Florida Department of
# Memorandum Environmental Protection

TO: Trina Vielhauer, Bureau of Air Regulation

FROM: Syed Arif, New Source Review Section SA 5/27

DATE: May 27, 2009

SUBJECT: Draft Air Permit No. 1050059-061-AC
Mosaic Fertilizer, LLC – New Wales Facility
BART Exemption Project

This project is subject to BART exemption preconstruction review. Attached for your review are the following items:

- Written Notice of Intent to Issue Air Permit;
- Public Notice of Intent to Issue Air Permit;
- Technical Evaluation and Preliminary Determination;
- Draft Permit;
- Appendices; and
- P.E. Certification.

Day 90 for the project is August 3, 2009. I recommend your approval of the attached Draft Permit package.

Attachments

## PROFESSIONAL ENGINEER CERTIFICATION STATEMENT

**PERMITTEE**

Mosiac Fertilizer, LLC
P.O. Box 2000
Mulberry, FL 33860

Draft Air Permit No. 1050059-061-AC
New Wales Plant
BART Exemption Project
Polk County, Florida

**PROJECT DESCRIPTION**

The Department issued (clerked) a "Written Notice of Intent to Issue Air Permit" on November 29, 2007 for an air construction permit for Mosaic's New Wales Best Available Retrofit Technology (BART) determination, Draft Permit No. 1050059-055-AC. Final action has not been taken on this permit due to a petition filed by the applicant, Mosaic Fertilizer, LLC, on December 10, 2007. The Department hereby withdraws the "Written Notice of Intent to Issue Air Permit."

On October 3, 2008, Mosaic Fertilizer, LLC submitted an air construction permit application to escape the requirements of Best Available Retrofit Technology (BART) pursuant to Rule 62-296.340(5)(c), Florida Administrative Code (F.A.C.) for the existing New Wales Facility.

The BART-eligible units at this facility are listed in the draft permit and the Technical Evaluation and Preliminary Determination. The Department of Environmental Protection (Department) reviewed the application and makes a preliminary determination regarding the air pollution controls and measures, emission standards and limitations in the draft air construction permit for the facility to escape BART.

The applicant has proposed two emission reduction scenarios A and B for the BART-eligible emissions units at the New Wales facility. As part of this application, the applicant performed additional modeling under both scenarios at reduced air pollutant emission levels. The air dispersion modeling at the lower air pollutant levels brings this facility's visibility impact to below the 0.5 deciview (dv) threshold under both scenarios allowing the facility to escape a BART determination pursuant to Rule 62-296.340(5)(c), F.A.C. The facility's modeled visibility impact to the nearest Class I area (Chassahowitzka National Wilderness Area) under the BART exemption for scenario A is 0.490 dv and under scenario B is 0.496 dv.

In scenario A, Mosaic proposes to: reduce sulfuric acid mist emissions (SAM) from each Sulfuric Acid Plant (SAP) Nos. 1, 2, and 3 from 14.0 to 7.1 lbs/hr; fire only natural gas in Diammonium Phosphate (DAP) plant No. 1 and Animal Feed Ingredient (AFI) plant dryers; shut-down multifos plant kilns A and B; reduce PM emissions from DAP plant No. 1 from 28.6 to 15 lbs/hr; and reduce PM emissions from Monoammonium Phosphate (MAP) plant from 15 to 7 lbs/hr.

In scenario B, Mosaic proposes to: reduce SAP Nos. 1, 2 and 3 production rates from 3,400 tons per day (TPD) of sulfuric acid ($H_2SO_4$) to 3,200 TPD of $H_2SO_4$; reduce $SO_2$ emissions from each SAP from 496 to 400 lbs/hr; reduce SAM emissions from each SAP from 14.0 to 6.7 lbs/hr; reduce NOx emissions from each SAP from 17 to 16 lbs/hr; fire only natural gas in DAP plant No. 1, AFI plant and multifos A and B kilns dryers; reduce PM emissions from multifos A and B kilns dryer from 29.8 to 25 lbs/hr; reduce $SO_2$ emissions from the multifos A and B kilns dryer from 316 to 25 lbs/hr; reduce PM emissions from DAP plant No. 1 from 28.6 to 15 lbs/hr; and reduce PM emissions from MAP plant from 15 to 7 lbs/hr. The applicant will make a decision to implement scenario A or B no later than January 1, 2010.

***I HEREBY CERTIFY*** *that the air pollution control engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. This permit specifies the specific requirements of Rule 62-296.340(5)(c), (escape BART)*

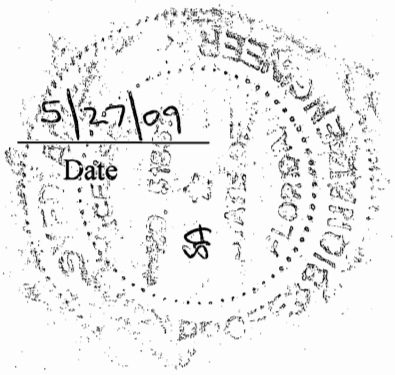
*F.A.C. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including, but not limited to, the electrical, mechanical, structural, hydrological, geological, and the visibility impact analysis completed by the project meteorologist). The project meteorologist was Mr. Tom Rogers in the Department's Office of Policy and Program Management.*

Syed Arif

5/27/09

Syed Arif, P.E.
Registration Number: 51861

Date



Permitting Authority:
Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/921-9528
Fax: 850/921-9533

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 27, 2009

*Electronic Mail – Received Receipt Requested*

david.jellerson@mosaicco.com

Mr. David B. Jellerson, Assistant Vice President - Environmental
Mosaic Fertilizer, LLC
Post Office Box 2000
Mulberry, FL 33860

Re: Draft Permit No. 1050059-061-AC
Mosaic Fertilizer, LLC – New Wales Facility
BART Exemption Project

Dear Mr. Jellerson:

The Department issued (clerked) a "Written Notice of Intent to Issue Air Permit" on November 29, 2007 for an air construction permit for Mosaic's New Wales Best Available Retrofit Technology (BART) determination, Draft Permit No. 1050059-055-AC. Final action has not been taken on this permit due to a petition filed by the applicant, Mosaic Fertilizer, LLC, on December 10, 2007. The Department hereby withdraws the "Written Notice of Intent to Issue Air Permit."

On October 3, 2008, an air construction permit application was submitted to escape the requirements of BART pursuant to Rule 62-296.340(5)(c), Florida Administrative Code for the emissions units at the facility identified above. Enclosed are the following documents:

- The Technical Evaluation & Preliminary Determination summarizes the Permitting Authority's technical review of the application and provides the rationale for making the preliminary determination to issue a Draft Permit.
- The proposed Draft Permit includes the specific conditions that regulate the emissions units covered by the proposed project.
- The Written Notice of Intent to Issue Air Permit provides important information regarding: the Permitting Authority's intent to issue an air permit for the proposed project; the requirements for publishing a Public Notice of the Permitting Authority's intent to issue an air permit; the procedures for submitting comments on the Draft Permit; the process for filing a petition for an administrative hearing; and the availability of mediation.
- The Public Notice of Intent to Issue Air Permit is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact Mr. Syed Arif, P.E. by telephone at 850/921-9528 or by email at Syed.Arif@dep.state.fl.us.

Sincerely,

Trina L. Vielhauer, Chief
Bureau of Air Regulation

Enclosures

TLV/sa

## WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

*In the Matter of an*
*Application for Air Permit by:*

Mosaic Fertilizer, LLC
Post Office Box 2000
Mulberry, FL 33860

Draft Permit No. 1050059-061-AC
Facility ID No. 1050059
New Wales Facility

*Authorized Representative:*
Mr. David B. Jellerson, Assistant Vice President, Environmental

BART Exemption Project
Polk County, Florida

**Facility Location**: The applicant, Mosaic Fertilizer, LLC, operates the existing New Wales Facility, which is located in Polk County at 3095 Highway 640, Mulberry, Florida.

**Project**: The Department issued (clerked) a "Written Notice of Intent to Issue Air Permit" on November 29, 2007 for an air construction permit for Mosaic's New Wales Best Available Retrofit Technology (BART) determination, Draft Permit No. 1050059-055-AC. Final action has not been taken on this permit due to a petition filed by the applicant, Mosaic Fertilizer, LLC, on December 10, 2007. The Department hereby withdraws the "Written Notice of Intent to Issue Air Permit."

On October 3, 2008, Mosaic Fertilizer, LLC submitted an air construction permit application to escape the requirements of Best Available Retrofit Technology (BART) pursuant to Rule 62-296.340(5)(c), Florida Administrative Code (F.A.C.) for the emissions units at the facility identified above. Details of the project are provided in the application and the enclosed Technical Evaluation & Preliminary Determination.

**Permitting Authority**: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters F.A.C. 62-4, 62-210 and 62-212. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File**: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation & Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above. In addition, electronic copies of these documents are available on the following web site: http://www.dep.state.fl.us/air/eproducts/apds/default.asp .

**Notice of Intent to Issue Permit**: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of the proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Public Notice**: Pursuant to Section 403.815, F.S. and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Permit (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet the requirements of Sections 50.011 and 50.031, F.S. in the county where the activity is to take

place. If you are uncertain that a newspaper meets these requirements, please contact the Permitting Authority at above address or phone number. Pursuant to Rule 62-110.106(5) and (9), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within 7 days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

**Comments**: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of 14 days from the date of publication of the Public Notice. Written comments must be postmarked by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 14-day period. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

**Petitions**: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this Written Notice of Intent to Issue Air Permit. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the attached Public Notice or within 14 days of receipt of this Written Notice of Intent to Issue Air Permit, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation**: Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

TLV/sa

## CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Intent to Issue Air Permit package (including the Written Notice of Intent to Issue Air Permit, Public Notice of Intent to Issue Air Permit, the Technical Evaluation & Preliminary Determination, and the Draft Permit), or a link to these documents available electronically on a publicly accessible server, was sent by electronic mail with received receipt requested before the close of business on 5/28/09 to the persons listed below.

Mr. David B. Jellerson, Mosaic Fertilizer, LLC: david.jellerson@mosaicco.com
Mr. David Turley, Mosaic Fertilizer, LLC: david.turley@mosaicco.com
Mr. Rama Iyer, Mosaic Fertilizer, LLC: rama.iyer@mosaicco.com
Mr. David A. Buff, P.E., Golder Associates Inc.: dbuff@golder.com
Mr. Sal Mohammad, Golder Associates Inc.: smohammad@golder.com
Ms. Katy Forney, EPA Region 4: forney.kathleen@epa.gov
Ms. Catherine Collins, Fish & Wildlife Service: catherine_collins@fws.gov
Ms. Cindy Zhang-Torres, P.E., DEP SWD: zhang-torres@dep.state.fl.us
Mr. Tom Rogers, DEP OPAPM: tom.rogers@dep.state.fl.us
Ms. Ronda L. Moore, DEP OGC: ronni.moore@dep.state.fl.us
Ms. Victoria Gibson, DEP BAR: victoria.gibson@dep.state.fl.us (for reading file)

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

(Clerk) 5/28/09 (Date)

**PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT**

Florida Department of Environmental Protection
Division of Air Resource Management, Bureau of Air Regulation
Draft Air Construction Permit No. 1050059-061-AC
Mosaic Fertilizer, LLC, New Wales Facility
Polk County, Florida

**Applicant**: The applicant for this project is Mosaic Fertilizer, LLC. The applicant's authorized representative and mailing address is: Mr. David B. Jellerson, Assistant Vice President - Environmental, Mosaic Fertilizer, LLC, Post Office Box 2000, Mulberry, FL 33860.

**Facility and Location**: The applicant, Mosaic Fertilizer, LLC, operates the existing New Wales Facility, which is located in Polk County at 3095 Highway 640, Mulberry, Florida. The New Wales Facility is an existing phosphate fertilizer manufacturing complex.

**Project**: The Department issued (clerked) a "Written Notice of Intent to Issue Air Permit" on November 29, 2007 for an air construction permit for Mosaic's New Wales Best Available Retrofit Technology (BART) determination, Draft Permit No. 1050059-055-AC. Final action has not been taken on this permit due to a petition filed by the applicant, Mosaic Fertilizer, LLC, on December 10, 2007. The Department hereby withdraws the "Written Notice of Intent to Issue Air Permit."

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The BART-eligible units at this facility are listed in the draft permit and the Technical Evaluation and Preliminary Determination. The Department of Environmental Protection (Department) reviewed the application and makes a preliminary determination regarding the air pollution controls and measures, emission standards and limitations in the draft air construction permit for the facility to escape BART.

The applicant has proposed two emission reduction scenarios A and B for the BART-eligible emissions units at the New Wales facility. As part of this application, the applicant performed additional modeling under both scenarios at reduced air pollutant emission levels. The air dispersion modeling at the lower air pollutant levels brings this facility's visibility impact to below the 0.5 deciview (dv) threshold under both scenarios allowing the facility to escape a BART determination pursuant to Rule 62-296.340(5)(c), F.A.C. The facility's modeled visibility impact to the nearest Class I area (Chassahowitzka National Wilderness Area) under the BART exemption for scenario A is 0.490 dv and under scenario B is 0.496 dv.

In scenario A, Mosaic proposes to: reduce sulfuric acid mist emissions (SAM) from each Sulfuric Acid Plant (SAP) Nos. 1, 2, and 3 from 14.0 to 7.1 lbs/hr; fire only natural gas in Diammonium Phosphate (DAP) plant No. 1 and Animal Feed Ingredient (AFI) plant dryers; shut-down multifos plant kilns A and B; reduce PM emissions from DAP plant No. 1 from 28.6 to 15 lbs/hr; and reduce PM emissions from Monoammonium Phosphate (MAP) plant from 15 to 7 lbs/hr.

In scenario B, Mosaic proposes to: reduce SAP Nos. 1, 2 and 3 production rates from 3,400 tons per day (TPD) of sulfuric acid ($H_2SO_4$) to 3,200 TPD of $H_2SO_4$; reduce $SO_2$ emissions from each SAP from 496 to 400 lbs/hr; reduce SAM emissions from each SAP from 14.0 to 6.7 lbs/hr; reduce NOx emissions from each SAP from 17 to 16 lbs/hr; fire only natural gas in DAP plant No. 1, AFI plant and multifos A and B kilns dryers; reduce PM emissions from multifos A and B kilns dryer from 29.8 to 25 lbs/hr; reduce $SO_2$ emissions from the multifos A and B kilns dryer from 316 to 25 lbs/hr; reduce PM emissions from DAP plant No. 1 from 28.6 to 15 lbs/hr; and reduce PM emissions from MAP plant from 15 to 7 lbs/hr. The applicant will make a decision to implement scenario A or B no later than January 1, 2010.

**Permitting Authority**: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and F.A.C. Chapters 62-4, 62-210 and 62-212. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination

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petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

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**Mediation**: Mediation is not available for this proceeding.

# TECHNICAL EVALUATION
# &
# PRELIMINARY DETERMINATION

## PROJECT

Draft Permit No. 1050059-061-AC
Best Available Retrofit Technology (BART) Exemption

New Wales Facility
Polk County, Florida

## APPLICANT

Mosaic Fertilizer, LLC
P.O. Box 2000
Mulberry, FL 33860

## PERMITTING AUTHORITY

New Source Review Section
Bureau of Air Regulation
Division of Air Resource Management
Florida Department of Environmental Protection

May 27, 2009

## 1. GENERAL PROJECT INFORMATION

### Facility Description and Location

The applicant, Mosaic Fertilizer, LLC, operates an existing phosphate fertilizer manufacturer. The fertilizer complex processes phosphate rock into several different fertilizer products and animal feed ingredients. This is accomplished by reacting the phosphate rock with sulfuric acid to produce phosphoric acid and then converting the phosphoric acid to fertilizer and animal feed ingredient products. The facility consists of five double absorption sulfuric acid plants (SAP); three phosphoric acid plants (PAP); a phosphoric acid clarification and storage area; three diammonium phosphate (DAP) plants; a monoammonium phosphate (MAP) plant; a granular monoammonium phosphate (GMAP) plant; an animal feed ingredients (AFI) plant; a multifos production plant; a molten sulfur storage and handling system; a limestone storage silo/rock grinding operation and a phosphogypsum stack.

The Standard Industrial Classification (SIC) code for this type of facility is SIC No. 2874.

The facility is located near Mulberry at 3095 Highway 640 in Polk County. The project site is located about 104 kilometers from the Chassahowitzka National Wilderness Area, a Class I area. The Universal Transverse Mercator (UTM) coordinates are Zone 17, 396.6 km East and 3078.9 km North. Latitude: 27° 49' 56" North and Longitude: 82° 03' 00" West.

### 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) based on Title V Permit No. 1050059-045-AV.
- 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 (see Title V Permit No. 1050059-045-AV).
- The facility operates emissions units that are subject to Rule 62-296.340(5)(c) (escape BART), F.A.C.

