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December 16, 2008

**VIA EMAIL & US MAIL**

Trina Vielhauer  
Chief, Bureau of Air Regulation  
Division of Air Resource Management  
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Tallahassee, FL 32399-2400

Ronda L. Moore  
Assistant General Counsel  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd., MS 35  
Tallahassee, FL 32399-3000

RE: White Springs Agricultural Chemicals, Inc. (PCS) Facility (ID# 0470002)  
Agreement on Draft Permit

Dear Trina and Ronni:

We represent White Springs Agricultural Chemicals, Inc. (PCS), and this letter is to follow up on telephone discussions between Syed Arif, with the Department, and Charlie Pults, with PCS. Their telephone discussion followed my correspondence of October 24, 2008 concerning the proposed solution of remaining issues relating to the pending draft permit. The purpose of this letter is to outline in summary form our understanding of the agreement we have reached with Department that will allow the draft permit to be completed. The following outlines our understanding of how each issue has been resolved. Please advise if you disagree with any of our points made in this letter.

**BACKGROUND**

Following the submittal of an air construction permit application and additional requested information responses, FDEP issued a draft permit No. 0470002-055-AC on November 13, 2007. This draft permit included a technical evaluation and preliminary determination (TEPD).

Review of the draft TEPD and permit contained limitations that PCS either found unobtainable by the control technology approved by FDEP in the TEPD or objectionable to the intent and requirements of the Regional Haze rule.

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PCS requested additional time to the FDEP Office of General Counsel on November 15, 2007 to respond to the draft permit. The request was granted on December 5, 2007.

PCS responded to the draft permit and TEPD on December 10, 2007 by letter. This letter addressed 13 items in the draft TEPD and four items in the draft permit. These items are highlighted in the attached TEPD (Attachment 1) and draft permit (Attachment 2).

Following the December 10, 2007 response letter from PCS, additional time to resolve these issues was requested by PCS on January 2, 2008. This request was denied by OGC on January 9, 2008. Following this denial by OGC, PCS filed the Petition for formal Administrative Proceedings on January 23, 2008. Additionally, communication with FDEP was made to resolve the outstanding issues. To date, the public notice for the draft permit has not been published and the draft permit has not been finalized and issued. The petition has not been sent to DOAH, but has been held by FDEP without action pending a mutually agreeable resolution.

A meeting to address the proposed particulate matter limits was held on April 3, 2008 at the FDEP Tallahassee Bureau of Air Regulation office. Charlie Pults of PCS and Max Lee of Koogler & Associates attended on behalf of PCS. Mr. Lee provided documentation to justify objection to use of the confidence interval statistical (CI) method which indicated that it was an inappropriate method to determine PM emission limits. Mr. Lee proposed the tolerance limit statistical method as a more appropriate statistical method.

FDEP reviewed the data and requested a conference call on September 18, 2008 to further discuss the particulate matter limits. FDEP reviewed the PM limits and revised several of the proposed limits. The revised limits were either based on another statistical analysis method (Monte Carlo method), interpretations of the PCS letter of December 10, 2007 or continued reliance on the CI method.

PCS responded by letter on September 24, 2008 and agreed to the proposed limits established for EU 010, 004, 032, 042, and 064. PCS continued to object to the proposed limits set for the units 015, 044, 065, 003, 038, and 008.

To ensure that the approved control technology could meet the proposed limits, PCS submitted a letter dated October 24, 2008. This letter requested for emission units 015, 044, 065, 003 and 038 that PCS receive a ten percent increase to the Department's proposed Particulate Matter BART limits. This increase was requested to account for the inherent variability of stack testing using EPA Method 5. PCS requested that FDEP recognize that use of past stack test data to establish limits should include consideration of stack test method variability. Also, PCS requested that emission unit 008 (Y-train) should have an emission limit similar to that of Z-train of 9.2 lb/hr due to similarity of operations and emissions. In return, PCS agreed to comply with the FDEP's proposed RATA/CGA requirement for EU 021 and 022. During a recent telephone discussion with Charlie Pults, Syed Arif on behalf of the FDEP agreed to approve all requests as

initially proposed in the October 24, 2008 letter except for EU 044 which would remain at 17.5 lb/hr.

### **DRAFT TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

1) The following units are not subject to CAM: Emission Units 004, 010, 015, and 065. Please revise the Technical Evaluation for these units.

**RESOLUTION:** FDEP agreed verbally to change the TEPD as requested.

2) PCS requested that the general statement made for several units regarding NO<sub>x</sub> emissions be changed. The revised statement is more accurate to the method used to determine NO<sub>x</sub> emissions. The suggested language revision on pages 11, 14, 16, 19, 21 and 22 of 26 is as follows:

NO<sub>x</sub> Emissions

Based on Annual Operating Report from 2002 to 2006, the highest reported ~~actual~~ estimated NO<sub>x</sub> emissions, based on AP-42 and other factors, were... Based on the ~~actual~~ estimated NO<sub>x</sub> emissions levels, add-on control...

**RESOLUTION:** FDEP agreed verbally to change the TEPD as requested.

3) Page 8 - No. 1 Storage/Shipping (EU 010) - Particulate matter emission limitations. The Technical Evaluation assesses that the current technology of existing wet scrubbers having efficiency of greater than 95 percent is adequate for BART. The proposed PM emissions limit for EU 010 is established at 4.7 lb/hr. Based on recent years of historical emissions data it is evident this acceptable technology can remain compliant.

**RESOLUTION:** PCS, as stated above, agreed to the limit.

4) Page 8 - MAP/DAP Shipping Facility (EU 015) - Similar to EU 010, the Technical Evaluation establishes that the current technology for PM emissions is adequate for BART. The proposed PM emission limit for EU 015 is established at 1.2 lb/hr.

This limit is below the effective limit based on reasonable control efficiency of 0.015 gr/acf, a level of control deemed reasonable for baghouses, which are typically more efficient than wet scrubbers. Based on an average flow of 10,350 acfm, and an emission rate of 0.015 gr/acf, PM emissions would be 1.33 lb/hr. Adding a reasonable cushion for considerations of variations in the process, the limit should be based on a 10 percent increase of this limit to 1.46 lb/hr. As mentioned above, while the technology was determined to be adequate for BART, the established limit would result in repeated test failures despite the use of acceptable technology. The proposed limit will reduce potential emissions from 177 to 6.45 tons/year.

**RESOLUTION:** FDEP verbally agreed increase the limit to 1.46 lb/hr following the PCS letter of October 24, 2008.

5) Page 9 - DFP Coolers (EU 044) – The Technical Evaluation establishes that the current technology for PM control of cyclonic wet scrubbing is adequate for BART. The proposed PM emissions limit for EU 044 is established at 12.3 lb/hr. Test results provided in the Technical Evaluation indicate that the actual emissions are close to the current limit of 25.4 lb/hr.

Year	Recent Test Results lb/hr	% Exceedance of Proposed Limit (12.3 lb/hr)
2001	12.77	3
2002	8.99	-27
2003	16.11	31
2004	13.15	7
2005	20.9	70

The proposed limit of 12.3 lb/hr would result in non-compliance in four of the last five years. Clearly, the proposed limit is not reflective of the approved technology. Accordingly, the limit should be remain at 25.4 lb/hr.

**RESOLUTION:** FDEP changed its proposed limit to 17.5 lb/hr based on Monte Carlo analysis and presented it at September 18, 2008 meeting. PCS agreed by letter to Syed Arif dated September 24, 2008 to the proposed limit.

6) Page 10 - Swift Creek Mine Silos (EU 065) – The Technical Evaluation establishes that the current technology for PM control by wet scrubbing is adequate for BART. The proposed PM emissions limit for EU 065 is established at 5.7 lb/hr.

The limit should be reflective of the capabilities of the technology. Given the current technology is determined adequate for BART, limits should be established that meet the range of test results. Given the past data, a PM limit of 10 lb/hr should be obtainable with the current technology. The proposed limit will reduce potential emissions from 203.2 to 43.9 tons/year.

**RESOLUTION:** FDEP verbally agreed to increase the limit to 6.27 lb/hr following the PCS letter of October 24, 2008.

7) Page 11 - DFP Plants (EU 003 (A) and 038 (B)) – The Technical Evaluation establishes that the current technology of cross-flow packed wet scrubber is adequate for PM control and that add-on controls are not believed to be cost effective. The Technical Evaluation states, “As shown, actual emission are much lower than the permitted limits and reflect good control by the installed wet scrubbers.” Review of the test results clearly show a high degree of variability in which this acceptable technology meets the current permit limits.

The proposed PM emissions limit for EU 003 and 038 is 10.1 lb/hr. Test results provided in the Technical Evaluation indicate that the emissions are near the current limit of 14.05 lb/hr. Reviewing test data to 2001, both plants show testing would fail the proposed limit of 10.1 lb/hr. Given the current technology is determined adequate for BART, limits should be established that meet the range of test results. The limits should remain at 14.05 lb/hr.

**RESOLUTION:** FDEP verbally agreed increase the limit to 14.1 lb/hr for both EU 003 and 038 following the letter from PCS of October 24, 2008.

8) Page 14 - X-Train (EU 004) - The Technical Evaluation establishes that the current technology of a series of wet venturi and cyclonic scrubbers are adequate. The Technical Evaluation states, "Based on the recent BACT determination for this unit and the actual controlled emissions levels, the existing scrubbing system is recognized as a top control option for the rotary dryer."

A careful review of the recent PSD application and resultant BACT determination performed for this unit will show that, along with the rate increase, considerable work was to be performed. Some of the proposed work, which was not performed, would have reduced the emissions from this plant. This project was terminated due to an internal decision by PCS. Thus, the recently drafted BACT determination of 22 lb/hr for increased production is not applicable to the current operation.

In review of past test data, the Technical Evaluation further states, "In general, these emission rates are lower than the current PM emissions limits and reflect the capabilities of the installed wet venturi and cyclonic scrubbers." However, reviewing test data to 2001, the test results show testing would fail the proposed limit of 11.8 lb/hr greater than 50 percent of the time.

Given the current technology is determined adequate for BART, limits should be established that meet the range of test results. Given the past data, the PM limit of 30 lb/hr should be obtainable with the current technology. The proposed limit will reduce potential emissions from 400 to 132 tons/year.

**RESOLUTION:** FDEP revised its proposed number to 18 lb/hr which was presented by FDEP in meeting on September 18, 2008. PCS agreed by letter to Syed Arif dated September 24, 2008 to the proposed limit of 18 lb/hr.

9) Page 16 - Y-Train (EU 008) - The Technical Evaluation establishes that the current technology of venturi scrubbers and cyclonic scrubbers for particulate control is a top control option. The provided stack test data is reviewed and a 99% confidence interval limit is proposed of 6.5 lb/hr and a 0.18 lb/ton of P<sub>2</sub>O<sub>5</sub> feed.

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This limit is much below an effective limit based on emissions at 0.015 gr/acf, a level of control deemed reasonable for baghouses, which are typically more efficient than wet scrubbers. Based on an average flow of 81,700 acfm, and an emission rate of 0.015 gr/acf, the effective PM emissions limit is 10.5 lb/hr. We believe a reasonable emission limit is 10.5 lb/hr. The proposed limit will reduce potential emissions from 198 to 46.8 tons/year.

The limitation based on pounds of P<sub>2</sub>O<sub>5</sub> feed should not be proposed because PM emissions are not a function of feed rate but due to internal recycle and sizing of material.

**RESOLUTION:** FDEP verbally agreed increase the limit to 9.2 lb/hr for EU 008 following the letter from October 24, 2008.

10) Page 17 - C and D Sulfuric Acid Plants (EU 021 and EU 022) – The proposed SO<sub>2</sub> emissions limit of 3.5 lb/ton based on a 24-hour CEM rolling average is acceptable. However, the current limitation of 4 lb/ton based on a 3-hour average should be retained in the permit to allow for short term fluctuations in the process. The existing CEMS will continue to be used to provide reasonable assurance of compliance, in accordance with the monitoring requirements in 40CFR60, Subpart H.

As with other sulfuric acid plants, NO<sub>x</sub> emissions from these units are not controlled. Emissions are calculated values that are based on the amount of 100% sulfuric acid produced and an appropriate emission factor. The BART determination in the Technical Evaluation for EUs 021 and 022 states that “add-on control equipment would not be cost-effective”.

In the past NO<sub>x</sub> emissions have been provided in the Annual Operating Reports based on an emission factor calculation of uncontrolled emissions. NO<sub>x</sub> emissions are only a calculated value and a limit is unjustified without a prescribed means of controlling emissions. In addition, the requirement for emissions testing of an uncontrolled source is not practical, cost-effective, or warranted. This would be in line with FDEP’s permits addressing NO<sub>x</sub> from sulfuric acid plants.

Please note that EU 066 does not have a NO<sub>x</sub> limit as stated on page 17 of 26. EU 066 does have a NO<sub>x</sub> factor that was used for a previous PSD analysis. This factor (0.14 lb NO<sub>x</sub>/T H<sub>2</sub>SO<sub>4</sub>) is used to calculate the annual emissions report value. The same value is used for EU 067.

Suggested language revisions on page 17 of 26 are as follows:

Based on Annual Operating Reports, estimated NO<sub>x</sub> emissions were last reported in 2000 as 60 tons/year for each of the sulfuric acid plants.... ~~The existing ‘E’ Sulfuric Acid Plant (EU 066) at this facility is a similar double absorption plant with a NO<sub>x</sub> limit of 0.14 lb/ton of 100% acid produced.... Nitrogen oxides emissions (expressed as NO<sub>2</sub>) from the ‘C’ and ‘D’ Sulfuric Acid Plants (EU-021 and EU-022) shall be estimated based on the amount of 100% sulfuric acid produced and an emission factor of not exceed 0.14 lb/ton of 100% acid produced as determined by EPA Method 7E.~~

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**RESOLUTION:** FDEP agreed verbally to change the TEPD. The change is either as above requested or to simply include "if requested by the Department" at the end of the last sentence to the paragraph above.

