

# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

April 1, 2010

*Electronic Mail - Received Receipt Requested*

Mr. Ronald L. Brunk,  
Superintendent Environmental Affairs  
CF Industries, Inc.  
Post Office Drawer L  
Plant City, Florida 33564

Re: DEP File No. 0570005-042-AC  
B Sulfuric Acid Plant (SAP) Testing - Plant City Phosphate Complex  
Request for Additional Information

Dear Mr. Brunk:

The above referenced project for conducting testing to determine the maximum production rate that can be sustained by B SAP was received by the Department on March 25, 2010. Pursuant to Rules 62-296.340, 62-4.055 and 62-4.070 F.A.C., Permit Processing, the Department requests submittal of additional information prior to processing the application. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

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.
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.

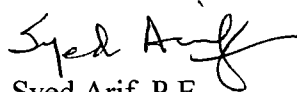
3. The test data submitted for 9-19-2009 indicates that the SO<sub>2</sub> emission rate for B SAP was just under the permitted emission limit (233.0 lb/hr vs. 233.3 lb/hr permitted limit). What improvements have been done to B SAP since that test to provide reasonable assurance of compliance with the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

Any additional comments from the Environmental Protection Commission Hillsborough County (EPCHC) will be forwarded to you after we receive them.

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

If you have any questions regarding this matter, please call me at 850/921-9528.

Sincerely,



Syed Arif, P.E.

New Source Review Section

Enclosure

cc: Ronald Brunk, CF Industries, Inc.: [rbrunk@cfifl.com](mailto:rbrunk@cfifl.com)  
Cindy Zhang-Torres, P.E., Southwest District: [cindy.zhang-torres@dep.state.fl.us](mailto:cindy.zhang-torres@dep.state.fl.us)  
Diana Lee, P.E., EPCHC: [lee@epchc.org](mailto:lee@epchc.org)  
Pradeep Raval, Koogler & Associates, Inc.: [praval@kooglerassociates.com](mailto:praval@kooglerassociates.com)  
Vickie Gibson, DEP-BAR: [victoria.gibson@dep.state.fl.us](mailto:victoria.gibson@dep.state.fl.us) (for read file)

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## ATTACHMENT A

**Note #1**

1,543,585 TPY P2O5 is calculated from taking the maximum P2O5 input for A & B PAP and assuming no down time throughout the year.  
 A-PAP 1,700 TPD + B-PAP 2,529 TPD ) X 365 Days per year = 1,543,585  
 Realistically we have down time and we don't always run 100% of permit rate all the time we are running. Our goal is about 1.22 MM TPY P2O5 and could be characterized many ways and here is just one example:  
 (1,400 + 2,200) average TPD P2O5 rates in A&B PAP X 365 days/yr X 92.9% O F = 1,220,760 TPY P2O5.

**Note #2**

The sulfuric acid input to P2O5 output ratio of 2.64 is based on the historic actual average tons of sulfuric acid used to produce a ton of P2O5.  
 Examining the stoichiometry of phosphate rock digestion with sulfuric acid would yield a similar ratio: every mole of calcium and magnesium in the rock requires a mole of sulfuric acid to dissolve the rock.

**Note #3**

3,220,760 TPY Sulfuric Acid would sustain the goal P2O5 production of 1.22 MM TPY P2O5  
 (1,220,000 TPY P2O5 X 2.64 H2SO4/TP2O5 = 3,220,760 TPY H2SO4  
 Because of down time and not always being able to maintain maximum production rates they will be time when purchased sulfuric acid is need.

	Avg. 2002-2006	Current Title V/ AC Permits	Actual Limits Based on Sulfur and No Purchased H2SO4	New Application	Actual Limits Based on Sulfur and No Purchased H2SO4
Sulfur Purchased (TPY) <sup>f</sup>	798,990 2,446,907	965,388	965,388	1,056,200	1,056,200
H2SO4 Production (TPY)	2,444,890	3,066,000	3,066,000	3,220,760	3,220,760
H2SO4 Purchased (TPY)	106,298	no limit	no limit	no limit	no limit
Total H2SO4 (TPY)	2,551,189	3,066,000	3,066,000	3,220,760	3,220,760
Phos Acid Permitted Production - (TPY Input P2O5)	1,285,895	1,543,585 #1	1,161,364	1,543,585	
Actual / Forecast Production - (TPY P2O5)	964,704				1,219,985
Total Dry Products (TPY) <sup>b</sup>	1,932,050	2,511,464	2,322,727	2,511,464	2,439,970
tons H2SO4/ton P2O5	2.64 #2		2.64		2.64
tons Dry Products/ton P2O5	2.00		2.00		2.00

<sup>a</sup> Based on 98/32 = 0.3268 tons S/ton H2SO4.