### Project Description

Mosaic Fertilizer, LLC submitted an application to escape the BART determination requirements of Rule 62-296.340(5)(c) (escape BART), F.A.C., which addresses the following emissions units with the potential to emit at least 50 tons per year (TPY) or more of a visibility-impairing pollutant:

**TABLE 1-1**

| EU ID No. | Brief Description |
|---|---|
| -002 | SAP No. 1 |
| -003 | SAP No. 2 |
| -004 | SAP No. 3 |
| -009 | DAP Plant No. 1 |

| | |
|---|---|
| -011 | MAP Plant |
| -027 | AFI Plant |
| -036 | Multifos A and B Kilns, Dryer and Blending Operations |

The rest of the BART-eligible emissions units at the New Wales facility are sources with relatively low particulate matter (PM) emissions (less than 5 lb/hr each). They are as follows:

**TABLE 1-2**

| EU ID No. | Brief Description |
|---|---|
| -015 | AFI truck loadout system |
| -023 | AFI storage silos - north side |
| -024 | AFI railcar loadout system |
| -025 | AFI limestone storage silos |
| -026 | AFI silica storage bin |
| -028 | AFI storage silos – south side |
| -030 | Multifos soda ash unloading |
| -031 | Multifos soda ash conveying |
| -032 | Multifos A kiln cooler |
| -033 | Multifos B kiln cooler |
| -034 | Multifos A and B kilns milling and sizing – West baghouses |
| -035 | Multifos A and B kilns milling and sizing – East baghouses |
| -038 | Multifos A and B kilns milling and sizing – surge bin |
| -052 | AFI limestone feed bin |
| -055 | MAP plant cooler |
| -063 | 1,500-Ton truck unloading sulfur pit |
| -066 | 200-Ton molten sulfur transfer pit |
| -067 | 1,500-Ton truck unloading sulfur pit – front vents |
| -068 | 1,500-Ton truck unloading sulfur pit – rear vents |

Except for the molten sulfur pits (EUs-063, -066, -067 and -068), all of theses emissions units emit only PM. The molten sulfur pits each emit 0.2 lb/hr or less of PM and 0.3 lb/hr or less of sulfur dioxide ($SO_2$).

This Technical Evaluation & Preliminary Determination (TE&PD) details the project, describes the required air pollutant emission reductions and reasonable assurances to escape and remain exempt from a BART determination pursuant to Rule 62-296.340(5)(c) (escape BART), F.A.C.

**Processing Schedule**

The processing events shown below for the BART determination are relevant to the escape BART project as they are cited within this TE&PD document and the draft permit.

BART Determination

| | |
|---|---|
| January 1, 2007 | Department received the BART application (hard copy) for an air pollution construction permit. |
| February 28, 2007 | Department issued 1st request for additional information (RAI). |
| July 12, 2007 | Department received response to 1st RAI. |
| August 9, 2007 | Department issued 2nd RAI. |
| Sept. 19, 2007 | Department received response to 2nd RAI; application complete. |
| November 29, 2007 | Department issued (clerked) Draft permit with Technical Evaluation & Preliminary Determination (Project No. 1050059-055-AC). |
| December 10, 2007 | Applicant filed an extension of time to file a Petition for an Administrative Hearing. |
| December 20, 2007 | Applicant published the Public Notice in the Lakeland Ledger. |
| January 24, 2008 | Department received comments from Applicant dated January 21. |
| January 25, 2008 | Department received comments from U.S. EPA Region 4 dated January 18. |

BART Exemption Determination

| | |
|---|---|
| October 3, 2008 | Department received the BART exemption application for an air pollution construction permit. |
| October 31, 2008 | Department issued 1st RAI. |
| December 8, 2008 | Department received response to 1st RAI. |
| December 30, 2008 | Department issued 2nd RAI. |
| February 4, 2009 | Department received response to 2nd RAI; application complete. |
| May 4, 2009 | Department received changes to the original application through a letter from the applicant. Clock restarted. |
| May 12, 2009 | Department received a letter from the applicant retracting changes requested on May 4, 2009. Application complete. |

## 2. APPLICABLE BART EXEMPTION REGULATIONS

### Regulatory Authority

This project is subject to the applicable regulatory requirements in the following Chapters of the F.A.C.: 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (Preconstruction Review, PSD Review and BACT, and Non-attainment Area Review and LAER); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures). It is also subject to the applicable provisions in Title 40 of the Code of Federal Regulations (CFR) as adopted in Chapter 62-204 and 62-296, F.A.C.

Specifically, this project is subject to Rule 62-296.340(5)(c) (escape BART), F.A.C., by reducing the visibility impact from this facility to below the 0.5 deciview (dv) threshold in the air dispersion modeling for exemption from a BART determination. Mosaic originally submitted a BART application in January 2007. The BART application was submitted prior to Mosaic's decision to reduce sulfur dioxide ($SO_2$), sulfuric acid mist (SAM), particulate matter/particulate matter less than 10 microns ($PM/PM_{10}$) and nitrogen oxides (NOx) emissions and, therefore, did not demonstrate a basis for BART exemption. At the reduced emission levels, Mosaic could exempt out of BART review and upon the Department's concurrence, the BART application may be considered superseded by this exemption application. Mosaic is proposing two emission reduction scenarios for the BART-eligible emissions units at the New Wales facility with this application. For each of the emission reduction scenarios, the New Wales facility is exempt from BART because its contribution to visibility impairment does not exceed 0.5 dv above natural conditions in any Class I area. The visibility impact from this facility is reduced by taking federally enforceable reductions through a minor source air construction permit.

The Department previously identified all BART-eligible sources through a series of notifications, workshops, and rule making efforts. The state rule implements the federal provisions of Appendix Y in 40 CFR Part 51, "Guidelines for BART Determinations Under the Regional Haze Rule."

### Affected Pollutants

In accordance with Appendix Y in 40 CFR 51, the affected visibility-impairing pollutants include the following: $NO_X$, $PM_{10}$ and $SO_2$. Although ammoniated nitrates and sulfates are among the key species contributing to regional haze, BART does not directly address or require a review of ammonia ($NH_3$) as a visibility-impairing pollutant.

With respect to particulate emissions, Rule 62-210.200, F.A.C. defines PM as, "... all finely divided solid or liquid material, other than uncombined water, emitted to the atmosphere as measured by applicable reference methods, or an equivalent or alternative method ..." PM with an aerodynamic diameter less than or equal to a nominal 10 micrometers is defined as $PM_{10}$ and PM with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers is defined as $PM_{2.5}$. Emissions of PM, $PM_{10}$ and $PM_{2.5}$ are all regulated pollutants. For the existing emissions units and air pollution control equipment, the control strategy specified in the BART determinations directly reduces PM emissions, which serves as a surrogate to also reduce $PM_{10}$ and $PM_{2.5}$ emissions.

$SO_2$ and SAM emissions were lowered in the air dispersion modeling used to escape BART. According to the applicant's consultant, the lowering of SAM emissions had a more profound affect in reducing the visibility impact compared to lowering $SO_2$. The lowering of $PM/PM_{10}$ and NOx was done in the modeling used to escape BART.

The proposed work under this project is scheduled to take place during the full turnaround of each sulfuric acid plant (SAP) and is projected to end in 2012. An expiration date of June 30, 2013 for this construction permit

was established to allow sufficient time for testing and submitting the test results. This expiration date is six (6) months prior to the BART compliance deadline of December 31, 2013 (Rule 62-296.340(3)(b)2., F.A.C.).

## 3. SUMMARY OF APPLICANT'S BART EXEMPTION MODELING ANALYSIS

Mosaic New Wales has made federally enforceable changes to its operating permits to reduce emissions of visibility-impairing pollutants in order to meet the exemption criterion for the Best Available Retrofit Technology (BART) rule (62-296.340(5), F.A.C.). Specifically, they have provided for two options (scenarios A and B) that reduce emissions somewhat differently among the BART-eligible source, but both result in visibility improvement. Taking into consideration these emission reductions, Mosaic completed air quality modeling consistent with an approved modeling protocol and submitted it to the department. The EPA-approved CALPUFF dispersion model was used to determine visibility impacts on all federal Class I areas within 300 kilometers of the facility using three years of meteorological data derived from the MM5 meteorological model. This modeling was thoroughly reviewed by the department and determined to be appropriate for the purpose of meeting the exemption criteria of the BART rule.

Visibility impacts were completed for two federal Class I areas: Chassahowitzka National Wilderness Area, located 104 kilometers from the facility and Everglades National Park (226 kilometers). The controlling area, that is the area with the greatest visibility impact from Mosaic New Wales, is Chassahowitzka. BART exemption modeling considered only the impacts from the BART-eligible sources within the facility. In this case, the Nos. 1, 2, and 3 sulfuric acid plants, DAP plant No. 1, MAP plant, AFI plant, multifos A and B kilns, dryer and blending operation, and various low emitting particulate-only sources.

In scenario A, Mosaic proposes that sulfuric acid mist emissions from each SAP Nos. 1, 2, and 3 are reduced from 14.0 to 7.1 lbs/hr; DAP plant No. 1 and AFI plant dryers are fired using only natural gas; multifos plant kilns A and B are shut-down; DAP plant No. 1 PM emissions are reduced from 28.6 to 15 lbs/hr; and, MAP plant PM emissions are reduced from 15 to 7 lbs/hr.

In scenario B, SAP Nos. 1, 2 and 3 production rates are reduced from 3,400 tons per day (TPD) of sulfuric acid ($H_2SO_4$) to 3,200 TPD of $H_2SO_4$. $SO_2$ emissions from each SAP are reduced from 496 to 400 lbs/hr; sulfuric acid mist emissions from each SAP are reduced from 14.0 to 6.7 lbs/hr; NOx emissions from each SAP are reduced from 17 to 16 lbs/hr; DAP plant No. 1 and AFI plant dryers are fired using only natural gas; multifos A and B kilns' dryer is fired with only natural gas and PM emissions are reduced from 29.8 to 25 lbs/hr; $SO_2$ emissions from the multifos A and B kilns dryer are reduced from 316 to 25 lbs/hr; PM emissions from DAP plant No. 1 are reduced from 28.6 to 15 lbs/hr; and, MAP plant PM emissions are reduced from 15 to 7 lbs/hr.

The results of the modeling, considering both scenarios A and B for the controlling Chassahowitzka area are shown below as taken from the complete modeling report submitted by Mosaic.

TABLE 3-3
SUMMARY OF BART EXEMPTION MODELING RESULTS - NEW IMPROVE ALGORITHM
WITH PROPOSED 24-HOUR AVERAGE EMISSION LIMITS FROM SCENARIO A
MOSAIC FERTILIZER, LLC, NEW WALES FACILITY

| Class I Area | Distance from Source to Nearest Class I Area Boundary (km) | Number of Days and Receptors with Visibility Impacts >0.5 dv | | | | | | | | | 22nd Highest Impact (dv) Over 3-Yr Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2001 | | | 2002 | | | 2003 | | | |
| | | No. of Days | No. of Receptors | 8th Highest Impact (dv) | No. of Days | No. of Receptors | 8th Highest Impact (dv) | No. of Days | No. of Receptors | 8th Highest Impact (dv) | |
| Chassahowitzka NWA | 104 | 3 | NA | 0.394 | 7 | NA | 0.484 | 6 | NA | 0.490 | 0.473 |

TABLE 3-5
SUMMARY OF BART EXEMPTION MODELING RESULTS - NEW IMPROVE ALGORITHM
WITH PROPOSED 24-HOUR AVERAGE EMISSION LIMITS FROM SCENARIO B
MOSAIC FERTILIZER, LLC, NEW WALES FACILITY

| Class I Area | Distance from Source to Nearest Class I Area Boundary (km) | Number of Days and Receptors with Visibility Impacts >0.5 dv | | | | | | | | | 22nd Highest Impact (dv) Over 3-Yr Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2001 | | | 2002 | | | 2003 | | | |
| | | No. of Days | No. of Receptors | 8th Highest Impact (dv) | No. of Days | No. of Receptors | 8th Highest Impact (dv) | No. of Days | No. of Receptors | 8th Highest Impact (dv) | |
| Chassahowitzka NWA | 104 | 3 | NA | 0.399 | 7 | NA | 0.467 | 7 | NA | 0.496 | 0.472 |

The maximum visibility impact at the Chassahowitzka National Wilderness area under the scenario A plan is 0.490 deciviews (dv). Under the scenario B plan, the maximum visibility impact is 0.496 dv. Both of these values are less than the criterion for exemption from the BART rule of 0.5 dv. Based on the emission changes made in this permit, following either scenario A or scenario B, and the modeling performed by the applicant, the Department concludes that the BART-eligible sources at Mosaic New Wales are exempt from the BART rule requirements.

## 4. APPLICANT'S BART EXEMPTION ANALYSIS

Among the BART-eligible emissions units that emit visibility-impairing pollutants ($SO_2$, NOx or $PM_{10}$) at the New Wales facility, only seven are large with the potential to emit at least 50 TPY or more as identified in Table 1-1. As indicated in Section 2, Mosaic is proposing two emission reduction scenarios for the BART-eligible emissions units. The emission reduction scenarios are as follows:

***Scenario A***

Emission reductions proposed in Scenario A are summarized below:

**1.** SAP Nos. 1, 2 and 3: SAM emissions from SAP Nos. 1 (EU-002), 2 (EU-003) and 3 (EU-004) each are reduced from 14.0 to 7.1 lb/hr. The total proposed reduction in allowable SAM emissions is 20.7 lb/hr from the three SAP plants combined. Mosaic will achieve the lower SAM emission rates by installing Brownian-type candles for mist elimination on SAP Nos. 1 and 2. SAP No. 3 already has the Brownian-type candle for mist elimination. SAP Nos. 1 and 2 will install Brownian-type candles during upcoming turnarounds when the final towers in the SAPs are replaced. Mosaic may consider other types of technologies if the diffusion type candles are later deemed to be insufficient.

Mosaic is proposing to keep the permitted daily maximum production capacity for SAP Nos. 1, 2 and 3 at 3,400 TPD of $H_2SO_4$. The Best Available Control Technology (BACT) for SAP Nos. 1, 2 and 3 was established in July 2002 when production was increased from 2,900 TPD to 3,400 TPD (see PSD-FL-325, Permit Number 1050059-036-AC). The BACT for the three SAPs specified the use of the existing double absorption system for the control of $SO_2$ emissions and the use of mist eliminators for the control of SAM emissions.

The applicant proposed keeping the existing $SO_2$ emission limitations for each SAP under Scenario A. The applicant proposed the following emissions limitation of $SO_2$ as demonstrated by certified Continuous Emissions Monitoring System (CEMS) data and emissions reduction of SAM as demonstrated by annual stack testing:

| | $SO_2$ Emissions Limitation | SAM Emissions Reduction |
|---|---|---|
| SAP No. 1 | 496 lb/hour | from 14.0 lb/hr to 7.1 lb/hr |
| SAP No. 2 | 496 lb/hour | from 14.0 lb/hr to 7.1 lb/hr |
| SAP No. 3 | 496 lb/hour | from 14.0 lb/hr to 7.1 lb/hr |

*NOx emissions reduction*

Mosaic is not proposing any reduction in NOx emission rates from the SAPs existing limit of 0.12 lb/ton of $H_2SO_4$. The NOx emission rates will stay at 17 lb/hr.

**2.** DAP and AFI Plants: DAP Plant No. 1 (EU-009) and AFI Plant (EU-027) dryers are fired using only natural gas (except for periods of natural gas curtailments). Mosaic is also proposing to reduce the PM emission rate from 28.6 lb/hr to 15 lb/hr. Both the plants are currently permitted to burn both natural gas and fuel oil. Recent PM test data show that the actual PM emission rates from the DAP plant are lower than the proposed 15 lb/hr. Mosaic is not proposing any change to the currently permitted PM emission limit of 36.8 lb/hr from the AFI plant.

**3.** MAP Plant: Emissions from the MAP Plant (EU-011) Prill Tower scrubber stack is limited to 15 lb/hr which is equivalent to 0.3 lb PM/ton of product. Mosaic is proposing to reduce the PM emission rate from the Prill Tower scrubber to 7 lb/hr which will be equivalent to 0.14 lb PM/ton of product.

**4.** Multifos Plant: Shutdown of Kiln A and B (including associated coolers) of the Multifos Plant (EU-036). The reduction in PM emissions resulting from these shutdowns total 24.11 lb/hr, the reduction in $SO_2$ emissions is

177.5 lb/hr based on the recent test data, the reduction in NOx emissions is 45.7 lb/hr and the reduction in SAM emissions is 4.2 lb/hr.

***Scenario B***

Emission reductions proposed in Scenario B are summarized below:

**1.** SAP Nos. 1, 2 and 3: Mosaic is proposing to lower the permitted daily maximum production capacity for SAP Nos. 1, 2 and 3 from 3,400 TPD to 3,200 TPD of $H_2SO_4$. The BACT for SAP Nos. 1, 2 and 3 was established in July 2002 when production was increased from 2,900 TPD to 3,400 TPD (see PSD-FL-325, Permit Number 1050059-036-AC). The BACT for the three SAPs specified the use of the existing double absorption system for the control of $SO_2$ emissions and the use of mist eliminators for the control of SAM emissions.