11) Page 18 - Z-Train (EU 032) – The Technical Evaluation states, "...the Department recognizes this equipment as a top control option and establishes the following PM BART determination." The provided stack test data is reviewed and a 99% confidence interval limit is proposed of 9.2 lb/hr and a 0.22 lb/ton of P<sub>2</sub>O<sub>5</sub> feed.

The proposed PM emissions limit for EU 032 is established at 6.5 lb/hr. This limit is much below an effective limit based on emissions at 0.015 gr/acf, a level of control deemed reasonable for baghouses, which are typically more efficient than wet scrubbers. Based on an average flow of 98,600 acfm, and an emission rate of 0.015 gr/acf, the effective PM emissions limit is 12.7 lb/hr. We believe a reasonable emission limit is 12.7 lb/hr. The proposed limit will reduce potential emissions from 207 to 55 tons/year.

Similar to Y-Train, the limitation based on pounds of P<sub>2</sub>O<sub>5</sub> feed should not be proposed because PM emissions are not a function of feed rate but due to internal recycle and sizing of material.

**RESOLUTION:** PCS agreed by letter to Syed Arif dated September 24, 2008 to the proposed limit of 9.2 lb/hr.

12) Page 21 - DFP Feed Prep (EU 042, Dryer EP 05) - The Technical Evaluation states, "...the plant did not consider a baghouse appropriate for the high-moisture exhaust, which may cause plugging and blinding of the fabric materials." The provided stack test data is reviewed and a 99% confidence interval limit is proposed of 4.5 lb/hr. Based on recent years of historical emissions data it is evident this acceptable technology can remain compliant.

**RESOLUTION:** PCS, as stated, agreed to the proposed limit.

13) Page 22 - Swift Creek Mine Rock Dryer (EU 064) - The Technical Evaluation states, "...recent BACT determinations reflect wet scrubber control technology for phosphate dryers". The provided stack test data is reviewed and a 99% confidence interval limit is proposed of 17.3 lb/hr.

The high variability of emissions is clear in the provided data. The limit should be reflective of the capabilities of the technology. Given the current technology is determined adequate for BART, limits should be established that meet the range of test results. Given the past data, the PM limit of 20 lb/hr should be obtainable with the current technology. The proposed limit will reduce potential emissions from 203 to 88 tons/year.

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**RESOLUTION:** PCS agreed by letter to Syed Arif dated September 24, 2008 to the proposed limit of 17.3 lb/hr.

### **DRAFT PERMIT**

1) See proposed emission limit changes within Technical Evaluation discussion, above.

**RESOLUTION:** Changes are highlighted in Attachment 2.

2) Page 9 of 13 – Section 3.C.7. NO<sub>x</sub> Emission Standards: This requirement for testing should be removed as the NO<sub>x</sub> emissions from these units are uncontrolled and that current emission determination by calculation from established emissions factors should be adequate. See the additional discussion of this in the Comments to the Technical Evaluation – Item 10 above.

**RESOLUTION:** FDEP agreed to revise.

3) Page 11 of 13 – Section 3.C.11. CEMS Compliance Demonstration: The reference to Appendix F of Part 60 performance should be deleted. See the additional discussion of this in the Comments to the Technical Evaluation – Item 10 above. The current annual testing has and will continue to provide adequate demonstration of compliance.

In addition, the CEM's are calibrated every morning against the appropriate reference gases for span and zero. The meters calibrate automatically for span and zero. If the calibration fails for any reason the meter is immediately taken out of service for repair. As soon as repairs are completed the meter is calibrated and placed back in service. All of this information is recorded in the daily calibration log.

FDEP determined SO<sub>2</sub> emission limits for the Sulfuric Acid Plants based on one year of CEM data. That CEM data is assured through the procedures stated in the above paragraph. Thus the current CEM system data and its level of quality assurance were determined by FDEP to be adequate and applicable to set the BART limit as well as for purposes of Title V permitting. Additional requirements beyond those described above will not affect the proposed BART limitation, the technology used to meet the limits nor reduce actual emissions and potential impact on Class I area visibility, which is the ultimate goal of the Regional Haze Rule. We request that the current level of CEM quality assurance, that is adequate to establish BART, be continued to provide FDEP with reasonable assurance of compliance and that the demonstration of compliance be verified by independent and separate emissions measurements, as done currently.

**RESOLUTION:** PCS agreed by letter from PCS of October 24, 2008 to the above CEMs condition in the draft permit.



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4) Page 9 of 13 – Section 3.C.5.c. Corresponding to Comment 3) above, the current stack testing requirements for compliance should remain.

**RESOLUTION:** PCS agreed by letter from PCS of dated October 24, 2008 to the above CEMs condition.

**CONCLUSION**

We have attempted to accurately summarize what we understand to be the complete agreement with changes to the pending draft permit that has been reached with the FDEP. Please advise if any of our understanding do not match with the FDEP's understanding.

Sincerely,



Rory C. Ryan

RCR/kw

cc: Karin S. Torain, Esq.  
Charlie Pults, P.E.  
Max Lee, PhD., P.E.  
Koogler & Assoc.

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ATTACHMENT 1

Highlighted Draft TEPD  
0470002-055-AC

# DRAFT PERMIT

## PERMITTEE

White Springs Agricultural Chemicals, Inc.  
P.O. Box 300  
White Springs, Florida 32096

*Authorized Representative:*

W.K. Thornton, General Manager

Permit No. 0470002-055-AC Suwannee River/Swift Creek Complex BART Project Expires: June 30, 2014
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## PLANT AND LOCATION

White Springs Agricultural Chemicals, Inc. operates the Suwannee River/Swift Creek complex, which processes phosphate rock into several products. The phosphate complex is classified by Standard Industrial Classification (SIC) Code No. 2874. The existing facility is located in Hamilton County at 15843 SE 78th Street in White Springs, Florida. This site is located about 25 kilometers from the Okefenokee National Wilderness Area, which is a PSD Class I Area. The UTM coordinates are Zone 17; 328.3 km E; 3368.8 km N.

## STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). Specifically, this project is subject to Rule 62-296.340, F.A.C., which requires a determination of the Best Available Retrofit Technology (BART) for each BART-eligible source as defined in 40 CFR 51.301. The state rule implements the federal provisions of Appendix Y in 40 CFR Part 51, "Guidelines for BART Determinations Under the Regional Haze Rule". In accordance with Appendix Y in 40 CFR 51, the affected visibility-impairing pollutants include the following: nitrogen oxides (NO<sub>x</sub>), particulate matter (PM), and sulfur dioxide (SO<sub>2</sub>). Pursuant to Rule 62-296.340, F.A.C., the permittee shall install or modify the air pollution control equipment and/or implement the air pollution control measures that are specified by this permit as the Best Available Retrofit Technology (BART).

## EFFECTIVE DATE

Unless otherwise specified by this permit, the BART-eligible sources shall demonstrate compliance with the conditions of this permit no later than December 31, 2013. [Rule 62-296.340(3)(b)2, F.A.C.]

Executed in Tallahassee, Florida

(DRAFT)

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Joseph Kahn, Director  
Division of Air Resource Management

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(Date)

## SECTION 1. GENERAL INFORMATION

### FACILITY DESCRIPTION

White Springs Agricultural Chemicals, Inc. operates an existing phosphate complex, which processes phosphate rock to produce several products at the Suwannee River/Swift Creek Complex (two plants). The facility consists of one rock grinder, two phosphoric acid plants, two defluorinated phosphate (DFP) plants, one dical process, two diammonium phosphate (DAP) plants, one monoammonium (MAP)/DAP storage building, one MAP/DAP screen/shipping building, four sulfuric acid plants (SAP), two phosphoric acid filters, four superphosphoric acid plants, one green superphosphoric acid plant, the Swift Creek Mine rock dryer, and one acid clarification plant. The facility also has storage silos associated with the Swift Creek Mine and the DFP plant. Sulfuric acid is produced on-site by burning elemental sulfur, converting the resulting sulfur dioxide to sulfur trioxide, and absorbing it into a recirculating sulfuric acid solution. Phosphoric acid is made by acidulation of phosphate rock with sulfuric acid. Waste gypsum is produced and stacked. The phosphoric acid is reacted with ammonia to make MAP and DAP. The phosphoric acid is reacted with limestone and other raw materials to make animal feed ingredients.

### FACILITY REGULATORY CLASSIFICATIONS

- The facility is a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source pursuant to Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The facility operates BART-eligible units subject to Rule 62-296.340 (BART), F.A.C.

### BART-ELIGIBLE EMISSIONS UNITS

This permitting action affects the following BART-eligible emissions units (EU) at the plant.

EU No.	Emission Unit Description
001	# 2 Phosphate Rock Grinder
003	'A' DFP Plant
004	X-Train (Dical Process)
008	'Y' Train - #1 DAP Plant
010	#1 MAP/DAP - Storage Building
015	MAP/DAP Shipping and Screening Facility
021	'C' SAP
022	'D' SAP
032	'Z' Train - #2 DAP Plant
038	'B' DFP Plant
042	DFP Feed Prep
044	'A' and 'B' DFP Coolers
054	Molten Sulfur System
062	DFP Silos
064	Swift Creek Mine Rock Dryer
065	Swift Creek Mine Silos

## SECTION 2. ADMINISTRATIVE REQUIREMENTS

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1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Florida Department of Environmental Protection. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400 (phone number 850/488-0114).
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the submitted to the Department's Northeast District Office, 7825 Baymeadows way, Suite B200, Jacksonville, Florida 32256-7577.
3. Appendices: The following Appendices are attached as an enforceable part of this permit:
  - Appendix A. Citation Formats;
  - Appendix B. General Conditions;
  - Appendix C. Standard Testing Requirements; and
  - Appendix D. Best Operational Startup Practices for Sulfuric Acid Plants.
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to the applicable provisions of: Chapter 403, F.S.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C.; and the applicable parts and subparts of Title 40, Code of Federal Regulations (CFR). Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
5. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a revised Title V permit **on or before December 31, 2013**. To apply for a Title V permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]
6. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least 5 years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rule 62-213.440(1)(b)2, F.A.C.]
7. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(3), F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### A. Particulate-Only Emissions Units Controlled by Baghouses

This subsection addresses the following affected emissions units (EU) and emissions points (EP).

EU No.	EP No.	Emissions Unit Description
001		Phosphate rock grinder controlled by a baghouse
004		X-Train Dical Process
	02	Dedust bin controlled by a baghouse
	03	Shipping area controlled by a baghouse
	04	Limestone silo controlled by a baghouse
	05	Reclaim bin controlled by a baghouse
	06	Material handling controlled by a baghouse
042		DFP Feed Prep
	EP-01	Rock bin controlled by a baghouse
	EP-02	Miscellaneous activity controlled by a baghouse
	EP-03	Lime silo controlled by a baghouse
	EP-04	Lime bin controlled by a baghouse
	EP-06	Soda ash Silo controlled by a baghouse
	EP-07	Soda ash Bin controlled by a baghouse
062		DFP Product Silos
	EP-14	Product Sizing and Crushing Silos
	EP-16	Silo A, silo B, silo C and shipping operations controlled by a baghouse

Pursuant to Rule 62-296.340 (BART), F.A.C., the following standards represent the Best Available Retrofit Technology. These standards apply to each BART-eligible unit and are in addition, and supplement, all other applicable standards.

#### CONTROL EQUIPMENT AND METHODS

1. **Baghouses:** The baghouse control systems shall be operated and maintained to effectively control particulate matter from each of the emissions points identified above for the regulated emissions units. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]
2. **Circumvention:** The permittee shall not circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]

#### EMISSIONS LIMITING AND PERFORMANCE STANDARDS

3. **Opacity Standard:** Visible emissions from each baghouse exhaust shall not exceed 5% opacity as determined by EPA Method 9. [Rule 62-296.340 (BART), F.A.C.; and 40 CFR 60, Appendix A, Method 9]
4. **Baghouse Design Specification:** Bags/filters in each baghouse control system shall be selected based on a design outlet specification of 0.01 grains per actual cubic feet of exhaust. Compliance shall be demonstrated by maintaining the appropriate records. No stack testing is required. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

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#### A. Particulate-Only Emissions Units Controlled by Baghouses

##### EMISSIONS PERFORMANCE TESTING

5. Compliance Tests: During each federal fiscal year (October 1<sup>st</sup> to September 30<sup>th</sup>), the permittee shall conduct visible emissions tests on each baghouse exhaust in accordance with EPA Method 9 to demonstrate compliance with the opacity standard. This method is described in 40 CFR 60, Appendix A, which is adopted by reference in Rule 62-204.800, F.A.C. Initial compliance tests shall be conducted during federal fiscal year 2012/2013 and a test report demonstrating compliance shall be submitted before October 1, 2013. [Rules 62-204.800, 62-296.340(3)(b)2 and 62-297.310(7)(a)4, F.A.C.; and 40 CFR 60, Appendix A, Method 9]
6. Test Requirements: The permittee shall comply with the applicable "Common Testing Requirements" specified in Appendix C of this permit, which include test notifications, sampling facilities, test procedures, test frequencies, test records and test reports. [Rule 62-297.310(7)(a)9, F.A.C.]

##### RECORDS

7. Baghouse Records: The permittee shall maintain records on site of the vendor data sheets that demonstrate compliance with the baghouse design outlet specification for the bags/filters. To demonstrate initial compliance, the permittee shall provide copies of such records with the corresponding visible emissions test report that demonstrates initial compliance with the opacity standard. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**B. Particulate-Only Emissions Units Controlled by Wet Scrubbers**

This subsection addresses the following affected emissions units.