<sup>b</sup> Excluding "A" DAP/MAP, which is on cold standby.

Current Permit Limits

Prod Limits	Sulfur	Sulfuric		P2O5		DAP		
	Annual	Daily	Annual	Daily	Annual	Daily	Annual	
A-train		1,300	474,500	1,699	620,135	1,439	525,126	A-train
B-train		1,600	584,000	2,530	923,450	2,373	779,420	X-train
C-train		2,750	1,003,750			2,373	866,022	Y-train
D-train		2,750	1,003,750			2,373	866,022	Z-train
Total Permitted	965,388		3,066,000		1,543,585		3,036,591	
limit by Sulfur			2,954,064		1,118,964		2,237,927	

## Livingston, Sylvia

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**From:** Livingston, Sylvia  
**Sent:** Thursday, April 01, 2010 12:58 PM  
**To:** 'Rbrunk@cfifl.com'  
**Cc:** Zhang-Torres; 'lee@epchc.org'; 'praval@kooglerassociates.com'; Gibson, Victoria; Arif, Syed; Walker, Elizabeth (AIR)  
**Subject:** Request for Additional Information: CF Industries, Inc. - Plant City Phosphate Complex (0570005-042-AC)  
**Attachments:** RAI 0570005-042-AC.pdf

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software, *noting that you can view the documents*, and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <<http://www.adobe.com/products/acrobat/readstep.html>> .

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

Sylvia Livingston  
Bureau of Air Regulation  
Division of Air Resource Management (DARM)  
850/921-9506  
[sylvia.livingston@dep.state.fl.us](mailto:sylvia.livingston@dep.state.fl.us)

**Livingston, Sylvia**

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**From:** Brunk, Ron [rbrunk@cfifl.com]  
**Sent:** Thursday, April 01, 2010 1:13 PM  
**To:** Livingston, Sylvia  
**Subject:** RE: Request for Additional Information: CF Industries, Inc. - Plant City Phosphate Complex (0570005-042-AC)

received, thank you

ron

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**From:** Livingston, Sylvia [mailto:Sylvia.Livingston@dep.state.fl.us]  
**Sent:** Thursday, April 01, 2010 12:58 PM  
**To:** Brunk, Ron  
**Cc:** Zhang-Torres; lee@epchc.org; praval@kooglerassociates.com; Gibson, Victoria; Arif, Syed; Walker, Elizabeth (AIR)  
**Subject:** Request for Addittional Information: CF Industries, Inc. - Plant City Phosphate Complex (0570005-042-AC)

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Thank you,

Sylvia Livingston  
Bureau of Air Regulation  
Division of Air Resource Management (DARM)  
850/921-9506  
[sylvia.livingston@dep.state.fl.us](mailto:sylvia.livingston@dep.state.fl.us)

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## Livingston, Sylvia

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**From:** Pradeep Raval [praval@kooglerassociates.com]  
**Sent:** Friday, April 02, 2010 9:43 AM  
**To:** Livingston, Sylvia; Rbrunk@cfifl.com  
**Cc:** Zhang-Torres; lee@epchc.org; Gibson, Victoria; Arif, Syed; Walker, Elizabeth (AIR)  
**Subject:** RE: Request for Addittional Information: CF Industries, Inc. - Plant City Phosphate Complex (0570005-042-AC)

Sylvia: Thanks.

Pradeep Raval

Koogler and Associates, Inc.

4014 NW 13th Street

Gainesville, FL 32609

tel: 352-377-5822

cell: 352-317-8635

fax: 352-377-7158

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**From:** Livingston, Sylvia [mailto:Sylvia.Livingston@dep.state.fl.us]  
**Sent:** Thursday, April 01, 2010 11:58 AM  
**To:** Rbrunk@cfifl.com  
**Cc:** Zhang-Torres; lee@epchc.org; praval@kooglerassociates.com; Gibson, Victoria; Arif, Syed; Walker, Elizabeth (AIR)  
**Subject:** Request for Addittional Information: CF Industries, Inc. - Plant City Phosphate Complex (0570005-042-AC)

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