The applicant proposed reduced $SO_2$ and SAM emission limitations for each SAP in order to escape BART. The applicant proposed the following emissions reduction of $SO_2$ as demonstrated by certified CEMS data and emissions reduction of SAM as demonstrated by annual stack testing:

| | $SO_2$ Emissions Reduction | SAM Emissions Reduction |
|---|---|---|
| SAP No. 1 | from 496 lb/hour to 400 lb/hour | from 14.0 lb/hr to 6.7 lb/hr |
| SAP No. 2 | from 496 lb/hour to 400 lb/hour | from 14.0 lb/hr to 6.7 lb/hr |
| SAP No. 3 | from 496 lb/hour to 400 lb/hour | from 14.0 lb/hr to 6.7 lb/hr |

*$SO_2$ emissions reduction*

The applicant proposed a 24-hour (daily) block average for $SO_2$ emissions based on the emission rate averaging period of 24-hour (daily) used in the air dispersion modeling.

The proposed new equivalent of lb $SO_2$/ton 100% $H_2SO_4$ values for the three SAPs at design capacity will be 3.0 lb $SO_2$/ton 100% $H_2SO_4$. The new equivalent lb/ton values corresponding to the lb/hour limits are less than the current existing standards.

The applicant proposed to meet the lower emission standards & limitations by using the currently employed double absorption system with increased catalyst (vanadium and/or cesium) loadings and the replacement of select process equipment in the Nos. 1 & 2 SAPs. The applicant claims that many of the process equipment replacements are necessary to achieve and maintain the lower $SO_2$ emission limits.

The applicant indicated that the interpass absorption (IPA) tower will be replaced with a heat recovery system (HRS) tower for SAP Nos. 1 and 2. The Final Absorption Tower for both the SAP plants is 33 years old, and is in need of replacement. Therefore, Mosaic will convert to HRS tower in order to improve energy recovery in the two SAPs and increase steam generation. At this time, the IPA tower will become the final absorption tower with the Brownian-type candles installed, and the existing final tower will be removed. Replacement of the heat recovery system in the SAP No. 9 is primarily for increased energy recovery.

The specific pieces of process equipment being replaced to reduce emissions and thereby escape BART are cited below:

| SAP No. | Work Activities |
|---|---|
| 1 | • Install HRS to replace the IPA tower.<br>• Replace the sulfur furnace.<br>• Replace the drying tower.<br>Note: The estimated cost to perform these work activities as well as increased catalyst loading is approximately $38 million. |

| | |
|---|---|
| 2 | • Install HRS to replace the IPA tower.<br>• Replace the sulfur furnace.<br>• Replace the drying tower.<br>Note: The estimated cost to perform these work activities as well as increased catalyst loading is approximately $38 million. |

In addition to the process equipment being replaced, the applicant is proposing to add additional catalyst to escape BART. A catalyst study was completed by the catalyst supplier, Haldor Topsoe, Inc. The study was provided in Appendix C as part of the BART exemption application. The study includes specific Haldor Topsoe catalyst, vanadium 12 mm daisy-shaped products referred to as "VK38" which is a standard vanadium catalyst and "VK48" which is a high vanadium catalyst. The study also includes specific increased catalyst loadings (volumes).

As cited in the Haldor Topsoe catalyst study the proposed increased catalyst loading ratios in the SAPs are as follows:

| SAP No. | Work Activities |
|---|---|
| 1 | • Increase the catalyst loading ratio from approximately 147 liters per ton $H_2SO_4$ per day (L/TPD) at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 498,400 liters to 610,000 liters}. |
| 2 | • Increase the catalyst loading ratio from approximately 147 L/TPD at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 498,400 liters to 610,000 liters. |
| 3 | • Increase the catalyst loading ratio from approximately 157 L/TPD at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 535,200 liters to 610,000 liters}.<br>Note: The estimated cost to perform this work is $500,000. |

The percentage increases in the catalyst loading ratios for the SAPs are as follows:

| | Catalyst Loading Ratio liters per ton $H_2SO_4$ per day (L/TPD) | % Increase in Catalyst Loading |
|---|---|---|
| SAP No. 1 | from 147 to 190 | 29% |
| SAP No. 2 | from 147 to 190 | 29% |
| SAP No. 3 | from 157 to 190 | 21% |

*SAM emissions reduction*

The total proposed reduction in allowable SAM emissions from the three SAPs is 21.9 lb/hr. Most of the actual SAM emission rates from the SAPs are lower than the proposed 6.7 lb/hr based on the recent test data from the SAPs.

Mosaic's intended control strategy for achieving the lower SAM emission is to use Brownian-diffusion type candles for mist elimination. Currently SAP No. 3 employs the Brownian-type candles, but SAP Nos. 1 and 2 will be installing Brownian-diffusion type candles during the upcoming turnarounds when the final towers in the SAPs are replaced. These are currently planned for June 2009 for SAP No. 1 and June 2011 for SAP No. 2. If these technologies are later deemed to be insufficient, Mosaic may consider other technologies.

*NOx emissions reduction*

Mosaic is not proposing any reduction in NOx emission rates from the SAPs in terms of lb/ton; however, since the production rate of the SAPs are decreasing from 3,400 TPD to 3,200 TPD, the allowable emissions based on 0.12 lb/ton of $H_2SO_4$ will reduce the NOx emission rates from 17 to 16 lb/hr.

**2.** DAP Plant No. 1 (EU-009): Mosaic is proposing to use only natural gas fuel (except during periods of natural gas curtailments) in the DAP Plant No. 1 dryer, which is currently permitted to burn both natural gas and fuel oil. Mosaic is also proposing to reduce the PM emission rate from the current 28.6 to 15 lb/hr. Recent test data from the plant shows that the actual PM rates are lower than the proposed 15 lb/hr.

**3.** MAP Plant (EU-011): Mosaic is proposing to reduce the PM emission rate from the MAP plant from the current 15 lb/hr to 7 lb/hr. Recent test data indicates actual emission rates are lower than 7 lb/hr.

**4.** AFI Plant (EU-027): Mosaic is proposing to use only natural gas fuel (except during periods of natural gas curtailments) in the AFI Plant dryer, which is currently permitted to burn both natural gas and fuel oil. Mosaic is not proposing any change to the currently permitted PM emission limit of 36.8 lb/hr from the AFI plant.

**5.** Multifos A & B Kilns, Dryer and Blending Operations (EU-036): Mosaic is proposing to use only natural gas (except during periods of natural gas curtailments) in the Multifos A and B Kilns dryer and proposing the following PM and $SO_2$ emissions limits:

- PM – reduction from 29.8 lb/hr to 25 lb/hr; and
- $SO_2$ – reduction from 316.0 lb/hr to 25 lb/hr.

Stack test data for the Multifos A and B Kilns shows hourly PM emission rates well below 25 lb/hr. Currently there is no $SO_2$ emission limit for the Multifos A and B Kilns. The Multifos C Kiln, which has a scrubber, has a $SO_2$ emissions limit of 9.11 lb/hr. Mosaic is proposing to install a similar type of scrubber for Multifos A and B stack and proposes an $SO_2$ emission limit of 25 lb/hr, which can be met based on stack test data for the C Kiln.

## 5. DEPARTMENT'S PRELIMINARY BART EXEMPTION DETERMINATION

### 5.1 Nos. 1, 2, and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004)

SAP Nos. 1, 2 and 3 went through a PSD review in July 2002, when the plants were permitted to increase their production capacity from 2,900 TPD to 3,400 TPD of 100-percent sulfuric acid ($H_2SO_4$). SAP Nos. 1, 2, and 3 are double absorption units. 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. The double absorption process controls $SO_2$ emissions and a high efficiency mist eliminator controls sulfuric acid mist emissions. NOx emissions due to the burning of sulfur are controlled through good combustion practices.

The process is comprised of three distinct steps. These are sulfur combustion and gas preparation; catalytic conversion of sulfur dioxide to sulfur trioxide; and absorption of sulfur trioxide into sulfuric acid.

A great deal of heat is evolved throughout the process. Its management is an important consideration in optimizing the conversion and absorption steps as well as providing useful energy to the plant. Reaction kinetics and thermodynamics are also important factors. Following is a description of the process.

Atmospheric air is drawn through a filter by the main compressor and then contacted with a recirculating stream of sulfuric acid in the drying tower. The dried air is blown by a steam-driven compressor into a refractory-lined burner where molten sulfur is combusted to produce $SO_2$. The hot combustion gases are cooled in a waste heat boiler to recover excess heat as steam.

The gas stream is then introduced into a converter packed with catalyst. In a series of steps, the $SO_2$ and excess oxygen from the combustion air are progressively converted to sulfur trioxide ($SO_3$). The gases containing $SO_3$, some unconverted $SO_2$, oxygen, and atmospheric nitrogen are conveyed to an "interpass tower" where the $SO_3$ is absorbed into a stream of concentrated sulfuric acid and reacted with excess water to further strengthen the acid. By removing most $SO_3$ in the interpass absorber, the equilibrium favors further conversion of the remaining $SO_2$ to $SO_3$. The remaining $SO_2$, not previously oxidized, is passed over a final converter bed of catalyst and the $SO_3$ produced is then absorbed in sulfuric acid. This is accomplished in the final pass of the converter. The resulting gas stream is conveyed to the high-efficiency "final tower" where most of the remaining $SO_3$ reacts with water in a 98-99 percent sulfuric acid stream.

Throughout the conversion, the temperatures are moderated by an intricate arrangement of heat exchangers so that the excess heat is removed. Mist eliminators are used to ensure that sulfuric acid sprays and fine mists are contained, thereby protecting plant equipment and minimizing emissions to the atmosphere.

The following figure from a European Commission document shows the keys steps (with the exception of the sulfur combustion part) involved in the contact sulfuric acid process used at Mosaic New Wales.

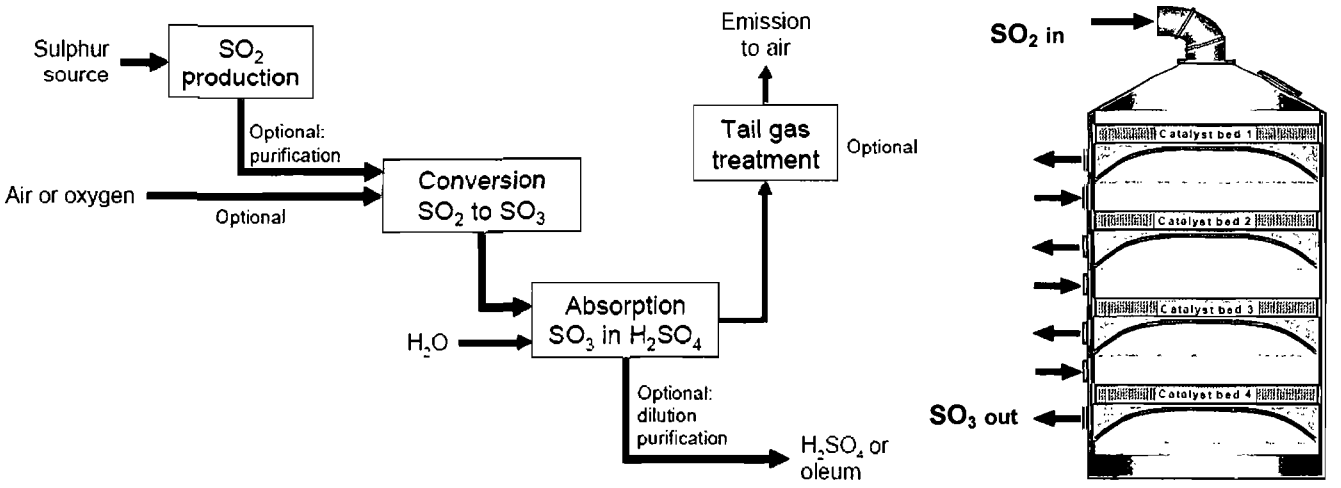


**Figure 1. Diagram of the Contact Sulfuric Acid Manufacturing Process and Conversion of $SO_2$ to $SO_3$**

The following figure from the same European Commission document shows the double staged absorption. The double staged version shows the sulfur burner. Mosaic New Wales Plant employs double staged absorption on SAP Nos. 1, 2 and 3. It features two absorbers and typical conversion efficiencies greater than 99.7% are achieved.

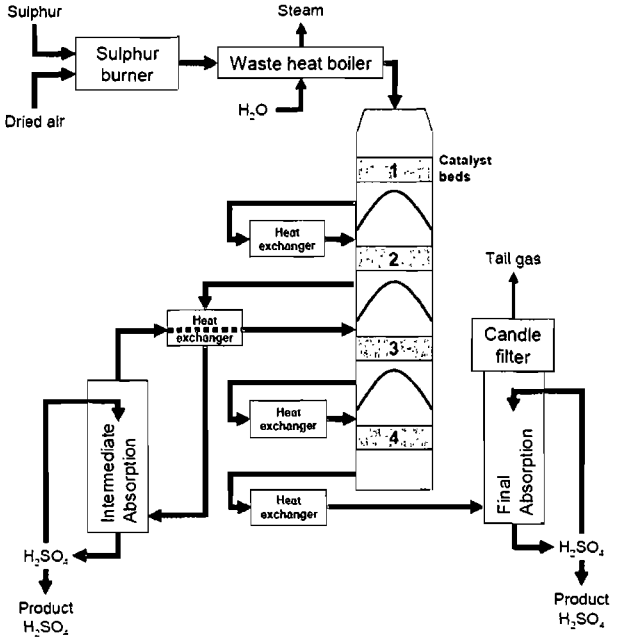


**Figure 2. Sulfur Burning and Double Staged Absorption.**

The applicant indicated that under Scenario B the intermediate absorption towers will be replaced with heat recovery system towers for SAP Nos. 1 and 2. The final absorption towers will be removed and the intermediate absorption towers will become the final absorption towers for SAP Nos. 1 and 2. The Brownian-diffusion type candles will be installed on both final absorption towers for SAP Nos. 1 and 2. Under Scenario A, the applicant will not be making these changes.

The heat recovery system raises the temperature at which absorption of $SO_3$, and the addition of water, takes place during the production of sulfuric acid. By operating at these higher temperatures, the heat of absorption and dilution can be used to generate steam instead of being rejected to a cooling tower.

The heat recovery system replaces the normal intermediate absorption tower with a two stage absorbing tower, a recirculating pump, heat exchangers and a boiler. The tower is made from stainless steel and contains ceramic packing. Gas containing $SO_3$ leaves the converter system and enters the heat recovery tower near the bottom. It passes upwards through two packed beds and a mist eliminator before leaving the tower at the top. The lower stage performs most of the absorption and is run at a temperature necessary to generate the steam. A special high efficiency distributor system is used in both stages because the system is operating very close to chemical equilibrium limits.

With the heat recovery system, the amount of heat recovered from the sulfuric acid plant usually increases from 65% to 85% with no additional sulfur or fossil fuel consumption. This additional steam production reduces the need of operating the auxiliary boilers (if available) that are operated as needed for process steam requirements, and occasionally to increase electricity generation.

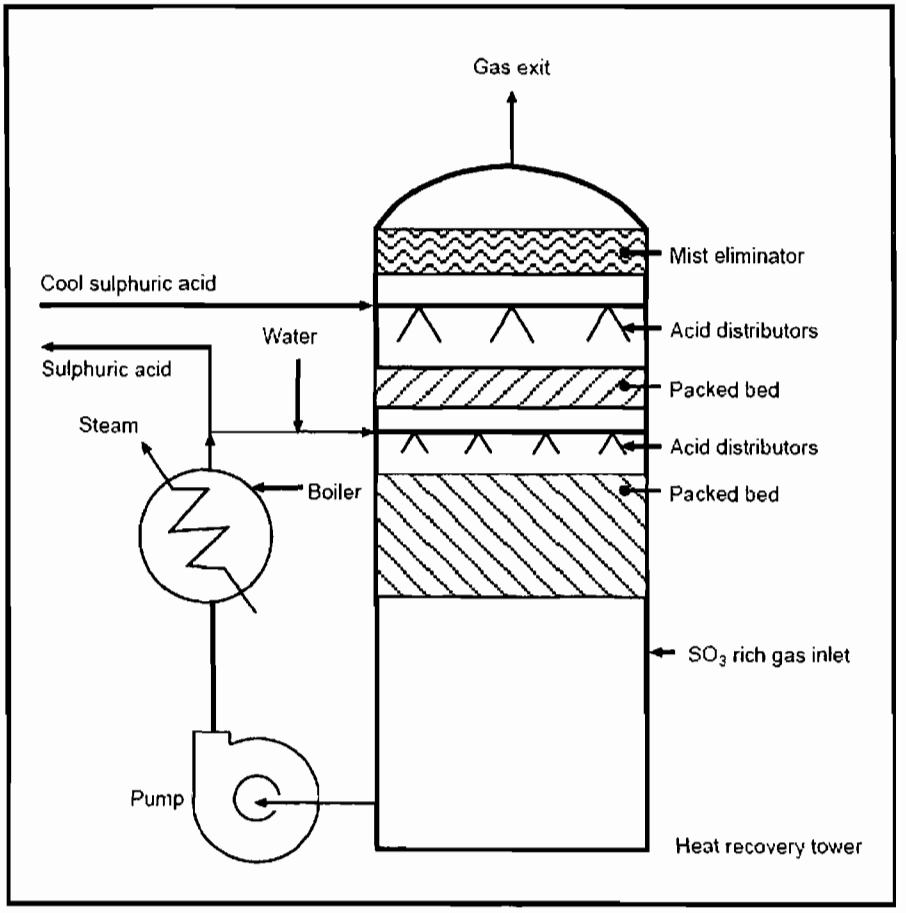


**Figure 3. The heat recovery system**

*$SO_2$ Emission Standards and Limitation*

The applicant had provided actual $SO_2$ continuous emissions monitoring system (CEMS) data in the form of graphs during the BART determination process in 2007. The data provided was for 2006. The applicant, at the Department's request, reduced the $SO_2$ CEMS data to three (3) and twenty four (24) hour average periods. Visual interpretations of the $SO_2$ CEMS data in the graphs submitted by the applicant were performed. A predominant average was established encompassing the majority of the CEMS data. The predominant averages are summarized below.

