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KA 344-10-02

April 21, 2010

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BUREAU OF  
AIR REGULATION

Mr. Syed Arif, P.E.  
Florida Department of  
Environmental Protection  
Division of Air Resource Management  
2600 Blair Stone Road MS 5500  
Tallahassee, Florida 32399-2400

Subject: Additional Information for B SAP Testing  
CF Industries, Inc. - Plant City Phosphate Complex  
DEP File No. 0570005-042-AC

Dear Mr. Arif:

This is in response to your letter dated April 1, 2010 requesting additional information on the above referenced project at CF Industries, Inc.'s Plant City facility.

Comment 1: Please explain the need for producing additional sulfuric acid based on the requirements for the facility. The Department had issued a permit modification (Project No. 0570008-026-AC; PSD-FL-339B) in February 2008 authorizing C and D SAP each to increase its production rates from 2,750 tons per day (TPD) to 2,962 TPD. During the processing of that application, the applicant had submitted information showing the requirements for sulfuric acid based on phosphoric acid production (Attachment A enclosed). The permit modification would have allowed the facility to produce the required amount of sulfuric acid based on the maximum phosphoric acid production. Please provide similar information for the years 2008 and 2009 to show the need for additional production at the SAP.

Response: The testing is required to determine the maximum daily production capability in order to better plan future operations of the B SAP as well as the other sulfuric acid plants on site. Planning decisions would include such items as managing raw materials and plant production rates, makeup production requirements for periods of below capacity plant operations, timing of turnaround and other maintenance activity periods, etc.

The facility phosphoric and sulfuric acid production rates for 2008 and 2009 are as follows:

<u>Facility Acid Production</u>	<u>YEAR 2008</u>	<u>YEAR 2009</u>
Sulfuric Acid, tpy	2,445,629	2,323,063
Phosphoric Acid, tpy	1,020,814	918,142
Annual Ratio, Ton SAP/Ton P2O5	2.39	2.53
Product Ratio, Ton SAP/Ton P2O5	2.64	2.64

The above information indicates that the facility produced less sulfuric acid than the amount required for the phosphoric acid production. Sulfuric acid was purchased in 2008 and 2009 to cover the deficit.

Comment 2: Permit No. 0570005-034-AC (BART exemption permit) provides two scenarios of operation. If scenario A is chosen by the applicant, C and D SAP will reduce production from 2,962 to 2,600 TPD each, whereas scenario B reduces production from C and D SAP from 2,962 to 2,900 TPD each. Please explain if the applicant is looking at maximizing sulfuric acid production in anticipation of selecting scenario A where C and D SAP reduce their production by 362 TPD each. If that is the reason, why doesn't the applicant look at reducing the sulfur dioxide (SO<sub>2</sub>) emission rates like it did for scenario B and not reduce the production rates for C and D SAP? This will require a modification to allow the proposed work for scenario A in order to achieve the same reduction as in scenario B.

Response: A final decision has not yet been made regarding the two scenarios of operation referenced in the BART exemption permit. CFI proposes to determine the maximum daily production capacity of B SAP to ascertain the flexibility in plant operations. Only after the requested testing is completed will it be known whether it would affect the decision relative to the BART exemption permit.

Comment 3: The test data submitted for 9-19-2009 indicates that the SO<sub>2</sub> emission rate for B SAP was just under the permitted emission limit (233.0 lb/hr vs. 233.3 lb/hr permitted limit). What improvements have been done to B SAP since that test to provide reasonable assurance of compliance with the BART exemption limit of 93.3 lb/hr (scenario A) and 100.0 lb/hr (scenario B).

Response: The following results of recent engineering measurements, conducted at higher ammonia scrubbing rates during periods of similar production rates, provide CFI reasonable assurance of compliance with the more stringent (93.3 lb/hr) emissions limit:

	<u>Normal Operations</u>	<u>Engineering Measurements</u>
B SAP production, tpd	1560	1560
Ammonia, gpm	2.1	2.5
Emissions, lbSO <sub>2</sub> /ton acid	2.70	1.24
Calculated daily avg., lbSO <sub>2</sub> /hr	175.5	80.6

Comment 4: Please provide the current ammonia rate to the tail gas scrubber for controlling SO<sub>2</sub> emissions from B SAP. Additionally, provide the anticipated ammonia rate to comply with the stringent requirements of SO<sub>2</sub> emissions for the BART exemption permit.

Response: As mentioned above, an ammonia rate of 2.5 gpm resulted in an emission rate of 1.24 lbSO<sub>2</sub>/ton acid at a production rate of 1560 tpd. At this emission rate, the plant is in compliance with the more stringent SO<sub>2</sub> emissions requirement of 93.3 lb/hr in the BART exemption permit.

The requested PE and Authorized Representative certifications are attached.

If you have any questions, please do not hesitate to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Raval", with a horizontal line extending to the right.

Pradeep Raval

Encl.

- C: R. Brunk, CF Industries, Inc.
- C. Zhang-Torres, FDEP SW District
- D. Lee, EPCHC

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : <b>Ronald L. Brunk, Superintendent Environmental Affairs</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>CF Industries, Inc.</b> Street Address: <b>10608 Paul Buchman Highway</b> City: <b>Plant City</b> State: <b>FL</b> Zip Code: <b>33565</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(813) 364-5753</b> ext. Fax: <b>(813) 788-9126</b>
4. Owner/Authorized Representative E-mail Address: <b>rbrunk@cfifl.com</b>
5. Owner/Authorized Representative Statement:  <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>   Signature  <u>21 A/C 10</u> Date

# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>John B. Koogler, Ph.D., P.E.</b> Registration Number: <b>12925</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Koogler and Associates, Inc.</b> Street Address: <b>4014 NW 13<sup>th</sup> Street</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32609</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 377-5822</b> ext. Fax: <b>(352) 377-7158</b>
4. Professional Engineer E-mail Address: <b>jkoogler@kooglerassociates.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature _____ Date <u>4/20/2010</u> (seal)

\* Attach any exception to certification statement.