EU No.	Emissions Unit Description
010	No. 1 Storage/Shipping Building controlled by wet scrubber
015	MAP/DAP Shipping Facility controlled by cyclone and wet scrubber
044	'A' and 'B' DFP Coolers controlled by cyclonic wet scrubber
065	Swift Creek Mine Silos and Conveyor controlled by wet scrubber

Pursuant to Rule 62-296.340 (BART), F.A.C., the following standards represent the Best Available Retrofit Technology. These standards apply to each BART-eligible unit and are in addition, and supplement, all other applicable standards.

**CONTROL EQUIPMENT AND METHODS**

- Wet Scrubbers: The wet scrubber controls shall be operated and maintained to effectively control particulate matter from each of the emissions points identified above for the regulated emissions units. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]
- Circumvention: The permittee shall not circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]

**EMISSIONS LIMITING AND PERFORMANCE STANDARDS**

- PM Standards: Particulate matter emissions shall not exceed the following emissions standards as determined by EPA Method 5.

EU No.	Emissions Unit Description	BART Standard	
010	No. 1 Storage/Shipping Building	4.7 lb/hour	
015	MAP/DAP Shipping Facility	<del>1.2</del> lb/hour	1.46
044	'A' and 'B' DFP Coolers	<del>12.5</del> lb/hour	17.5
065	Swift Creek Mine Silos	<del>5.7</del> lb/hour	6.27

[Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

**EMISSIONS COMPLIANCE TESTING**

- Compliance Tests: During each federal fiscal year (October 1<sup>st</sup> to September 30<sup>th</sup>), the permittee shall conduct tests on each wet scrubber exhaust in accordance with EPA Method 5 to demonstrate compliance with the PM standard. This method is described in 40 CFR 60, Appendix A, which is adopted by reference in Rule 62-204.800, F.A.C. Initial compliance tests shall be conducted during federal fiscal year 2012/2013 and a test report demonstrating compliance shall be submitted before October 1, 2013.

*{Permitting Note: For the PM BART standard, it may be necessary to develop new excursion levels for the scrubber parameters if subject to a Compliance Assurance Monitoring (CAM) plan. This may require additional compliance testing.}*

[Rules 62-204.800, 62-296.340(3)(b)2, and 62-297.310(7)(a)4, F.A.C.; and 40 CFR 60, Appendix A]

- Test Requirements: The permittee shall comply with the applicable "Common Testing Requirements"



### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

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#### B. Particulate-Only Emissions Units Controlled by Wet Scrubbers

requirements specified in Appendix C of this permit, which include test notifications, test procedures, sampling facilities, test frequencies, test records and test reports. Parametric data recorded for the wet scrubber during each test shall be provided with the required test report. [Rule 62-297.310(7)(a)9, F.A.C.]

#### MONITORING

6. Wet Scrubber Parameters: For each wet scrubber, the permittee shall install, operate and maintain devices to continuously monitor the scrubber water flow rate, the pressure drop across the scrubber and the fan amperage. Such devices shall be calibrated, fully functional and in operation before conducting the initial compliance tests.
  - a. For each emissions unit subject to a CAM plan, the scrubber parameters shall be continuously monitored and recorded. For each operating hour, the 1-hour block average shall be computed from at least four data points evenly spaced over each operating hour. This data shall be to develop new excursion levels for the scrubber parameters in the CAM plan.
  - b. For each emissions unit that is not subject to a CAM plan, the scrubber parameters shall be continuously monitored and manually recorded at least once during each eight-hour block of operation. Alternatively, the parametric data may be continuously recorded. During each required compliance test, such data shall be recorded at 15-minute intervals.

[Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

#### RECORDS

7. Wet Scrubber Records: The permittee shall maintain records on site of the scrubber water flow rate and the pressure drop across the scrubber. In addition, the following vendor design information shall be maintained on site for each wet scrubber: exhaust flow rate; scrubber water flow rate, scrubber pressure drop, dust inlet loading, dust outlet loading and control efficiency. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**C. Emissions Units with Combustion**

This subsection addresses the following affected emissions units (EU).

EU No.	Emission Unit Description
003	'A' DFP Plant
004	X-Train (Dical Process)
008	'Y' Train - #1 DAP Plant
021	'C' SAP
022	'D' SAP
032	'Z' Train - #2 DAP Plant
038	'B' DFP Plant
042	DFP Feed Prep
064	Swift Creek Mine Rock Dryer

Pursuant to Rule 62-296.340 (BART), F.A.C., the following standards represent the Best Available Retrofit Technology. These standards apply to each BART-eligible unit and are in addition, and supplement, all other applicable standards.

**CONTROL EQUIPMENT AND METHODS**

- Wet Scrubbers: The wet scrubber controls shall be operated and maintained to effectively control particulate matter from each of the emissions points identified above for the regulated emissions units. The wet scrubber controls on the 'A' and 'B' DFP Plants (EU-003 and EU-038) shall also be operated and maintained to effectively control sulfur dioxide. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]
- Circumvention: The permittee shall not circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]
- Best Operational Startup Practices for Sulfuric Acid Plants (EU-021 and EU-022): Sulfuric acid plants are authorized for excess emissions from startup for a period of three consecutive hours provided best operational practices to minimize emissions are adhered to in accordance with the agreement titled "Best Operational Startup Practices for Sulfuric Acid Plants" attached to this permit as Appendix D. [Rule 62-210.700, F.A.C., 40 CFR 60.7]
- General Best Operational Practices: Best operational practices to minimize leaks of sulfur dioxide and sulfur trioxide, or other fugitive process emissions shall be adhered to and shall include regular inspections and prompt repair or correction of any leaks or other fugitive emissions. [Rule 62-296.320, F.A.C.]

**EMISSIONS LIMITING AND PERFORMANCE STANDARDS**

- PM and SO<sub>2</sub> Standards: Particulate matter and sulfur dioxide emissions shall not exceed the following emissions standards as determined by EPA Methods 5 and 6/6C, respectively.

EU No.	EP No.	Emissions Unit Description	BART Standards	
			PM	SO <sub>2</sub>
003		'A' DFP Plant with PM and SO <sub>2</sub> controlled by wet scrubbing	<del>10.1</del> lb/hour	2.0 lb/hour, a
004		X-Train Dical Process	<del>14.1</del>	
	EP-01	X-Train Rotary Dryer with PM controlled by wet scrubbing	<del>11.8</del> lb/hour (all modes)	b

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**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**C. Emissions Units with Combustion**

EU No.	EP No.	Emissions Unit Description	BART Standards	
			PM	SO <sub>2</sub>
008	Y-Train No. 1 DAP Plant with PM controlled by wet scrubbing		<del>0.18 lb/ton P<sub>2</sub>O<sub>5</sub></del>	b
	Y-Train No. 1 MAP Plant with PM controlled by wet scrubbing		9.2 <del>input</del> lb/hour (all modes)	
021	'C' Sulfuric Acid Plant with double absorption process		---	3.5 lb/ton AP, c 335.4 lb/hour
022	'D' Sulfuric Acid Plant with double absorption process		---	3.5 lb/ton AP, c 335.4 lb/hour
032	Z-Train No. 2 DAP/MAP Plant			
	EP-01	Main part of DAP process with PM controlled by wet scrubbing	9.2 lb/hour	d
038	'B' DFP Plant with PM and SO <sub>2</sub> controlled by wet scrubbing		<del>10.1</del> lb/hour	2.0 lb/hour, a
042	DFP Feed Prep			
	EP-05	DFP Feed Prep Dryer with PM controlled by wet scrubber	4.5 lb/hour	b
064	Swift Creek Mine (SCM) Rock Dryer with PM controlled by wet scrubber		17.3 lb/hour	c

- a. In addition to the SO<sub>2</sub> emissions standard, sulfur dioxide emissions from these units shall be limited by firing natural gas as the only fuel.
- b. To control sulfur dioxide emissions, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.5% by weight may be fired as a backup fuel.
- c. Sulfur dioxide emissions from the "C" and "D" Sulfuric Acid Plants (EU-021 and EU-022) shall not exceed 3.5 lb/ton of 100% sulfuric acid produced (AP) based on a 24-hour rolling CEMS average. No stack testing is required.
- d. To control sulfur dioxide emissions, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil or on-specification used oil with a maximum sulfur content of 1.0% by weight may be fired as a backup fuel.
- e. To control sulfur dioxide emissions, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.3% by weight or on-specification used oil with a maximum sulfur content of 1.0% by weight may be fired as backup fuel.

[Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

6. **Opacity Standards:** Visible emissions from the 'C' and 'D' Sulfuric Acid Plants (EU-021 and EU-022) shall not exceed 10% opacity as determined by EPA Method 9. Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. [Rule 62-296.340 (BART), F.A.C.; and 40 CFR 60.83(a)2 and 40 CFR 60, Appendix A, Method 9]
7. **NO<sub>x</sub> Emissions Standards:** Nitrogen oxides emissions (expressed as NO<sub>2</sub>) from the 'C' and 'D' Sulfuric Acid Plants (EU-021 and EU-022) shall not exceed 0.14 lb/ton of 100% sulfuric acid produced as determined by EPA Method 7E. Nitrogen oxides emissions from the remaining emissions units shall be controlled by the inherent combustion design of the existing units and the firing of natural gas as the primary fuel. [Rule 62-4.070(3), F.A.C.]

*see item 2  
comments  
to TEPA*

## SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

### C. Emissions Units with Combustion

#### EMISSIONS COMPLIANCE TESTING

8. Compliance Tests: During each federal fiscal year (October 1<sup>st</sup> to September 30<sup>th</sup>), the permittee shall conduct the following compliance tests.
- The permittee shall conduct visible emissions tests on the 'C' and 'D' Sulfuric Acid Plants (EU-021 and EU-022) in accordance with EPA Method 9 to demonstrate compliance with the opacity standard.
  - The permittee shall conduct tests on each wet scrubber exhaust with a PM standard in accordance with EPA Method 5 to demonstrate compliance with the corresponding standard.
  - The permittee shall conduct tests on each wet scrubber exhaust with a SO<sub>2</sub> standard in accordance with EPA Method 6/6C to demonstrate compliance with the corresponding standard.
  - These methods are described in 40 CFR 60, Appendix A, which is adopted by reference in Rule 62-204.800, F.A.C.
  - Initial compliance tests shall be conducted during federal fiscal year 2012/2013 and a test report demonstrating compliance shall be submitted before October 1, 2013.

*{Permitting Note: For the PM and SO<sub>2</sub> BART standards, it may be necessary to develop new excursion levels for the scrubber parameters if subject to a Compliance Assurance Monitoring (CAM) plan. This may require additional compliance testing.}*

[Rules 62-204.800, 62-296.340(3)(b)2, and 62-297.310(7)(a)4, F.A.C.; and 40 CFR 60, Appendix A]

9. Test Requirements: The permittee shall comply with the applicable "Common Testing Requirements" requirements specified in Appendix C of this permit, which include test notifications, test procedures, sampling facilities, test frequencies, test records and test reports. Parametric data recorded for the wet scrubber during each test shall be provided with the required test report. As necessary, EPA Methods 1 – 4 shall be conducted to support the other test methods. [Rule 62-297.310(7)(a)9, F.A.C.]

#### MONITORING

10. Wet Scrubber Parameters: For each wet scrubber, the permittee shall install, operate and maintain devices to continuously monitor the scrubber water flow rate, the pressure drop across the scrubber and the fan amperage. Such devices shall be calibrated, fully functional and in operation before conducting the initial compliance tests. In addition, the permittee shall install, operate and maintain devices to continuously monitor the pH level of the caustic solution in the wet scrubbers for the 'A' and 'B' DFP Plants (EU-003 and EU-038).
- For each emissions unit subject to a CAM plan, the scrubber parameters shall be continuously monitored and recorded. For each operating hour, the 1-hour block average shall be computed from at least four data points evenly spaced over each operating hour. This data shall be to develop new excursion levels for the scrubber parameters in the CAM plan.
  - For each emissions unit that is not subject to a CAM plan, the scrubber parameters shall be continuously monitored and manually recorded at least once during each eight-hour block of operation. Alternatively, the parametric data may be continuously recorded. During each required compliance test, such data shall be recorded at 15-minute intervals.

[Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

11. CEMS Compliance Demonstration: The permittee currently operates continuous emissions monitoring systems (CEMS) to determine SO<sub>2</sub> emissions from the "C" and "D" Sulfuric Acid Plants (EU-021 and EU-

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

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#### C. Emissions Units with Combustion

022. The permittee shall operate and maintain each CEMS to demonstrate compliance with the BART SO<sub>2</sub> standards specified in this permit, which requires the data to also be reduced to 24-hour rolling averages. Each CEMS shall be certified to meet Performance Specification 2 in Appendix B of 40 CFR 60 and the quality assurance procedures specified in Appendix F of 40 CFR 60. [Rules 62-296.340 (BART) and 62-4.070(3), F.A.C.]

#### RECORDS

12. Wet Scrubber Records: The permittee shall maintain records on site of the scrubber water flow rate and the pressure drop across the scrubber. In addition, the following vendor design information shall be maintained on site for each wet scrubber: exhaust flow rate; scrubber water flow rate, scrubber pressure drop, dust inlet loading, dust outlet loading and control efficiency. [Rules 62-4.070(3) and 62-296.340 (BART), F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### D. Molten Sulfur System for 'C' and 'D' Sulfuric Acid Plants

This subsection addresses the following affected emissions units.

EU No.	Emissions Unit Description
054	Molten Sulfur System for 'C' and 'D' sulfuric acid plants

Pursuant to Rule 62-296.340 (BART), F.A.C., the following standards represent the Best Available Retrofit Technology. These standards apply to each BART-eligible unit and are in addition, and supplement, all other applicable standards.