**$SO_2$ CEMS Data Analysis**

| | **Predominant Average (2006) lb $SO_2$/ton, 3-hour average** | **Predominant Average (2006) lb $SO_2$/ton, 24-hour average** |
|---|---|---|
| SAP No. 1 | 3.5 | 3.37 |
| SAP No. 2 | 3.5 | 3.4 |
| SAP No. 3 | 3.52 | 3.42 |

In addition, the applicant provided in the BART exemption application actual $SO_2$ stack test results from 2002 through 2008 for SAP Nos. 1 and 3 and from 2002 through 2007 for SAP No. 2. These test results can be summarized as follows:

**$SO_2$ Stack Test Data Review**

| | **Averages of Stack Tests lb $SO_2$/ton, 3-hour average** | **Test Ranges** |
|---|---|---|
| SAP No. 1 | 3.28 | 2.87 - 3.97 |
| SAP No. 2 | 3.36 | 2.91 - 3.79 |
| SAP No. 3 | 3.37 | 2.35 - 3.80 |

| | **Design Production Capacity,** TPD of 100% $H_2SO_4$ (sulfuric acid) | **Permitted Production** (Maximum achieved during Stack Test), TPD of 100% $H_2SO_4$ (sulfuric acid) | Stack Test Date |
|---|---|---|---|
| SAP No. 1 | 3,400 | 3,024 | 06/09/2004 |
| SAP No. 2 | 3,400 | 3,075 | 02/28/2007 |
| SAP No. 3 | 3,400 | 2,755 | 02/19/2008 |

After reviewing the CEMS and stack test data for $SO_2$, it is apparent the applicant can not currently achieve the proposed emission reductions for $SO_2$ of 400 lb/hr (equivalent to 3.0 lb/ton).

To reduce $SO_2$ emissions the applicant commissioned a study performed by the catalyst supplier, Haldor Topsoe, Inc. The study confirms that with the proposed modifications to each SAP, the SAPs can achieve the $SO_2$ emission rates of 2.8 to 3.0 lb $SO_2$/ton 100% $H_2SO_4$. The specific additional catalyst loadings and types of catalysts in the study as previously discussed herein provide the permitting authority reasonable assurances of compliance with the reduced $SO_2$ emission limits.

The Department calculated corresponding $SO_2$ reductions as shown in the shaded columns below:

| | $SO_2$ Emission Reduction | % Reduction | TPY Reduction |
|---|---|---|---|
| SAP No. 1 | from 496 lb/hour to 400 lb/hour | 19% | 420 |
| SAP No. 2 | from 496 lb/hour to 400 lb/hour | 19% | 420 |
| SAP No. 3 | from 496 lb/hour to 400 lb/hour | 19% | 420 |

The Department proposes the escape BART $SO_2$ emission limitations for the SAPs to be the following for Scenario B:

| SAP No. | lb/hour |
|---|---|
| 1 | 400 |
| 2 | 400 |
| 3 | 400 |

Emissions of $SO_2$ shall not exceed 400 pounds per hour for SAP Nos. 1, 2 and 3 based on a 24-hour (daily) block average as determined by CEMS data.

This BART exemption determination requires the applicant to demonstrate compliance with the $SO_2$ emission standards and limitations on a continuous basis using the CEMS data. A 24-hour (daily) block average is aligned with the 24-hour averaging period used in the air quality modeling analysis for visibility.

$SO_2$ Control Technology

The Department accepts the applicant's proposed $SO_2$ control technology to reduce emissions by using the currently employed double absorption system with increased catalyst (vanadium and/or cesium) loadings and the replacement of the indicated select process equipment in the Nos. 1 and 2 SAPs under scenario B. For scenario A, the applicant is not proposing any changes to the $SO_2$ emission limits.

*SAM Emission Standards and Limitations*

The applicant proposed reduced SAM emission limitations for each SAP to escape BART. The applicant proposed to change the mist eliminators for SAP Nos. 1 and 2 from impaction media in the form of high velocity (HV) panels to Brownian-diffusion type candles for mist elimination. SAP No. 3 employs the Brownian-diffusion type candles for mist elimination currently.

The applicant proposed the following reductions of SAM as demonstrated by stack test data for the two different scenarios for BART exemption:

| | SAM Emission Reduction (Scenario A) | SAM Emission Reduction (Scenario B) |
|---|---|---|
| SAP No. 1 | from 14 lb/hour to 7.1 lb/hour | from 14 lb/hour to 6.7 lb/hour |
| SAP No. 2 | from 14 lb/hour to 7.1 lb/hour | from 14 lb/hour to 6.7 lb/hour |
| SAP No. 3 | from 14 lb/hour to 7.1 lb/hour | from 14 lb/hour to 6.7 lb/hour |

The applicant proposed stack test data to be used to demonstrate compliance.

The proposed new equivalent of lb SAM/ton 100% $H_2SO_4$ values for SAP Nos. 1, 2, and 3 at design capacity for each SAP is 0.05 lb SAM/ton 100% $H_2SO_4$ under both scenarios as the production rates are reduced to 3,200 TPD under Scenario B.

The applicant provided in the BART exemption application actual SAM stack test results from 2002 through 2008 for SAP Nos. 1 and 3 and from 2002 through 2007 for SAP No. 2. The test results can be summarized as follows:

**SAM Stack Test Data Review**

| | **Averages of Stack Tests lb SAM/ton, 3-hour average** | **Test Ranges lb SAM/ton, 3-hour average** |
|---|---|---|
| SAP No. 1 | 0.042 | 0.022 - 0.094 |

| | Averages of Stack Tests lb SAM/ton, 3-hour average | Test Ranges lb SAM/ton, 3-hour average |
|---|---|---|
| SAP No. 2 | 0.038 | 0.017 - 0.074 |
| SAP No. 3 | 0.031 | 0.008 - 0.046 |

As shown by the test ranges in the stack test data above, the applicant can comply with the proposed SAM emission reductions for SAP No. 3 that currently employs the Brownian-diffusion type candles for mist eliminator. This type of control technology is highly effective in removing SAM emissions thus controlling emissions of sulfuric particulate matter. The Department has reasonable assurance that this control technology when employed for SAP Nos. 1 and 2 will be effective in reducing SAM emissions to 0.05 lb SAM/ton 100% $H_2SO_4$ for those two SAPs.

The Department proposes the escape BART SAM emission limitations for the SAPs to be the following for the two different scenarios:

| SAP No. | lb/hour (Scenario A) | lb/hour (Scenario B) |
|---|---|---|
| 1 | 7.1 | 6.7 |
| 2 | 7.1 | 6.7 |
| 3 | 7.1 | 6.7 |

Emissions of SAM shall not exceed the above listed limitations for SAP Nos. 1, 2 and 3 based on a 3-hour average as demonstrated by stack test data. The new equivalent of lb SAM/ton 100% $H_2SO_4$ values for SAP Nos. 1, 2 and 3 at design capacity for each SAP is 0.05 lb SAM/ton of 100% $H_2SO_4$. The equivalent lb/ton value corresponding to the lb/hour limits is less than the current existing standards. The air dispersion modeling was performed using a 24-hour (daily) average.

*NOx Emission Standards and Limitations*

The applicant is not proposing any reduction in NOx emission limits from the SAPs in terms of lb/ton; however, since the production rate of the SAPs are decreasing from 3,400 TPD to 3,200 TPD under Scenario B, the allowable emissions based on 0.12 lb/ton of $H_2SO_4$ will reduce the NOx emission rates from 17 to 16 lb/hr. Under Scenario A, there will be no decrease in production rates for the three SAPs, therefore, the NOx emission limits will stay at 17 lb/hr.

### 5.2 DAP Plant No. 1 (EU-009)

The DAP Plant No.1 produces MAP or DAP at a maximum rate of 150 tons per hour (TPH). Particulate matter, fluoride (F) and $SO_2$ emissions are generated from the reactor/granulator (R/G), dryer, cooler and associated equipment. Emissions are controlled by cyclones, one pre-scrubber, three venturi scrubbers in parallel with demisters and one cyclonic scrubber with an impact spraying system. The venturi scrubber uses process water. The impact spraying system uses recirculating water.

Emissions from the R/G are routed to the pre-scrubber, the R/G venturi scrubber then to the cyclonic scrubber. Emissions from the dryer are routed to its own dedicated cyclones, the dryer venturi scrubber then to the cyclonic scrubber. Emissions from the cooler are routed to its own dedicated cyclones, the cooler venturi scrubber then to the cyclonic scrubber. Emissions from associated equipment vents are routed to its own dedicated cyclone and the cooler venturi scrubber.

The applicant is proposing to use only natural gas fuel (except during periods of natural gas curtailments) in the DAP Plant No. 1 dryer, which is currently permitted to burn both natural gas and fuel oil under both scenarios (A or B). The applicant is also proposing to reduce the PM emission rate from the current 28.6 to 15 lb/hr. Recent test data from the plant shows that the actual PM rates are lower than the proposed 15 lb/hr.

The applicant provided actual PM stack test results from 2004 through 2008 for DAP Plant No. 1. The test results can be summarized as follows:

**PM Stack Test Data Review (DAP Plant No.1)**

| Test Date | Plant Production Rate TPH | Average (Avg.) Process Rate (TPH of $P_2O_5$)* | PM | |
|---|---|---|---|---|
| | | | lb/hr | lb/ton $P_2O_5$ |
| 03/30/2004 | 106.1 | 57.2 | 8.02 | 0.140 |
| 03/03/2005 | 105.1 | 56.7 | 2.41 | 0.043 |
| 05/04/2006 | 109.0 | 51.7 | 2.80 | 0.054 |
| 03/29/2007 | 115.3 | 62.7 | 1.84 | 0.029 |
| 07/23/2008 | 113.6 | 60.9 | 11.60 | 0.190 |
| | | | Avg. 5.33 | 0.091 |

* - tons per hour of phosphorus pentoxide input

As shown by the stack test data above, the applicant can comply with the proposed 15 lb/hr PM emission rate under both scenarios (A or B). The Department proposes the escape BART PM emission limitations for DAP Plant No. 1 to be the following for the two different scenarios:

| Plant | PM lb/hour (Scenario A) | PM lb/hour (Scenario B) |
|---|---|---|
| DAP Plant No. 1 | 15 | 15 |

### 5.3 MAP Plant (EU-011)

The MAP Plant produces 50 tons per hour (1200 tons per day) of MAP. Emissions from the MAP rotary cooler are vented through a cyclone and then to a 30,000 actual cubic feet per minute (acfm) baghouse collector to control particulate matter. PM emissions from the MAP product elevator are also controlled by the above baghouse collector.

Mosaic is proposing to reduce the PM emission rate from the MAP prill tower. The prill tower emissions (PM and F) are controlled by a venturi scrubber and a cyclonic demister. The PM emission rate will be reduced from 15 lb/hr (0.3 lb PM/ton of product) to 7 lb/hr (0.14 lb PM/ton of product).

The applicant provided actual PM stack test results from 2003 through 2008 for MAP Plant. The test results can be summarized as follows:

**PM Stack Test Data Review (MAP Plant)**

| Test Date | Plant Production Rate TPH | PM | |
|---|---|---|---|
| | | lb/hr | lb/ton of production |
| 12/19/2003 | 49.4 | 0.39 | 0.008 |
| 02/25/2005 | 49.5 | 2.56 | 0.052 |
| 01/20/2006 | 47.6 | 0.76 | 0.016 |
| 08/17/2006 | 49.3 | 0.96 | 0.019 |
| 07/12/2007 | 49.9 | 0.62 | 0.012 |
| 03/13/2008 | 48.8 | 0.80 | 0.016 |
| | | Avg. 1.02 | 0.021 |

As shown by the stack test data above, the applicant can comply with the proposed 7 lb/hr PM emission rate under both scenarios (A or B). The Department proposes the escape BART PM emission limitations for MAP Plant to be the following for the two different scenarios:

| Plant | PM lb/hour (Scenario A) | PM lb/hour (Scenario B) |
|---|---|---|
| MAP Plant | 7 | 7 |

### 5.4 AFI Plant (EU-027)

The AFI Granulation Plant produces up to 120 TPH of animal feed. The plant consists of a reactor, pug mill, granulator, dryer, screening system and cooler. The dryer has a maximum heat input rate of 135 million British thermal units per hour (MMBtu/hr) and is fired with natural gas or new, No. 6 or better grade fuel oil. PM emissions from the AFI Plant are controlled by a series of cyclones followed by four parallel venturi scrubbers and fans venting to a common stack. PM emissions from the AFI Plant are limited to 36.8 lb/hr.

The applicant is proposing to use only natural gas fuel (except during periods of natural gas curtailments) in the AFI Plant dryer under both operating scenarios (A or B). Mosaic is not proposing any change to the currently permitted PM emission limit of 36.8 lb/hr from the AFI plant under both operating scenarios (A or B).

The Department proposes the escape BART limitations for the AFI Plant to be the following for the two different scenarios:

"The AFI Plant dryer can only be fired with natural gas under both operating scenarios (A or B), except during periods of natural gas curtailments."

### 5.5 Multifos A & B Kilns, Dryer and Blending Operation (EU-036)

The Multifos Plant consists of a phosphate rock dryer, a blending operation, a storage building, a pug mill, coolers, crushers, screens, mills and three defluorination kilns designated as Kiln A, Kiln B and Kiln C (EU-074).

The dryer, fired with either natural gas or No. 6 fuel oil, dries wet phosphate rock. The dried phosphate rock is normally stored in a hopper prior to the blending operation. The blending operation combines dried phosphate rock with soda ash and phosphoric acid in the pug mill to produce a mixed feed, which is then sent to the mixed feed storage building. From storage, the mixed feed is transferred to the common kiln feed conveyor system. Each of Kilns A and B are capable of being fired by either natural gas or No. 6 fuel oil. Emissions from the dryer, the blending operation, and Kilns A and B are controlled by three separate packed bed scrubbers connected to a common stack.

Total annual production rate of Kilns A and B combined is limited to 140,000 TPY of Multifos. The process input rate to each Kiln A and B is limited to 15 TPH, which is equivalent to 5.7 TPH of $P_2O_5$. Maximum heat input rate of the dryer is limited to 15 MMBtu/hr. Each of the kilns has a maximum heat input rate of 56 MMBtu/hr. PM emissions from the Multifos A and B kilns, dryers and blending operation are limited to 29.83 lb/hr.

The applicant is proposing under Scenario A to shutdown the Multifos A and B Kilns and their respective coolers, which means shutdown of the following BART-eligible units that are part of the Multifos A and B system:

- Multifos A Kiln Cooler (EU-032);
- Multifos B Kiln Cooler (EU-033); and

- Multifos A and B Kilns (EU-036).

Under Scenario B, the applicant is proposing to use only natural gas (except during periods of natural gas curtailments) in the Multifos A and B kilns dryer and proposing the following PM and $SO_2$ emissions limits:

- PM – reduction from 29.83 lb/hr to 25 lb/hr; and
- $SO_2$ – emission limit of 25 lb/hr.

Currently there is no $SO_2$ emission limit for Multifos A and B Kilns. The Multifos Kiln C, which has a caustic scrubber, has a $SO_2$ emissions limit of 9.11 lb/hr. The applicant is proposing to install a similar caustic scrubber for Multifos A and B Kiln stack and proposes $SO_2$ emission limit of 25 lb/hr. The Multifos Kiln C has been able to comply with the $SO_2$ emission limit of 9.11 lb/hr, therefore, the Department has reasonable assurance that Multifos A and B Kilns can comply with the $SO_2$ emission limit of 25 lb/hr.

