Cargill
Crop Nutrition

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BUREAU OF AIR REGULATION

October 28, 2002

Hand Delivered

Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Syed Arif, P.E.

RE: AFI PLANT MODIFICATION, REQUEST FOR ADDITIONAL INFORMATION
DEP FILE NO. 0570008-041-AC; PSD-FL-315B

Dear Syed:

Cargill Fertilizer, Inc. (Cargill) is in receipt of the Department's letters dated October 16, 2002 and October 17, 2002, requesting additional information for the requested modifications to the Animal Feed Ingredient (AFI) Plant at its Riverview facility. The questions are addressed below in the order they appear in the letter.

Letter dated October 16, 2002:

1. *Please provide the Department with reasonable assurance that the BACT fluoride emissions limit from defluorination system will be met by utilizing only the packed cross-flow scrubber. This can be done by submitting documentation on past test data and a PE sealed statement from the vendor authenticating that the packed cross-flow scrubber will be sufficient to meet the BACT limits for fluoride.*

   Response:

   Please find attached the results of the latest test, during which the process utilized a packed cross-flow scrubber as the only form of emissions control. Also find attached a statement from KEMWorks, signed and sealed by a PE regarding the performance of the proposed pollution control technology.

2. *Please explain the process of complying with the separate PM emission limits established for the AFI No. 2 Granulation System and Material Handling Equipment, if the facility is proposing to exhaust the two scrubbers through a single, common stack. Also, provide the Department with reasonable assurance from the vendor in the form of a PE sealed statement that the venturi scrubber replacing the baghouse for the Material Handling Equipment will be equivalent in terms of performance.*

   Response:
   Separate emissions testing of the AFI No. 2 Granulation System and the AFI No. 2 Material Handling Equipment gas streams will be impractical due to the duct configuration leading to the common stack. For this reason, Cargill requests that the two individual PM limits be treated as a combined limit for compliance testing purposes.
   The reasons for allowing demonstration of compliance based on a combined limit for both processes are as follows:

8813 Highway 41 South
Riverview, FL 33569-4865
Tel 813-677-9111
Fax 813-671-6149

- The identical plant, the AFI Plant No. 1, operated under a combined limit before the most recent construction permit.

- The uncontrolled PM emissions from each source (i.e., granulation and material handling) are greater than 100 tons per year (TPY), therefore the Compliance Assurance Monitoring (CAM) rule would apply to each source. At the time of the Title V renewal application, Cargill will be required to submit CAM plans for each of these sources, and monitoring of each scrubber will be required.

- Several EPA guidance memorandums, obtained from EPA's Applicability Determination Index, address the appropriateness of testing for a combined emission limit when two sources emit from a combined stack.

- A January 10, 1977, memo EPA from George Stevens to Thomas J. Maslany of the EPA responds to the following question: "May allowable particulate emission rates from both the kiln and the clinker cooler be added when both these facilities have only one common vent to the atmosphere?" The response states "it was determined that adding the allowable emission rates per ton of feed from both the kiln and the clinker cooler to provide a combined allowable emissions rate is acceptable."

- The December 12, 1998 memo regarding Subpart DDD specifically states that two affected sources with separate emission limits can be combined if the limits are in the same units.

- Another memorandum addresses opacity standards for a combined stack. On June 13, 1989, Mr. Roger Pfaff, EPA Region IV, answers the following question: "What is the applicable opacity standard for the combined exhaust from the kiln and clinker cooler of a portland cement plant?"

  "The kiln and clinker cooler emissions are subject to Subpart F which specifies an opacity standard of 20 percent for kilns and 10 percent for clinker coolers. The applicable opacity standard for the combined exhaust is 10 percent. "

- Another memorandum from November 8, 1990, addresses opacity standards for a combined stack.

The PM emission limit for the No. 2 Granulation System is 8 pounds per hour (lb/hr) and 35 TPY,and for the Material Handling Equipment is 5 lb/hr and 23 TPY, respectively. For compliance testing purposes, Cargill requests that the combined maximum emissions of 13 lb/hr and 58 TPY be used for compliance purposes for the AFI Plant No. 2.

The AFI Plant No. 2 currently has an opacity limit of 15%. Based on the memorandum listed above, the opacity limit for AFI Plant No. 2 common stack would be the lower of the two individual opacity limits. Because Permit No. 0570008-036-AC contains only one opacity limit for the AFI Plant No. 2, the opacity limit of 15% would apply to the combined plant stack.

Copies of these memorandums have been attached for reference.

Based on these reasons, Cargill should be allowed to demonstrate compliance by testing the combined exhaust gases and comparing results to the combined limit.

Also, please find attached a statement from DR technology, Inc., signed and sealed by a PE regarding the performance of the proposed pollution control technology for the Equipment Venturi Scrubber.

3. *Please explain the process of complying with the separate PM emission limits established for the AFI No. 1 Granulation System and Material Handling System, if the facility is proposing to exhaust both emission points through a single, common stack. Also, provide the Department with reasonable assurance from the vendor in the form of a PE sealed statement that the efficiency of the venturi scrubber will be sufficient to control PM emissions from the Granulation System as well as Material Handling Equipment.*

   Response:
   Because Cargill currently does not have a final design for the AFI Plant No. 1 modifications, this portion of our request is withdrawn. Cargill will submit the proper modification request when a final design is completed for the modification of AFI Plant No. 1.

4. *Please explain the reasons for replacing the baghouse of AFI No. 2 Material Handling Equipment with wet scrubber technology (venturi scrubber). Are emissions from that point expected to be wet emissions?*

   Response:
   The reasoning behind the replacement of the baghouse with wet scrubber technology in the AFI Plant No. 2 was mainly reliability based. Because the performance of a baghouse is not proven in this application, the reliability of this form of emission control device cannot be guaranteed. An unreliable pollution control device can cause an unacceptable amount of plant downtime.

