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RECEIVED

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Mr. Al Linero, P.E.  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

BUREAU OF AIR REGULATION

RE: CARGILL FERTILIZER, INC—RIVERVIEW FACILITY  
PERMIT NO. 0570008-036-AC; PSD-FL-315B; AFI PLANTS NOS. 1 AND 2

Dear Mr. Linero:

*0570008-043-AC PSD-FL-315D*

On September 23, 2002, Cargill Fertilizer, Inc. (Cargill) applied for changes to its construction permit application (Permit No. 0570008-036-AC; PSD-FL-315B), including modifications to the Animal Feed Ingredient (AFI) Nos. 1 and 2 Plants. Specifically, Cargill requested the following revisions to the construction permit application:

**AFI Plant No. 1**

- Maintain a single common stack for the AFI Plant No. 1 defluorination system, granulation system, and milling, classification, and cooling equipment (Cargill had previously requested the installation of two new stacks in the construction application);
- Use of a new packed-bed cross-flow scrubber to control emissions from the defluorination system; and
- Maintain the use of a venturi scrubber system to control emissions from the granulation system and the material handling system, which is the current plant configuration (Cargill had previously requested the installation of a baghouse to control emissions from the material handling system in the construction application).

**AFI Plant No. 2**

- Construction of two new venturi scrubbers to control emissions from the AFI Plant No. 2 granulation system and the material handling system (Cargill had previously requested a venturi scrubber to control emissions from the AFI Plant No. 2 granulation system and a baghouse to control emissions from the material handling system.); and
- Maintain a single common stack for the AFI Plant No. 2 granulation system and material handling system (Cargill had previously requested the installation of two new stacks in the construction application).

On November 8, 2002, the Department approved the request to revise the control equipment and stack configuration for the AFI Plants Nos. 1 and 2, as described above.

As described in the request for additional information submitted to the Department on October 28, 2002, for compliance testing purposes Cargill will treat the limits as combined emissions limits and test for the combined rates on the common plant stacks. Cargill is now requesting modification of the current Construction Permit to combine the emissions limits for the common stacks at the AFI Plants Nos. 1 and 2. The requested changes to the construction permit are presented in Attachment A.

If you have any questions, feel free to call me at (352) 336-5600 or Dean Ahrens, Cargill Riverview, at (813) 671-6369.

Sincerely,

GOLDER ASSOCIATES INC.

*David A. Buff*

David Buff, P.E., Q.E.P.  
Principal Engineer  
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DB/FWB/nav

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**ATTACHMENT A**

The Specific Condition III.F.6. should be modified as follows:

6. Emissions from the AFI Plants No. 1 and 2 shall not exceed the following [Rule 62-210.400, F.A.C.]:

Emission Unit	PM/PM <sub>10</sub>			Fluorides	
	Grains per DSCF	lb/hr	TPY	lb/hr	TPY
AFI Plant No. 1 <del>Granulation System</del>	N/A	8.13	35.58	N/A	N/A
Defluorination System	N/A	N/A	N/A	2.11	9.25
<del>Milling, Classification, and Cooling Equipment Train No. 1</del>	0.012	5	23	N/A	N/A
AFI Plant No. 2 <del>Granulation System</del>	N/A	8.13	35.58	N/A	N/A
<del>Milling, Classification, and Cooling Equipment Train No. 2</del>	0.012	5	23	N/A	N/A
DE Silo	0.012	0.053	0.23	N/A	N/A
Limestone Silo	0.012	0.32	1.40	N/A	N/A
Loadout System	0.012	2.06	9.01	N/A	N/A
<b>Total for AFI Plants No. 1 and 2</b>	<b>N/A</b>	<b>28.72</b>	<b>125.78</b>	<b>2.1</b>	<b>9.25</b>

The BACT determination should be modified as follows:

**BACT Analysis**

**5. AFI Plant No. 1**

The animal feed plant No. 1 uses a combination of baghouses, cyclones, and wet scrubbers to control PM/PM<sub>10</sub> emissions. Baghouses are used to control all raw material (DE and limestone) handling operations, as well as product loadout operations. Baghouse technology represents the state of the art in control of PM/PM<sub>10</sub> emissions for material handling sources. Baghouses are highly efficient and allow collected PM to be recovered as product. Although wet PM controls (i.e., scrubbers) could be employed, an additional liquid waste stream would be generated.

A venturi scrubber is used to control emissions from the No. 1 AFI granulation train and the material handling equipment. A new packed cross-flow scrubber will be added in the defluorination area to replace the existing packed cross-flow scrubber in the defluorination area. ~~Air from the defluorination tanks and the defluorinated acid storage tank will be scrubbed in a new venturi scrubber that removes fluorides. The gases will then pass through a new packed cross-flow scrubber to remove additional F emissions.~~ The packed scrubber contains three packed stages and a de-mister stage. Pond water is used as the scrubbing media and is returned to the existing plant process pond cooling system.

The permitted PM/PM<sub>10</sub> emission limits for the No. 1 AFI ~~granulation train~~ Plant are 8.13 lb/hr and 35.04 57.57 TPY. The applicant is proposing control equipment equivalent to a recent BACT determination by FDEP in the AFI Plant No. 1 Construction Permit No. 0570008-28-AC, issued June 8, 1999, capable of attaining the same emission rates, as BACT for the modified No. 1 AFI plant.