The applicant provided actual PM stack test results from 2002 through 2007 for Multifos A and B Kilns. The test results can be summarized as follows:

**PM Stack Test Data Review (A and B Kilns)**

| Test Date | Plant Production Rate TPH Mixed Feed A+B | Process Rate TPH of $P_2O_5$ Feed | PM | |
|---|---|---|---|---|
| | | | lb/hr | lb/ton of $P_2O_5$ input |
| 06/17/2002 | 21.7 | 7.6 | 9.84 | 1.295 |
| 05/28/2003 | 24.2 | 8.6 | 20.40 | 2.372 |
| 04/23/2004 | 21.2 | 7.5 | 10.80 | 1.440 |
| 06/30/2004 | 22.2 | 7.6 | 28.14 | 3.703 |
| 09/12/2005 | 24.3 | 8.7 | 13.38 | 1.538 |
| 03/01/2006 | 22.5 | 8.1 | 15.63 | 1.930 |
| 09/27/2006 | 20.0 | 7.1 | 14.09 | 1.985 |
| 09/07/2007 | 18.2 | 6.6 | 8.23 | 1.247 |
| 10/05/2007 | 20.4 | 7.2 | 6.81 | 0.946 |
| | | | Avg. 14.15 | 1.828 |

As shown by the stack test data above, the applicant can comply with the proposed 25 lb/hr PM emission rate under Scenario B. The Department proposes the escape BART PM emission limitations for Multifos A and B Kilns, Dryer and Blending Operation to be the following under the two scenarios:

| Plant | (Scenario A) | PM lb/hour (Scenario B) |
|---|---|---|
| A and B Kilns | Shut down | 25 |

The Department also proposes the escape BART $SO_2$ emission limitations for Multifos A and B Kilns to be the following under Scenario B:

| Plant | (Scenario A) | $SO_2$ lb/hour (Scenario B) |
|---|---|---|
| A and B Kilns | Shut down | 25 |

## 5.6 Summary

Mosaic will be employing two emission reduction scenarios. Scenario A, which includes Multifos A and B Kilns shutdown, lower SAM emissions from the SAPs and lower PM emissions from the MAP Plant and DAP Plant No. 1; and Scenario B, which includes continuing operation of the Multifos unit, lower daily average $SO_2$ and SAM emissions rates from the SAPs as well as lower PM emission rates from the Multifos A and B Kilns, MAP Plant and DAP Plant No. 1. Additionally, Scenario B includes a new scrubber for each of the Multifos A and B Kilns in order to meet the lower $SO_2$ limit. Mosaic will notify the Department no later than January 1, 2010 which scenario will be implemented. In summary, the proposed emission limitations for this facility to escape BART are as follows:

**SCENARIO A:**

***SAP No. 1 (EU-002)***

Production Rate
The maximum daily production rate will be 3,400 TPD of $H_2SO_4$.

$SO_2$
496 lb/hr 24-hour (daily) block average as demonstrated by certified CEMS data.
Equivalent to 3.5 lb $SO_2$/ton 100% $H_2SO_4$ produced and 2,172 TPY.

SAM
7.1 lb/hr as demonstrated by stack test data (3-hour average).
Equivalent to 0.05 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 31.1 TPY.

NOx
17 lb/hr demonstrated by stack test data (3-hour average).
Equivalent to 0.12 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 74 TPY.

***SAP No. 2 (EU-003)***

Production Rate
The maximum daily production rate will be 3,400 TPD of $H_2SO_4$.

$SO_2$
496 lb/hr 24-hour (daily) block average as demonstrated by certified CEMS data.
Equivalent to 3.5 lb $SO_2$/ton 100% $H_2SO_4$ produced and 2,172 TPY.

SAM
7.1 lb/hr as demonstrated by stack test data (3-hour average).
Equivalent to 0.05 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 31.1 TPY.

NOx
17 lb/hr demonstrated by stack test data (3-hour average).
Equivalent to 0.12 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 74 TPY.

***SAP No. 3 (EU-004)***

Production Rate
The maximum daily production rate will be 3,400 TPD of $H_2SO_4$.

$SO_2$
496 lb/hr 24-hour (daily) block average as demonstrated by certified CEMS data.
Equivalent to 3.5 lb $SO_2$/ton 100% $H_2SO_4$ produced and 2,172 TPY.

SAM
7.1 lb/hr as demonstrated by stack test data (3-hour average).

Equivalent to 0.05 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 31.1 TPY.

NOx
17 lb/hr demonstrated by stack test data (3-hour average).
Equivalent to 0.12 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 74 TPY.

***DAP Plant No. 1 (EU-009)***

PM
15 lb/hr as demonstrated by stack test data (3-hour average).

The permittee can fire only natural gas in the DAP Plant No. 1 dryer except during periods of natural gas curtailments. The permittee will be allowed to fire No. 6 or better grade fuel oil during periods of natural gas curtailments.

***MAP Plant (EU-011)***

PM
7 lb/hr as demonstrated by stack test data (3-hour average).

***AFI Plant (EU-027)***

PM
36.8 lb/hr as demonstrated by stack test data (3-hour average).

The AFI Plant dryer can only fire natural gas except during periods of natural gas curtailments. The permittee will be allowed to fire No. 6 or better grade fuel oil during periods of natural gas curtailments.

***Multifos A and B Kilns, Dryer and Blending Operation (EU-036)***

The permittee will shut down the Multifos A and B Kilns, Multifos A Kiln cooler (EU-032) and Multifos B Kiln cooler (EU-033) as expeditiously as practicable after January 1, 2010, if Scenario A is selected by the permittee.

**SCENARIO B:**

***SAP No. 1 (EU-002)***

Production Rate
The maximum daily production rate will be reduced from 3,400 TPD to 3,200 TPD of $H_2SO_4$.

$SO_2$
400 lb/hr 24-hour (daily) block average as demonstrated by certified CEMS data.
Equivalent to 3.0 lb $SO_2$/ton 100% $H_2SO_4$ produced and 1,752 TPY.

SAM
6.7 lb/hr as demonstrated by stack test data (3-hour average).
Equivalent to 0.05 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 29.3 TPY.

NOx
16 lb/hr demonstrated by stack test data (3-hour average).
Equivalent to 0.12 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 70 TPY.

***SAP No. 2 (EU-003)***

Production Rate
The maximum daily production rate will be reduced from 3,400 TPD to 3,200 TPD of $H_2SO_4$.

$SO_2$
400 lb/hr 24-hour (daily) block average as demonstrated by certified CEMS data.
Equivalent to 3.0 lb $SO_2$/ton 100% $H_2SO_4$ produced and 1,752 TPY.

SAM
6.7 lb/hr as demonstrated by stack test data (3-hour average).
Equivalent to 0.05 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 29.3 TPY.

NOx
16 lb/hr demonstrated by stack test data (3-hour average).
Equivalent to 0.12 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 70 TPY.

***SAP No. 3 (EU-004)***

Production Rate
The maximum daily production rate will be reduced from 3,400 TPD to 3,200 TPD of $H_2SO_4$.

$SO_2$
400 lb/hr 24-hour (daily) block average as demonstrated by certified CEMS data.
Equivalent to 3.0 lb $SO_2$/ton 100% $H_2SO_4$ produced and 1,752 TPY.

SAM
6.7 lb/hr as demonstrated by stack test data (3-hour average).
Equivalent to 0.05 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 29.3 TPY.

NOx
16 lb/hr demonstrated by stack test data (3-hour average).
Equivalent to 0.12 lb/ton 100% $H_2SO_4$ produced, (3-hour average implied) and 70 TPY.

***DAP Plant No. 1 (EU-009)***

PM
15 lb/hr as demonstrated by stack test data (3-hour average).

The permittee can fire only natural gas in the DAP Plant No. 1 dryer except during periods of natural gas curtailments. The permittee will be allowed to fire No. 6 or better grade fuel oil during periods of natural gas curtailments.

***MAP Plant (EU-011)***

PM
7 lb/hr as demonstrated by stack test data (3-hour average).

***AFI Plant (EU-027)***

PM
36.8 lb/hr as demonstrated by stack test data (3-hour average).

The AFI Plant dryer can only fire natural gas except during periods of natural gas curtailments. The permittee will be allowed to fire No. 6 or better grade fuel oil during periods of natural gas curtailments.

***Multifos A and B Kilns, Dryer and Blending Operation (EU-036)***

PM
25 lb/hr as demonstrated by stack test data (3-hour average).

$SO_2$
25 lb/hr as demonstrated by stack test data (3-hour average).

The permittee will install a caustic scrubber for each of the Multifos A and B Kilns to control $SO_2$ emissions. The caustic scrubbers will be similar to the one installed on Kiln C.

## 6. COMPARISON OF EXISTING AIR POLLUTION CONTROL TECHNOLOGY & MEASURES TO PROPOSED BART EXEMPTION AIR POLLUTION CONTROL TECHNOLOGY & MEASURES

This proposed BART exemption determination requires some new air pollution control measures as summarized below for the emissions units stated.

| EU ID No. | Brief Description |
|---|---|
| -002 | Sulfuric Acid Plant No. 1 |
| -003 | Sulfuric Acid Plant No. 2 |
| -004 | Sulfuric Acid Plant No. 3 |
| -036 | Multifos A and B Kilns, Dryer and Blending Operation |

This proposed BART determination requires the use of the existing control technology for the SAPs - the double absorption system with increased catalyst (vanadium and/or cesium) loading, replacement of indicated process equipment, and the use of existing Brownian-diffusion type candle mist eliminators for SAP No. 3.

The proposed BART determination for the Multifos A and B Kilns under Scenario B requires the installation of a caustic scrubber for each of the Multifos A and B Kilns.

In summary the following specific work activities are required under this project as outlined by the applicant in order to lower emissions to escape BART:

| EU ID No. | Work Activities |
|---|---|
| -002 | • Increase the catalyst loading ratio from approximately 147 liters per ton $H_2SO_4$ per day (L/TPD) at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 498,400 liters to 610,000 liters} (Scenario B);<br>• Install a heat recovery system (HRS) to replace the interpass absorption (IPA) tower (Scenario B);<br>• Replace the sulfur furnace (Scenario B);<br>• Replace the drying tower (Scenario B); and,<br>• Install Brownian diffusion-type candles in the final absorption tower for SAM control (Scenario A and B). |
| -003 | • Increase the catalyst loading ratio from approximately 147 L/TPD at 3,400 TPD production rate to approximately 213 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 498,400 liters to 610,000 liters} (Scenario B);<br>• Install HRS to replace the IPA tower (Scenario B);<br>• Replace the sulfur furnace (Scenario B);<br>• Replace the drying tower (Scenario B); and,<br>• Install Brownian diffusion-type candles in the final absorption tower for SAM control (Scenario A and B). |
| -004 | • Increase the catalyst loading ratio from approximately 157 L/TPD at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 535,200 liters to 610,000 liters} (Scenario B). |
| -036 | • Install caustic scrubber for each of the Multifos A and B Kilns (Scenario B). |

This proposed BART exemption determination also requires the permittee to follow the best operational practices to minimize excess emissions during startup and shutdown as described in the most recent Title V air operation permit application in addition to the startup practices to minimize emissions of $SO_2$ and $SO_3$ currently in effect as outlined in the "Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants."

## 7. COMPARISON OF EXISTING EMISSION LIMITATIONS TO PROPOSED BART EXEMPTION EMISSION LIMITATIONS

This proposed BART exemption determination changes some existing emission limitations as summarized below for the emissions units stated.

| EU ID No. | Brief Description |
|---|---|
| -002 | Sulfuric Acid Plant No. 1 |
| -003 | Sulfuric Acid Plant No. 2 |
| -004 | Sulfuric Acid Plant No. 3 |

**Comparison Table for SAP Nos. 1, 2 & 3: Proposed Escape BART Emission Limits vs. Existing Emission Limits**

The following table summarizes the proposed emission limits to escape BART for $SO_2$ and SAM emissions in terms of lb/ton 100% $H_2SO_4$ produced under Scenario B compared to the existing emission limits.

| EU ID No. | Brief Description | Existing $SO_2$ emission limit | Proposed escape BART $SO_2$ emission limit | Existing SAM emission limit | Proposed escape BART SAM emission limit |
|---|---|---|---|---|---|
| -002 | SAP No. 1 | 3.5 lb $SO_2$/ton 24- hour rolling average | Equivalent to 3.0 lb $SO_2$/ton 24-hour (daily) block average | 0.10 lb SAM/ton | Equivalent to 0.05 lb SAM/ton |
| -003 | SAP No. 2 | 3.5 lb $SO_2$/ton 24-hour rolling average | Equivalent to 3.0 lb $SO_2$/ton 24-hour (daily) block average | 0.10 lb SAM/ton | Equivalent to 0.05 lb SAM/ton |
| -004 | SAP No. 3 | 3.5 lb $SO_2$/ton 24-hour rolling average | Equivalent to 3.0 lb $SO_2$/ton 24-hour (daily) block average | 0.10 lb SAM/ton | Equivalent to 0.05 lb SAM/ton |

**Comparison Table for DAP Plant No. 1, MAP Plant, AFI Plant and Multifos A and B Kilns: Proposed Escape BART Emission Limits vs. Existing Emission Limits**

The following table summarizes the proposed emission limits to escape BART for PM and $SO_2$ emissions under Scenario B compared to the existing emission limits and fuel requirements.

| EU ID No. | Brief Description | Existing PM emission limit (lb/hr) | Proposed escape BART PM emission limit (lb/hr) | Existing $SO_2$ emission limit (lb/hr) | Proposed escape BART $SO_2$ emission limit (lb/hr) | Existing Fuel | Proposed escape BART Fuel |
|---|---|---|---|---|---|---|---|
| -009 | DAP Plant No. 1 | 28.6 | 15 | N/A | N/A | N/A | N/A |
| -011 | MAP Plant | 15 | 7 | N/A | N/A | N/A | N/A |
| -027 | AFI Plant | N/A | N/A | N/A | N/A | Natural Gas & Fuel Oil | Natural Gas |
| -036 | Multifos A and B Kilns | 29.8 | 25 | No current limit | 25 | N/A | N/A |

## 8. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations regarding a BART exemption 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, review of the visibility impact analysis and the conditions specified in the Draft permit. The Draft permit contains specific conditions to provided reasonable assurances of compliance with the applicant's proposed work to escape and remain exempt from a BART determination.

Mr. Syed Arif, P.E. is the project engineer responsible for reviewing the application, writing this TE&PD and drafting the permit. He may be contacted at syed.arif@dep.state.fl.us and 850/921-9528. Mr. Tom Rogers is the project meteorologist responsible for reviewing the air dispersion modeling analysis for visibility. He may be contacted at tom.rogers@dep.state.fl.us and 850/921-9554.

# DRAFT

**PERMITTEE**

Mosaic Fertilizer, LLC
Post Office Box 2000
Mulberry, FL 33860

*Authorized Representative:*
Mr. David B. Jellerson, Assistant Vice President - Environmental

Air Permit No. 1050059-061-AC
Expiration Date: June 30, 2013

New Wales Facility
BART Exemption Project

**PLANT AND LOCATION**

The Mosaic Fertilizer, LLC operates the New Wales facility, which is located at 3095 Highway 640, Mulberry in Polk County, Florida. The facility is an existing phosphate fertilizer manufacturer, which is identified by Standard Industrial Classification (SIC) code No. 2874.

**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.). Pursuant to Rule 62-296.340(5)(c) (escape BART), F.A.C., the permittee shall install the air pollution control equipment and/or implement the air pollution control measures that are specified by this permit to be exempt from a Best Available Retrofit Technology (BART) determination.

**EFFECTIVE DATE**

Unless otherwise specified by this permit, the affected emissions units shall comply with the conditions of this permit as expeditiously as practicable, but not later than the expiration date of this permit. [Rule 62-296.340(3)(b)2., F.A.C.]

Executed in Tallahassee, Florida

Joseph Kahn, Director
Division of Air Resource Management

Effective Date

JK/tlv/sa

## FACILITY DESCRIPTION

The applicant, Mosaic Fertilizer, LLC, operates an existing phosphate fertilizer manufacturer. The fertilizer complex processes phosphate rock into several different fertilizer products and animal feed ingredients. This is accomplished by reacting the phosphate rock with sulfuric acid to produce phosphoric acid and then converting the phosphoric acid to fertilizer and animal feed ingredient products. The facility consists of five double absorption sulfuric acid plants (SAP); three phosphoric acid plants (PAP); a phosphoric acid clarification and storage area; three diammonium phosphate (DAP) plants; a monoammonium phosphate (MAP) plant; a granular monoammonium phosphate (GMAP) plant; an animal feed ingredients (AFI) plant; a multifos production plant; a molten sulfur storage and handling system; a limestone storage silo/rock grinding operation and a phosphogypsum stack.

## FACILITY REGULATORY CLASSIFICATIONS

- The facility is a major source of hazardous air pollutants (HAP).
- The facility does not operate emissions 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.