5. *Table 2-7a of the modification application lists the design capacity of the two new venturi scrubbers combined AFI Granulation system No. 2 less than the design capacity for AFI Granulation System No. 1. Please explain the reasons for using smaller venturi scrubbers for AFI No. 2 when the production throughput for AFI No. 2 is greater than AFI No. 1.*

   Response:

   For the reasons listed in item no. 3, the modifications requested for AFI No. 1 are withdrawn

6. *There were predicted violations of the PM_{10} and SO_2 ambient air quality standards in the original modification. Cargill showed that the original modification was not a significant contributor to any of these predicted violations. Please provide the Department with reasonable assurance that these proposed changes will not result in predicted PM_{10} or SO_2 impacts that will significantly contribute/cause violations. Tables 2-3, 2-7a, and 2-7b are confusing and difficult to follow. Please show the explicit differences these proposed changes would make in the modeling input files used in the original modification submittal.*

   Response:

   To demonstrate that the proposed changes will not result in predicted PM_{10} or SO_2 impacts that will significantly contribute to or cause violations of the PM_{10} and SO_2 AAQS or PSD Class I or II increment, a modeling analysis was performed to determine the difference in impacts over the modeled area between the "current" and "future" Cargill sources. The "current" Cargill sources represent the emissions and sources from the current construction

permit (Permit No. 0570008-036-AC). The "future" Cargill sources represent the changes to the AFI plant proposed in the September 13, 2002, letter to revise the construction permit.

To determine this difference, the "future" Cargill sources were modeled with positive emissions and the "current" Cargill sources were modeled as negative numbers. A positive predicted impact would demonstrate that the "future" impacts were greater than the "current" impacts in the modeled areas.

To predict impacts in the site vicinity, the ISCST3 model (Version 02035) was used with 5 years of meteorological data from Tampa and Ruskin. This is the same model and meteorological data used in the previous analysis. Both the "future" and "current" Cargill sources were modeled in the same run.

To predict impacts at the PSD Class I area of the Chassahowitzka NWA, the CALPUFF model was used to determine "current" and "future" concentrations using 1990 meteorological data. This is also the same model and meteorological data used in the previous analyses. Because the CALPUFF model does not allow the user to input negative emissions, the "current" and "future" sources were modeled separately. The CALSUM program was then used to determine the difference in impacts.

From the previous analyses, violations were predicted for the following:

- Annual and 24-hour average PM_{10} AAQS,
- 24-hour average SO_2 AAQS,
- 24-hour average PM_{10} PSD Class II increment, and
- 24-hour and 3-hour average SO_2 PSD Class I increment.

As a result, only PM_{10} and SO_2 modeling analyses were performed in the site vicinity and only an SO_2 modeling analysis was performed at the PSD Class I area.

The modeling grid surrounding Cargill that was used in this analysis represents the same grid used in the AAQS and PSD Class II increment modeling analyses presented in the May 2001 PSD application. For the 24-hour average PM_{10} AAQS and PSD Class II increment analyses, a modeling grid over the area of Teco Gannon was used since this is the area where the violations of the standards were predicted in the PSD application. Because maximum annual average PM_{10} and annual, 24-hour, and 3-hour average SO_2 concentrations for the AAQS and PSD Class II increment analyses were predicted in different locations near Cargill and Teco Gannon, a full modeling grid was used. This grid included the Cargill property boundary and off-site polar rings out to 6 km for PM_{10} and 27 km for SO_2, based on the modeling analysis presented in the PSD application.

For the PSD Class I increment analysis, all of the 13 Chassahowitzka NWA receptors that were presented in the PSD application were also used in this modeling analysis.

A summary of the SO_2 and PM_{10} concentration differences from "future" to "current" Cargill sources predicted in the site vicinity are presented in Table 1. A summary of the SO_2 concentration differences from "future" to "current" Cargill sources predicted at the Chassahowitzka NWA is presented in Table 2. As shown in Table 1 the annual average SO_2 and PM_{10} impacts are predicted to be zero, indicating that greater impacts were predicted for the "current" Cargill sources than those predicted for the "future" Cargill sources over the modeled area (i.e., impacts are decreasing over the modeled area due to the proposed changes). The 24-hour average PM_{10} concentration predicted in the site vicinity and the 24-hour and 3-hour average SO_2 concentration predicted at the Chassahowitzka NWA appear to be minor changes. These are minor changes at worst-case receptors and the maximums are

less than 10 percent of the significant impact levels. Therefore, the proposed changes will not increase any of the SO_2 or PM_{10} impacts in the modeled area beyond a minimal amount. Since Cargill did not contribute to any of the violations in the PSD application, and the impacts predicted for the proposed changes to Cargill indicate a decrease or minor change in impacts, Cargill will not significantly contribute to or cause any violations of the AAQS or PSD Class I or II increments. However, since the 24-hour and 3-hour average SO_2 concentration differences predicted from "future" to "current" Cargill sources did show minimal increases (refer to Table 1), an AAQS modeling analysis was conducted.

The AAQS modeling analysis used the same background sources, meteorological data, and receptor grid as the modeling analysis presented in the PSD application. The only changes to the modeling input files were the proposed changes to the AFI Plant. The results of the 24-hour and 3-hour average SO_2 AAQS screening analysis are presented in the revised Table 6-15. Based on the screening analysis results, modeling refinements were performed. The revised results of the refined modeling analysis are presented in Table 6-16.

The maximum predicted highest, second-highest (HSH) 24-hour and 3-hour SO_2 concentrations are 282 and 1,167 $\mu g/m^3$. These concentrations include ambient non-modeled 24-hour and 3-hour concentrations of 31 and 121 $\mu g/m^3$. The maximum predicted HSH 3-hour concentrations is less than the 3-hour AAQS of 1,300 $\mu g/m^3$. The HSH 24-hour concentration of 282 g/m^3 is predicted to be greater than the 24-hour AAQS of 260 $\mu g/m^3$. However, the project does not have a significant impact at any receptor or during any time period when the AAQS is exceeded. Therefore, the proposed changes at Cargill will not contribute to or cause any violations of the AAQS or PSD Class I or II increments.

