Title V Air Operation Permit Renewal
Permit No. 1050046-033-AV

APPLICANT

The applicant for this project is Mosaic Fertilizer, LLC. The applicant's responsible official and mailing address are: Jeff Golwitzer, Plant Manager, Mosaic Fertilizer, LLC, Bartow Facility, 13830 Circa Crossing Drive, Lithia, FL 33547.

FACILITY DESCRIPTION

The applicant operates the Mosaic Bartow Facility, which is located at 3200 Highway 60 West and 4390 CR 640 West, Bartow, Polk County.

This existing facility consists of one phosphoric acid plant (two trains), one monoammonium phosphate/ diammonium phosphate (MAP/DAP) plant, one DAP fertilizer plant, three sulfuric acid plants, two fertilizer shipping plants, one auxiliary boiler, and a molten sulfur storage and handling system.

Phosphate rock is the primary feed for the phosphoric acid plant. This emission unit is regulated under National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR 63, Subpart A – Combined General Provisions; 40 CFR 63, Subpart AA - NESHAP From Phosphoric Acid Manufacturing Plants, adopted and incorporated by reference in Rule 62-204.800, F.A.C.; Administrative Order No. 03-C-AP for alternative MACT monitoring plan; Rule 62-212.300, F.A.C., General Preconstruction Review Requirements; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD); and Rule 62-296.403, F.A.C., Phosphate Processing. Fluoride emissions from this source are controlled by three separate scrubbers; one venturi scrubber and two cross flow packed scrubbers.

Phosphoric acid is the feed for the Fertilizer (DAP/MAP) Plant. It consists of a reactor, granulator, dryer, cooler, mills, screens and ancillary equipment. The dryer is fired with natural gas, or fuel oil. The facility maintains records of the fuel oil supplier's sulfur content analysis. This emission unit is regulated under New Source Performance Standard (NSPS) - 40 CFR 60, Subpart V, Standards of Performance of Phosphate Fertilizer Industry: Diammonium Phosphate Plants; and NESHAP – 40 CFR 63, Subpart A – Combined General Provisions; 40 CFR 63, Subpart BB – NESHAP From Phosphate Fertilizers Production Plants, adopted and incorporated by reference in Rule 62-204.800, F.A.C.; Rule 62-212.300, F.A.C., General Preconstruction Review Requirements; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD); Rule 62-296.320, F.A.C., General Pollutant Emission Limiting Standards; Rule 62-296.403, F.A.C., Phosphate Processing. Emissions from this source are controlled by the scrubbers.

Molten sulfur is the feed for the sulfuric acid plants. These emission units are regulated under NSPS - 40 CFR 60, Subpart H, Standards of Performance for Sulfuric Acid, adopted and incorporated by reference in Rule 62-204.800(7)(b)10., F.A.C.; Rule 62-212.300, F.A.C., General Preconstruction Review Requirements; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD); Rule 62-296.320, F.A.C., General Pollutant Emission Limiting Standards; and Rule 296.402, F.A.C., Sulfuric Acid Plants. Sulfur dioxide from each sulfuric acid plant is controlled by a dual absorption tower, and acid mist is controlled by high volume (HV) and high efficiency (HE) mist eliminator. These units utilize continuous emission monitors (CEMs) for sulfur dioxide (SO_2) emissions.

The facility has two Fertilizer Shipping Plants that include material conveyors, transfer points, truck and rail car shipping bins and loadout spouts. All material transfer points are located inside the material handling building and are covered to minimize fugitive emissions. The truck and rail car loading operations are beneath the building and enclosed on two sides. Loading is done via chute feeders. These emissions units are regulated under Rule 62-296.320, F.A.C., General Pollutant Emission Limiting Standards. Emission is controlled by dust suppressant.

The facility has one Package Water tube Boiler that is used during cold start-up of the sulfuric acid plant(s) and for make-up steam during times the sulfuric acid plant(s) are operating below capacity and is routinely fired for maintenance purposes. This boiler is fired with natural gas as the primary fuel with new No. 5 fuel oil or better grade of fuel oil as the back-up fuel. The facility maintains records of the fuel oil supplier's sulfur content analysis. This emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 Million Btu per Hour Heat Input, New and Existing Emissions Units.

