TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

White Springs Agricultural Chemicals, Inc.
P. O. Box 300
White Springs, Florida 32096

Suwannee River/Swift Creek Complex
Facility ID No. 0470002

PROJECT

Project No. 0470002-079-AC
Application for Minor Source Air Construction Permit
Modifications to EU008 & EU032

COUNTY

Hamilton, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Air Resource Section
Northeast District Office
8800 Baymeadows Way West, Suite 100,
Jacksonville, Florida 32256

December 28, 2012

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

White Springs Agricultural Chemicals, Inc., is an existing phosphate mining and chemical production facility, which is categorized under Standard Industrial Classification Code No. 2874. The facility is located in Hamilton County at 15843 SE 78th Street, White Springs, Florida. The UTM coordinates of the existing facility are Zone 17, 328.3 km East and 3368.8 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 **has no** 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 in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

Air construction permit, which authorizes the streamlining of recordkeeping for EUs 008 "Y" Train and EU032 "Z" Train to limit the capacity based on P_2O_5 feed input; to allow flexibility to operate with an ammonia vaporizer on EUs 008 and 032; to add a temporary, portable Ammoniated Polyphosphate Plant to manufacture liquid fertilizer to the Unregulated List; to allow the tail gas scrubber pressure drop for EU032 to be reported based on the entire scrubber; The facility will conduct a test to determine the feasibility of using re-circulating fresh water liquid stream to be cooled with non contact heat exchangers in lieu of the once through pond water currently used on the dryer cooler scrubbers in the MAP plants. If the feasibility test is successful, the facility will begin construction to change the scrubber liquid in one or more of the following: the EU032 "Z"-Train Reaction Cooler Scrubber, "Z"-Train Dryer Cooler Scrubber, "Z"-Train Dust Cooler Scrubber, EU008 "Y"-Train Reaction Cooler Scrubber, Fluorine Abatement Scrubber from once-through pond water to re-circulating fresh water for EUs 008 and 032; the addition of heat exchanger(s) and water tanks for the indirect contact cooling of the re-circulating water.

Proposed Work

Heat Exchanger and Ammonia Vaporizer: The permittee is authorized to construct, install, modify, and operate (for purposes of testing and unit shakedown) the following equipment:

- Necessary appurtenances for the operation of Heat Exchangers and Ammonia Vaporizer;
- Associated components including but not limited to piping, ductwork, connections, scrubber liquid pumps, water tanks, flow meters, foundations, and structures.
- The permit restricts the operation of these units as mentioned above in the Project Description to comply with permit conditions.

{NOTE: The pond water scrubbers are not designed for PM control.}

For the proposed project, the baseline actual emissions from the project, the projected actual emissions of project, and the demand growth excludable emissions have been documented.

Trial Test

The facility currently uses once through pond water as the cooling medium for EU032 -"Z" Train dryer cooler scrubber and EU008- "Y" Train dryer cooler scrubber. PCS will conduct a trial feasibility test on re-circulating non contact fresh water cooling medium with a heat exchanger on EU032- "Z" Train dryer cooler scrubber. The purpose of the test is to determine the heat transfer rate, fouling factors and blow down rates required, and the capacity of the plant to consume the blow down. The characteristics of the re-circulation liquid will be determined. This test will determine the most appropriate and effective way to remove the heat from the process.

The initial test on the cooler scrubber circuit will begin with a plate and frame heat exchanger. If the plate and frame heat exchanger is not feasible, then a multi-pass shell and tube unit will be used. Additional testing on the remaining scrubber circuits and EU008- "Y" scrubbers in the MAP plants may be performed as deemed necessary.

The testing will be performed both to determine feasibility of the technology as well as to aid in the design of the new system. DEP will be notified before construction of a permanent facility takes place.