The proposed changes to the stack and operating parameters and the affect on the modeling input files are summarized in revised Tables 6-4r and 6-6r. For comparison, the stack and operating parameters from the PSD application are shown in Tables 6-4 and 6-6. A summary of the stack and operating parameters and the potential SO_2 and NO_x emission rates from the PSD application and after the proposed changes to the AFI Plant are summarized in Tables 6-4 and 6-4r, respectively. A summary of the stack and operating parameters and the potential PM_{10} emission rates from the PSD application and after the proposed changes to the AFI Plant are summarized in Tables 6-6 and 6-6r, respectively. The proposed changes to the stack parameters for the affected sources have been highlighted.

Letter dated October 17, 2002:

1. *In your previous permit (Permit No. 057008-036-AC), you proposed to control fluoride emissions from the defluorination system by venting the emissions to a venturi scrubber and packed cross-flow scrubber system. You current proposal is to vent these emissions to just a packed cross-flow scrubber. How does the control efficiency of the new packed cross-flow scrubber compare with both the existing packed cross-flow scrubber, and the permitted venturi scrubber and packed cross-flow scrubber system with respect to design parameters. Please provide reasonable assurance that the proposed scrubber system is as efficient as the permitted system and is capable of meeting the 2.11 lb/hr fluoride emission limit.*

   Response:
   See response to the October 16 letter Item No. 1.

2. *In your previous permit (Permit No. 057008-036-AC), you proposed to control the particulate emissions from the material handling equipment of the AFI Plant No. 2 by venting the emissions to a baghouse. Your current proposal is to vent these emissions to a*

venturi scrubber. Please provide reasonable assurance that the proposed venturi scrubber is as efficient as the permitted baghouse and is capable of meeting the 0.012 gr/dscf particulate emission limit. Why was the baghouse dropped as the control equipment on the material handling equipment and replaced with a venturi scrubber when the BACT determination by the Department stated, "no other technology is capable of achieving lower PM/PM$_{10}$ levels than than the proposed baghouse."

Response:
See response to the October 16 letter Item Nos. 2 and 4.

3. *In your previous permit (Permit No. 057008-036-AC), you proposed to control the particulate emissions from the material handling equipment of the AFI Plant No. 1 by venting the emissions to a baghouse. However, it appears that the baghouse was never constructed, and the emissions are currently being vented to the venturi scrubber that controls the granulation train. Is the existing venturi scrubber on the granulation train's process equipment capable of handling the additional PM/PM$_{10}$ emissions from the material handling equipment? In addition, please provide reasonable assurance that the existing venturi scrubber that controls both the granulation train and material handling equipment is as efficient as the permitted venturi scrubber and baghouse system that separately control these emissions units, and is capable of meeting their respective particulate emission limit.*

Response:
The AFI Plant No. 1 currently operates with a single venturi scrubber controlling both the granulation and material handling parts of the unit. The modifications to production rate and emissions control authorized by Permit No. 0570008-036-AC have not begun. The proposed modifications to the existing construction permit are withdrawn with this letter.

4. *In Table 2-7a. Summary of Pollution Control Equipment and Allowable Emission Rates for the AFI Plant (Revised 9/11/02), the Total Emissions from the Modified AFI Plants No. 1 and 2 should be 125.78 TPY instead of 68.21 TPY.*

Response:
Please see attached revised Table 2-7a. These emissions are not increased above the current permitted emission rates authorized in Permit No. 0570008-036-AC.

If you have any questions, please call me at (813) 671-6369, or email me at kathy_edgemon@cargill.com.

Sincerely,

Kathy Edgemon, P.E.
Environmental Superintendent

<FWH>

Enclosures

cc: D. Buff, F. Howard, Golder
D. Jellerson, Cargill Fertilizer
S. Woodard, EPCHC (Certified Mail:
Q. Kissel, SWD
C. Holladay, EPA
G. [illegible], NPS
G. [illegible]

recycled paper

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TECHNOLOGY, INC.

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NGREENWO@KEMWORKS.COM
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October 24, 2002

Henry Thorpe
Cargill Crop Nutrition
8813 Hwy 41 South
Riverview, FL 33569

Re: AFI Scrubber

Dear Henry:

As designers of the original AFI scrubber, KEMWorks Technology, Inc. is the logical choice to verify that the new scrubber has been scaled up properly to handle the increased load from the acid defluorination system.

We have reviewed the drawings, examined the operating data, looked at the operating equipment and prepared calculations. We find that scrubber has adequate transfer units to meet the environmental limits without additional scrubbers in the system. This is similar to other installations that we have designed that have also met environmental regulations. This conclusion is based on the following primary design criteria:

- Plant design capacity is 2280 tpd of MCP or DCP. As part of this plant, fluorine is evolved from phosphoric acid to a scrubbing system in a continuous process.
- Scrubber design is per Cargill Scrubber Assembly drawing 28-M-0178 rev.4 with the following exceptions; six layers of Kimre packing are installed in the 2nd section (instead of 4), quench spray nozzles are model no. MP-1000, scrubber spray nozzles are TF-40 on top and TF-24 for the others.
- The scrubber design gas rate is 20,000 acfm at the outlet. The design load to scrubber is 1300 lb/hr fluorine. The allowed emissions are a maximum of 2.11 lb/hr of fluorine.
- The demister pad is sprayed with a minimum of 60 gpm fresh water. The scrubber pads (3 sections) are sprayed with makeup pond water. The quench section is sprayed with recirculated pond water.
- The first scrubbing section is sprayed with pond water with a minimum of 5 gpm/ft^2 coverage. The 2nd and 3rd scrubbing sections are sprayed with pond water with a minimum of 4 gpm/ft^2 coverage. These coverages result in a minimum total pond water requirement of approximately 800 gpm.
- The worst case pond water is available at 100° F with 0.9% fluorine.