#### EMISSIONS LIMITING AND PERFORMANCE STANDARDS

1. Molten Sulfur Facilities – Work Practice Standards: All molten sulfur facilities shall employ, as a minimum, the following practices to minimize the emission of sulfur particulate matter into the atmosphere.
  - a. All molten sulfur transfer shall be through enclosed piping systems where feasible and practical. In user facilities, molten sulfur may be transferred by covered trench or a movable spout which is positioned over a receiving pit. Contact surfaces between movable unloading arms and stationary pipes shall seat effectively around the entire circumference to minimize spillage.
  - b. All areas surrounding points where molten sulfur pipes are routinely disconnected and areas where molten sulfur is transferred to trucks or railcars shall be paved and curbed within 20 feet of the point of disconnection or transfer to contain any spilled molten sulfur, or shall be provided with non-corrodible drip pans or other secondary containment, positioned to collect spills, that are adequate to contain amounts of sulfur that may escape during routine disconnection, reconnection or operation of the piping system.
  - c. All spilled molten sulfur shall be collected and properly disposed of whenever the containment area is filled to one-half its containment capacity, or monthly, whichever is more frequent. Spills of molten sulfur outside of a containment area, or where subject to vehicular traffic, shall be collected and disposed of as soon as possible, but no later than 24 hours after the spill occurs. Drip pans or other secondary containment shall be cleaned as needed to prevent exceedance of capacity, but at least weekly.
  - d. All vent surfaces shall be cleaned monthly to remove captured particles.
  - e. All owners and operators of molten sulfur storage and handling facilities shall maintain records of spills outside of containment areas and of collection and disposal of spilled sulfur. Such records shall be retained for a minimum of two years and shall be available for inspection by the Department upon request.
  - f. Owners and operators shall establish and implement procedures to minimize spills from any movable loading arm or pipe upon disconnection, reconnection or operation.

[Rules 62-296.340 (BART) and 62-296.411, F.A.C.]

2. Opacity Standard: As determined by EPA Method 9, visible emissions from any emission point in the molten sulfur facility shall not exceed 20% opacity (6-minute average). [Rules 62-296.340 (BART) and 62-296.411, F.A.C.]

#### EMISSIONS PERFORMANCE TESTING

3. Compliance Tests: The permittee shall conduct visible emissions tests every 5 years (prior to operation permit renewal) in accordance with EPA Method 9 to demonstrate compliance with the opacity standard. This method is described in 40 CFR 60, Appendix A, which is adopted by reference in Rule 62-204.800,

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

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#### D. Molten Sulfur System for 'C' and 'D' Sulfuric Acid Plants

F.A.C. When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rules 62-204.800, 62-296.340(3)(b)2 and 62-297.310(7)(a)4, F.A.C.; and 40 CFR 60, Appendix A, Method 9]

4. Test Requirements: The permittee shall comply with the applicable "Common Testing Requirements" specified in Appendix C of this permit, which include test notifications, sampling facilities, test procedures, test frequencies, test records and test reports. [Rule 62-297.310(7)(a)9, F.A.C.]

Ronda L. Moore  
Trina Vielhauer  
December 16, 2008  
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ATTACHMENT 2

Highlighted Draft Permit  
0470002-055-AC



**TECHNICAL EVALUATION  
&  
PRELIMINARY DETERMINATION**

**PROJECT**

Draft Permit No. 0470002-055-AC  
Best Available Retrofit Technology (BART)  
White Springs Agricultural Chemicals, Inc.  
Hamilton County, Florida

**APPLICANT**

White Springs Agricultural Chemicals, Inc.  
P.O. Box 300  
White Springs, Florida 32096

**PERMITTING AUTHORITY**

Air Permitting North Program  
Bureau of Air Regulation  
Division of Air Resource Management  
Florida Department of Environmental Protection



November 9, 2007

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

### 1. GENERAL PROJECT INFORMATION

#### Facility Description and Location

The applicant, White Springs Agricultural Chemicals, Inc., operates an existing phosphate complex, which processes phosphate rock to produce several products at the Suwannee River/Swift Creek Complex (two plants). The facility consists of one rock grinder, two phosphoric acid plants, two defluorinated phosphate (DFP) plants, one dical process, two diammonium phosphate (DAP) plants, one monoammonium (MAP)/DAP storage building, one MAP/DAP screen/shipping building, four sulfuric acid plants (SAP), two phosphoric acid filters, four superphosphoric acid plants, one green superphosphoric acid plant, the Swift Creek Mine rock dryer, and one acid clarification plant. The facility also has storage silos associated with the Swift Creek Mine and the DFP plant. The sulfuric acid is produced on-site by burning elemental sulfur, converting the resulting sulfur dioxide to sulfur trioxide, and absorbing it into a recirculating sulfuric acid solution. Phosphoric acid is made by acidulation of phosphate rock with sulfuric acid. Waste gypsum is produced and stacked. The phosphoric acid is reacted with ammonia to make MAP and DAP. The phosphoric acid is reacted with limestone and other raw materials to make animal feed ingredients.

The Standard Industrial Classification (SIC) code for this type of plant is SIC No. 2874. The facility is located at 15843 SE 78<sup>th</sup> Street, White Springs, Hamilton County. The project site is located about 25 kilometers from the Okefenokee National Wilderness Area, a Class I Area. The UTM coordinates of this facility are Zone 17; 328.3 km E; 3368.8 km N.

#### Regulatory Categories

This project is subject to the applicable environmental laws in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection (Department) to establish rules regarding air quality in the Florida Administrative Code (F.A.C.). The facility is classified according to the following major regulatory categories.

- The facility is a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source pursuant to Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The facility operates units subject to Rule 62-296.340 (BART), F.A.C., which requires a determination of the Best Available Retrofit Technology for each BART-eligible source as defined in 40 CFR 51.301.

#### Project Description

White Springs Agricultural Chemicals, Inc. submitted an application to satisfy the requirements of Rule 62-296.340 (BART), F.A.C., which addresses the following BART-eligible emissions units (EU).

EU No.	Emission Unit Description
001	# 2 Phosphate Rock Grinder
003	"A" DFP Plant
004	"X" Train (Dical Process)
008	"Y" Train - #1 DAP Plant
010	#1 MAP/DAP - Storage Building
015	MAP/DAP Shipping and Screening Facility
021	"C" SAP

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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specified in the BART determinations directly reduces PM emissions, which serves as a surrogate to also reduce PM<sub>10</sub> and PM<sub>2.5</sub> emissions.

### **BART Definition**

Pursuant to 40 CFR 51.301, *Best Available Retrofit Technology (BART)* means, "... an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by ... [a BART-eligible source]. The emission limitation must be established, on a case-by case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." In accordance with Rule 62-296.340(3), F.A.C., the Department shall determine BART for each affected source in an air construction permit.

### **BART Analysis Procedure**

There are five basic steps in the case-by-case BART analysis:

- Step 1. Identify all available retrofit control technologies. A comprehensive list of available technologies for analysis must be identified that includes the most stringent option and a reasonable set of available options. It is not necessary to list all permutations of available control levels that exist for a given technology. The list is complete if it includes the maximum level of control each technology is capable of achieving.
- Step 2. Eliminate technically infeasible options. Control technologies are technically feasible if either (1) they have been installed and operated successfully for the type of source under review under similar conditions, or (2) the technology could be applied to the source under review. "Availability" and "applicability" are two key concepts in determining whether a technology could be applied. A technology is considered "available" if the source owner may obtain it through commercial channels, or it is otherwise available within the common sense meaning of the term. An available technology is "applicable" if it can reasonably be installed and operated on the source type under consideration. A technology that is available and applicable is technically feasible.
- Step 3. Evaluate control effectiveness of remaining control technologies. There are two key issues in this process, including (1) expressing the degree of control in consistent terms to ensure an "apples-to-apples" comparison of emissions performance levels among options, and (2) giving appropriate treatment and consideration of control techniques that can operate over a wide range of emission performance levels.
- Step 4. Evaluate the impacts and document the results. The evaluation will consider the costs of compliance, energy impacts, non-air quality environmental impacts, and remaining useful life.
- Step 5. Evaluate visibility impacts. Use CALPUFF or other appropriate dispersion model to determine the visibility improvement expected at a Class I area from the potential BART control technology applied to the source. Note that if the most stringent BART control option available is selected, it is not necessary to conduct an air quality modeling analysis for the purpose of determining its visibility impacts.

**BART Determination:** In making a final BART determination, the following will be considered: (1) technically feasible options; (2) the average and incremental costs of each option; (3) the energy and non-air quality environmental impacts of each option; (4) the remaining useful life; and (5) the modeled visibility impacts. A justification for selecting a technology as the "best" level of control must be provided and include an explanation of these factors that led to the BART determination. When a BART determination is made for two regulated pollutants on the same source, if the result is two different BART technologies that do not work well together, it may be reasonable to substitute a different technology or combination of technologies.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

### Revised BART-Eligible Source List

The Department previously identified all BART-eligible sources through a series of notifications, workshops, and rule making efforts. To be considered BART eligible, a unit must have been constructed prior to August 7, 1977. During the processing of this application, the applicant provided additional supporting documentation that some of the previously identified BART-eligible emissions units were constructed after this deadline. Documentation included permit applications, correspondence, aerial photographs, etc. The following emissions units were removed from the BART-eligible source list for this facility.

Emissions Units Removed from the BART-Eligible Source List for White Springs Agricultural Chemicals, Inc.

EU No.	Emission Unit Description
020	'B' Phosphoric Acid Plant: This plant emits fluoride, which is controlled by two packed wet scrubbers. The plant is not a source of nitrogen oxides, particulate matter or sulfur dioxide emissions. Therefore, this plant should have been exempted from BART review.
034	South Phosphoric Acid Filters: This plant was constructed in 1979 and is not a BART-eligible source by definition.
035	North Phosphoric Acid Filters: This plant was constructed in 1979 and is not a BART-eligible source by definition.
036	"A" and "B" Superphosphoric Acid Plants: This plant was constructed in 1978 and is not a BART-eligible source by definition.
039	"C" Auxiliary Boiler: This plant was constructed in 1979 and is not a BART-eligible source by definition.
040	"D" Auxiliary Boiler: This plant was constructed in 1979 and is not a BART-eligible source by definition.
066	"E" SAP: This plant was constructed in 1979 and is not a BART-eligible source by definition.
067	"F" SAP: This plant was constructed in 1979 and is not a BART-eligible source by definition.
068	"E" Auxiliary Boiler: This plant was constructed in 1979 and is not a BART-eligible source by definition.
069	"D" Phosphoric Acid Plant: This plant was constructed in 1978 and is not a BART-eligible source by definition.
070	"C" and "D" Superphosphoric Acid Plants: This plant was constructed in 1979 and is not a BART-eligible source by definition.
071	Acid Clarification Plant: This plant was constructed in 1979 and is not a BART-eligible source by definition.
072	Molten Sulfur System for "E" and "F" Sulfuric Acid Plants: This plant was constructed in 1979 and is not a BART-eligible source by definition.

### Summary of Applicant's Initial Modeling Analysis

The CALPUFF model (Version 5.756) was used to predict the maximum visibility impairment at four PSD Class I areas located within 300 km of the White Springs Agricultural Chemicals facility. The nearest PSD Class I area is the Okefenokee National Wilderness Area (NWA), which is located approximately 25 km from the facility at the closest point. The other three Class I areas are: the St. Marks NWA, which is located approximately 142 km from the facility; the Wolf Island NWA, which is located approximately 172 km from the facility; and the Chassahowitzka NWA, which is located approximately 202 km from the facility. The CALPUFF modeling analysis followed the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) common protocol, version 3.2. The Department provided the applicant with 4-km "CALPUFF-ready" CALMET meteorological data for the period 2001-2003. Class I receptor locations were obtained from the National Park Service (NPS) and a Lambert Conformal Conic (LCC) coordinate system was used.

For the BART-eligible sources, the PM/PM<sub>10</sub>, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub> and NO<sub>x</sub> emission rates were determined from either stack test data or from proposed permit limits to reflect the maximum 24-hour average normal operation for the most recent 3 to 5 years. Emission rates of SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub> and NO<sub>x</sub> were input directly into the CALPUFF model

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

while the six particulate species in specific size categories were modeled as a unit emission rate of 1 gram/second and then scaled for each source by using the POSTUTIL program. CALPOST method 6 was used to compute the extinction change (visibility impairment) in deciviews (dv) consistent with procedures outlined in the VISTAS modeling protocol.

Based on the 24-hour visibility impairment values for 2001 to 2003, the 8<sup>th</sup> highest (98<sup>th</sup> percentile) and the 22<sup>nd</sup> highest values were determined. The Class I area with the highest predicted impacts is the Okefenokee NWA, which is the nearest to the facility. The maximum predicted impact is 3.065 dv. The 8<sup>th</sup> highest visibility impairment value for each of the three years is over the comparison threshold of 0.50 dv. The 22<sup>nd</sup> highest impairment is also over this value. In addition, there are 87, 93 and 91 days (2001 to 2003) predicted to have visibility impairment over 0.5 dv. These impacts may be higher because the applicant underestimated maximum SO<sub>2</sub> emission rates for the two BART-eligible sulfuric acid plants. The applicant conducted one set of CALPUFF modeling runs and did not compare pre-control with post-control permit limits.

### 3. BART ANALYSIS FOR PARTICULATE-ONLY EMISSIONS UNITS

This section provides the control technology review for BART-eligible emissions units that only emit particulate matter. All of these emissions units at the Suwannee River/Swift Creek Complex have existing control equipment. Many of these types of controls have been identified as the "top control option" for similar units within this industry, which satisfies Steps 1 through 4 in the BART analysis. In addition, it is not necessary to determine the visibility impacts if the top control is selected as BART.