## AFFECTED EMISSIONS UNITS

Mosaic Fertilizer, LLC submitted an application to escape the BART determination requirements of Rule 62-296.340(5)(c) (escape BART), F.A.C., which addresses the following emissions units with the potential to emit at least 50 tons per year (TPY) or more of a visibility-impairing pollutant:

| EU ID No. | Brief Description |
|---|---|
| -002 | SAP No. 1 |
| -003 | SAP No. 2 |
| -004 | SAP No. 3 |
| -009 | DAP Plant No. 1 |
| -011 | MAP Plant |
| -027 | AFI Plant |
| -036 | Multifos A and B Kilns, Dryer and Blending Operations |

The rest of the BART-eligible emissions units at the New Wales facility are sources with relatively low particulate matter (PM) emissions (less than 5 lb/hr each). They are as follows:

| EU ID No. | Brief Description |
|---|---|
| -015 | AFI truck loadout system |
| -023 | AFI storage silos - north side |

| | |
|---|---|
| -024 | AFI railcar loadout system |
| -025 | AFI limestone storage silos |
| -026 | AFI silica storage bin |
| -028 | AFI storage silos – south side |
| -030 | Multifos soda ash unloading |
| -031 | Multifos soda ash conveying |
| -032 | Multifos A kiln cooler |
| -033 | Multifos B kiln cooler |
| -034 | Multifos A and B kilns milling and sizing – West baghouses |
| -035 | Multifos A and B kilns milling and sizing – East baghouses |
| -038 | Multifos A and B kilns milling and sizing – surge bin |
| -052 | AFI limestone feed bin |
| -055 | MAP plant cooler |
| -063 | 1,500-Ton truck unloading sulfur pit |
| -066 | 200-Ton molten sulfur transfer pit |
| -067 | 1,500-Ton truck unloading sulfur pit – front vents |
| -068 | 1,500-Ton truck unloading sulfur pit – rear vents |

Except for the molten sulfur pits (EUs-063, -066, -067 and -068), all of theses emissions units emit only PM. The molten sulfur pits each emit 0.2 lb/hr or less of PM and 0.3 lb/hr or less of sulfur dioxide ($SO_2$).

## CONTENTS

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.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the **Compliance Authority, Southwest District (SWD) Office.** The Compliance Authority's mailing address is:

   Florida Department of Environmental Protection Southwest District
   13051 N. Telecom Parkway
   Temple Terrace, Florida 33637-0926
   Telephone: 813/632-7600, Fax: 813/632-7665

3. Appendices: The following Appendices are attached as part of this permit: Appendix A (Citation Formats); Appendix B (General Conditions); Appendix C (Standard Testing Requirements); and, Appendix D (Memorandum of Understanding Regarding Best Operational Start-up 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 Air Operation 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 air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation 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 **Permitting Authority, the Florida Department of Environmental Protection, Southwest District Office.**

   [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 (five) 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 (AOR): 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 April 1st of each year. [Rule 62-210.370(3), F.A.C.]

**NEW AND PREVIOUS PERMIT SPECIFIC CONDITIONS**

8. Pursuant to Rule 62-296.340(5)(c) (escape BART), F.A.C., the specific terms and conditions of this permit are required in order to escape a Best Available Retrofit Technology Determination. These specific terms and conditions apply to each emissions unit and are in addition to any other applicable standards. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Proposed by the Applicant in the Application;

and, Rules 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.]

9. A relaxation of the specific terms and conditions of this permit may subject the facility to a BART and/or a Best Available Control Technology (BACT) determination. Any request to change the specific terms and conditions of this permit must be submitted to the Bureau of Air Regulation in the Division of Air Resource Management of the Florida Department of Environmental Protection. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; and, Rules 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.]

10. The applicant has proposed two emission reduction scenarios A and B for the BART-eligible emissions units at the New Wales facility. For each of the emissions reduction scenarios, the New Wales facility is exempt from BART because its contribution to visibility impairment does not exceed 0.5 deciview (dv) above natural conditions in any Class I area. Emissions Unit Specific Conditions in Section 3 of the permit will address both the emission reduction scenarios under different subsections. The applicant will make a decision to implement scenario A or B no later than January 1, 2010, at which time the scenario that was not selected will become obsolete. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; and, Rules 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.]

11. No emissions unit or facility subject to this permit shall be constructed or modified without obtaining the appropriate air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

12. Source Obligation:
    (a) Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit. [Rule 62-212.400(12)(a), F.A.C.]
    (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification. [Rule 62-212.400(12)(b), F.A.C.]
    (c) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification. [Rule 62-212.400(12)(c), F.A.C.]

## Subsection A (Scenario A). SAP Nos. 1, 2 and 3, DAP Plant No. 1, MAP Plant, AFI Plant and Multifos A and B Kilns, Dryer and Blending Operation

This subsection addresses the following affected emissions units:

| EU ID No. | Brief Description |
|---|---|
| -002 | SAP No. 1 |
| -003 | SAP No. 2 |
| -004 | SAP No. 3 |
| -009 | DAP Plant No. 1 |
| -011 | MAP Plant |
| -027 | AFI Plant |
| -036 | Multifos A and B Kilns, Dryer and Blending Operation |

### ADMINISTRATIVE REQUIREMENTS

1. Emission Reductions under Scenario A: This subsection deals with emission reductions for the above affected emissions units under Scenario A. The permittee shall notify the Department's Bureau of Air Regulation and the SWD Office through a letter from the responsible official by January 1, 2010 whether Scenario A will be implemented. Under Scenario A, the permittee shall shutdown EU-036 (Multifos A and B Kilns including associated coolers) as expeditiously as practicable after January 1, 2010, but not later than June 30, 2013. [Rule 62-296.340(5)(c) (escape BART), F.A.C. and Applicant's Request received October 3, 2008]

   {Note: The dryer and blending operations under EU-036 will not be shut down as it is part of a mixed feed system that feeds Kiln C. The Multifos A and B Kiln coolers will be shut down and are designated as EU-032 and EU-033, respectively.}

2. Notification of Shutdown: The permittee shall notify the Department's Bureau of Air Regulation, SWD Office and the Compliance Authority upon the shutdown of the EU-036 (Multifos A and B Kilns including associated coolers). If these emission units resume operations a BART analysis shall be performed as though they had not been shutdown. Other preconstruction review requirements may apply. [Rule 62-296.340(5)(c) (escape BART), F.A.C. and Applicant's Request received October 3, 2008]

### ESSENTIAL POTENTIAL TO EMIT (PTE) PARAMETERS

3. Design Capacity: The existing design capacity of each SAP, DAP Plant No. 1, MAP Plant and the AFI Plant shall not be changed as a result of the proposed work under this project, Permit No. 1050059-061-AC. The existing design capacity of each of these emissions units shall not exceed the following:

| EU ID No. | Plant Description | Design Production Capacity |
|---|---|---|
| -002 | SAP No. 1 | 3,400 TPD (tons per day) of 100% $H_2SO_4$ (sulfuric acid) |
| -003 | SAP No. 2 | 3,400 TPD of 100% $H_2SO_4$ |
| -004 | SAP No. 3 | 3,400 TPD of 100% $H_2SO_4$ |
| -009 | DAP Plant No. 1 | 150 TPH (tons per hour) of MAP or DAP |
| -011 | MAP Plant | 50 TPH of MAP |

| | | |
|---|---|---|
| -027 | AFI Plant | 120 TPH |

[Rules 62-4.160(2) and 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.]

4. Methods of Operation - Fuels: The DAP Plant No. 1 and the AFI Plant dryers shall be fired by natural gas. The two dryers can be fired with No. 6 fuel oil or better grade fuel oil (as defined in Condition CC.20 in Permit 1050059-045-AV) only during periods of natural gas curtailment. The permittee shall submit an official document from the natural gas pipeline vendor to the SWD Office for verification of natural gas curtailments. [Rules 62-4.070(1)&(3) (Reasonable Assurance) and Rule 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.]

5. Design Capacity and Permitted Production: The permittee shall submit a statement from the responsible official within 30 days after the completion of all of the proposed work under this project. [Rules 62-4.160(2) and 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.]

## AIR POLLUTION CONTROL TECHNOLOGIES AND MEASURES

6. SAP $SO_2$ Controls: This BART exemption determination does not require new, modified or additional air pollution control systems for sulfur dioxide ($SO_2$). To control emissions of $SO_2$ from each SAP, the permittee shall continue the use of the existing double absorption system technology with vanadium and/or cesium catalyst in the converters and the use of good combustion practices and best operational practices to minimize excess emissions during startup and shutdown. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rule 62-210.700(1), F.A.C.; and, Proposed by the Applicant in the Application]

7. SAP Acid Mist Controls: This BART exemption determination does require new, modified or additional air pollution control systems for sulfuric acid mist (SAM). By controlling SAM emissions, particulate matter/particulate matter less than 10 microns ($PM/PM_{10}$) and visible emissions are minimized. To control emissions of SAM, the permittee shall install Brownian diffusion-type candles on SAPs 1 and 2, similar to the one employed on SAP No. 3. Other SAM control technologies may be considered by the Bureau of Air Regulation upon written request. The permittee shall submit a written request for other SAM control technologies to the Bureau of Air Regulation with a copy to the Compliance Authority for review and approval prior to use. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rule 62-210.700(1), F.A.C.; and, Proposed by the Applicant in the Application]

8. 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.]

## EMISSION STANDARDS AND LIMITATIONS

9. PM, NOx and $SO_2$ Standards: Particulate matter, nitrogen oxides and sulfur dioxide emissions shall not exceed the following emissions standards.

| EU ID No. | Emissions Unit Description | Emissions Standards | | |
|---|---|---|---|---|
| | | PM | NOx | $SO_2$ |
| -002 | No.1 Sulfuric Acid Plant | --- | 17 lb/hour, a | 496 lb/hour, b |
| -003 | No. 2 Sulfuric Acid Plant | --- | 17 lb/hour, a | 496 lb/hour, b |
| -004 | No. 3 Sulfuric Acid Plant | --- | 17 lb/hour, a | 496 lb/hour, b |
| -009 | DAP Plant No.1 | 15 lb/hour | --- | c |

| EU ID No. | Emissions Unit Description | Emissions Standards | | |
|---|---|---|---|---|
| | | PM | NOx | $SO_2$ |
| -011 | MAP Plant | 7 lb/hour | --- | --- |
| -027 | AFI Plant | 36.8 lb/hour | --- | c |

a. Nitrogen oxides (NOx) emissions from Nos. 1, 2, and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) shall not exceed 17 lb/hour {equivalent to 0.12 lb/ton of 100% sulfuric acid at design capacity} based on a 3-hour average as determined by stack test data.

b. Sulfur dioxide emissions from Nos. 1, 2, and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) shall not exceed 496 lb/hour {equivalent to 3.5 lb/ton of 100% sulfuric acid at design capacity} based on a 24-hour (daily) block CEMS average. A 24-hour (daily) block average was established based on the emission rate averaging period of 24-hour (daily) used in the air dispersion modeling. No stack testing is required.

c. To control sulfur dioxide emissions from the dryers, only natural gas shall be fired as a fuel. During periods of natural gas curtailments, No. 6 fuel oil or better grade fuel oil (as defined in Condition CC.20 in Permit 1050059-045-AV) may be fired as a fuel.

[Rules 62-4.070(3) and 62-296.340(5)(c) (escape BART), F.A.C.]

10. Opacity Standards: Visible emissions from the Nos. 1, 2 and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) 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(5)(c) (escape BART), F.A.C.; and 40 CFR 60.83(a)2 and 40 CFR 60, Appendix A, Method 9]

11. $SO_2$ Continuous Emissions Monitoring System (CEMS): This BART exemption determination requires an $SO_2$ CEMS to be used to demonstrate continuous compliance with the $SO_2$ emission standards and limitations specified in this section.

    a. In accordance with the New Source Performance Standards (NSPS) (40 CFR 60, Subpart H) requirements for sulfuric acid plants, the permittee shall continue to properly calibrate, maintain, and operate a CEMS to measure and record emissions of $SO_2$.

    b. A CEMS shall be properly calibrated, maintained, and operated to comply with: 40 CFR 60 Subpart A, General Provisions; 40 CFR 60 Appendix B, Performance Specification 2; and, 40 CFR 60, Appendix F, Quality Assurance Procedures for Gas CEMS Used for Compliance Determination.

    c. The emissions data collected with the certified CEMS shall be used to demonstrate continuous compliance with the standards and limitations specified in this section.

    [Rules 62-296.340(5)(c) (escape BART), 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.; and, Proposed by the Applicant in the Application]

12. SAM Emission Standards and Limitations: This BART determination specifies new SAM emission standards. Emissions of SAM shall not exceed the following as demonstrated by stack test data:

| SAP No. | lb/hour |
|---|---|
| 1 | 7.1 |
| 2 | 7.1 |
| 3 | 7.1 |

Emissions of SAM shall not exceed 7.1 pounds per hour for each of the three SAPs based on a 3-hour average as determined by stack test data.

{The equivalent lb SAM/ton 100% $H_2SO_4$ values for SAP Nos. 1, 2, and 3 at design capacity for each SAP is 0.05 lb SAM/ton 100% $H_2SO_4$. The equivalent lb/ton value corresponding to the lb/hour limits is less than the current existing standards. The equivalent tons per year (TPY) values for SAP Nos. 1, 2, and 3 is 31.1 TPY. This permit requires stack test data to be used to demonstrate compliance. Compliance with the 3-hour average by stack test assures compliance with a numerical standard on a 24-hour (daily) average basis. The air dispersion modeling was performed using a 24-hour (daily) average.}

[Rule 62-296.340(5)(c) (escape BART), F.A.C.; and, Proposed by the Applicant in the Application]

**EXCESS EMISSIONS**

13. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

14. Excess Emissions Allowed: Unless otherwise specified by permit, excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

15. Excess Emissions Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

16. Best Operational Practices to Minimize Excess Emissions:

    a. The permittee shall follow the best operational practices to minimize excess emissions during startup and shutdown as described in the most recent Title V permit application.

    b. Best operational practices to minimize excess $SO_2$ and sulfur trioxide ($SO_3$) emissions during startup are governed by this condition. The permittee shall follow the best operational practices to minimize excess emissions during startup contained within the attached Appendix D - Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants initially executed on October 25, 1989.

    [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rule 62-210.700(1), F.A.C.; and, Proposed by the Applicant in the Application]

17. Best Operational Practices to Minimize Leaks of $SO_2$ and $SO_3$, or Other Fugitive Process Emissions: Best operational practices to minimize leaks of $SO_2$ and $SO_3$, or other fugitive process emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions. [Rules 62-4.070(1)&(3) and 62-296.320, F.A.C.]

**EMISSIONS TESTING**

18. Test Methods: The following reference methods (or more recent versions) shall be used to conduct any required emissions tests.

| Method | Description of Method and Comments |
|---|---|

| Method | Description of Method and Comments |
|---|---|
| 1 - 4 | Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content |
| 5 | Determination of PM Emissions from Stationary Sources |
| 6 or 6C | Determination of $SO_2$ Emissions from Stationary Sources |
| 7E | Determination of NOx Emissions from Stationary Sources (Instrumental Analyzer Procedure) |
| 8 | Determination of SAM and $SO_2$ Emissions from Stationary Sources |
| 9 | Visual Determination of Opacity from Stationary Sources |

EPA Methods 1, 2, 3, 4, and 19 shall be used as necessary to support the other test methods. The above methods are described in 40 CFR 60, Appendix A, which is adopted by reference in Rule 62-204.800, F.A.C. No other methods shall be used without prior written approval from the Permitting Authority. [Rules 62-204.800 and 62-297.100, F.A.C.; and 40 CFR 60, Appendix A]

19. Standard Testing Requirements: All required emissions tests shall be conducted in accordance with the requirements specified in Appendix C (Standard Testing Requirements) of this permit. [Rules 62-204.800 and 62-297.100, F.A.C.; and 40 CFR 60, Appendix A]

20. Compliance Test Schedule: In accordance with the following schedule, the permittee shall have stack tests conducted to demonstrate compliance with the emissions standards specified in this permit.

    a. *Initial Test*: On or before April 30, 2012, an initial test shall be conducted for NOx and SAM emissions from each SAP and PM emissions from DAP Plant No. 1, MAP Plant and the AFI Plant. The initial compliance test report for NOx, SAM and PM shall be submitted within 45 days of completion of testing. [Rules 62-296.340(5)(c) (escape BART) and 62-297.310(7)(a)1, F.A.C.]

    b. *Initial and Special Test*: A visible emissions (VE) test shall be conducted concurrently with one run of the SAM stack test to demonstrate initial compliance with the existing VE standards after the proposed work has been completed for each SAP. The VE test results shall be submitted with the SAM stack test report. [Rules 62-4.070(1)&(3) and 62-297.310(7)(b), F.A.C.]

    c. *Annual Compliance Tests*: During each federal fiscal year (October 1st to September 30th), the permittee shall conduct the following compliance tests.

        (i). The permittee shall conduct NOx, SAM and visible emissions tests on the Nos. 1, 2 and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) in accordance with EPA Methods 7E, 8 and 9 to demonstrate compliance with the NOx, SAM and opacity standard, respectively.

        (ii). To demonstrate compliance with the PM standards, the permittee shall conduct tests in accordance with EPA Method 5 on DAP Plant No. 1 (EU-009), MAP Plant (EU-011) and the AFI Plant (EU-027).

    [Rules 62-296.340(5)(c) (escape BART), and 62-297.310(7)(a)3, F.A.C.]

