Title V Air Operation Permit Revision
Permit No. 0570005-~~048~~055-AV

APPLICANT

The applicant for this project is CF Industries, Inc. The applicant's responsible official and mailing address are: Mr. Herschel E. Morris, Vice-President Phosphate Operations & General Manager, CF Industries, Inc., P.O. Drawer L, Plant City, Florida 33564.

FACILITY DESCRIPTION

The applicant operates the Plant City Phosphate Complex, which is located at in Hillsborough County at ~~10608 Paul Buchman Highway~~, 660 East County Line Road, Plant City, Florida. The facility consists of sulfur storage and handling systems, four sulfuric acid production plants, two phosphoric acid production plants, a phosphoric acid cleanup unit and four ammonium phosphate production plants with associated storage and shipping units. The facility also includes several emergency diesel engines and a phosphogypsum stack. Final products produced at the facility include sulfuric acid, phosphoric acid, ammonium sulfate, diammonium phosphate (DAP), and monoammonium phosphate (MAP). A brief description of the facility's emissions units are summarized below:

Johnson Scotch Marine Type Boiler (E.U. No. 001): The facility includes an 83.3 MMBtu/hour boiler that is fired with natural gas. ~~as the primary fuel and no. 2 fuel oil as the backup.~~ The boiler may also be fired with new No. 2 fuel oil for limited time periods in the event of natural gas curtailment or gas supply interruptions and for periodic testing, maintenance, or operator training only.

A, B, C & D Sulfuric Acid Plants (E.U. Nos. 002, 003, 007 & 008): The A, B, C and D Sulfuric Acid Plants have maximum permitted production capacities of 1,300, 1,600, 2,600 and 2,600 tons per day of 100% sulfuric acid, respectively. Sulfur dioxide and sulfuric acid mist (acid mist) emissions generated at A & B Sulfuric Acid Plants (E.U. Nos. 002 & 003) are controlled at each plant by a two-stage SO_2 scrubber and a high-efficiency mist eliminator at, while sulfur dioxide and sulfuric acid mist (acid mist) emissions generated at a C & D Sulfuric Acid Plants (E.U. Nos. 007 & 008) are controlled at each plant via a Double Contact Process and high-efficiency mist eliminator. These units utilize Continuous Emissions Monitoring Systems for compliance purposes for SO_2.

A & B Phosphoric Acid Plants (E.U. Nos. 004 & 009): The A and B Phosphoric Acid Plants are permitted for maximum process input rates of 1,699 and 2,530 tons per day of 100% P_2O_5 feed, respectively. Fluoride emissions generated at facility's A & B Phosphoric Acid Plants are controlled at each plant by a cyclonic scrubbers followed by packed bed scrubber.

Phosphoric Acid Cleanup (E.U. No 032): The Phosphoric Acid Cleanup Unit clarifies phosphoric acid from the phosphoric acid plants and is permitted for maximum process input rates of 671 tons of phosphoric acid. Fluoride emissions generated at the Phosphoric Acid Cleanup (E.U. No. 032) are controlled by fume duct sprays followed by a packed bed scrubber.

A, Z, X & Y DAP/MAP (E.U. Nos. 010, 011, 012 & 013): The "A" DAP/MAP Plant is permitted for maximum process input rates of 29.53 tons/hour in DAP production mode and 33.30 tons/hour in MAP production mode. The "Z","X" and "Y" DAP/MAP Plants are each permitted for maximum process input rates of 48.7 tons/hour in DAP production mode and 55.0 tons/hour in MAP production mode. Particulate Matter and Fluorides emissions generated at each of these plants are controlled by cyclones, venturi scrubbers & wet Scrubbers located in the plants.

A & B Storage Buildings (E.U. No. 014): These buildings are used for the storage of DAP and MAP produced at the A, Z, X & Y DAP/MAP Plants. Particulate matter emissions from the "A" & "B" Storage Buildings are minimized by the use of dust suppressant.

A & B Shipping Units (E.U. Nos. 015, 018, 019 & 020): "A" & "B" Shipping units consists of sizing, screening, and conveying systems for transferring DAP/MAP from storage buildings "A" and "B" to the truck and railcar

loading operations associated with these buildings. Particulate matter emissions from each of the unit (i.e., "A" & "B" Shipping Units) are controlled by baghouse dust collectors. Additionally, emissions from the truck and railcar loading operations are minimized by the use of dust suppressant.

Sulfur Storage and Handling System (E.U. Nos. 022, 023, 024 & 033): The sulfur storage and handling system includes Truck Pit A (E.U. No. 023), Truck Pit B (E.U. No. 024), a 2600 Ton Storage Tank (E.U. No. 022), a 5000 Ton Storage Tank (E.U. No. 033) and a railcar unloading pit. Molten sulfur delivered by trucks or railcar is unloaded into the sulfur storage system. Emissions from the storage vessel are vented uncontrolled through a round stack with a rain cap.

Emergency Diesel Engines (E.U No. 034): The emissions unit includes a total of four emergency diesel engines that are regulated under 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

Phosphogypsum Stack (E..U No. 100): The emissions unit includes a phosphogypsum stack that is regulated under 40 CFR 61, Subpart R - National Emission Standards for Radon Emissions from Phosphogypsum Stacks.