Please let us know if you need additional evaluation of the scrubbing system at your AFI plant.

Sincerely,

Neil R. Greenwood

Neil R. Greenwood, P.E. 26926
Engineering Manager
KEMWorks Technology, Inc. Certificate of Authorization No. 7190

K:\1590\Scrubber Letter rev 1.doc

24-Oct-2002

TABLE 1. PARTICULATE EMISSIONS TEST SUMMARY

Company: Cargill Fertilizer, Inc. - Riverview
Source: AFI - Stack

	Run 1	Run 2	Run 3	
Date of Run	2/2/02	2/2/02	2/2/02	
Process Rate (TPH)	29.1	28.0	29.0	
Start Time (24-hr. clock)	1233	1400	1525	
End Time (24-hr. clock)	1335	1502	1628	
Vol. Dry Gas Sampled Meter Cond. (DCF)	52.086	53.543	53.482	
Gas Meter Calibration Factor	1.024	1.024	1.024	
Barometric Pressure at Barom. (in. Hg.)	30.20	30.15	30.13	
Elev. Diff. Manom. to Barom. (ft.)	80	80	80	
Vol. Gas Sampled Std. Cond. (DSCF)	53.242	52.481	52.335	
Vol. Liquid Collected Std. Cond. (SCF)	9.157	10.142	9.571	
Moisture in Stack Gas (% Vol.)	14.7	16.2	15.5	
Molecular Weight Dry Stack Gas	30.00	30.00	30.00	
Molecular Weight Wet Stack Gas	28.24	28.06	28.14	
Stack Gas Static Press. (in. H2O gauge)	-0.46	-0.55	-0.51	
Stack Gas Static Press. (in. Hg. abs.)	31.09	30.03	30.01	
Average Square Root Velocity Head	1.190	1.203	1.209	
Average Orifice Differential (in. H2O)	2.645	2.733	2.755	
Average Gas Meter Temperature (°F)	93.6	98.1	98.7	
Average Stack Gas Temperature (°F)	147.8	148.4	149.0	
Pitot Tube Coefficient	0.84	0.84	0.84	
Stack Gas Vel. Stack Cond. (ft./sec.)	71.11	73.41	73.69	
Effective Stack Area (sq. ft.)	30.68	30.68	30.68	
Stack Gas Flow Rate Std. Cond. (DSCFM)	100,805	98,635	99,732	
Stack Gas Flow Rate Stack Cond. (ACFM)	130,902	135,127	135,650	
Net Time of Run (min.)	60	60	60	
Nozzle Diameter (in.)	0.226	0.226	0.226	
Percent Isokinetic	97.0	97.7	96.4	
				Average
Particulate Collected (mg.)	26.9	21.4	21.4	23.2
Particulate Emissions (grains/DSCF)	0.008	0.006	0.006	0.01
Particulate Emissions (lb./hr.)	**6.7**	**5.3**	**5.4**	**5.82**
Allowable Particulate Emissions (lb./hr.)				**8.0**
Fluoride Collected (mg.)	0.6	0.6	0.7	0.6
Fluoride Emissions (mg/DSCF)	0.011	0.011	0.013	0.011
Fluoride Emissions (lb./hr.)	**0.143**	**0.141**	**0.167**	**0.150**
Allowable Fluoride Emissions (lb./hr.)				**0.50**

Note: Standard conditions 68°F, 29.92 in. Hg

Luis A. Hernandez, P.E.
P.O. Box 2690
Lakeland, FL 33806-2690

October 24, 2002

Henry Thorpe , Design & Construction Projects Manager
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

Phone: (813) 671-6236 , Fax: 813-671-6351
e-mail address: henry_thorpe@cargill.com

Subject: Venturi/Cyclonic Scrubber Designs Supplied To You For
Cargill Fertilizer, Riverview, Florida.
Cargill PO#: 10073555
H&B Order: HB 1007 3555
D. R. Technology Reference: 02887

Dear Mr. Thorpe:

Based on our various discussions, we have supplied the designs for two adjustable throat D. R. Technology Venturi Scrubbers with associated cyclonic disengaging vessels, one being the Equipment Ventilation Scrubber.

In response to your inquiry, this unit is capable of achieving discharge dust loads of 0.012 grains/DSCF when operating under proper design flows and recommendations.

If you have any questions, please contact the undersigned.

Sincerely,

Luis A. Hernandez, P.E.
FL P.E.#: 39507
Exp. Date: 2/28/03

Control Number: 0000066

Category: NSPS
Region: Region 4
Date: 04/18/2000
Title: Alternative Testing and Monitoring for Combustion Turbines
Recipient: M. D. Harley
Author: R. Douglas Neeley
Comments:

Subparts: Part 60 F Portland Cement Plants

Abstract:

Q: May a facility which operates a cement plant and boiler that share a common control device and which is required to conduct annual testing in three different operating modes reduce sampling frequency?

A: Yes. In this case, the proposal to conduct the cement plant testing every two years instead of every year is acceptable because this frequency coincides with scheduled boiler outages.

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Control Number: 0000096

Category: NSPS
Region: Region 4
Date: 12/22/1998
Title: Determining Compliance under Subpart DDD
Recipient: A. Yvette Taylor
Author: R. Douglas Neeley
Comments:

Subparts: Part 60 DDD Polymer Manufacturing
References: 60.151

Abstract:

Q: What is the proper way to calculate the applicable emission standard when raw materials and polymerization sections in a poly(ethylene terephthalate) process line share a common exhaust stack?

A: Because the emission standards for both affected facilities are expressed in kilograms of total organic compounds per megagram of product (kg TOC/Mg product), the standards for the two facilities are added together in order to determine the applicable standard for the common exhaust stack. Because the standard for the raw material preparation section is 0.04 kg TOC/Mg product and the standard for the polymerization section is 0.02 kg TOC/Mg product, the standard for the common stack is 0.06 kg TOC/Mg product.