#### Baghouse Controls

Baghouses use fabric materials to mechanically filter out particulate from an exhaust stream. These devices are capable of control efficiencies greater than 99.9%. As discussed in EPA's Air Pollution Control Technology Fact Sheet for Fabric Filters (EPA-452/F-03-025), "... Well-designed and operated baghouses have been shown to be capable of reducing overall particulate emissions to less than 0.05 grams/m<sup>3</sup> (0.010 grains/ft<sup>3</sup>), and in a number of cases, to as low as 0.002 to 0.011 grams/m<sup>3</sup> (0.001 to 0.005 grains/ft<sup>3</sup>)." With regard to controlling emissions of particulate matter, baghouses are generally considered the top controls along with electrostatic precipitators. Therefore, Steps 1 through 4 of the BART analysis are satisfied and it is not necessary to determine the visibility impacts.

#### #2 Phosphate Rock Grinder (EU-001)

The #2 phosphate rock grinder has a maximum 1-hour capacity of 45 tons/hour of rock. Emissions of particulate matter from this unit are currently controlled by a baghouse. From the original air construction permit and Rule 62-297.620, F.A.C., the current emissions standards are 22.03 lb/hour (96.5 tons per year) and less than 5% opacity from the baghouse exhaust. The initial test in 1976 showed actual emissions of 0.16 lb/hour based on the installed control equipment and the plant accepted a 5% opacity limit in lieu of annual stack testing. Based on the test data and unlimited operation (8760 hours per year), actual annual emissions are estimated to be 1.3 tons/year from the rock grinder. The baghouse is recognized as a top control option for controlling particulate matter. Therefore, the Department establishes the following BART determinations:

Visible emissions from the baghouse exhaust shall not exceed 5% opacity as determined by EPA Method 9.

Bags in the baghouse control system shall be selected based on a design outlet specification of 0.01 grains per actual cubic feet of exhaust.

Compliance shall be demonstrated by conducting annual visible emissions tests and maintaining records of the vendor data sheets demonstrating compliance with the baghouse specification. At a maximum volumetric flow rate of 5533 acfm, the potential emissions would be reduced from 96.5 to 2.1 tons/year.

#### X-Train Dical Process (EU-004)

In the X-Train dical process, limestone reacts with phosphoric acid in a pug mill. The resulting slurry is then

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dried in a direct contact rotary dryer fired with natural gas or fuel oil. The rotary dryer in the X-Train is controlled by a system of wet venturi and cyclonic scrubbers, which is discussed in a subsequent section. The dried solids are then screened to remove on-size product. The product size material is conveyed to storage. The over-sized and under-sized materials are crushed and recirculated to the pug mill. The following table summarizes the particulate matter emissions, controls and limits for each emissions point.

Summary of Emissions Points and Existing PM Limits for the X-Train Dical Process (EU-004)<sup>a</sup>

EU-004 EP No.	Description	Controls	PM Emissions <sup>b</sup>		Current Standards
			lb/hour	tons/year	
02	Dedust Bin	Baghouse	3.2	11.6	5% opacity
03	Shipping Area	Baghouse	2.3	8.4	5% opacity
04	Limestone Silo	Baghouse	0.77	2.8	5% opacity
05	Reclaim Bin	Baghouse	0.77	2.8	5% opacity
06	Material Handling	Baghouse	5.1	18.0	5% opacity

<sup>a</sup> This area also includes the X-Train with wet venturi and cyclonic scrubbers (EP-01), which is reviewed later in Section 4 with other combustion sources.

<sup>b</sup> The potential PM emissions rates are based on Permit No. 0470002-039-AC.

The baghouse is recognized as a top control option for controlling particulate matter. Therefore, the Department establishes the following BART determinations:

Visible emissions from the baghouse exhaust shall not exceed 5% opacity as determined by EPA Method 9.

Bags in the baghouse control system shall be selected based on a design outlet specification of 0.01 grains per actual cubic feet of exhaust.

Compliance shall be demonstrated by conducting annual visible emissions tests and maintaining records of the vendor data sheets demonstrating compliance with the baghouse specification.

### DFP Feed Prep (EU-042)

The DFP Feed Prep consists of: the feed prep area where the limestone, phosphate rock and other ingredients are mixed; the soda ash storage and handling system; and a limestone handling system. The soda ash system consists of a pneumatic transfer system that conveys soda ash from a vacuum railcar unloading hopper to a 330 ton storage silo. From this silo, soda ash is then transferred to a 20 ton soda ash bin/day tank. The limestone handling system consists of unloading limestone via truck into a 50 ton storage silo to a 3 ton limestone surge bin. These activities include the following emissions points (EP) and associated controls.

Summary of Emissions Points and Existing PM Limits for DFP Feed Prep (EU-042)\*

EU-042 EP No.	Description	Controls	Hours/Year	PM Emissions PTE, tons/year	Current Standards
01	Rock Bin	Baghouse	8760	< 1	5% opacity
02	Miscellaneous	Baghouse	8760	< 1	5% opacity
03	Lime Silo	Baghouse	8760	0.44	0.10 lb/hour and 5% opacity
04	Lime Bin	Bin Filter	8760	0.44	0.10 lb/hour and 5% opacity
06	Soda Ash Silo	Baghouse	1800	0.23	0.25 lb/hour and 5% opacity
07	Soda Ash Bin	Bin Filter	2700	0.027	0.02 lb/hour and 5% opacity

\* The DFP Feed Prep also includes a dryer with wet scrubber (EP-05) that is reviewed later in Section 4 with

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other combustion sources.

Although PM emissions standards are specified for EU-003, EU-004, EU-006 and EU-007, the plant has accepted a 5% opacity limit to avoid annual stack testing. As shown, the overall emissions from these activities are relatively small based on the existing controls. The baghouse is recognized as a top control option for controlling particulate matter. Therefore, the Department establishes the following BART determination:

Visible emissions from the baghouse exhaust shall not exceed 5% opacity as determined by EPA Method 9.

Bags in the baghouse control system shall be selected based on a design outlet specification of 0.01 grains per actual cubic feet of exhaust.

Compliance shall be demonstrated by conducting annual visible emissions tests and maintaining records of the vendor data sheets demonstrating compliance with the baghouse specification.

### DFP Product Silos (EU-062)

Emissions of particulate matter from the DFP Product Silos are controlled by five baghouses at the following emissions points: product sizing/crushing (EP-14); and silo A, silo B, silo C and the shipping operations (EP-16). The total potential emissions of particulate matter from this emissions unit are 3.75 tons per year. The current emissions standard for all points is a limit of 5% opacity on the baghouse exhaust. The baghouse is recognized as a top control option for controlling particulate matter. Therefore, the Department establishes the following BART determinations:

Visible emissions from the baghouse exhaust shall not exceed 5% opacity as determined by EPA Method 9.

Bags in the baghouse control system shall be selected based on a design outlet specification of 0.01 grains per actual cubic feet of exhaust.

Compliance shall be demonstrated by conducting annual visible emissions tests and maintaining records of the vendor data sheets demonstrating compliance with the baghouse specification.

### **Wet Control Equipment for Particulate Matter**

#### No. 1 Storage/Shipping Building (EU-010) and MAP/DAP Shipping Facility (EU-015)

Emissions of particulate matter are generated by the screening, handling and storage of products in the No. 1 Storage/Shipping Building and the MAP/DAP Shipping Facility. Each emissions unit is controlled by a wet scrubber due to the hygroscopic nature of the products (Monocal, Dical, DFP, DAP and MAP). These products absorb moisture and will plug the fabric materials used in a baghouse. Consequently, wet scrubbing is the appropriate control technology for these activities. The estimated control efficiency for the existing wet scrubbers is greater than 95%. The following table summarizes the emissions and controls for these units.

Summary of Current PM Limits for EU-010 and EU-015

EU No.	Controls	Hours/Year	PM Emissions tons/year	Current Standards
010	wet scrubber	8760	158.42	36.17 lb/hour and 5% opacity
015	cyclone with wet venturi scrubber	8760	177.00	40.41 lb/hour and 5% opacity

The above emissions limits are very high and based on regulation by the process weight table in Rule 62-296.320, F.A.C. However, annual testing is conducted to demonstrate compliance. The following table summarizes actual particulate matter emissions from these units based on recent stack test data.

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Summary of PM Test Data for EU-010 and 015

Date	EU-010 lb/hour	Date	EU-015 lb/hour
9/21/1978	2.4	9/24/1976	0.29
4/26/1979	5.96	9/26/1980	1.48
1/15/1980	9.3	10/18/1984	0.3
5/15/1980	9	8/20/1987	0.52
6/26/1985	4.88	9/28/1988	0.59
8/19/1987	10.39	12/6/1989	1.08
10/12/1988	4.11	9/6/1990	1.16
10/19/1989	1.73	11/20/1991	1.15
9/28/1990	1.43	8/26/1992	0.24
11/7/1991	6.18	7/27/1995	1.28
11/12/1992	1.7	6/28/1996	1.15
2/15/1995	1.37	9/13/2000	0.27
6/28/1996	1.15	2/11/2005	0.6
7/18/1997	1.48		
12/9/1998	0.44		
12/9/1999	0.25		
8/21/2000	0.45		
9/26/2002	1.09		
10/8/2003	0.85		
11/10/2004	0.24		
12/7/2005	0.35		
3/29/2006	0.41		
4/4/2007	0.38		

A statistical analysis using the available data indicates the following emissions rates based on a 99% confidence interval: **proposed limits:**

No. 1 Storage/Shipping Building (EU-010): 4.7 lb/hour (equivalent to 20.6 tons/year)

MAP/DAP Shipping Facility (EU-015): ~~1.2~~ <sup>1.46</sup> lb/hour (equivalent to ~~5.3~~ <sup>6.4</sup> tons/year)

As shown, actual emissions are much lower than the permitted emissions limits and reflect good control by the installed wet scrubbers. Therefore, the Department will establish the above emissions rates as the BART determinations for these units. Potential emissions of particulate matter will be reduced: from 158 to 20.6 tons per year for the No. 1 Storage/Shipping Building (EU-010); and from 177 to 5.3 tons per year for the MAP/DAP Shipping Facility (EU-015). ~~Based on these new standards, it will be necessary to develop new excursion levels for the scrubber parameters in the Compliance Assurance Monitoring (CAM) plan.~~

'A' and 'B' DFP Coolers (EU No. 044)

Emissions of particulate matter from the 'A' and 'B' DFP Coolers are controlled by a cyclonic wet scrubber that exhausts through a common stack. For a wet gas stream, baghouse is not a feasible control technology because



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of plugging and blinding of the fabric bags. The current emissions limits for particulate matter are 25.04 lb/hr and 105.17 tons per year. Annual testing is conducted to demonstrate compliance with the standards. The following table summarizes actual particulate matter emissions from these units based on recent stack test data.

Summary of PM Test Data for EU-044

Date	Tested Emissions lb/hour (EU-044)
2/13/1985	5.82
2/26/1986	8.76
2/25/1987	8.09
12/16/1987	2.79
2/23/1989	16.457*
3/10/1989	8.054
2/8/1990	5.114
8/14/1991	14.56
2/12/1992	8.28
4/7/1993	7.495
3/31/1994	5.94
3/8/1995	8.79
3/8/1996	9.65
3/7/1997	8.65
3/25/1998	7.33
3/29/2000	10.39
3/158/2001	12.77
4/3/2002	8.99
2/26/2003	16.11
4/28/2004	14.15
3/3/2005	20.9

\* This test result appeared high and apparently failed. It was not included in the statistical analysis.

*Proposed limit: 17.5 lb/hr*  
A statistical analysis using the available data indicates an emissions rate of 12.3 lb/hour (equivalent to 53.9 tons/year) based on a 99% confidence interval. As shown, actual emissions are much lower than the permitted emissions limits and reflect good control by the installed wet scrubbers. Therefore, the Department will establish this emissions rate as the BART determination for the 'A' and 'B' DFP Coolers. Potential emissions of particulate matter will be reduced from 105 to 53.9 tons per year. Based on the new standard, it will be necessary to develop new excursion levels for the scrubber parameters in the CAM plan.

Swift Creek Mine Silos (EU No. 065)

*76.7*

The Swift Creek Mine silos store raw materials. A wet scrubber is used to control particulate matter emissions from the silos and conveyor system. The existing wet scrubber is the appropriate control technology for the nature of the material handled and the specific process design used to capture the raw material in the scrubber water. The permitted PM emissions limit is 46.40 lb/hour (equivalent to 203.20 tons/year). This emissions limit is based on regulation by the process weight table in Rule 62-296.320, F.A.C. However, annual testing is

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

conducted to demonstrate compliance. The following table summarizes actual particulate matter emissions from these units based on recent stack test data.

Summary of PM Test Data for EU-065

Date	Tested Emissions lb/hour (EU-065)
7/1/1999	0.97
6/1/2000	0.67
5/30/2001	1.38
6/11/2002	2.13
5/14/2003	4.67
7/7/2004	3.08
2/9/2005	6.32

6.27

~~A statistical analysis using the available data indicates an emissions rate of 5.7 lb/hour (equivalent to 25 tons/year) based on a 99% confidence interval. As shown, actual emissions are much lower than the permitted emissions limits and reflect good control by the installed wet scrubbers. Therefore, the Department will establish 5.7 lb/hour as the PM BART determination for the 'A' and 'B' DFP Coolers. Potential emissions of particulate matter will be reduced from 203 to 25 tons per year. Based on the new standard, it will be necessary to develop new excursion levels for the scrubber parameters in the CAM plan.~~

27.5

**4. BART ANALYSIS FOR COMBUSTION SOURCES**

**'A' DFP Plant (EU-003) and 'B' DFP Plant (EU-038)**

There are two existing plants ('A' and 'B') for the production of defluorinated phosphate (DFP). Emissions of particulate matter and sulfur dioxide from these plants are controlled by separate cross-flow packed wet scrubbers utilizing caustic solutions. Only natural gas is fired in these plants.

