TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

Mosaic Fertilizer, LLC
13830 Circa Crossing Drive
Lithia, Florida 33547

Bartow Facility
Facility ID No. 1050046

PROJECT

Project No. 1050046-029-AC / PSD-FL-255A
Revised Draft Air Construction Permit
Revised Emissions Limit for Processing Micronutrients

COUNTY

Polk County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
New Source Review Section
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

April 25, 2011

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location

Mosaic Fertilizer, LLC, operates an existing No. 3 Phosphate Fertilizer Plant, which is categorized under Standard Industrial Classification (SIC) No. 2874. The No. 3 Phosphate Fertilizer Plant is part of the existing Bartow Facility, located in Polk County at 3200 Highway 60 West in Bartow, Florida. The UTM Coordinates are Zone 17, 409.77 kilometer (km) East and 3087.26 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

The existing No. 3 Phosphate Fertilizer Plant was upgraded in accordance with permit No. 1050046-008-AC and PSD permit PSD-FL-255 issued April 21, 1999. Mosaic Fertilizer, LLC proposes a revision to the particulate emissions limit that will accommodate the addition of micronutrient enhancement to the production stream as approved in permit No. 1050046-012-AC issued on November 24, 1999.

Mosaic proposes a revised maximum allowable particulate matter emissions rate of 0.088 pounds per ton (PPT) of product output to replace the existing 0.18 PPT of phosphorus pentoxide (P_2O_5) feed into the reactor. The revised limit will accommodate a lesser amount of P_2O_5 feed when the plant is processing micronutrient additives and will be in effect for both micronutrient and non-micronutrient enhanced products. This request is consistent with the Best Available Control Technology (BACT) determination in PSD permit PSD-FL-255, 1050046-008-AC issued April 21, 1999.

Processing Schedule

- 11/01/10 Received the application for an air construction permit for the existing No. 3 Phosphate Fertilizer.
- 12/09/10 Additional information requested.
- 01/24/11 Received additional information.
- 04/05/11 Draft Permit issued.
- 04/05/11 Received comments on the Draft permit.
- 04/11/11 Revised Preliminary Review Draft sent.
- 04/21/11 Received comments on the Preliminary Review Draft.
- 04/24/11 Draft Permit issued.

2. PSD APPLICABILITY

The project will not increase emissions; therefore, the project is not subject to PSD preconstruction review.

3. DEPARTMENT REVIEW

Revised Emissions Limit

This draft permit revises the maximum allowable particulate matter emissions rate of 0.18 pounds per ton (PPT) of phosphorus pentoxide (P_2O_5) feed to 0.088 PPT of product. The revised limit will accommodate a lesser amount of P_2O_5 feed when the plant is processing micronutrient additives. The project is not expected to increase emissions rather it is intended to address regulatory process operation issues during compliance testing at 100% production. The BACT determination for permit No. 1050046-008-AC, PSD-FL-255 that was issued April 21, 1999 set the current maximum allowable particulate matter emissions rate at 0.18 PPT of P_2O_5 feed and the revised emissions rate of 0.088 PPT of product output is consistent with this BACT determination.

Currently, when micronutrients are being processed during a compliance test, there is less phosphoric acid input to the plant. As such, Mosaic is unable to produce sufficient product to achieve the permitted minimum of 90% feed rate of P_2O_5. Limiting emissions units operation to 110% of the test rate until a new test is conducted is required pursuant to Rule 62-297.310 F.A.C.

As listed in the BACT determination, the average of the particulate emissions for three compliance test runs conducted on September 11, 1997 is 4.6 pounds per hour (PPH). Operational records during the compliance test reported that an average P_2O_5 feed into the reactor of 50.23 tons per hour (TPH) and a production rate of 104.6 TPH. As detailed on page BD-6 of the BACT determination:

> *Analysis of recent test data for these scrubbers confirms that there is an inordinate safety margin between actual and allowable PM emissions, average actuals being less than 20 percent of the allowables. Therefore, it is appropriate to reduce the allowables to a level consistent with typical margins for BACT limits. A margin of 100% above the average from the September 1997 stack test (0.09 x 2 = 0.18 lb/ton P_2O_5) appears reasonable for the reactor/granulators and dryers.*

Emissions calculations from these reported values are as follows:

<u>Existing PM emissions limit:</u>

4.6 PPH of PM ÷ 50.23 TPH of P_2O_5 feed = 0.09 PPT of P_2O_5 feed

Margin of 100% above average emissions:

0.09 PPT of PM × 200% = 0.18 PPT of P_2O_5 feed

Revised PM emissions limit:

4.6 PPH of PM ÷ 104.6 TPH of product = 0.044 PPT of product

Margin of 100% above average emissions:

0.044 PPT of PM × 200% = 0.088 PPT of product

As demonstrated in the above calculations, the revised maximum allowable particulate matter emissions rate of 0.088 PPT of product is an alternate expression of the existing standard as specified in the BACT determination. The project is not expected to increase emissions as it is intended to address regulatory process operation issues during compliance testing at 100% production. The revised maximum emission limit of 0.088 PPT of product output from the plant will be in effect for both micronutrient and non-micronutrient enhanced products.

This revised draft permit does not replace the fluoride emission limit of 0.041 lb/ton equivalent P_2O_5 feed nor 2.5 pounds of fluoride per hour or 10.95 TPY, whichever is less and daily fertilizer production limit of 3,000 pounds per day shall remain unchanged. [Rule 62-296.403(1), F.A.C. and Air Construction Permit 1050046-008-AC]

The applicant provided micronutrient additive constituent data and confirmed that sulfur, copper, boron, and zinc were being processed in the No. 3 Phosphate Fertilizer Plant. Hazardous air pollutants (HAP) and radionuclide as listed in "Section 112(b) of the Clean Air Act" have not been processed in the fertilizer plant.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the revised draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Marilyn Koletzke is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.