPLED (SCF)	42.508	42.883	43.023	42.805
STACK MOISTURE (%)	0.055	0.263	0.306	0.208
STACK VELOCITY (ft./sec.)	33.784	34.503	34.650	34.312
VOLUMETRIC FLOWRATE (ACFM)	89551.60	91459.20	91847.47	90952.75
VOLUMETRIC FLOWRATE (SCFM)	76002.35	77460.15	77755.69	77072.73
SO <sub>2</sub> (mg. collected)	608.950	582.270	574.430	588.550
ACID MIST (mg. collected)	11.530	12.740	12.490	12.253
SO <sub>2</sub> (lbs./hour)	144.044	139.147	137.349	140.180
ACID MIST (lbs./hour)	2.727	3.045	2.986	2.919
STACK GAS MOLECULAR WT.	29.993	29.968	29.963	29.975
ISOKINETIC VARIATION %	104.847	103.781	103.724	104.118
PRODUCTION RATE (TPH H <sub>2</sub> SO <sub>4</sub> )	70.1	70.1	70.1	70.1
SO <sub>2</sub> (lbs./ton)	2.055	1.985	1.959	2.000
ACID MIST (lbs./ton)	0.039	0.043	0.043	0.042

## STACK SAMPLE SUMMARY SHEET

PLANT: SAD\_4  
 STACK: SAD\_4  
 TEST DATE: 1/14/93

PERMIT NO. AO53-217564  
 LIMITS 4 LB SO<sub>2</sub> & 0.15 LB ACID MIST/TON  
 270 LB SO<sub>2</sub> & 10.1 LB ACID MIST/H

	RUN NO. 1	RUN NO. 2	RUN NO. 3	AVERAGE
	-----	-----	-----	-----
STACK DIAMETER (ft.)	7.500	7.500	7.500	7.500
NOZZLE DIAMETER (inches)	0.247	0.247	0.247	0.247
SAMPLING TIME (min.)	72	72	72	72
STACK TEMPERATURE (deg. F)	176.00	175.00	175.00	175.33
STACK STATIC PRESSURE (WC)	-0.160	-0.160	-0.160	-0.160
VOLUME SAMPLED (ACF)	43.490	43.817	44.590	43.966
VOLUME SAMPLED (SCF)	43.209	43.057	43.657	43.308
STACK MOISTURE (%)	0.174	0.175	0.172	0.174
STACK VELOCITY (ft./sec.)	34.660	35.206	35.453	35.106
VOLUMETRIC FLOWRATE (ACFM)	91873.12	93320.59	93975.98	93056.56
VOLUMETRIC FLOWRATE (SCFM)	76325.59	77649.73	78196.93	77390.75
SO <sub>2</sub> (mg. collected)	789.570	808.600	791.160	796.443
ACID MIST (mg. collected)	28.160	26.220	25.730	26.703
SO <sub>2</sub> (lbs./hour)	184.521	192.928	187.481	188.310
ACID MIST (lbs./hour)	6.581	6.256	6.097	6.311
STACK GAS MOLECULAR WT.	29.979	29.979	29.979	29.979
ISOKINETIC VARIATION %	104.412	102.269	102.971	103.217
PRODUCTION RATE (TPH H <sub>2</sub> SO <sub>4</sub> )	70.25	70.25	70.25	70.25
SO <sub>2</sub> (lbs./ton)	2.627	2.746	2.669	2.681
ACID MIST (lbs./ton)	0.094	0.089	0.087	0.090

**STACK SAMPLE SUMMARY SHEET**

PLANT: SAD\_5  
 STACK: SAD\_5  
 TEST DATE: 1/19/93

PERMIT NO. A053-200485  
 LIMITS 4 LB SO2 & 0.15 LB ACID MIST/TON  
 400 LB SO2 & 15 LB ACID MIST/HR  
 0.12 LB NOx/TON or 11.9 LB/HR

	RUN NO. 1	RUN NO. 2	RUN NO. 3	AVERAGE
STACK DIAMETER (ft.)	9.500	9.500	9.500	9.500
NOZZLE DIAMETER (inches)	0.279	0.279	0.279	0.279
SAMPLING TIME (min.)	80	64	64	69
STACK TEMPERATURE (deg. F)	162.00	162.00	162.00	162.00
STACK STATIC PRESSURE (WC)	-0.230	-0.230	-0.230	-0.230
VOLUME SAMPLED (ACF)	52.068	43.025	43.030	46.041
VOLUME SAMPLED (SCF)	52.941	43.101	42.950	46.330
STACK MOISTURE (%)	0.275	0.185	0.175	0.212
STACK VELOCITY (ft./sec.)	29.293	29.681	30.020	29.664
VOLUMETRIC FLOWRATE (ACFM)	124579.90	126230.83	127673.31	126161.35
VOLUMETRIC FLOWRATE (SCFM)	106124.89	107627.88	108868.97	107540.58
SO2 (mg. collected)	770.550	643.710	657.980	690.747
ACID MIST (mg. collected)	24.030	21.330	21.820	22.393
NOX (ave. PPM)	14.0	14.5	14.8	14.417
SO2 (lbs./hour)	204.356	212.661	220.657	212.558
ACID MIST (lbs./hour)	6.373	7.047	7.317	6.912
STACK GAS MOLECULAR WT.	29.967	29.978	29.979	29.975
ISOKINETIC VARIATION %	104.130	104.489	102.935	103.851
PRODUCTION RATE (TPH H2SO4)	90.71	90.7	90.7	90.7
SO2 (lbs./ton)	2.253	2.344	2.433	2.343
ACID MIST (lbs./ton)	0.070	0.078	0.081	0.076