    {Note: Under this permit $SO_2$ CEMS are required to demonstrate compliance on a continuous basis, therefore, no initial or annual compliance test for $SO_2$ is necessary on the SAPs.}

**RECORDS AND REPORTS**

21. Quarterly Reporting Requirements: The owners or operators of facilities for which monitoring is required shall submit to the Department a written report of emissions in excess of emission limiting standards as set forth in Rule 62-296.402, F.A.C., for each calendar quarter. The nature and cause of the excessive emissions shall be explained. This report does not relieve the owner or operator of the legal liability for violations. All

recorded data shall be maintained on file by the Source for a period of 5 (five) years. {The permittee is required to use $SO_2$ continuous emissions monitoring systems for continuous compliance demonstrations.} [Rules 62-296.402(5) and 62-213.440(1)(b)2., F.A.C.]

22. Construction Plan and Progress Reports: The permittee shall submit a Construction Plan within thirty (30) days of the effective date of this permit which shall contain the necessary milestones to comply with this permit. The Plan shall include at a minimum the necessary actions and corresponding scheduled due dates to complete those actions to comply with this permit.

    a. The permittee shall submit progress reports based on the anniversary date (one year from the effective date) of this permit regarding the status of the milestones in the Construction Plan to the Department and to the Compliance Authority, no less than annually in 2009 - 2013.

    b. The permittee shall complete all required construction and modifications no later than June 30, 2013.

    [Rules 62-296.340(5)(c) (escape BART), 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.]

## Subsection B (Scenario B). SAP Nos. 1, 2 and 3, DAP Plant No. 1, MAP Plant, AFI Plant and Multifos A and B Kilns, Dryer and Blending Operation

This subsection addresses the following affected emissions units:

| EU ID No. | Brief Description |
|---|---|
| -002 | SAP No. 1 |
| -003 | SAP No. 2 |
| -004 | SAP No. 3 |
| -009 | DAP Plant No. 1 |
| -011 | MAP Plant |
| -027 | AFI Plant |
| -036 | Multifos A and B Kilns, Dryer and Blending Operation |

### ADMINISTRATIVE REQUIREMENTS

1. Emission Reductions under Scenario B: This subsection deals with emission reductions for the above affected emissions units under Scenario B. The permittee shall notify the Department's Bureau of Air Regulation and the SWD Office through a letter from the responsible official by January 1, 2010 whether Scenario B will be implemented. Under Scenario B, the permittee shall reduce production rates of SAP Nos. 1, 2 and 3 from 3,400 TPD to 3,200 TPD and reduce lower daily average of $SO_2$ and SAM emissions rates from the three SAPs. The SAPs shall comply with the new BART exemption limits for $SO_2$ and SAM by April 30, 2012. Multifos A and B Kilns (EU-036) will continue to operate with lower $SO_2$ and PM emission rates. A new scrubber will be installed to meet the lower $SO_2$ emission limits for Multifos A and B Kilns. The Multifos A and B Kilns shall comply with the new BART exemption limits for $SO_2$ and PM as expeditiously as practicable after January 1, 2010. [Rule 62-296.340(5)(c) (escape BART), F.A.C. and Applicant's Request received October 3, 2008]

### ESSENTIAL POTENTIAL TO EMIT (PTE) PARAMETERS

2. Design Capacity: The design capacity of each SAP, DAP Plant No. 1, MAP Plant, AFI Plant and the Multifos A and B Kilns shall not exceed the following:

| EU ID No. | Plant Description | Design Production Capacity |
|---|---|---|
| -002 | SAP No. 1 | 3,200 TPD of 100% $H_2SO_4$ |
| -003 | SAP No. 2 | 3,200 TPD of 100% $H_2SO_4$ |
| -004 | SAP No. 3 | 3,200 TPD of 100% $H_2SO_4$ |
| -009 | DAP Plant No. 1 | 150 TPH of MAP or DAP |
| -011 | MAP Plant | 50 TPH of MAP |
| -027 | AFI Plant | 120 TPH |
| -036 | Multifos A and B Kilns, Dryer and Blending Operation | 15 TPH process input rate to each Kiln and 150,000 tons per year (TPY) of multifos from both Kilns combined |

[Rules 62-4.160(2) and 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.]

3. Methods of Operation - Fuels: The DAP Plant No. 1, AFI Plant and the Multifos A and B Kilns dryers shall be fired by natural gas. The dryers can be fired with No. 6 fuel oil or better grade fuel oil (as defined in

Condition CC.20 in Permit 1050059-045-AV) only during periods of natural gas curtailment. The permittee shall submit an official document from the natural gas pipeline vendor to the SWD Office for verification of natural gas curtailments. [Rules 62-4.070(1)&(3) (Reasonable Assurance) and Rule 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.]

4. Design Capacity and Permitted Production: The permittee shall submit a statement from the responsible official within 30 days after the completion of all of the proposed work under this project. [Rules 62-4.160(2) and 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.]

**AIR POLLUTION CONTROL TECHNOLOGIES AND MEASURES**

5. SAP $SO_2$ Controls: This BART exemption determination does require new, modified or additional air pollution control systems for $SO_2$. To control emissions of sulfur dioxide ($SO_2$) from each SAP, the permittee shall continue the use of the existing double absorption system technology with vanadium and/or cesium catalyst in the converters and the use of good combustion practices and best operational practices to minimize excess emissions during startup and shutdown. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rule 62-210.700(1), F.A.C.; and, Proposed by the Applicant in the Application]

6. Proposed Work: The applicant is required to perform the following specific work activities under this project in order to escape BART:

| EU ID No. | Work Activities |
|---|---|
| -002 | • Increase the catalyst loading ratio from approximately 147 liters per ton $H_2SO_4$ per day (L/TPD) at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 498,400 liters to 610,000 liters};<br>• Install a heat recovery system (HRS) to replace the interpass absorption (IPA) tower;<br>• Replace the sulfur furnace;<br>• Replace the drying tower; and<br>• Install Brownian diffusion-type candles in the final absorption tower for SAM control. |
| -003 | • Increase the catalyst loading ratio from approximately 147 L/TPD at 3,400 TPD production rate to approximately 213 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 498,400 liters to 610,000 liters};<br>• Install HRS to replace the IPA tower;<br>• Replace the sulfur furnace;<br>• Replace the drying tower; and<br>• Install Brownian diffusion-type candles in the final absorption tower for SAM control. |
| -004 | • Increase the catalyst loading ratio from approximately 157 L/TPD at 3,400 TPD production rate to approximately 190 L/TPD at 3,200 TPD production rate {increases the current catalyst loading from approximately 535,200 liters to 610,000 liters}. |
| -036 | • Install caustic scrubber for each of the Multifos A and B Kilns, Dryer and Blending Operation. |

Higher catalyst loadings are allowed by this permit in order to meet the BART $SO_2$ emission limits. However, additional catalyst can only be used for $SO_2$ emissions reductions. The Brownian diffusion-type candles will be installed in the IPA tower which will become the final absorption tower after the reconfiguration. The candles will lower SAM emission rates from the two SAPs. A caustic scrubber is required for each Multifos A and B Kilns, Dryer and Blending Operation to meet the lower $SO_2$ emission

limits. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rules 62-4.160(2) and 62-4.070(1)&(3) (Reasonable Assurance), and, Proposed by the Applicant in the Application]

7. $SO_2$ Controls: The permittee shall use the specific catalyst loadings and types as cited in the study by the permittee's catalyst supplier in Appendix C of the Application. The specific catalyst loadings and types in Appendix C of the Application provide the permitting authority reasonable assurances of compliance with this permit. The study confirms that with the proposed modifications to each SAP, the SAPs can achieve the $SO_2$ emission rates of 3.0 lb $SO_2$/ton 100% $H_2SO_4$. Other specific catalyst types may be considered by the Bureau of Air Regulation upon written request. The permittee shall submit a written request for other specific catalyst loadings and types to the Bureau of Air Regulation with a copy to the Compliance Authority for review and approval prior to use. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rules 62-4.160(2) and 62-4.070(1)&(3) (Reasonable Assurance), F.A.C.; and, Proposed by the Applicant in the Application]

8. SAP Acid Mist Controls: This BART exemption determination does require new, modified or additional air pollution control systems for sulfuric acid mist (SAM). By controlling SAM emissions, PM/$PM_{10}$ and visible emissions are minimized. To control emissions of SAM, the permittee shall install Brownian diffusion-type candles on SAPs 1 and 2, similar to the one employed on SAP No. 3. Other SAM control technologies may be considered by the Bureau of Air Regulation upon written request. The permittee shall submit a written request for other SAM control technologies to the Bureau of Air Regulation with a copy to the Compliance Authority for review and approval prior to use. [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rule 62-210.700(1), F.A.C.; and, Proposed by the Applicant in the Application]

9. 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.]

**EMISSION STANDARDS AND LIMITATIONS**

10. PM, NOx and $SO_2$ Standards: Particulate matter, nitrogen oxides and sulfur dioxide emissions shall not exceed the following emissions standards.

| EU ID No. | Emissions Unit Description | Emissions Standards | | |
|---|---|---|---|---|
| | | PM | NOx | $SO_2$ |
| -002 | No.1 Sulfuric Acid Plant | --- | 16 lb/hour, a | 400 lb/hour, b |
| -003 | No. 2 Sulfuric Acid Plant | --- | 16 lb/hour, a | 400 lb/hour, b |
| -004 | No. 3 Sulfuric Acid Plant | --- | 16 lb/hour, a | 400 lb/hour, b |
| -009 | DAP Plant No.1 | 15 lb/hour | --- | c |
| -011 | MAP Plant | 7 lb/hour | --- | --- |
| -027 | AFI Plant | 36.8 lb/hour | --- | c |
| -036 | Multifos A and B Kilns, Dryer and Blending Operation | 25 lb/hour | --- | 25 lb/hour, c |

a. Nitrogen oxides (NOx) emissions from Nos. 1, 2, and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) shall not exceed 16 lb/hour {equivalent to 0.12 lb/ton of 100% sulfuric acid at design capacity} based on a 3-hour average as determined by stack test data.

b. Sulfur dioxide emissions from Nos. 1, 2, and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) shall not exceed 400 lb/hour {equivalent to 3.0 lb/ton of 100% sulfuric acid at design capacity} based on a 24-hour (daily) block CEMS average. A 24-hour (daily) block average was established based on the emission rate averaging period of 24-hour (daily) used in the air dispersion modeling. No stack testing is required.

c. To control sulfur dioxide emissions from the dryers, only natural gas shall be fired as a fuel. During periods of natural gas curtailments, No. 6 fuel oil or better grade fuel oil (as defined in Condition CC.20 in Permit 1050059-045-AV) may be fired as a fuel. [Rules 62-4.070(3) and 62-296.340(5)(c) (escape BART), F.A.C.]

11. Opacity Standards: Visible emissions from the Nos. 1, 2 and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) 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(5)(c) (escape BART), F.A.C.; and 40 CFR 60.83(a)2 and 40 CFR 60, Appendix A, Method 9]

12. $SO_2$ Continuous Emissions Monitoring System (CEMS): This BART exemption determination requires an $SO_2$ CEMS to be used to demonstrate continuous compliance with the $SO_2$ emission standards and limitations specified in this section.

    a. In accordance with the NSPS (40 CFR 60, Subpart H) requirements for sulfuric acid plants, the permittee shall continue to properly calibrate, maintain, and operate a CEMS to measure and record emissions of $SO_2$.

    b. A CEMS shall be properly calibrated, maintained, and operated to comply with: 40 CFR 60 Subpart A, General Provisions; 40 CFR 60 Appendix B, Performance Specification 2; and, 40 CFR 60, Appendix F, Quality Assurance Procedures for Gas CEMS Used for Compliance Determination.

    c. The emissions data collected with the certified CEMS shall be used to demonstrate continuous compliance with the standards and limitations specified in this section.

    [Rules 62-296.340(5)(c) (escape BART), 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.; and, Proposed by the Applicant in the Application]

13. SAM Emission Standards and Limitations: This BART determination specifies new SAM emission standards. Emissions of SAM shall not exceed the following as demonstrated by stack test data:

| SAP No. | lb/hour |
|---|---|
| 1 | 6.7 |
| 2 | 6.7 |
| 3 | 6.7 |

    Emissions of SAM shall not exceed 6.7 pounds per hour for each of the three SAPs based on a 3-hour average as determined by stack test data.

    {The equivalent lb SAM/ton 100% $H_2SO_4$ values for SAP Nos. 1, 2, and 3 at design capacity for each SAP is 0.05 lb SAM/ton 100% $H_2SO_4$. The equivalent lb/ton value corresponding to the lb/hour limits is less than the current existing standards. The equivalent tons per year (TPY) values for SAP Nos. 1, 2, and 3 is 29.3 TPY. This permit requires stack test data to be used to demonstrate compliance. Compliance with the 3-hour average by stack test assures compliance with a numerical standard on a 24-hour (daily) average basis. The air dispersion modeling was performed using a 24-hour (daily) average.}

    [Rule 62-296.340(5)(c) (escape BART), F.A.C.; and, Proposed by the Applicant in the Application]

## EXCESS EMISSIONS

14. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

15. Excess Emissions Allowed: Unless otherwise specified by permit, excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

16. Excess Emissions Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

17. Best Operational Practices to Minimize Excess Emissions:

    a. The permittee shall follow the best operational practices to minimize excess emissions during startup and shutdown as described in the most recent Title V permit application.

    b. Best operational practices to minimize excess $SO_2$ and $SO_3$ emissions during startup are governed by this condition. The permittee shall follow the best operational practices to minimize excess emissions during startup contained within the attached Appendix D - Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants initially executed on October 25, 1989.

    [Rule 62-296.340(5)(c) (escape BART), F.A.C.; Rule 62-210.700(1), F.A.C.; and, Proposed by the Applicant in the Application]

18. Best Operational Practices to Minimize Leaks of $SO_2$ and $SO_3$, or Other Fugitive Process Emissions: Best operational practices to minimize leaks of $SO_2$ and $SO_3$, or other fugitive process emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions. [Rules 62-4.070(1)&(3) and 62-296.320, F.A.C.]

## EMISSIONS TESTING

19. Test Methods: The following reference methods (or more recent versions) shall be used to conduct any required emissions tests.

| Method | Description of Method and Comments |
|---|---|
| 1 - 4 | Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content |
| 5 | Determination of PM Emissions from Stationary Sources |
| 6 or 6C | Determination of $SO_2$ Emissions from Stationary Sources |
| 7E | Determination of NOx Emissions from Stationary Sources (Instrumental Analyzer Procedure) |
| 8 | Determination of SAM and $SO_2$ Emissions from Stationary Sources |
| 9 | Visual Determination of Opacity from Stationary Sources |

EPA Methods 1, 2, 3, 4, and 19 shall be used as necessary to support the other test methods. The above methods are described in 40 CFR 60, Appendix A, which is adopted by reference in Rule 62-204.800, F.A.C. No other methods shall be used without prior written approval from the Permitting Authority. [Rules 62-

204.800 and 62-297.100, F.A.C.; and 40 CFR 60, Appendix A]

20. Standard Testing Requirements: All required emissions tests shall be conducted in accordance with the requirements specified in Appendix C (Standard Testing Requirements) of this permit. [Rules 62-204.800 and 62-297.100, F.A.C.; and 40 CFR 60, Appendix A]

21. Compliance Test Schedule: In accordance with the following schedule, the permittee shall have stack tests conducted to demonstrate compliance with the emissions standards specified in this permit.

    a. *Initial Test*: On or before April 30, 2012, an initial test shall be conducted for NOx and SAM emissions from each SAP and PM emissions from DAP Plant No. 1, MAP Plant and the AFI Plant. On or before June 30, 2011, an initial test shall be conducted for $SO_2$ and PM emissions from Multifos A and B Kilns, Dryer and Blending Operation. The initial compliance test report for NOx, $SO_2$, SAM and PM shall be submitted within 45 days of completion of testing. [Rules 62-296.340(5)(c) (escape BART) and 62-297.310(7)(a)1, F.A.C.]

    b. *Initial and Special Test*: A visible emissions (VE) test shall be conducted concurrently with one run of the SAM stack test to demonstrate initial compliance with the existing VE standards after the proposed work has been completed for each SAP. The VE test results shall be submitted with the SAM stack test report. [Rules 62-4.070(1)&(3) and 62-297.310(7)(b), F.A.C.]

    c. *Annual Compliance Tests*: During each federal fiscal year (October 1st to September 30th), the permittee shall conduct the following compliance tests.

    (i). The permittee shall conduct NOx, SAM and visible emissions tests on the Nos. 1, 2 and 3 Sulfuric Acid Plants (EU-002, EU-003 and EU-004) in accordance with EPA Methods 7E, 8 and 9 to demonstrate compliance with the NOx, SAM and opacity standard, respectively.

    (ii). To demonstrate compliance with the PM standards, the permittee shall conduct tests in accordance with EPA Method 5 on DAP Plant No. 1 (EU-009), MAP Plant (EU-011), AFI Plant (EU-027) and Multifos A and B Kilns, Dryer and Blending Operation (EU-036).

    (iii). To demonstrate compliance with the $SO_2$ standards, the permittee shall conduct tests in accordance with EPA Method 6/6C on Multifos A and B Kilns, Dryer and Blending Operation (EU-036).

    [Rules 62-296.340(5)(c) (escape BART), and 62-297.310(7)(a)3, F.A.C.]

