Title V Air Operation Permit Revision
Permit No. 1050046-069-AV
Revision to Title V Air Operation No. 1050059-045-AV

APPLICANT

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

FACILITY DESCRIPTION

The applicant operates the Mosaic New Wales Facility, which is located at 3095 Highway 640, Mulberry, Polk County.

This existing facility consists of five double absorption sulfuric acid plants, three phosphoric acid plants, a phosphoric acid clarification and storage area, three diammonium phosphate (DAP) plants, one monoammonium phosphate (MAP) plant, a granular monoammonium phosphate (GMAP) plant, an animal feed ingredients (AFI) plant, an AFI Shipping/Truck Loadout Plant, a multifos production plant, a molten sulfur storage and handling system, a limestone storage silo/rock grinding operation, existing compression ignition (CI) reciprocating internal combustion engines (RICE), and a phosphogypsum stack.

Molten sulfur is the feed for the double absorption 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(8)(b)11., 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.

Phosphate rock and sulfuric acid are the primary feed for the phosphoric acid plants. These emission units are regulated under National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR 63, Subpart A – 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. 06-H-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 cross flow packed scrubbers and cyclonic demister.

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 – 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.

The molten sulfur storage and handling system consists of the following: a rail and truck unloading system, one 7,500 ton molten sulfur storage tank, one 15,000 ton molten sulfur storage tank, one 1,500 ton molten sulfur truck unloading pit (North), one 350 ton truck unloading pit (South), one 800 ton railcar unloading pit 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 facility has existing emergency and non-emergency compression ignition reciprocating internal combustion engines (CI RICE) that are subject to 40 CFR 63, Subpart A – General Provisions and Subpart ZZZZ - NESHAP for Stationary RICE.

Also included in this permit are miscellaneous unregulated emissions units and/or activities and insignificant activities.

PROJECT DESCRIPTION

The purpose of this permit is to revise the Title V air operation permit No. 1050059-045-AV. The Title V permit revision is issued for the purpose of incorporating the conditions of the construction permit Nos. 1050059-057-AC for the replacement of a 5,000-Ton Molten Sulfur Storage Tank with a 15,000-Ton Tank; 1050059-061-AC (Partial) for the emission reduction of Sulfuric Acid Plant (SAP) No. 3 and Diammonium Phosphate (DAP) Plant No. 1 under Scenario A; 1050059-063-AC for the SAP No. 3 Sulfur Furnace Replacement; and 1050059-065-AC for the DAP No. 1 Reactor Repair and Scrubbers Replacement. This permit also incorporates existing compression ignition (CI) reciprocating internal combustion engines (RICE) that are subject to 40 CFR 63, Subpart A – General Provisions and Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants (NESHAPs).

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Processing Schedule and related documents:
Initial Title V Air Operation Permit issued: 03/26/1999
Renewal Title V Air Operation Permit issued: 02/14/2008
Application for a Title V Air Operation Permit Revision received 07/22/2010
Additional Information Request dated 09/13/2010
Additional Information Response received 2/11/2011, 03/18/2011 and 4/11/2011
Notice of Intent to Issue Air Permit issued 5/6/2011
Notice of Intent to Issue Revised Air Permit issued 6/29/2011
Public Notice Published 7/9/2011

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) applies to the applicable emission units at the facility, described as follows:

EU ID No.	Brief Description	Pollutants subject to CAM	Control Device subject to CAM
-036	Multifos A & B Kilns, Dryer and Blending Operation	PM and F	Three (3) packed bed scrubbers
-056	DAP Plant No. 2 – East Product Cooler	PM	One (1) Venturi scrubber
-074	Multifos C Kiln	PM, SO_2	Two (2) packed bed scrubbers, a venturi scrubber, SO_2 scrubber and SO_2 venturi scrubber
-078	GMAP Plant	PM	Equipment venturi scrubber