NOx Emissions

Based on Annual Operating Reports from 2002 to 2006, the highest reported actual NO<sub>x</sub> emissions were 29 tons/year from the 'A' DFP Plant and 29 tons/year from the 'B' DFP Plant. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible, but would not be cost effective. Therefore, the BART determination is the current combustion design and the sole firing of natural gas.

*assumed based AP-42 and other factor*  
*See item 2 comments to TRAD*

PM Emissions

The estimated particulate matter control efficiency for the cross-flow packed wet scrubber is greater than 95%. The current PM emissions limits for each plant are 14.05 lb/hour (equivalent to 59.00 tons per year). The following table summarizes actual particulate matter from each plant based on stack test data.

Summary of Tested PM Emissions from 'A' and 'B' DFP Plants

'A' DFP Plant (EU-003)		'B' DFP Plant (EU-038)	
Test Date	lb/hour	Test Date	lb/hour
8/10/1978	4.7	5/31/1985	11.63
4/10/1985	11.82	10/9/1985	7.64

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'A' DFP Plant (EU-003)		'B' DFP Plant (EU-038)	
Test Date	lb/hour	Test Date	lb/hour
11/20/1985	7.12	5/12/1986	10.18
4/23/1986	7.16	4/1/1987	6.2
10/1/1986	14.46*	10/1/1987	10.72
3/11/1987	10.09	3/16/1988	10.05
5/6/1987	9.34	11/3/1988	8.04
10/14/1987	8.67	8/9/1989	7.89
6/8/1988	11.97	3/21/1990	5.24
12/7/1988	6.66	9/13/1990	8.66
8/3/1989	7.54	5/1/1991	9.6
6/5/1990	7.04	10/23/1991	6.46
12/12/1990	8.15	5/20/1992	7.47
5/1/1991	9.67	3/10/1993	11.51
9/26/1991	6.63	3/31/1993	9.25
3/20/1992	7.51	11/10/1993	6.47
9/23/1992	10.42	5/4/1995	13.14
5/12/1993	10.46	2/23/1996	11.84
4/27/1994	7.91	2/26/1997	7.04
3/1/1995	7.91	3/4/1998	10.88
2/14/1996	6.8	3/31/1999	10.55
11/21/1996	8.05	3/31/1999	1.7 <sup>#</sup>
11/19/1997	11.08	2/21/2001	6.43
10/7/1998	13.88	2/1/2002	7.82
10/7/1999	10.94	4/30/2003	9.46
2/24/2000	8.37	6/9/2004	7.94
11/15/2000	7.83	5/25/2005	11.06
3/21/2001	6.28		
4/17/2002	13.26		
5/7/2003	8.3		
6/23/2004	8.12		
6/15/2005	6.56		

\* This test result appeared high and apparently failed. It was not included in the statistical analysis.

# This test result was obtained at less than permitted capacity and was not included in the statistical analysis.

~~A statistical analysis using the available data based on a 99% confidence interval indicates an emissions rate of 9.8 lb/hour for the 'A' DFP Plant and 10.1 lb/hour for the 'B' DFP Plant.~~ As shown, actual emissions are much lower than the permitted emissions limits and reflect good control by the installed wet scrubbers. In addition, the following Best Available Control Technology (BACT) determinations were made within the last ten years for two similar animal feed supplement plants at other facilities in Florida.

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- ☐ PSD-FL-315 issued on November 21, 2001 to Cargill Fertilizer Riverview facility for the animal feed ingredient plant (13 lb/hour);
- ☐ PSD-FL-244 issued on September 11, 1998 to IMC New Wales facility for the multifos plant (14.3 lb/hour); and
- ☐ PSD-FL-234 issued on June 12, 1997 to Cargill Fertilizer Riverview facility for the animal feed ingredient plant (6 lb/hour).

In each of the above projects, cross-flow packed wet scrubbers were the basis of the BACT determinations for controlling emissions of fluorides and particulate matter. At the actual controlled emissions levels identified by the test data for these units, add-on controls are not believed to be cost effective. Therefore, the Department establishes the following BART determinations for the 'A' and 'B' DFP Plants.

Particulate matter emissions shall not exceed <sup>17.1</sup>10.1 lb/hour.

~~Potential emissions of particulate matter will be reduced from 59 to 44.2 tons per year.~~ Based on the new standard, it will be necessary to develop new excursion levels for the scrubber parameters in the CAM plan.

### SO<sub>2</sub> Emissions

The current SO<sub>2</sub> emissions limit for each plant is 8.0 lb/hour (equivalent to 35 tons per year). Annual testing is conducted to demonstrate compliance with the limits. The following table summarizes actual particulate matter from each plant based on stack test data.

Summary of Tested SO<sub>2</sub> Emissions from 'A' and 'B' DFP Plants

'A' DFP Plant (EU-003)		'B' DFP Plant (EU-038)	
Test Date	lb/hour	Test Date	lb/hour
12/11/97	0.294	02/26/97	0.042
10/07/98	0.639	03/04/98	0.218
10/07/99	0.638	03/31/99	0.395
02/24/00	0.197	02/21/01	0.045
11/15/00	0.211	02/01/02	0.371
03/21/01	0.227	05/08/03	0.570
04/17/02	0.234	---	---
05/09/03	0.477	---	---

These emissions rates are much lower than the current SO<sub>2</sub> emissions limits based on the installed controls. Actual emissions are approximately one-tenth of the permitted levels. A statistical analysis using the available data indicates an emissions rate of 1 lb/hour based on a 99% confidence interval. The data indicates that the existing cross-flow packed wet scrubber utilizing caustic solutions is effective in controlling sulfur dioxide.

As previously mentioned in the discussion regarding PM emissions, a BACT determination was made for the IMC New Wales facility in 1998, which also included an SO<sub>2</sub> BACT determination of 8.7 lb/hour (based on a cross flow packed wet scrubber utilizing caustic solution for greater than 98% SO<sub>2</sub> removal. This previous recent determination recognizes this technology as a top control. Based on the actual SO<sub>2</sub> emissions levels, add-on control equipment (e.g., wet flue gas desulfurization, hydrated lime injection, etc.) may be feasible, but would not be cost effective. Therefore, the Department establishes the following BART determinations for the 'A' and 'B' DFP Plants.

Sulfur dioxide emissions shall not exceed 2.0 lb/hour as determined by EPA Method 6 or 6C.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

To minimize sulfur dioxide emissions, only natural gas shall be fired in these units.

Potential emissions of sulfur dioxide will be reduced from 35 to 9 tons per year.

### X-Train Dical Process (EU-004), Rotary Dryer

In the X-Train dical process, limestone reacts with phosphoric acid in a pug mill. The resulting slurry is then dried in a direct contact rotary dryer, which fires natural gas as the primary fuel and fuel oil with a maximum sulfur content of 1.5% by weight as a backup fuel. The X-Train produces dicalcium phosphate (Dical) in one of two modes: 18.5% phosphorous (Mode 1) and 21.0% phosphorous (Mode 2). The combustion of fossil fuels generates emissions of particulate matter, nitrogen oxides and sulfur dioxide.

#### NO<sub>x</sub> Emissions

Based on Annual Operating Reports from 2002 to 2006, the highest reported ~~actual~~ NO<sub>x</sub> emissions were 18 tons/year. Only natural gas was fired. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible, but would not be cost effective. Therefore, the BART determination is the current combustion design and the firing of natural gas as the primary fuel.

*see item 2  
comments  
to TEPO*

#### PM Emissions

Particulate matter emissions from the rotary dryer are controlled by a series of wet venturi and cyclonic scrubbers. The current PM emissions limits for the rotary dryer are 46.11 lb/hour (equivalent to 202 tons/year) for Mode 1 and 45.11 lb/hour (equivalent to 198 tons/year) for Mode 2. Annual testing is conducted to demonstrate compliance. The following table summarizes actual particulate matter emissions from these units based on recent stack test data in both modes.

Summary of Tested PM Emissions from  
X-Train (EU-004), Rotary Dryer

Test Date	lb/hour (EU-004)
8/30/1978	7.37
3/11/1982	12.33
5/23/1985	13.63
3/5/1987	2.65
2/25/1988	6.82
9/9/1988	6.82
3/15/1989	6.08
4/5/1990	8.02
7/26/1990	9.26
3/6/1991	9.98
3/6/1992	4.74
5/27/1992	8.57
6/9/1993	8.15
12/22/1993	11.27
6/15/1994	8.96
5/12/1995	7.74
12/19/1995	14.46

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Test Date	lb/hour (EU-004)
5/8/1996	7.13
7/17/1996	11.47
5/22/1997	9.77
10/22/1997	15.02
7/9/1998	6.91
11/18/1998	8.38
7/15/1999	6.78
4/11/2000	13.3
6/29/2000	6.78
2/14/2001	12.21
3/27/2002	10.01
3/13/2003	24.71
4/8/2004	10.8
5/5/2005	12.48
10/12/2006	16.01
2/14/2007	12.36
10/17/2007	6.44

In general, these emissions rates are lower than the current PM emissions limits and reflect the capabilities of the installed wet venturi and cyclonic scrubbers. ~~A statistical analysis using the available data indicates an emissions rate of 11.8 lb/hour based on a 99% confidence interval.~~

In November of 2000, the Department issued a BACT determination (PSD-FL-297) for this unit to increase the production rate of the X-Train from 45 to 55 tons per hour of product. Later, the applicant decided not to implement the production increase due to market conditions. However, in this determination, the Department considered the existing control equipment as the basis for a BACT standard of 22.04 lb/hour and 96.5 tons per year of particulate matter.

Based on the recent BACT determination for this unit and the actual controlled emissions levels, the existing scrubbing system is recognized as a top control option for the rotary dryer. Therefore, the Department establishes the following PM BART determination.

Particulate matter emissions from the X-Train rotary dryer (all modes) shall not exceed ~~11.8~~<sup>18</sup> lb/hour as determined by EPA Method 5.

Potential emissions of particulate matter will be reduced from 400 to ~~52~~<sup>79</sup> tons per year. ~~Based on the new standard, it will be necessary to develop new excursion levels for the scrubber parameters in the CAM plan.~~

**SO<sub>2</sub> Emissions**

The current SO<sub>2</sub> emissions limits for the rotary dryer are 11.1 lb/hour (equivalent to 48.62 tons/year). Records based on the Annual Operating Reports show that only natural gas has been fired since 1985. Based on the actual SO<sub>2</sub> emissions levels, add-on control equipment (e.g., wet flue gas desulfurization, hydrated lime injection, etc.) may be feasible, but would not be cost effective. Therefore, the BART determination for SO<sub>2</sub> emissions is:

Natural gas shall be fired as the primary fuel in the X-Train dryer. Fuel oil with a maximum sulfur content of 1.5% by weight shall only be fired as a backup fuel when the vendor is unable to provide natural gas.

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**Y-Train No. 1 DAP/MAP Plant (EU-008)**

In the Y-Train DAP/MAP Plant, DAP fertilizer may be produced by two different modes and MAP fertilizer may be produced by three different modes. The plant operates in only one mode at a time. The plant is currently producing MAP by reacting ammonia and phosphoric acid in two pipe reactors. The plant consists of two separate pipe reactors, a tank reactor for other modes, two pug mills, a granulator, a dryer, a cooler, screens, mills, and other associated equipment. Natural gas is fired in the dryer as the primary fuel and fuel oil with a maximum sulfur content of 1.5% by weight may be fired as a backup fuel. Emissions of particulate matter, fluoride and SO<sub>2</sub> are controlled by cyclones, venturi scrubbers and cyclonic scrubbers. Emissions from the pipe reactors are vented to the reactor scrubber for ammonia removal and then to a pond water scrubber for fluoride control.

NOx Emissions

Based on Annual Operating Reports from 2002 to 2006, the highest reported actual NO<sub>x</sub> emissions were 6 tons/year. Only natural gas was fired. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible, but would not be cost effective. Therefore, the BART determination is the current combustion design and the firing of natural gas as the primary fuel.

*see item 2  
comments  
to TAPP*

PM Emissions

The current particulate matter emissions limits for the Y-Train No. 1 DAP/MAP Plant are:

- PM (DAP production): 33.33 lb/hour (equivalent to 146 tons/year); and
- PM (MAP production): 45.15 lb/hour (equivalent to 198 tons/year).

The PM emissions limits are very high and based on regulation by the process weight table in Rule 62-296.320, F.A.C. However, annual testing is conducted to demonstrate compliance. The following table summarizes actual particulate matter emissions from these units based on recent stack test data.