Q: What is the proper way to account for emissions when a single ethylene glycol recovery system serves 12 separate polymer process lines?

A: Because the equipment used for the on-site recovery of ethylene glycol is considered to be part of the polymerization reaction section, a proposal to apportion the total emissions from the recovery operation to the 12 process lines based upon their relative production rates is acceptable.

Letter:

4APT-ARB

Ms. A. Yvette Taylor
Division of Engineering Services
Bureau of Air Quality
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

SUBJ: Determining Compliance for Poly(Ethylene Terephthalate) Process Lines at Nan Ya Plastics Corporation, Lake City, South Carolina

Dear Ms. Taylor:

Thank you for your September 17, 1998 letter, which posed two questions regarding compliance demonstration procedures for 12 continuous poly(ethylene terephthalate) process lines at the referenced plant. These process lines are subject to 40 C.F.R. Part 60, Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry. You asked for a determination regarding compliance demonstration procedures for these lines since they are designed in such a way that emissions from multiple affected facilities are collected and ducted through a common header, control device, and stack before they are released to the atmosphere.

The first question in your September 17 letter asked for a determination regarding the magnitude of the applicable emission standard when four affected facilities (two raw materials preparation sections and two polymerization reaction sections) subject to two different emission standards are ducted to a single control device. Under the provisions of Subpart DDD, raw material preparation sections are subject to an emission standard of 0.04 kilograms of total organic compounds per megagram of product (kg TOC/Mg product), and polymerization sections are subject to an emission standard of 0.02 kg TOC/Mg product.

Your agency has taken the position that Nan Ya must meet the more stringent of the two limits for the different affected facilities ducted to the common control equipment (i.e., 0.02 kg TOC/Mg product). You asked for a determination from Region 4 regarding the applicable standard at this location because Nan Ya has taken the position that a standard of 0.06 kg TOC/Mg product should apply at the outlet of the common control device for the raw materials preparation and polymerization sections. Based upon the format of the applicable standards for the individual affected facilities ducted to the common control

device at Nan Ya, we agree with the company's position that the applicable standard at the outlet of this control device would be 0.06 kg TOC/Mg product.

If emissions from two affected facilities subject to different emission standards are ducted to a common control device, the format of the emission standards for the individual facilities must be considered when determining the applicable standard that apply at the outlet of the control device. If the emission standards for the individual facilities are expressed in terms of a concentration (i.e., parts per million or grains/dry standard feet) or a mass emission rate per unit of heat input (i.e., pounds per million British thermal units), compliance for both facilities can be assured only if the emission rate at the control device outlet meets the more stringent of the two applicable standards.

In situations where two facilities are part of a continuous process and are subject to emission standards that are expressed as a mass emission rate of pollutant per unit of production (i.e. kg TOC/Mg product), the emission rate at the exit of a common control device for the facilities is the sum of the applicable emission standards for the individual facilities. When emission limits are expressed a mass of pollutant per mass of product, demonstrating that a control device can meet an emission standard equal to the sum of the limits for separate facilities in a continuous processing line provides adequate assurance that the control equipment is efficient enough to achieve compliance for any of the affected facilities on an individual basis. Enclosed for your information is a copy of a November 14, 1996, Region 4 determination that addresses this same issue for a Subpart DDD source in North Carolina.

The second question in your letter asked for a determination regarding how to account for emissions from a single ethylene glycol recovery operation that Nan Ya intends to use for all 12 of its polymer process lines. Based upon the definition of polymerization reaction system in 40 C.F.R. Sec. 60.561, equipment used for the on-site recovery of ethylene glycol at poly(ethylene terephthalate) plants is considered to be part of the polymerization reaction system. Therefore, emissions from such recovery operations must be added to other polymerization reaction system emissions when determining compliance.

Since Nan Ya plans to use a single ethylene glycol recovery system for all 12 of its polymer process lines, the company has proposed to apportion the TOC emission rate from this recovery system to the individual polymer production lines based upon the relative production rates of the lines. Under this proposed approach, a portion of the TOC emission rate from the ethylene glycol recovery operation would be added to emissions from the respective process lines when determining compliance with the 0.06 kg TOC/Mg product limit that applies at the exit of the common control

equipment installed on each pair of process lines.

After reviewing the Nan Ya proposal to account for ethylene glycol recovery operation emissions as part of its compliance demonstration, we have determined that apportioning the recovery system TOC emission rate to the 12 polymer processing lines based upon their relative production rates is acceptable. Since the ethylene glycol going to the recovery operation comes from all 12 lines, it is appropriate to assign a portion of the emissions from the recovery system to each of the processing lines. Although there may be a number of acceptable ways of apportioning the ethylene glycol recovery system emissions to the 12 polymer processing lines, the production rate weighted method proposed by Nan Ya is a straightforward, logical approach, and we have no objections to it.

If you have any questions about the determination provided in this letter, please contact Mr. David McNeal of my staff at 404/562-9102.

Sincerely yours,

R. Douglas Neeley
Chief
Air and Radiation Technology
Branch
Air, Pesticides and Toxics
Management Division

Enclosure

(1) November 14, 1996, Region 4 determination regarding Subpart DDD

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Control Number: NS17_18

Category: NSPS
Region: SSCD
Date: 11/08/1990
Title: NSPS Applicability - Kilns and Clinker Coolers
Recipient: Turlinski, Bernard E.
Author: Rasnic, John B.
Comments:

Subparts:	Part 60	A	General Provisions
	Part 60	F	Portland Cement Plants
References:	60.11(e)		
	60.12		
	60.13		
	60.60		
	60.62		
	60.63		

Abstract:

What procedure should be used to determine compliance with NSPS Subpart F for two NSPS facilities, a kiln and a clinker cooler, that route their exhaust streams to a single stack?