If the feasibility test is successful, the facility will begin construction to change the scrubber liquid in one or more of the following: the EU032 "Z"-Train Reaction Cooler Scrubber, "Z"-Train Dryer Cooler Scrubber, "Z"-Train Dust Cooler Scrubber, EU008 "Y"-Train Reaction Cooler Scrubber, Fluorine Abatement Scrubber from once-through pond water to re-circulating fresh water for EUs 008 and 032; the addition of heat exchanger(s) and water tanks for the indirect contact cooling of the re-circulating water.

PROPOSED HEAT EXCHANGER EQUIPMENT LIST

Scrubber Tank

- 3200 gallon capacity. 11'-6" dia * 5' high
- Salvaged stainless steel alloy tank

Scrubber Liquor Pump

- Model 2k 6 x 4 - 13ARV M3 complete pump package
- 75 Hp 1750 rpm/460V/ 3 PH/60 hz premium efficiency TEFC Motor

Heat Exchanger

- Plate and Frame Heat Exchanger- Alfa –Laval Model M15-MFG or equal
- 367 sq ft surface area
- 9601 kBTU/hr
- 316 SS Alloy construction

[1] *Or similar capacity shell and tube Heat Exchanger if necessary*.

[2] *None of the above equipment is expected to be used in the final system.*

TO ATMOSPHER
TAIL GAS SCRUBBER GK111
OIL SEPARATOR
GD-125
INSTRUMENT AIR DRYER
WATER TRENCH
DUST VENT SCRUBBER FAN PB103
HIGH-PRESSURE PUMP PP110
HOSE TO WASH CONNECTIONS
DUST VENT SCRUBBER GK110
DUST VENT SCRUBBER SEAL TANK MS106
H.P. SCRUBBER ACID PUMPS PP105A PP105B
DAMPER
DRYER SCRUBBER FAN PB102
DRYER SCRUBBER SEAL TANK MS105
RECYCLE TANK AGITATOR GA102
DRYER SCRUBBER GK109
RECYCLE TANK MS102
R-P SCRUBBER FAN PB101
RECYCLE ACID FEED PUMP PP104
L.P. SCRUBBER ACID PUMP PP107
R-P SCRUBBER SEAL TANK MS104
REACTOR-PUGMILL SCRUBBER GK106
REACTOR SLURRY PUMPS PP104A PP104B
TO DRAIN
AMMONIA COOLER TP101
REACTOR AGITATOR GA101
REACTOR R103

Heat Exchanger

Processing Schedule

November 1, 2012: Received the application for a minor source air pollution construction permit.

November 20, 2012: Requested additional information.

November 21, 2012: Received additional information; application complete.

December 10, 2012: Received additional information.

January 2, 2013: Received comments from PCS (minor/ insignificant changes to be made to the final permit)

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

EUs 008 and 032: The addition of heat exchanger(s) and water tanks for the indirect contact cooling of the re-circulating water.

As provided in the application, the following table summarizes potential emissions and PSD applicability for the project.

Table A. Potential Emissions (Tons/Year) and PSD Applicability

Pollutant	EU	Baseline Actual Emissions	Project Actual Emissions (TPY)[1]	Project Emissions Increase (TPY)[2]	Significant Emissions Rate (TPY)	Subject To PSD?
CO	008/032			NA	100	No
NO_X	008/032			NA	40	No
PM/PM_{10}	008	(148241* 0.128) /2000= 9.5	(148241* 0.128) /2000= 9.5	19.6 –19.6=0	25/15	No
	032	(160183*0.126) /2000=10.1	(160183*0.126) /2000=10.1			
SO_2	008/032			NA	40	No
VOC	008/032			NA	40	No
F	008	(148241* 0.018) /2000= 1.4	(148241* 0.018) /2000= 1.4	2– 2 =0	3	No
	032	(160183*0.008) /2000=0.6	(160183*0.008) /2000=0.6			

[1] No change in P_2O5 input for this project.
[2] As shown in the above table, total project emissions will not exceed the PSD significant emissions rates; therefore, the project is not subject to PSD preconstruction review.
[3] Demand Growth and Capable of accommodating are not included at this time.