Summary of Tested PM Emissions from the Y-Train DAP/MAP Plant (EU-008)

Tested PM Emissions (EU-008), lb/hour		
Test Date	DAP	MAP
2000	4.46	---
2001	Down	---
2002	Down	---
2003	3.33	---
2004	Down	3.44
		4.26
		5.70
2005	11.46	Down
2006	Down	3.2
		3.81
		4.37
2007	Down	1.18
		1.96
		2.22

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

These emissions rates are much lower than the current PM emissions limits based on the installed controls. Using all of the above data, a statistical analysis indicates an emissions rate of 6.5 lb/hour based on a 99% confidence interval. In addition, several similar DAP/MAP Plants at other facilities in Florida have been subject to PSD preconstruction review. The following summarizes the resulting PM BACT determinations for these projects:

- Permit No. PSD-FL-251 was issued on August 8, 2001 to Cargill Fertilizer Riverview facility for the Nos. 3 and 4 MAP plants. The PM BACT emissions limit was established as 0.12 lb/ton P<sub>2</sub>O<sub>5</sub> feed.
- Permit No. PSD-FL-255 was issued on April 21, 1999 to Cargill Fertilizer Bartow facility for the No. 3 DAP/MAP plant. The PM BACT emissions limit was established as 0.18 lb/ton P<sub>2</sub>O<sub>5</sub> feed.
- Permit No. PSD-FL-322 was issued on March 2, 2002 to Cargill Fertilizer Bartow facility for the No. 4 DAP plant. The PM BACT emissions limit was established as 0.15 lb/ton P<sub>2</sub>O<sub>5</sub> feed.
- Permit No. PSD-FL-336 was issued on March 16, 2004 to Cargill Fertilizer Riverview facility for the No. 6 Granulation plant. The PM BACT emissions limit was established as 0.15 lb/ton P<sub>2</sub>O<sub>5</sub> feed.

All of the above BACT determinations were based on the use of venturi scrubbers and cyclonic scrubbers for particulate control. Therefore, the Department recognizes this equipment as a top control option and establishes the following BART standards.

PM (MAP/DAP production): 0.18 lb/ton of P<sub>2</sub>O<sub>5</sub> feed and 6.5 lb/hour (equivalent to 29 tons/year)

These limits would apply for all modes. The BART determinations are within the range of the recent BACT determinations. Total potential PM emissions will be reduced from 198 to 29 tons/year.

### SO<sub>2</sub> Emissions

The current SO<sub>2</sub> emissions limits for the dryer are 11.1 lb/hour (equivalent to 49) tons/year, which appear to be based on fuel oil firing. However, no testing is required. Natural gas is fired as the primary fuel. Fuel oil with a maximum sulfur content of 1.5% by weight is authorized as a backup fuel. A review of the fuel usage for the years 2000-2006 for the Y-Train indicates that only natural gas was fired. Natural gas contains negligible amounts of sulfur would generate little sulfur dioxide. Based on the actual SO<sub>2</sub> emissions levels, add-on control equipment (e.g., wet flue gas desulfurization, hydrated lime injection, etc.) may be feasible, but would not be cost effective. Therefore, the Department establishes the following BART determination.

To control sulfur dioxide emissions from the Y-Train dryer, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.5% by weight may be fired as a backup fuel.

### **“C” and “D” Sulfuric Acid Plants (EU-021 and EU-022)**

The ‘C’ and ‘D’ sulfuric acid plants are sulfur-burning double absorption processes. This is the most common process for producing sulfuric acid in the U.S. phosphate fertilizer industry and it continues to be improved and employed at both existing and new installations in the U.S. and throughout the world. These plants generate NO<sub>x</sub> and SO<sub>2</sub> emissions from the burning of sulfur.

### NO<sub>x</sub> Emissions

Based on Annual Operating Reports, <sup>estimated</sup> NO<sub>x</sub> emissions were last reported in 2000 as 60 tons/year for each of the sulfuric acid plants. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible, but would not be cost effective. ~~The existing ‘E’ Sulfuric Acid Plant (EU-006) at this facility is a similar double-absorption plant with a NO<sub>x</sub> limit of 0.14 lb/ton of 100% acid produced.~~ Therefore, the Department establishes the following BART determination.



**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

*(or) if requested by Department*

Nitrogen oxides emissions (expressed as NO<sub>x</sub>) from the 'C' and 'D' Sulfuric Acid Plants (EU-021 and EU-022) shall not exceed 0.14 lb/ton of 100% acid produced as determined by EPA Method 7E.

*estimated based on the amount of 100% sulfuric acid produced and an emissions factor of*

**PM Emissions**

For regulated sulfuric acid plants, particulate matter is generally minimized by controlling sulfuric acid mist. For new sulfuric acid plants, Rule 62-296.402, F.A.C. and NSPS Subpart H, limit sulfuric acid mist emissions to 0.15 lb/ton of 100% sulfuric acid produced and less than 10% opacity. The 'C' and 'D' Sulfuric Acid Plants (EU-021 and EU-022) are subject to these standards and a Brinks mist eliminator is used to reduce sulfuric acid mist emissions. Therefore, the Department establishes the following PM BART determination.

*see item comments to TEPD*

Visible emissions from the 'C' and 'D' Sulfuric Acid Plants shall not exceed 10% opacity as determined by EPA Method 9.

**SO<sub>2</sub> Emissions**

Permitted sulfur dioxide emissions are 4.0 lb/ton (383.33 lb/hour) based on a 3-hour CEMS average (equivalent to and 1679 tons/year). The double absorption process controls SO<sub>2</sub> emissions and a high efficiency mist eliminator controls sulfuric acid mist emissions. There are four recent SO<sub>2</sub> BACT determinations for three similar plants at other facilities in Florida:

- PSD-FL-355 issued on July 23, 2007 to CF Industries, Inc. for the sulfuric acid and phosphoric acid plants (3.5 lb/ton, 3-hour CEMS average);
- PSD-FL-339 issued on June 1, 2004 to CF Industries, Inc. for the C & D sulfuric acid plants (3.5 lb/ton, 3-hour CEMS average);
- PSD-FL-325 issued on July 12, 2002 to IMC Phosphates, Inc. New Wales facility for Nos. 1, 2 and 3 sulfuric acid plants (3.5 lb/ton on a 24-hour CEMS average and 4.0 lb/ton on a 3-hour average); and
- PSD-FL-315 issued on November 21, 2001 to Cargill Fertilizer Riverview facility for #8 and 9 sulfuric acid plants (3.5 lb/ton on a 24-hour CEMS average and 4.0 lb/ton on a 3-hour average).

In Permit No. PSD-FL-355 above, the BACT determination was for a single absorption plant where the plant accepted the BACT standard based on a double absorption process. The remaining projects concluded BACT to be the use of double absorption process for SO<sub>2</sub> emissions. Therefore, the Department recognizes this equipment as a top control option. In addition, the Department reviewed CEMS data for the two plants for the period 1/1/2006 through 12/31/2006. The CEMS data indicates that the plants consistently achieved an emissions rate of 3.5 lb/ton with few excursions above this level while operating near the permitted production rates. Therefore, the Department establishes the following BART standard based on the use of double absorption process for each plant.

Sulfur dioxide emissions from the 'C' and 'D' Sulfuric Acid Plants shall not exceed 3.5 lb/ton (335.4 lb/hour) based on a 24-hour CEMS rolling average.

Since the CEMS data indicates that there were some instances of SO<sub>2</sub> emissions greater than 3.5 lb/ton, the applicant may need to modify the plants (e.g., add catalyst, replace catalyst, increase the size of the converter, etc.). However, with an effective date of 2013, this is readily achievable. Potential SO<sub>2</sub> emissions will be reduced from 1679 to 1469 tons/year.

**Z-Train No. 2 DAP/MAP Plant (EU-032)**

In the Z-Train DAP/MAP Plant, DAP fertilizer may be produced by two different modes and MAP fertilizer may be produced by two different modes. The plant is currently producing only DAP. The Z-Train has two emissions points. Emissions from the granulator and dryer are controlled by a venturi scrubber and cyclonic scrubbers followed by a tail-gas packed scrubber and exhaust through a stack. Emissions from the cooler exit a separate stack after control by a wet scrubber. All the scrubbers are wet scrubbers with phosphoric acid and

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

pond water acting as the scrubbing medium. Process fuels include natural gas and fuel oil (including on-specification used oil) with a maximum sulfur content of 1.0% by weight.

### NO<sub>x</sub> Emissions

Based on Annual Operating Reports from 2002 to 2006, the highest reported actual NO<sub>x</sub> emissions were 7 tons/year. Only natural gas was fired. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible, but would not be cost effective. Therefore, the BART determination is the current combustion design and the firing of natural gas as the primary fuel.

*see item 2  
comments to  
TEPD*

### PM Emissions

The current PM emissions limit is 47.37 lb/hour (equivalent to 207 tons/year) from the dryer for DAP/MAP production. The PM emissions limits are very high and based on regulation by the process weight table in Rule 62-296.320, F.A.C. However, annual testing is conducted to demonstrate compliance. The following table summarizes actual particulate matter emissions from these units based on recent stack test data.

Summary of Tested PM Emissions from the Z-Train DAP/MAP Plant (EU-032)

Tested PM Emissions (EU-032)	
Test Date	lb/hour
7/20/1978	24.2
1/4/1979	19.76
8/25/1980	5.77
6/24/1981	4.11
7/6/1981	7.75
4/29/1985	12.99
6/26/1986	10.59
7/23/1987	34.4
1/27/1988	5.74
8/3/1988	5.81
2/8/1989	1.06
9/20/1989	4.7
4/25/1990	10.29
10/24/1990	3.33
4/11/1991	3.8
12/18/1991	5.99
6/17/1992	5.72
4/29/1993	4.01
12/9/1993	7.38
7/14/1994	3.6
4/26/1995	3.16
10/19/1995	47.37*
4/25/1996	4.23

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

Tested PM Emissions (EU-032)	
Test Date	lb/hour
10/17/1996	3.99
4/16/1997	2.59
6/10/1998	3.45
12/16/1998	1.55
6/15/1999	7.48
6/18/1999	3.61
6/14/2000	6.69
12/4/2001	3.47
1/15/2003	1.79
1/21/2004	2.09
1/27/2005	4.84
6/10/2005	2.19
4/6/2006	2.81
5/5/2006	3.18
6/9/2006	2.37
6/14/2006	1.43
5/3/2007	5.95

\* This test result appeared high and apparently failed. It was not included in the statistical analysis.

These emissions rates are much lower than the current PM emissions limits and reflect the installed controls. ~~statistical analysis using the available data indicates the following emissions rate based on a 99% confidence interval.~~ *Proposed limits:*

PM (DAP production): 0.22 lb/ton of P<sub>2</sub>O<sub>5</sub> feed and 9.2 lb/hour (equivalent to 40 tons/year)

As previously discussed, several similar DAP/MAP Plants at other facilities in Florida have been subject to PSD preconstruction review. These BACT determinations were based on the use of wet venturi scrubbers and cyclonic scrubbers for particulate control and ranged from 0.15 to 0.18 lb/ton of P<sub>2</sub>O<sub>5</sub> feed. Therefore, the Department recognizes this equipment as a top control option and establishes the following PM BART determination.

PM (DAP production): 0.22 lb/ton of P<sub>2</sub>O<sub>5</sub> feed and 9.2 lb/hour (equivalent to 40 tons/year)

The proposed standard is near the range determined to be BACT for this process. Based on the BART determinations, potential SO<sub>2</sub> emissions will be reduced from 207 tons/year to 40 tons/year.

In addition to the dryer, this emissions unit includes a small cooler that was a later addition to the Z-Train. Particulate matter emissions are controlled by a wet scrubber. The application for air construction permit (No. 0470002-032-AC), indicated that potential controlled PM emissions are less than 15 tons/year. The current permit limits visible emissions from the cooler to no more than 20% opacity. There is no actual emissions data for this unit. Based on the amount of potential emissions, the wet scrubber will be considered a top control for the cooler. The Department establishes the following PM BART determination for cooler.

Visible emissions from the Z-Train dryer and cooler shall not exceed 20% opacity as determined by EPA Method 9.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

### SO<sub>2</sub> Emissions

The current SO<sub>2</sub> emissions limits for the plant are 11.80 lb/hour (equivalent to 52 tons/year). However, no testing is required. Compliance is demonstrated by the firing natural gas and achieving the fuel sulfur limitation of 1.5% by weight for fuel oil. A review of the fuel usage for the years 2000-2006 for the Y Train indicates that only natural gas was fired, which would generate negligible amounts of SO<sub>2</sub> emissions. Based on primary fuel fired and the actual SO<sub>2</sub> emissions levels, add-on control equipment (e.g., wet flue gas desulfurization, hydrated lime injection, etc.) may be feasible, but would not be cost effective. Therefore, the Department establishes the following SO<sub>2</sub> BART determination:

Natural gas shall be fired as the primary fuel in the Z-Train dryer (EU-032). If the vendor is unable to provide natural gas, fuel oil or on-specification used oil with a maximum sulfur content of 1.0% by weight may be fired as a backup fuel.

### **DFP Feed Prep (EU-042) - Dryer (EP-05)**

To provide the heat necessary to dry raw materials, the dryer in the DFP Feed Prep fires natural gas or fuel oil with a maximum sulfur content of 1.50% by weight. Emissions from the dryer include NO<sub>x</sub>, PM and SO<sub>2</sub> from fuel combustion and additional PM from the materials being dried.

### NO<sub>x</sub> Emissions

Based on Annual Operating Reports from 2002 to 2006, the highest reported actual NO<sub>x</sub> emissions were 7 tons/year from the combustion of natural gas. No fuel oil was fired. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible, but would not be cost effective. Therefore, the BART determination is the current combustion design and the firing of natural gas as the primary fuel.

*see item 2  
comment  
to TERC*

### PM Emissions

Particulate matter emissions from the dryer are controlled by an existing wet scrubber with an estimated control efficiency of greater than 95%. For the construction of this emissions unit, the plant did not consider a baghouse appropriate for the high-moisture exhaust, which may cause plugging and blinding of the fabric materials. As a result, a wet scrubber was installed. Currently, the particulate matter emissions limit for the dryer is 31.99 lb/hour (equivalent to 134 tons/year). Again, the particulate matter emissions limits are very high and based on regulation by the process weight table in Rule 62-296.320, F.A.C. Annual testing is conducted to demonstrate compliance with the limits. The following table summarizes actual particulate matter emissions from the dryer based on recent stack test data.