In June 1999, FDEP issued a final Air Construction Permit allowing Cargill to make the modifications necessary to increase production of the existing AFI plant from 580 to 770 TPD of AFI. For that permit, FDEP determined an F emission rate of 0.5 pound per batch per hour

(lb/batch-hr) and 1.0 lb/hr total to be BACT. Cargill is modifying the existing acid defluorination system with the addition of a fourth acid batch tank and production of defluorinated acid will increase proportionally with the increase in AFI production for both granulation systems; therefore, the maximum hourly F emission rate will increase to 2.11 lb/hr. The new packed scrubber is expected to provide equivalent or better F control. Given this recent BACT determination by FDEP and the increase in production afforded by the proposed modification, the Department believes that an F emission limit of 0.5 lb/batch-hr or 2.11 lb/hr still represents BACT.

The AFI Plant No. 1 dryer is a small source of NO<sub>x</sub> and SO<sub>2</sub> due to the fuel combustion in the dryer. Good combustion practices constitute BACT for NO<sub>x</sub> for this source. SO<sub>2</sub> emissions are controlled by using natural gas as the primary fuel and using low sulfur content fuel as a backup. This constitutes BACT for SO<sub>2</sub> for this source.

#### **6. AFI Plant No. 2**

Exhaust gases from the new granulation plant dryer and reaction system will be sent to a venturi scrubber and then to ~~a new stack adjacent to the second granulation plant building~~ the existing common AFI Plant No. 2 stack. The new venturi scrubber will be similar in design to the existing venturi scrubber controlling emissions from the AFI Plant No. 1 ~~granulation system~~. The milling, classification, and cooling equipment will be vented to ~~a baghouse~~ a second venturi scrubber. ~~The granulation plant venturi scrubber and baghouse will exit through a common stack.~~

~~The current PM/PM<sub>10</sub> emission limit for the material handling sources at the No. 1 AFI plant is 0.012 grain per dry standard cubic foot (gr/dscf), based on FDEP's BACT determination presented in Construction Permit No. 0570008-28-AC, issued on June 8, 1999. Given this recent BACT determination by FDEP, that the material handling sources in the No. 1 AFI plant are identical or similar to the proposed material handling sources for the AFI plant No. 2 and that no other technology is capable of achieving lower PM/PM<sub>10</sub> levels than the proposed baghouse technology, the Department believes an emission limit of 0.012 gr/dscf represents BACT for these sources. This is also applicable to the proposed baghouse controlling PM emissions from the No. 2 AFI milling, classification, and cooling equipment.~~

FDEP determined wet scrubber technology to be BACT in Construction Permit No. 0570008-028-AC, issued on June 8, 1999, for modifications to the No. 1 AFI Plant. The permitted PM/PM<sub>10</sub> emission limits for the existing No. 1 AFI granulation train are 8 pounds per hour (lb/hr) and 35.04 TPY. Again, given this recent BACT determination by FDEP for an identical source, Cargill is proposing equivalent control equipment, capable of attaining the same emission rates, as BACT for the No. 2 AFI ~~granulation system~~.

The AFI Plant No. 2 dryer is a small source of NO<sub>x</sub> and SO<sub>2</sub> due to the fuel combustion in the dryer. Good combustion practices constitute BACT for NO<sub>x</sub> for this source. SO<sub>2</sub> emissions are controlled by using natural gas as the primary fuel and using low sulfur content fuel as a backup. This constitutes BACT for SO<sub>2</sub> for this source.

**BACT DETERMINATION BY THE DEPARTMENT**

**6. AFI Plants No. 1 and 2**

Emission Unit	SO <sub>2</sub> /SAM	NO <sub>x</sub>	PM/PM <sub>10</sub>			Fluorides		
	Control Technology	Control Technology	Limit Basis	Emission Limit (lb/hr)	Control Technology	Limit Basis	Emission Limit (lb/hr)	Control Technology
AFI Plant No. 1 Granulation System	Good combustion practices	Good combustion practices	N/A	8.13	Venturi Scrubber	N/A	N/A	N/A
Defluorination System	N/A	N/A	N/A	N/A	N/A	0.5 lb/batch-hour	2.11	Venturi Scrubber and Packed Cross-flow Scrubber
Milling, Classification, and Cooling Equipment Train No. 1	N/A	N/A	0.012 grains/dscf	5	Baghouse	N/A	N/A	N/A
AFI Plant No. 2 Granulation System	Good combustion practices	Good combustion practices	N/A	8.13	Venturi Scrubbers (2)	N/A	N/A	N/A
Milling, Classification, and Cooling Equipment Train No. 2	N/A	N/A	0.012 grains/dscf	5	Baghouse	N/A	N/A	N/A
DE Silo	N/A	N/A	0.012 grains/dscf	0.053	Baghouse	N/A	N/A	N/A
Limestone Silo	N/A	N/A	0.012 grains/dscf	0.32	Baghouse	N/A	N/A	N/A
Loadout System	N/A	N/A	0.012 grains/dscf	2.06	Baghouse	N/A	N/A	N/A