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

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V permit for the above referenced facility.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Renewed Title V Air Operation Permit issued November 17, 2011
Application for a Title V Air Operation Permit Revision received October 17, 2011
Additional Information Request dated November 3, 2011
Additional Information Response received January 25, 2012 and January 31, 2012
Notice of Intent to Issue Air Permit issued March 26, 2012
Public Notice Published March 31, 2012
Application for a Title V Air Operation Permit Revision received February 21, 2013
Notice of Intent to Issue Air Permit issued month day, year
Public Notice Published month day, year

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.

CAM: Compliance Assurance Monitoring (CAM) applies to Emissions Unit No. 032. Emissions Unit 032 (Phosphoric Acid Cleanup) is subject to CAM for the regulated emissions of fluoride, which are controlled by a packed-bed scrubber.

PROJECT REVIEW

The purpose of this project is to incorporate the provisions of Construction Permit Nos. ~~0570005-047-AC~~, 0570005-040-AC, 0570005-045-AC, 0570005-051-AC and 0570005-053-AC. A brief description of each construction permit project is summarized below. ~~which authorized the following maintenance and construction activities:~~

(1) Construction Permit No. 0570005-040-AC authorized the replacement of the pre-neutralizer /reactor in the "Z" and "Y" Diammonium Phosphate (DAP)/Monoammonium Phosphate (MAP) Plants (EU Nos. 011 and 013).

(2) Construction Permit No. 0570005-045-AC authorized modifications of the "A" DAP/MAP Plant. Specifically, the project authorized an increase in the number of pickup points in the material handling system of the plant, the replacement of the existing rubber-lined mild steel shells on two of the plant's cyclonic scrubbers with stainless steel shells of identical dimensions, and the replacement the existing demister in the abatement scrubber with a larger demister.

(3) Construction Permit No. 0570005-051-AC authorized the replacement of the Bird Filter filtrate seal tanks along with associated equipment, pumps, piping, ducting, etc., as necessary, in the facility's "A" Phosphoric Acid Plant.

(4) Construction Permit No. 0570005-053-AC authorized the production of DAP/MAP product enhanced with sulfur in the facility's "A" DAP/MAP plant and also authorized modifications to the plant's two product cooler dust cyclones (adjustments to the cyclones' vortex finder) with the goal of improving dust recovery.

Note: Construction Permit No. 0570005-053-AC was only partially incorporated because modifications to the product cooler dust cyclones are not completed. These modifications will be completed as part of Construction Permit No. 0570005-054-AC.

~~(1) In the facility's four sulfuric acid plants (E.U No. 002, 003, 007 and 008) the permittee is authorized by Construction Permit 0570005-047-AC to replace acid coolers in the facility's four sulfuric acid plants with spare coolers, as needed.~~

~~(2) In the facility's B Sulfuric Acid Plant (E.U. No. 003), the permittee is authorized by Construction Permit 0570005-047-AC to make several modifications to the plant's SO_2 Stripper and associated equipment.~~

In addition to the construction modifications outlines above, the following changes were made to the Title V permit as part of this revision:

(1) The process description for the A, Z, X and Y DAP/MAP Plants (E.U. Nos. 010, 011, 012 and 013) were revised to distinguish between equipment that has been identified as process equipment and equipment that has been identified as pollution control equipment.

(2) Added a facility-wide condition (FW11.) that states the facility is exempt from PM RACT requirements based on a modeling study that was previously approved by the Department. This facility-wide condition existed in Title V Permit No. 0570005-032-AV, but was not carried forward in Title V Renewal Permit No. 0570005-041-AV.

(3) The Johnson Scotch Marine Type Boiler (E.U. No 001) was revised to include applicable requirements of 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.

(4) The Emergency Diesel Engines (E.U. 102) emissions unit section of the permit was revised to include applicable requirements of 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. In Title V Permit No. 0570005-

048-AV, these requirements were only contained in "Appendix NESHAP - 40 CFR 63, Subpart ZZZZ - Summary of Requirements".

~~(1) The specific conditions associated with Rule 62-296.411, F.A.C. for "Sulfur Storage and Handling Facilities" which applies to E.U. Nos. 022, 023, 024 and 033, were removed because the rule was repealed.~~

~~(2) A typographical error in contained in Table 2 of the Referenced Attachments was corrected. The VE test duration for E.U. Nos. 015, 018, 019 and 020 was changed from 60 minutes to 30 minutes.~~

~~(3) The specific condition associated with Continuous Monitoring Requirements for SO_2 CEMS in the four sulfuric acid plants (E.U. Nos. 002, 003, 007 & 008) was revised to address 24 hour block average SO_2 emissions.~~

Note: In the Draft/Proposed version of the Title V permit, changes (summarized above) made to conditions and language in the permit are displayed with a ~~strikethrough format~~ for deletions and a Shaded format for additions.

CONCLUSION

This project revises Title V air operation permit No. 0570005-041-AV, which was issued on November 17, 2011. 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.