Summary of PM Test Data for Dryer  
in DFP Feed Prep (EU-042, EP-05)

Date	Tested Emissions lb/hour (EU-42, EP-05)
11/8/1984	4.72
11/13/1985	9.35
10/23/1986	1.15
10/8/1987	3.14
10/26/1988	4.43
10/26/1989	11.51
12/10/1990	2.49
10/31/1991	3.87
10/7/1992	1.54

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

Date	Tested Emissions lb/hour (EU-42, EP-05)
10/20/1993	0.75
12/1/1994	0.64
12/12/1995	0.59
11/12/1997	1.25
10/1/1998	0.83
9/30/1999	0.42
8/16/2000	1.33
8/15/2001	1.11
8/14/2003	1.11
8/27/2003	0.84
8/26/2004	0.98

As shown, the actual emissions rates based on the installed controls are much lower than the permitted emissions limit. ~~A statistical analysis using the available data indicates an emissions rate of 4.5 lb/hour based on a 99% confidence interval.~~ At the currently controlled emissions levels, add-on controls are not believed to be cost effective. Therefore, the Department establishes the following PM BART determination for the dryer.

Particulate matter emissions from the DFP Feed Prep Dryer (EU-042, EP-05) shall not exceed 4.5 lb/hour as determined by EPA Method 5.

Potential emissions of particulate matter will be reduced from 134 to 20 tons per year. Based on the new standard, it will be necessary to develop new excursion levels for the scrubber parameters in the CAM plan.

SO<sub>2</sub> Emissions

The current SO<sub>2</sub> emissions limits are 4.9 lb/hour (equivalent to 21 tons per year), which are based on the firing of fuel oil. Records based on the Annual Operating Reports show that only natural gas has been fired since 1985, which would generate minimal SO<sub>2</sub> emissions. Based on the actual SO<sub>2</sub> emissions levels, add-on control equipment (e.g., wet flue gas desulfurization, hydrated lime injection, etc.) may be feasible, but would not be cost effective. Therefore, the Department establishes the following BART determination for the dryer.

Natural gas shall be fired as the primary fuel in the DFP Feed Prep Dryer (EU-042, EP-05). If the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.5% by weight may be fired as a backup fuel.

**Swift Creek Mine (SCM) Rock Dryer (EU No. 064)**

The Swift Creek Mine operates a fluidized bed phosphate rock dryer fired primarily with natural gas. When natural gas is not available, the rock dryer may fire fuel oil with maximum sulfur content of 1.3% by weight or on-specification used oil with maximum sulfur content of 1.0% by weight.

NO<sub>x</sub> Emissions

Based on Annual Operating Reports from 2002 to 2006, the highest reported actual NO<sub>x</sub> emissions were 2 tons/year. Only natural gas was fired. Based on the actual NO<sub>x</sub> emissions levels, add-on control equipment (e.g., selective catalytic reduction, selective non-catalytic reduction, flue gas recirculation, etc.) may be feasible but would not be cost effective. Therefore, the NO<sub>x</sub> BART determination is the current combustion design and the firing of natural gas as the primary fuel.

*See item 2  
comments  
to TEPO*

PM Emissions

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Particulate matter emissions are controlled by a two-stage wet cyclonic scrubber with two stacks. The control efficiency is estimated as greater than 95%. Most of the recent BACT determinations reflect wet scrubber control technology for phosphate rock dryers. The permitted PM emissions limits are 46.4 lb/hour (equivalent to 203 tons/year). The mass emissions limit appears high and is based on the regulation by the process weight table in Rule 62-296.320, F.A.C. However, annual testing is conducted to demonstrate compliance. The following table summarizes actual particulate matter emissions from these units based on recent stack test data.

### Summary of Tested PM Emissions from the Phosphate Rock Dryer (EU-064)

Tested PM Emissions (EU-064)	
Test Date	lb/hour
2000	16.55
2001	12.65
2002	6.34
2003	7.19
2004	5.86
2005	16.55
2006	3.86

~~A statistical analysis using the available data indicates 17.3 lb/hour PM emissions rate based on a 99% confidence interval.~~ As shown, the actual emissions rates based on the installed controls are much lower than the permitted emissions limit. Therefore, the Department recognizes this equipment as a top control option and establishes the following PM BART determination.

Particulate matter emissions from the Phosphate Rock Dryer (EU-064) shall not exceed 17.3 lb/hour as determined by EPA Method 5.

Potential emissions of particulate matter will be reduced from 203 to 76 tons/year.

### SO<sub>2</sub> Emissions

The permitted SO<sub>2</sub> emissions limit for the rock dryer is 38.1 lb/hour (equivalent to 166.88 tons/year), which appears to be based on the firing of fuel oil. Records of the fuel usage of the rock dryer based on Annual Operating Reports indicate that only natural gas was fired since 1999. Emissions of SO<sub>2</sub> from firing natural gas in the rock dryer are negligible. Based on the actual SO<sub>2</sub> emissions levels, add-on control equipment (e.g., wet flue gas desulfurization, hydrated lime injection, etc.) may be feasible, but would not be cost effective. Therefore, the Department establishes the following BART determination.

Natural gas shall be fired as the primary fuel in the phosphate rock dryer. When the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.5% by weight may be fired as a backup fuel.

### **Molten Sulfur System for 'C' and 'D' Sulfuric Acid Plants (EU-054)**

The molten sulfur system for the 'C' and 'D' sulfuric acid plants consists of a rail and truck unloading system with transfer point venting, receiving pit, supply pit, and storage tank. These activities are regulated by the work practice standards specified in Rule 62-296.411(1), F.A.C. for molten sulfur storage and handling facilities. Potential emissions from these activities are estimated to be 2.2 tons per year of particulate matter and 3.4 tons per year of sulfur dioxide. Similar molten sulfur systems throughout Florida do not currently use add-on control equipment because of such relatively low emissions rates. It is unlikely that add-on control equipment would be cost effective at these levels. Therefore, the Department establishes the applicable work practice standards of Rule 62-296.411(1), F.A.C. as the PM and SO<sub>2</sub> BART determinations for this unit, which includes: enclosing

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

pipng systems where feasible and practical; minimizing spillage; paved containment areas; and a visible emissions standard of no more than 20% opacity.

**COMPARISON OF EXISTING EMISSIONS LIMITS TO BART DETERMINATIONS**

**Particulate-Only Emissions Units with Baghouses**

EU No.	EP No.	Emissions Unit Description	Emissions Standard	
			Existing	BART
001		Phosphate rock grinder	5% opacity	5% opacity
004	X-Train Dical Process			
	02	Dedust bin	5% opacity	5% opacity
	03	Shipping area	5% opacity	5% opacity
	04	Limestone silo	5% opacity	5% opacity
	05	Reclaim bin	5% opacity	5% opacity
	06	Material handling	5% opacity	5% opacity
042	DFP Feed Prep			
	EP-01	Rock bin	5% opacity	5% opacity
	EP-02	Miscellaneous	5% opacity	5% opacity
	EP-03	Lime silo	5% opacity	5% opacity
	EP-04	Lime bin	5% opacity	5% opacity
	EP-06	Soda ash silo	5% opacity	5% opacity
	EP-07	Soda ash bin	5% opacity	5% opacity
062	DFP Product Silos			
	EP-14	Product Sizing and Crushing Silos	5% opacity	5% opacity
	EP-16	Silos A - C and shipping operations	5% opacity	5% opacity

The above BART determinations also include the following baghouse design specification: Bags/filters in each baghouse control system shall be selected based on a design outlet specification of 0.01 grains per actual cubic feet of exhaust.

**Particulate-Only Emissions Units Controlled by Wet Scrubbers**

EU No.	Emissions Unit Description	Emissions Standard	
		Existing	<del>Existing</del> BART
010	No. 1 Storage/Shipping Building	36.17 lb/hour	<del>4.7 lb/hour</del>
015	MAP/DAP Shipping Facility	40.41 lb/hour	<del>1.2 lb/hour</del> 1.46
044	'A' and 'B' DFP Coolers	25.04 lb/hour	<del>12.3 lb/hour</del> 17.5
065	Swift Creek Mine Silos	46.4 lb/hour	<del>3.7 lb/hour</del> 6.27

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

**Emissions Units with Combustion – Particulate Matter**

EU No.	EP No.	Emissions Unit Description	Emissions Standards	
			Existing	BART
003		'A' DFP Plant with PM and SO <sub>2</sub> controlled by wet scrubbing	14.05 lb/hour	<del>10.1</del> lb/hour
004		X-Train Dical Process		19.1
	EP-01	X-Train Rotary Dryer with PM controlled by wet scrubbing	46.11 lb/hour	<del>19.1</del> lb/hour (all modes)
008		Y-Train No. 1 DAP Plant with PM controlled by wet scrubbing	33.33 lb/hour	<del>0.18 lb/ton P<sub>2</sub>O<sub>5</sub> input</del>
		Y-Train No. 1 MAP Plant with PM controlled by wet scrubbing	45.15 lb/hour	<del>2.05</del> lb/hour (all modes)
021		'C' Sulfuric Acid Plant with double absorption process	10% opacity	10% opacity
022		'D' Sulfuric Acid Plant with double absorption process	10% opacity	10% opacity
032		Z-Train No. 2 DAP/MAP Plant		
	EP-01	Main part of DAP process with PM controlled by wet scrubbing	lb/hour	9.2 lb/hour
038		'B' DFP Plant with PM and SO <sub>2</sub> controlled by wet scrubbing	lb/hour	<del>10.1</del> lb/hour
042		DFP Feed Prep		19.1
	EP-05	DFP Feed Prep Dryer with PM controlled by wet scrubber	lb/hour	4.5 lb/hour
064		Swift Creek Mine (SCM) Rock Dryer with PM controlled by wet scrubber	lb/hour	17.3 lb/hour

**Emissions Units with Combustion – Sulfur Dioxide**

EU No.	EP No.	Emissions Unit Description	Emissions Standards	
			Existing	BART
003		'A' DFP Plant with PM and SO <sub>2</sub> controlled by wet scrubbing	8.0 lb/hour	2.0 lb/hour, a
004		X-Train Dical Process		
	EP-01	X-Train Rotary Dryer with PM controlled by wet scrubbing	11.1 lb/hour	b
008		Y-Train No. 1 DAP Plant with PM controlled by wet scrubbing	11.1 lb/hour	b
		Y-Train No. 1 MAP Plant with PM controlled by wet scrubbing	11.1 lb/hour	b
021		'C' Sulfuric Acid Plant with double absorption process	4 lb/ton AP	3.5 lb/ton AP, c
022		'D' Sulfuric Acid Plant with double absorption process	4 lb/ton AP	3.5 lb/ton AP, c
032		Z-Train No. 2 DAP/MAP Plant		
	EP-01	Main part of DAP process with PM controlled by wet scrubbing	11.8 lb/hour	d
038		'B' DFP Plant with PM and SO <sub>2</sub> controlled by wet scrubbing	8.0 lb/hour	2.0 lb/hour, a
042		DFP Feed Prep		
	EP-05	DFP Feed Prep Dryer with PM controlled by wet scrubber	4.9 lb/hour	b
064		Swift Creek Mine (SCM) Rock Dryer with PM controlled by wet scrubber	38.1 lb/hour	e

- a. In addition to the SO<sub>2</sub> emissions standard, sulfur dioxide emissions from these units shall be limited by firing natural gas the only fuel.



## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

- b. To control sulfur dioxide emissions, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.5% by weight may be fired as a backup fuel.
- c. Sulfur dioxide emissions from the "C" and "D" Sulfuric Acid Plants (EU-021 and EU-022) shall not exceed 3.5 lb/ton of 100% sulfuric acid produced (AP) based on a 24-hour rolling CEMS average. No stack testing is required.
- d. To control sulfur dioxide emissions, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil or on-specification used oil with a maximum sulfur content of 1.0% by weight may be fired as a backup fuel.
- e. To control sulfur dioxide emissions, natural gas shall be fired as the primary fuel. If the vendor is unable to provide natural gas, fuel oil with a maximum sulfur content of 1.3% by weight or on-specification used oil with a maximum sulfur content of 1.0% by weight may be fired as backup fuel.

### Emissions Units with Combustion – Nitrogen Oxides

There are no existing NO<sub>x</sub> emissions standards for the BART-eligible emissions units. The BART determinations are as follows.

Nitrogen oxides emissions (expressed as NO<sub>2</sub>) from the 'C' and 'D' Sulfuric Acid Plants (EU-021 and EU-022) shall not exceed 0.14 lb/ton of 100% sulfuric acid produced as determined by EPA Method 7E. Nitrogen oxides emissions from the remaining emissions units shall be controlled by the inherent combustion design of the existing units and the firing of natural gas as the primary fuel. [Rule 62-4.070(3), F.A.C.]

section 2  
comments  
to TEFD

### Molten Sulfur System for 'C' and 'D' Sulfuric Acid Plants

Rule 62-296.411, F.A.C. established work practice standards for "Molten Sulfur Facilities" to control sulfur and particulate emissions. The BART determination adopts these work practice standards, which includes an opacity limit of 20%.

## 6. MODELING ANALYSIS WITH BART CONTROLS

As summarized in Section 2, the applicant conducted a BART modeling analysis based on current actual emissions rates from the BART-eligible emissions units. After consideration of the actual emissions from the BART-eligible units with existing controls in place, the existing equipment is considered a top control option. Therefore, it was not necessary to conduct an air quality modeling analysis for the purpose of determining the resulting visibility impacts.

## 7. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations regarding BART as conditioned by the draft permit. This determination is based on a technical review of the complete application, all available information, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Syed Arif is the project engineer responsible for reviewing the application and drafting the permit. Cleve Holladay is the project meteorologist responsible for reviewing the modeling analysis for visibility.