The molten sulfur storage and handling system consists of the following: a rail and truck unloading system, one 3,000 ton molten sulfur storage tank, one 6,000 ton molten sulfur storage tank, one 200 ton molten sulfur truck/railcar unloading pit (Pit A), one 300 ton railcar unloading pit (Pit B), and all of the associated transfer pumps and piping. These emissions units are regulated under Rule 62-212.300, F.A.C., General Preconstruction Review Requirements; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD); Rule 62-296.320, F.A.C., General Pollutant Emission Limiting Standards; and Rule 62-296.411, F.A.C., Sulfur Storage and Handling Facilities. The pits A and B are evacuated by two ejectors (Venturi Exhausters) to individual stacks.

The facility has two new emergency stationary compression ignition (CI) reciprocating internal combustion engines (RICE) that are subject to NSPS 40 CFR 60, Subpart A – General Provisions and Subpart IIII, Set K – Owner/Operator pre-2007 non-fire pump emergency, less than 10L per cylinder. The facility also has ten existing emergency and nine existing non-emergency CI RICE that are subject to 40 CFR 63, Subpart A – General Provisions and Subpart ZZZZ - NESHAP for Stationary RICE. NSPS applicability 40 CFR 60, Subpart IIII, Set K and NESHAP applicability for Stationary RICE tables are made a part of this project.

Also included in this permit are miscellaneous unregulated emissions units and/or activities and insignificant activities. Mosaic Green Bay Phosphogypsum Stacks I & II are included in the Mosaic Bartow Facility as unregulated emission units.

PROJECT DESCRIPTION

The purpose of this project is to revise Title V air operation permit No. 1050046-027-AV, for the above referenced facility, to incorporate the terms of air construction permits 1050046-029-AC and 1050046-032-AC. The construction permit 1050046-029-AC revised the maximum allowable particulate matter (PM) emissions rate from 0.18 pounds per ton of phosphorous pentoxide (P_2O_5) feed to 0.088 pounds per ton of ammoniated phosphate product. The construction permit No. 1050046-032-AC authorized an administrative correction to permit No. 1050046-029-AC to correct a content error in the Facility Description of No. 3 Fertilizer (DAP/MAP) Plant (E.U. No. 001).

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Initial Title V Air Operation Permit issued 10/06/1998
Title V Air Operation Permit Revision issued 04/07/2004
Title V Air Operation Permit Administrative Correction issued 11/06/2004
Title V Air Operation Permit Renewal issued 09/30/2005
Title V Air Operation Permit Renewal issued 07/05/2011
Title V Air Operation Permit Revision Application received 10/14/2011
Notice of Intent to Issue Air Permit issued 11/14/2011
Public Notice Published 11/22/2011

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

SITING: No Unit was originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility. Pollutants sulfur dioxide (SO_2), sulfuric acid mist (SAM), and particulate matter (PM) are controlled by final absorption tower, mist eliminator, and baghouse. These control equipments are considered inherent process equipment (IPE) for CAM purposes. Fluoride (F) emission is controlled by scrubbers. The pollutant (F) is subject to national emission standards for hazardous air pollutants (NESHAP) and the equipment is considered inherent process equipment for the purpose of CAM.

PROJECT REVIEW

The Title V Air Operation Permit Revision includes the incorporation of two construction permit Nos. 1050046-029-AC and 1050046-032-AC. The construction permit 1050046-029-AC authorized to revise the maximum allowable particulate matter (PM) emissions rate from 0.18 pounds per ton of phosphorous pentoxide (P_2O_5) feed to 0.0888 pounds per ton of ammoniated phosphate product. The construction permit No. 1050046-032-AC authorized an administrative correction to permit No. 1050046-029-AC to correct a content error in the Facility Description of No. 3 Fertilizer (DAP/MAP) Plant (E.U. No. 001).

Discussion of the reasons for the changes made as part of this project:

1. Construction Permit No. 1050046-029-AC: 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. The project is not expected to increase emissions as it is intended to address regulatory process operation issues during compliance testing at 100% production.

   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. 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.

2. Construction Permit No. 1050046-032-AC: The construction permit authorizes an administrative correction to Permit No. 1050046-029-AC (PSD-FL-255A) to correct a content error in the Facility Description in Section I of the No. 3 Fertilizer (DAP/MAP) Plant (E.U. 001).

CONCLUSION

This project revises Title V air operation permit No. 1050046-027-AV, which was issued on July 5, 2011. This Title V air operation permit renewal is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.