TABLE 2 - PROJECTED ACTUAL EMISSIONS
WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.

EMISSIONS DESCRIPTION	F TPY	PM/PM10 TPY
Projected Actual Emissions (1)	2.0	19.6
Exclusion for Demand Growth (2) and Unit Capable of Accomodating (3)	ND	ND
Baseline Actual Emissions (4)	2.0	19.6
Net Emissions Increase (1)	0	0
PSD Significant Level	3	25/15
PSD Review Required?	NO	NO

NOTES:
(1) The proposed project is not expected to result in an emissions increase.
(2) Demand growth to be determined at a later date, if necessary.
(3) Unit capable of accomodating to be determined at a later date, if necessary.
(4) Baseline emissions based on operations for 2007-2008 (2-yr average).

The P_2O_5 input limits in the permit shall assure the production limits do not exceed any standards for Total Fluoride, SO_2, VE, PM/PM_{10} that are in all of the existing, valid, Department permits.

State Requirements

Rule 62-212.300, F.A.C., General Preconstruction Review Requirements; 62-212.400, F.A.C., Prevention of Significant Deterioration; Rule 62-296.320, F.A.C., General Pollutant Emission Limiting Standards; and Rule 62-296.403, F.A.C., Phosphate Processing.

Federal NSPS Provisions

NSPS- 40 CFR 60, Subpart V, Standards of Performance for the Phosphate Fertilizer Industry: Diammonium Phosphate Plants, adopted and incorporated by reference in Rule 62-204.800(7)(b)28., F.A.C.

Federal NESHAP Provisions

40 CFR 63, Subpart A - General Provisions; 40 CFR 63, Subpart BB - National Emission Standards for Hazardous Air Pollutants From Phosphate Fertilizers Production Plants.

Other Draft Permit Requirements

This project will replace the production rate with a P_2O_5 input rate as follows for EU008.

The P_2O_5 input limit shall assure the production limits do not exceed any standards for Total Fluoride, SO_2, VE, PM/PM_{10} that are in all of the existing, valid, Department permits.

1.
   a. ~~The production rate for Modes 1-2 and 4-6 shall not exceed 60 tons of product per hour based on a 12-month rolling average (12-MRA Hourly Rate Maximum) or 66 tons of product per hour based on a one-hour daily rolling average.~~ The P_2O_5 feed shall not exceed 36.33 tons per hour (daily average) and 290,112 TPY of P_20_5 input basis, 12-month rolling total.

      ~~12-MRA (MRA - Monthly Rolling Average) Hourly Rate Maximum shall not be exceeded by the 12-MRA hourly rate calculated by averaging each monthly hourly average with the previous 11 monthly hourly averages.~~

   ~~b. The annual production rate for Mode 6 shall not exceed 525,600 tons of product per year.~~

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; Construction Permit No. 0470002-034-AC; Construction Permit No. 0470002-050-AC; and Application received on November 1, 2012]

This project will replace the production rate with a P_2O_5 input rate as follows for EU032:

~~The operation rate shall not exceed the Maximum 12-MRA Hourly Rate = 75 tons of product or Maximum Daily 1-Hour Average Rate = 83 tons of product~~. The P_2O_5 feed shall not exceed 45.7 tons per hour daily average and 362,737 TPY P_2O_5 input, 12-month rolling total. ~~(41.1 tons per hour 12-MRA).~~

~~12-MRA (MRA - Monthly Rolling Average) Hourly Rate Maximum shall not be exceeded by the 12-MRA hourly rate calculated by averaging each monthly hourly average with the previous 11 monthly hourly averages.~~

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; Construction Permit No. 0470002-032-AC; Construction Permit No. 0470002-034-AC; and Application received on November 1, 2012]

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 draft permit. Leslie Maybin 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 8800 Baymeadows Way West, Suite 100, Jacksonville, Florida 32256, (904) 256-1700.