The clinker cooler has a 10% opacity standard and the kiln has a 20% opacity standard. Following the provisions of 60.13(g), a Continuous Opacity Monitoring System (COMS) would need to be installed on the ductwork leading from the clinker cooler to the preheater. That COMS must show compliance with the 10% standard. Another COMS installed on the kiln exhaust would show compliance with the 20% opacity standard. If, however, installation of separate COMS is impossible, the owner or operator may monitor the combined effluent, but this common stack must meet the more stringent opacity requirement of 10% to ensure compliance with 60.12.

Letter:

Control Number: NS17&18

November 08 1990

MEMORANDUM

SUBJECT: Applicability of NSPS Subpart F to Kilns and Clinker Coolers Using a Common Exhaust Stack

FROM: John B. Rasnic, Acting Director
Stationary Source Compliance Division (EN-341) Office of Air Quality Planning and Standards

TO: Bernard E. Turlinski, Chief
Air Enforcement Branch
Region III

I have received your memorandum of May 1, 1990, requesting a determination of applicability of Subpart F (Portland Cement Plants) to a single exhaust stack used by the kiln and clinker cooler at a portland cement plant in Virginia. I have also received your more recent draft letter, addressing the same issue, to the State of Virginia. I apologize for the delay in our response to your earlier memorandum.

Your request is for a procedure to determine compliance with New Source Performance Standards (NSPS) from two NSPS facilities with different opacity standards, which have a combined exhaust stream. The facts in your memorandum state that the exhaust stream from the affected facility with the 10% opacity standard (the clinker cooler) is introduced into the preheater of the affected facility with the 20% opacity standard (the kiln). The combined emissions are then routed to the control device and then released into the atmosphere.

Section 60.63 of the Subpart requires each owner or operator to install, calibrate, maintain, and operate (in accordance with 60.13) a Continuous Opacity Monitoring System (COMS) to measure opacity from any kiln or clinker cooler subject to the Subpart. Section 60.13(g) of the General provisions requires two or more affected facilities which are not subject to the same emission standard to install an applicable continuous monitoring system on each separate effluent, unless the installation of fewer systems is approved by the Administrator.

Therefore, as indicated in your draft letter to the State, a COMS would need to be installed on the ductwork leading from the clinker cooler to the preheater. That COMS must show compliance with the 10% standard. Another COMS installed on the kiln exhaust would show compliance with

the 20% opacity standard, as your draft letter stated.

If, however, due to the configuration of the ductwork or for some other reason approved by the Administrator, installation of separate COMS is impossible, the owner or operator may install an applicable COMS on the stack to monitor the combined effluent. If this is done, our concern is that no circumvention of an applicable opacity standard be permitted as a result of this configuration. Section 60.12 (Circumvention) of the General Provisions explicitly prohibits "...the use of gaseous diluents to achieve compliance with an opacity standard...." To ensure that the provisions of 60.12 are complied with, and that compliance with the standard for clinker coolers is achieved (10% opacity), this common stack must meet the more stringent opacity requirement of 10%. Whether the clinker cooler emissions are deducted directly to the same stack as the kiln, or to the preheater, the 10% standard still applies.

Furthermore, 60.13(i)(1-9) allows the Administrator to consider approval of alternatives to any monitoring procedures or requirements upon receipt of a written application from the source. This application may cite factors which interfere with the accuracy of the monitoring system, may attempt to demonstrate that the COMS can be installed at an alternative location and still provide accurate and representative measurements, or make an argument for other alternative procedures, methods, or specifications. Any such alternatives approved by the Administrator for the COMS on the clinker cooler must adequately demonstrate compliance with the 10% standard for clinker coolers.

Turning to a further point you made in your more recent submittal, you believe that the effluent from the clinker cooler, after entering the preheater, undergoes a physical and chemical change, and therefore becomes pert of the kiln effluent. You feel that, because of this transformation, effluent from the clinker cooler becomes subject to the 20% opacity limit of the kiln, and not the 10% opacity limit of the cooler. As the above discussion indicates, we do not agree with that interpretation, given, in part, the need to ensure compliance with he clinker cooler standard. Please note that the source may apply to EPA for an alternative opacity limit under the provisions of 60.11(e). However, as noted above, the source should first explore alternative monitoring methods which will enable direct monitoring of the effluent from the clinker cooler prior to its introduction of into the preheater.

To ensure consistency, this response has been reviewed by the Emission Standards Division and the Office of Enforcement. My staff has also been in touch with your staff to discuss this request. I am also enclosing a copy of a 1989 letter from Region IV which illustrates application of the COMS requirements in situations similar

to this one. Please contact Ken Malberg of my staff (FTS 382-2870) if you have any questions about this memorandum.

Attachment

cc: Roger Pfaff, Region IV
Ed Buckner, Region VII
Shirley Tabler, ISB, ESD (MD-13)
Ron Myers, ISB, ESD (MD-13)
Justina Fugh, AED
Peter Fontaine, AED
Howard Wright, SSCD

==========

Table 2-7a. Summary of Pollution Control Equipment and Allowable Emission Rates for the AFI Plant (Revised 10/25/02)