PROJECT REVIEW

The Title V Air Operation Permit Revision includes the incorporation of four construction permit Nos. 1050059-057-AC, 1050059-061-AC (Partial), 1050059-063-AC and 1050059-065-AC. The construction permit No. 1050059-057-AC was to replace a 5,000 ton molten sulfur storage tank with a 15,000 ton tank. The construction permit No.1050059-061-AC (Partial) (BART Exemption Permit) was to reduce the NO_X and SO_2 emission limits of SAP No. 3 (E.U. ID No. 004) and reduce the PM emission limit of DAP No. 1 (E.U. ID No. 009) under scenario A. The construction permit No. 1050059-063-AC was to replace the sulfur furnace in SAP No. 3 with a like-kind new sulfur furnace. The construction permit No. 1050059-065-AC was to replace the three existing parallel venturi scrubbers with two new venturi scrubbers and to repair the existing reactor in DAP No. 1 (E.U. No. 009).

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

1. Construction Permit Nos. 1050059-036-AC (PSD-FL-325), 1050059-041-AC (PSD-FL-325A) were added to the existing Title V Air Operation Permit 1050059-045-AV through a compliance plan (A.20.). There was a further amendment project 1050059-056-AC (PSD-FL-325B). This TV Revision permit actually incorporates the conditions of the above referenced permits and remove the compliance plan. The construction permit 1050059-036-AC (PSD-FL-325) was to increase the sulfuric acid (H_2SO_4) production of sulfuric acid plants (SAPs) 1, 2 & 3 from 2,900 tons per day to 3,400 tons per day of 100% H_2SO_4 each. The amendment to this construction permit through construction permit 1050059-041-AC (PSD-FL-325A) was to amend the dates of compliance with the continuous emission monitoring (CEM) system. The second amendment through construction permit 1050059-056-AC (PSD-FL-325B) was for time extension to complete construction of heat recovery system and final absorption tower in SAP No. 3.

2. Construction Permit No. 1050059-057-AC: The construction permit authorized the replacement of an existing leaking 5,000 Ton Molten Sulfur Storage tank (EU 062) with a 15,000 Ton tank. There are no changes in the molten sulfur system throughput rate, operation or emission rates.

3. Construction Permit No. 1050059-061-AC (Best Available Retrofit Technology, BART) Exemption Permit (Partial): The construction permit authorizes the emission reduction under Scenario A or Scenario B to remain as a BART Exempt facility.

   Under Scenario A, the permittee shall shut down EU-036 (Multifos A and B Kilns including associated coolers) as expeditiosly as practible after January 1, 2010, but no later than June 30, 2013. The affected

emission units are EU 002 (SAP No. 1), EU 003 (SAP No. 2), EU 004 (SAP No. 3), EU 009 (DAP Plant No. 1), EU 011 (MAP Plant), EU 027 (AFI Plant) and EU 036 (Multifos A and B Kilns, Dryer, and Blending Operation).

(Note: The dryer and blending operation under EU-036) will not be shut down as it is a part of 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).

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 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, 2013. 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, but no later than June 30, 2013.

The permittee decided to adopt Scenario A of the BART Exemption permit. The permittee requested to incorporate the conditions of only EU 004 (SAP No. 3) and EU 009 (DAP Plant No. 1) under the Scenario A in this current Title V Revision project.

4. Construction Permit No. 1050059-063-AC: This construction permit authorized the like-kind replacement of existing sulfur furnace at SAP No. 3 with a new sulfur furnace. The existing sulfur furnace deteriorated over time, mostly due to corrosion, requiring replacement.
5. Construction Permit No. 1050059-065-AC: This construction permit authorized the repair or replacement of the existing reactor with a reactor of similar capacity and design at the DAP Plant No. 1. The permit also authorized the replacement of three existing parallel venturi scrubbers with demisters with two venturi/cyclonic scrubbers. The existing reactor deteriorated over time and needed repair/replacement. The reactor was repaired with the replacement of the top. The replacement scrubbers were equal to or better than the existing scrubber system.
6. The existing stationary compression ignition (CI) reciprocating internal combustion engines (RICE) were added to this current Title V Air Operation Permit Revision Project 1050059-069-AV in section O.

CONCLUSION

This project revises Title V air operation permit No. 1050059-045-AV, which was issued on February 14, 2008. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.