    {Note: Under this permit $SO_2$ CEMS are required to demonstrate compliance on a continuous basis, therefore, no initial or annual compliance test for $SO_2$ is necessary on the SAPs.}

**RECORDS AND REPORTS**

22. Quarterly Reporting Requirements: The owners or operators of facilities for which monitoring is required shall submit to the Department a written report of emissions in excess of emission limiting standards as set forth in Rule 62-296.402, F.A.C., for each calendar quarter. The nature and cause of the excessive emissions shall be explained. This report does not relieve the owner or operator of the legal liability for violations. All recorded data shall be maintained on file by the Source for a period of 5 (five) years. {The permittee is required to use $SO_2$ continuous emissions monitoring systems for continuous compliance demonstrations.} [Rules 62-296.402(5) and 62-213.440(1)(b)2., F.A.C.]

23. Construction Plan and Progress Reports: The permittee shall submit a Construction Plan within thirty (30) days of the effective date of this permit which shall contain the necessary milestones to comply with this permit. The Plan shall include at a minimum the necessary actions and corresponding scheduled due dates to complete those actions to comply with this permit.

a. The permittee shall submit progress reports based on the anniversary date (one year from the effective date) of this permit regarding the status of the milestones in the Construction Plan to the Department and to the Compliance Authority, no less than annually in 2009 - 2013.

b. The permittee shall complete all required construction and modifications no later than June 30, 2013.

[Rules 62-296.340(5)(c) (escape BART), 62-4.070(1)&(3) (Reasonable Assurance), and 62-213.440(1) (Assurance of Compliance), F.A.C.]

## SECTION 4. APPENDICES
## CONTENTS

## SECTION 4. APPENDIX A
## CITATION FORMATS

The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.

### REFERENCES TO PREVIOUS PERMITTING ACTIONS

**Old Permit Numbers**

*Example*: Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* "AC" identifies the permit as an Air Construction Permit
"AO" identifies the permit as an Air Operation Permit
"123456" identifies the specific permit project number

**New Permit Numbers**

*Example*: Permit Nos. 099-2222-001-AC, 099-2222-001-AO, or 099-2222-001-AV

*Where*: "099" represents the specific county ID number in which the project is located
"2222" represents the specific facility ID number
"001"identifies the specific permit project
"AC" identifies the permit as an air construction permit
"AO" identifies the permit as a minor source air operation permit
"AV" identifies the permit as a Title V Major Source Air Operation Permit

**PSD Permit Numbers**

*Example*: Permit No. PSD-FL-317

*Where*: "PSD" means issued pursuant to the Prevention of Significant Deterioration of Air Quality
"FL" means that the permit was issued by the State of Florida
"317" identifies the specific permit project

### RULE CITATION FORMATS

**Florida Administrative Code (F.A.C.)**

*Example*: [Rule 62-213.205, F.A.C.]

*Means*: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

**Code of Federal Regulations (CFR)**

*Example*: [40 CRF 60.7]

*Means*: Title 40, Part 60, Section 7

## SECTION 4. APPENDIX B
## GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
   a. Have access to and copy and records that must be kept under the conditions of the permit;
   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.
8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
   a. A description of and cause of non-compliance; and
   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
    a. Determination of Best Available Control Technology (Not Applicable);
    b. Determination of Prevention of Significant Deterioration (Not Applicable); and
    c. Compliance with New Source Performance Standards (Not Applicable).
14. The permittee shall comply with the following:
    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
    c. Records of monitoring information shall include:
        1) The date, exact place, and time of sampling or measurements;
        2) The person responsible for performing the sampling or measurements;
        3) The dates analyses were performed;
        4) The person responsible for performing the analyses;
        5) The analytical techniques or methods used; and
        6) The results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

## SECTION 4. APPENDIX C
## STANDARD TESTING REQUIREMENTS

Unless otherwise specified by permit, all emissions units that require testing are subject to the following conditions as applicable.

1. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]
2. Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operating at permitted capacity as defined below. If it is impracticable to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.
   a. *Combustion Turbines*. (Reserved)
   b. *All Other Sources*. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit.

   [Rule 62-297.310(2), F.A.C.]
3. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
4. Applicable Test Procedures:
   a. *Required Sampling Time*.
      1) Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.
      2) Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:
         a) For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation

shall be equal to the duration of the batch cycle or operation completion time.

b) The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a proposed surrogate standard and an existing mass emission limiting standard.

c) The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.

b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule, the minimum sample volume per run shall be 25 dry standard cubic feet.

c. *Required Flow Rate Range.* For EPA Method 5 particulate sampling, acid mist/sulfur dioxide, and fluoride sampling which uses Greenburg Smith type impingers, the sampling nozzle and sampling time shall be selected such that the average sampling rate will be between 0.5 and 1.0 actual cubic feet per minute, and the required minimum sampling volume will be obtained.

d. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1.

e. *Allowed Modification to EPA Method 5.* When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube.

TABLE 297.310-1 CALIBRATION SCHEDULE

| Item | Minimum Frequency | Reference Instrument | Tolerence |
|---|---|---|---|
| Liquid in glass thermometer | Annually | ASTM Hg in glass ref. thermometer or equivalent or thermometric points | ± 2% |
| Bimetallic thermometer | Quarterly | Calib. liq. in glass | 5° F |
| Thermocouple | Annually | ASTM Hg in glass ref. thermometer, NBS calibrated reference and potentiometer | 5° F |
| Barometer | Monthly | Hg barometer or NOAA station | ± 1% scale |
| Pitot Tube | When required or when damaged | By construction or measurements in wind tunnel D greater than 16" and standard pitot tube | See EPA Method 2, Fig. 2-2 & 2-3 |
| Probe Nozzles | Before each test or when nicked, dented, or corroded | Micrometer | ± 0.001" mean of at least three readings; maximum deviation between readings, 0.004" |
| Dry Gas Meter and Orifice Meter | 1. Full Scale: When received, when 5% change observed, annually | Spirometer or calibrated wet test or dry gas test meter | 2% |
| | 2. One Point: Semiannually | | |
| | 3. Check after each test series | Comparison check | 5% |

[Rule 62-297.310(4), F.A.C.]

5. Determination of Process Variables:

   a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

   b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

   [Rule 62-297.310(5), F.A.C.]

6. Required Stack Sampling Facilities: Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

   a. *Permanent Test Facilities.* The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.

   b. *Temporary Test Facilities.* The owner or operator of an emissions unit that is not required to conduct a compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department and remain on the emissions unit until the test is completed.

   c. *Sampling Ports.*

      1) All sampling ports shall have a minimum inside diameter of 3 inches.

      2) The ports shall be capable of being sealed when not in use.

      3) The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.

      4) For emissions units for which a complete application to construct has been filed prior to December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.

      5) On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

d. *Work Platforms.*

1) Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.

2) On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.

3) On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.

4) All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toeboard, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

e. *Access to Work Platform.*

1) Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.

2) Walkways over free-fall areas shall be equipped with safety rails and toeboards.

f. *Electrical Power.*

1) A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.

2) If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

g. *Sampling Equipment Support.*

1) A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.

a) The bracket shall be a standard 3 inch × 3 inch × one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.

b) A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.

c) The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.

2) A complete monorail or dualrail arrangement may be substituted for the eyebolt and bracket.

3) When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

7. Frequency of Compliance Tests: The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required.

   a. General Compliance Testing.

      1) The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.

      2) For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.

      3) The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to sub-subparagraph 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:

         a) Did not operate; or

         b) In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours,

      4) During each federal fiscal year (October 1 – September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:

         a) Visible emissions, if there is an applicable standard;

         b) Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and

         c) Each NESHAP pollutant, if there is an applicable emission standard.

      5) An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.

      6) For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.

      7) For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to paragraph 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.

      8) Any combustion turbine that does not operate for more than 400 hours per year shall conduct a

visible emissions compliance test once per each five-year period, coinciding with the term of its air operation permit.

9) The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.

10) An annual compliance test conducted for visible emissions shall not be required for units exempted from air permitting pursuant to subsection 62-210.300(3), F.A.C.; units determined to be insignificant pursuant to subparagraph 62-213.300(2)(a)1., F.A.C., or paragraph 62-213.430(6)(b), F.A.C.; or units permitted under the General Permit provisions in paragraph 62-210.300(4)(a) or Rule 62-213.300, F.A.C., unless the general permit specifically requires such testing.

b. Special Compliance Tests. 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.

8. Test Reports:

a. The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test.

b. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed.

c. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1) The type, location, and designation of the emissions unit tested.

2) The facility at which the emissions unit is located.

3) The owner or operator of the emissions unit.

4) The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.

5) The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.

6) The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.

7) A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.

8) The date, starting time and duration of each sampling run.

9) The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.

10) The number of points sampled and configuration and location of the sampling plane.

11) For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.

12) The type, manufacturer and configuration of the sampling equipment used.

13) Data related to the required calibration of the test equipment.

14) Data on the identification, processing and weights of all filters used.

15) Data on the types and amounts of any chemical solutions used.

16) Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.

17) The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.

18) All measured and calculated data required to be determined by each applicable test procedure for each run.

19) The detailed calculations for one run that relate the collected data to the calculated emission rate.

20) The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.

21) A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

9. Stack: The terms stack and duct are used interchangeably in this rule.

[Rule 62-297.310(9), F.A.C.]

## SECTION 4. APPENDIX D

## BEST OPERATIONAL START-UP PRACTICES FOR SULFURIC ACID PLANTS

1. Only one sulfuric acid plant at a facility should be started up and burning sulfur at a time. There are times when it will be acceptable for more than one sulfuric acid plant to be in the start-up mode at the same time, provided the following condition is met. It is not acceptable to initiate sulfur burning at one sulfuric acid plant when another plant at the same facility is emitting $SO_2$ at a rate in excess of the emission limits imposed by the permit or rule, as determined by the CEMs emission rates for the immediately preceding 20 minutes.

2. A plant start-up must be at the lowest practicable operating rate, not to exceed 70 percent of the designated operating rate, until the $SO_2$ monitor indicates compliance. Because production rate is difficult to measure during start-up, if a more appropriate indicator (such as blower pressure, furnace temperature, gas strength, blower speed, number of sulfur guns operating, etc.) can be documented, tested and validated, the Department will accept this in lieu of directly documenting of the suitable list of surrogate parameters to demonstrate and document the reduced operating rate on a plant-by-plant basis. Documentation that the plant is conducting start-up at the reduced rate is the responsibility of the owner or operator.

3. Sulfuric acid plants are authorized to emit excess emissions from start-up for a period of three consecutive hours provided best operational practices, in accordance with this agreement, to minimize emissions are followed. No plant shall be operated (with sulfur as fuel) out of compliance for more than three consecutive hours. Thereafter, the plant shall be shut down (cease burning sulfur) if, as indicated by the continuous emission monitoring system, the plant is not in compliance within three hours of startup. Restart may occur as soon as practicable following any needed repairs or adjustments, provided the corrective action is taken and properly documented.

4. Cold Start-Up Procedures.

   a. Converter.

      (1) The inlet and outlet temperature at the first two masses of catalyst shall be sufficiently high to provide immediate ignition when $SO_2$ enters the masses. In no event shall the inlet temperature to the first mass be less than 800°F or the outlet temperature to the first two masses be less than 700°F. These temperatures are the desired temperatures at the time the use of auxiliary fuel is terminated.

      (2) The gas stream entering the converter shall contain $SO_2$ at a level less than normal and sufficiently low to promote catalytic conversion to $SO_3$.

   b. Absorbing Towers.

      The concentration, temperature and flow of circulating acid shall be as near to normal conditions as reasonably can be achieved. In no event shall the concentration be less than 96 percent $H_2SO_4$.

5. Warm Restart.

   a. Converter

      The inlet and outlet temperatures of the first two catalyst masses should be sufficiently high to ensure conversion. One of the following three conditions must be met:

      (1) The first two catalyst masses inlet and outlet temperatures must be at a minimum of 700°F; or

      (2) Two of the four inlet and outlet temperatures must be greater than or equal to 800°F; or

(3) The inlet temperature of the first catalyst must be greater than or equal to 600°F and the outlet temperature greater than or equal to 800°F. Also, the inlet and outlet temperatures of the second catalyst must be greater than or equal to 700°F.

Failure to meet one of the above conditions requires use of cold start-up procedures.

To allow for technologies improvements or individual plant conditions, alternative conditions will be considered by the Department in appropriate cases.

b. Absorbing Towers.

The concentration, temperature and flow of circulating acid shall be as near to normal conditions as reasonably can be achieved. In no event shall the concentration be less than 96 percent $H_2SO_4$.

## Livingston, Sylvia

**From:** Jellerson, David - Pierce [David.Jellerson@mosaicco.com]
**Sent:** Tuesday, June 09, 2009 3:44 PM
**To:** Livingston, Sylvia
**Subject:** RE: MOSAIC FERTILIZER - NEW WALES FACILITY; 1050059-061-AC

Yes, we have received the document.

David

**David Jellerson | Assistant Vice President, Environmental**
Mosaic Fertilizer, LLC | P.O. Box 2000 | 5000 Old Hwy 37 S. | Mulberry, Florida 33860
P: 863.428.6480 | C: 813.781.2029 | E: david.jellerson@mosaicco.com | W: www.mosaicco.com



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**From:** Livingston, Sylvia [mailto:Sylvia.Livingston@dep.state.fl.us]
**Sent:** Tuesday, June 09, 2009 3:38 PM
**To:** Jellerson, David - Pierce
**Subject:** FW: MOSAIC FERTILIZER - NEW WALES FACILITY; 1050059-061-AC

Mr. Jellerson,

We have not received confirmation that you were able to access the documents attached to this May 28th e-mail. Please confirm receipt by opening the attachment and sending a reply to me.

The Division of Air Resource Management is sending electronic versions of these documents rather than sending them Return Receipt Requested via the US Postal service. Your "receipt confirmation" reply serves the same purpose as tracking the receipt of the signed "Return Receipt" card from the US Postal Service. Please let me know if you have any questions.

Sylvia Livingston
Bureau of Air Regulation
Division of Air Resource Management (DARM)
850/921-9506
sylvia.livingston@dep.state.fl.us



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**From:** Livingston, Sylvia
**Sent:** Thursday, May 28, 2009 2:05 PM
**To:** 'david.jellerson@mosaicco.com'
**Cc:** 'david.turley@mosaicco.com'; 'rama.iyer@mosaicco.com'; 'dbuff@golder.com'; 'smohammad@golder.com';

'forney.kathleen@epa.gov'; 'catherine_collins@fws.gov'; 'zhang-torres@dep.state.fl.us'; Rogers, Tom; Moore, Ronni; Gibson, Victoria; Arif, Syed; Walker, Elizabeth (AIR)
**Subject:** MOSAIC FERTILIZER - NEW WALES FACILITY; 1050059-061-AC

Dear Sir/ Madam:

Attached is the official **Notice of Intent to Issue** for the project referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send".

*Note: We must receive verification that you are able to access the documents. Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).*

**Click on the following link to access the permit project documents:**

http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/1050059.061.AC.D_pdf.zip

**Owner/Company Name:** MOSAIC FERTILIZER LLC
**Facility Name:** MOSAIC FERTILIZER - NEW WALES FACILITY
**Project Number:** 1050059-061-AC
**Permit Status:** DRAFT
**Permit Activity:** CONSTRUCTION/ BART Exemption Project
**Facility County:** POLK
**Processor:** Syed Arif

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Access these documents by clicking on the link provided above, or search for other project documents using the "*Air Permit Documents Search*" website at http://www.dep.state.fl.us/air/eproducts/apds/default.asp .

Permit project documents are addressed in this email may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible, and verify that they are accessible. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record. If you have any problems opening the documents or would like further information, please contact the Florida Department of Environmental Protection, Bureau of Air Regulation

Sylvia Livingston
Bureau of Air Regulation
Division of Air Resource Management (DARM)
850/921-9506
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Note: The attached document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html> .

## Livingston, Sylvia

**From:** Livingston, Sylvia
**Sent:** Thursday, May 28, 2009 2:05 PM
**To:** 'david.jellerson@mosaicco.com'
**Cc:** 'david.turley@mosaicco.com'; 'rama.iyer@mosaicco.com'; 'dbuff@golder.com'; 'smohammad@golder.com'; 'forney.kathleen@epa.gov'; 'catherine_collins@fws.gov'; 'zhang-torres@dep.state.fl.us'; Rogers, Tom; Moore, Ronni; Gibson, Victoria; Arif, Syed; Walker, Elizabeth (AIR)
**Subject:** MOSAIC FERTILIZER - NEW WALES FACILITY; 1050059-061-AC
**Attachments:** 1050059-061-AC_Intent.pdf

Dear Sir/ Madam:

Attached is the official **Notice of Intent to Issue** for the project referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send".

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**Owner/Company Name:** MOSAIC FERTILIZER LLC
**Facility Name:** MOSAIC FERTILIZER - NEW WALES FACILITY
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Permit project documents are addressed in this email may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible, and verify that they are accessible. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record. If you have any problems opening the documents or would like further information, please contact the Florida Department of Environmental Protection, Bureau of Air Regulation

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