Source	EU ID	Control Equipment	Design Capacity	Operating Hours	Fluoride Allowable Emission Rate lb/hr	Fluoride Allowable Emission Rate TPY	PM/PM_{10} PM/PM_{10} Allowable Emission Rate gr/dscf	PM/PM_{10} PM/PM_{10} Allowable Emission Rate lb/hr	PM/PM_{10} PM/PM_{10} Allowable Emission Rate TPY
Existing AFI Plant No. 1									
Defluorination System/AFI Granulation System (Reactor, Pug Mill, Granulator, and Dryer System)	078	Packed Cross-Flow Scrubber	100,000 acfm	8,760	1.0	4.30	N/A	8.0	35.04
Diatomaceous Earth Hopper	079	Baghouse	518 dscfm	8,760	N/A	N/A	0.012	0.053	0.23
Limestone Silo	080	Baghouse	691 dscfm	8,760	N/A	N/A	0.012	0.071	0.31
AFI Product Loadout	081	Baghouse	18,280 dscfm	8,760	N/A	N/A	0.012	1.88	8.24
Total Emissions from the Exisiting AFI Plant No. 1					1.0	4.30		10.00	43.82
Modifications to the Existing AFI Plant No. 1									
Defluorination System	078	Packed Cross-Flow Scrubber (new)	26,500 acfm	8,760	2.11	9.25	--	--	--
AFI Granulation System No. 1 (Reactor, Pug Mill, Granulator, and Dryer System)/Milling Classification, and Cooling Equipment Train No. 1	078	Venturi Scrubber	140,000 dscfm	8,760	--	--	N/A	13.14	57.57
Diatomaceous Earth Hopper	079	Baghouse	518 dscfm	8,760	N/A	N/A	0.012	0.053	0.23
Limestone Silo	080	Baghouse (new)	3,100 dscfm	8,760	N/A	N/A	0.012	0.32	1.40
AFI Product Loadout	081	Baghouse	20,000 dscfm	8,760	N/A	N/A	0.012	2.06	9.01
Addition of AFI Plant No. 2									
AFI Granulation System No. 2 (Reactor, Pug Mill, Granulator, and Dryer System)/Milling, Classification, and Cooling Equipment	103	2 Venturi Scrubbers (new)	120,000 dscfm	8,760	N/A	N/A	N/A	13.14	57.57
Total Emissions from the Modified AFI Plants No. 1 and 2					2.1	9.25		28.71	125.77

Department of
Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

October 16, 2002

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Kathy Edgemon, P.E., Environmental
Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Re: DEP File No. 0570008-041-AC; PSD-FL-315B
Animal Feed Ingredient Plant Modification

Dear Ms. Edgemon:

The Department has received a letter on September 18, 2002, which presents certain proposed modifications to Riverview Facility, including modifications to the Animal Feed Ingredient (AFI) No. 1 and No. 2 Plants. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this modification request. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. Please provide the Department with reasonable assurance that the BACT fluoride emissions limits from defluorination system will be met by utilizing only the packed cross-flow scrubber. This can be done by submitting documentation on past test data and a PE sealed statement from the vendor authenticating that the packed cross-flow scrubber will be sufficient to meet the established BACT limits for fluorides.
2. Please explain the process of complying with the separate PM emission limits established for the AFI No. 2 Granulation System and Material Handling Equipment, if the facility is proposing to exhaust the two scrubbers through a single, common stack. Also, provide the Department with reasonable assurance from the vendor in the form of a PE sealed statement that the venturi scrubber replacing the baghouse for Material Handling Equipment will be equivalent in terms of performance.
3. Please explain the process of complying with the separate PM emission limits established for the AFI No. 1 Granulation System and Material Handling Equipment, if the facility is proposing to exhaust both emission points through a single, common stack. Also, provide the Department with reasonable assurance from the vendor in the form of a PE sealed statement that the efficiency of the venturi scrubber will be sufficient to control PM emissions from the Granulation System as well as Material Handling Equipment.
4. Please explain the reasons for replacing baghouse of AFI No. 2 Material Handling Equipment with wet scrubber technology (venturi scrubber). Are emissions from that point expected to be wet emissions?
5. Table 2-7a of the modification application lists the design capacity of the two new venturi scrubbers combined for AFI Granulation system No. 2 less than the design capacity for AFI Granulation System

No. 1. Please explain the reasons for using smaller venturi scrubbers for AFI No. 2 when the production throughput for AFI No. 2 is greater than AFI No. 1.

6. There were predicted violations of the PM_{10} and SO_2 ambient air quality standards in the original modification. Cargill showed that the original modification was not a significant contributor to any of these predicted violations. Please provide the Department with reasonable assurance that these proposed changes will not result in predicted PM_{10} or SO_2 impacts that will significantly contribute/cause violations. Tables 2-3, 2-7a, and2-7b are confusing and difficult to follow. Please show the explicit differences these proposed changes would make in the modeling input files used in the original modification submittal.

The Department will resume processing this modification request 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 Mr. Syed Arif, P.E. at 850/921-9528.

Sincerely,

A.A. Linero, P.E.
Bureau of Air Regulation

AAL/sa

cc: J. Kissel, DEP-SWD
A. Harmon, HCEPC
D. Buff, P.E., Golder Associates, Inc.

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1. Article Addressed to:

Kathy Edgemon, P.E.
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

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Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

October 17, 2002

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Kathy Edgemon, P.E., Environmental
Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Re: DEP File No. 0570008-041-AC; PSD-FL-315B
Animal Feed Ingredient Plant Modification

Dear Ms. Edgemon:

Enclosed are comments submitted by Hillsborough County Environmental Protection Commission (HCEPC) in regards to the completeness issues for this project. Please submit the information as requested by HCEPC to the Department's Bureau of Air Regulation.

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 Mr. Syed Arif, P.E. at 850/921-9528 or Mr. Ron Dennis, of HCEPC at 813/272-5530.

Sincerely,

Syed Arif

Syed Arif, P.E. II
New Source Review Section

SA/sa

Enclosure

cc: J. Kissel, DEP SWD
R. Dennis, HCEPC

MEMORANDUM

DATE: October 16, 2002

TO: Syed Arif, P.E.

FROM: Ron Dennis, P.E. Thru: Sterlin Woodard, P.E.

SUBJECT: CARGILL FERTILIZER, INC. – RIVERVIEW FACILITY PERMIT NO. 0570008-036-AC; PSD-FL-315; AFI PLANT NO. 2

The Hillsborough County Environmental Protection Commission has completed its review of Cargill Fertilizer, Inc.'s proposed changes to its construction application, Permit No. 0570008-036-AC, that it received on September 23, 2002. The EPC would like to have Cargill address the following incompletion items:

1. In your previous permit (Permit No. 0570008-036-AC), you proposed to control fluoride emissions from the defluorination system by venting the emissions to a venturi scrubber and packed cross-flow scrubber system. You current proposal is to vent these emissions to just a packed cross-flow scrubber. How does the control efficiency of the new packed cross-flow scrubber compare with both the existing packed cross-flow scrubber, and the permitted venturi scrubber and packed cross-flow scrubber system with respect to design parameters. Please provide reasonable assurance that the proposed scrubber system is as efficient as the permitted system and is capable of meeting the 2.11 lb/hr fluoride emission limit.

2. In your previous permit (Permit No. 0570008-036-AC), you proposed to control the particulate emissions from the material handling equipment of the AFI Plant No. 2 by venting the emissions to a baghouse. Your current proposal is to vent these emissions to a venturi scrubber. Please provide reasonable assurance that the proposed venturi scrubber is as efficient as the permitted baghouse and is capable of meeting the 0.012 gr/dscf particulate emission limit. Why was the baghouse dropped as the control equipment on the material handling equipment and replaced with a venturi scrubber when the BACT determination by the Department stated, "no other technology is capable of achieving lower PM/PM_{10} levels than the proposed baghouse."

3. In your previous permit (Permit No. 0570008-036-AC), you proposed to control the particulate emissions from the material handling equipment of the AFI Plant No.1 by venting the emissions to a baghouse. However, it appears that the

baghouse was never constructed, and the emissions are currently being vented to the venturi scrubber that controls the granulation train. Is the existing venturi scrubber on the granulation train's process equipment capable of handling the additional PM/PM_{10} emissions from the material handling equipment? In addition, please provide reasonable assurance that the existing venturi scrubber that controls both the granulation train and material handling equipment is as efficient as the permitted venturi scrubber and baghouse system that separately control these emissions units, and is capable of meeting their respective particulate emission limits.

4. In Table 2-7a. Summary of Pollution Control Equipment and Allowable Emission Rates for the AFI Plant (Revised 9/11/02), the Total Emissions from the Modified AFI Plants No. 1 and 2 should be 125.78 TPY instead of 68.21 TPY.

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1. Article Addressed to:

Kathy Edgemon, P.E.
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

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Cargill
Crop Nutrition

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September 13, 2002

023-7575

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

RE: CARGILL FERTILIZER, INC—RIVERVIEW FACILITY
PERMIT NO. 0570008-036-AC; PSD-FL-315; AFI PLANT NO. 2
0570008-041-AC - PSD-FL-315B

Dear Mr. Linero:

On March 13, 2001 and May 25, 2001, Cargill Fertilizer, Inc. applied for several modifications to its Riverview Facility, including modifications to the Animal Feed Ingredient (AFI) No. 1 Plant and the construction of a second AFI Plant. This construction was subsequently approved by the Florida DEP (Permit No. 0570008-036-AC;PSD-FL-315, Issued November 21, 2001).

The purpose of this correspondence is to present certain proposed changes to the construction application as described below. Note that these changes will not result in an increase in emissions and no changes to the emission limits contained in the construction permit are being requested.

AFI Plant No. 1

The AFI Plant No. 1 currently consists of four emission points, —one each for the defluorination system and granulation system combined, the diatomaceous earth hopper, limestone silo, and AFI product loadout. In the permit application, Cargill proposed the addition of two new emission points. One was for the exhaust from the defluorination scrubber, the second was for a baghouse controlling emissions from the milling, classification and cooling equipment.

Cargill is now requesting to maintain the existing stack configuration, which consists of a common stack for the AFI No. 1 defluorination system, granulation system, and milling, classification, and cooling equipment. The defluorination system will utilize a new packed cross-flow scrubber. The milling, classification, and cooling equipment train emissions will be controlled by a granulation system venturi scrubber system, which is the current plant configuration.

Refer to Tables 2-3, 2-7a, and 2-7b for the revised stack and vent geometry, pollution control equipment and emission rates, and stack location and operating parameters, respectively, for the AFI Plant No. 1. Refer to Attachment CR-EU8-J1 for the revised AFI Plant flow diagram. The revised facility plot plan, indicating the stack location for the AFI Plant No. 1 is shown in Figure 2-2. The application pages that are affected by this change are presented in Attachment A.

AFI Plant No. 2

In the permit application, Cargill proposed the construction of two stacks to exhaust emissions from the new AFI Plant No. 2. A venturi scrubber with a dedicated stack was proposed to control particulate emissions from the AFI Plant No. 2 granulation system, including the pug mill, reactor, granulator, and dryer. A baghouse with a dedicated stack was proposed to control particulate emissions from the AFI Plant No. 2 milling, classification, and cooling equipment. Cargill is now proposing to construct two new venturi scrubbers to control the particulate emissions from the AFI

8813 Highway 41 South
Riverview, FL 33569
Tel 813-677-9111

Plant No. 2 granulation system and the milling, classification, and cooling equipment. These two scrubbers will exhaust to the atmosphere through a single, common stack.

A summary of the revised pollution control equipment, allowable emission rates, and stack location and operating parameters for the AFI Plant No. 2 are presented in Tables 2-3, 2-7a, and 2-7b. The revised process flow diagram for the AFI Plants No. 1 and 2 is presented in Attachment CR-EU8-J1. The revised facility plot plan, indicating the new stack location for the AFI Plant No. 2 is shown in Figure 2-2. The application pages that are affected by this change are presented in Attachment A.

Affects on Construction Permit

The construction changes described above will not change any of the permitted emission rates contained in Permit No. 0570008-036-AC;PSD-FL-315, issued November 21, 2001. Since there will be no emission rate changes, and the changes to the future stack parameters will be minor, the predicted pollutant impacts that were presented in the application are not expected to change.

The proposed BACT for the AFI Plant No. 1 was based on baghouses and wet scrubbers; specifically a venturi scrubber for the granulation system, a venturi and packed cross-flow scrubber for the defluorination system, and a baghouse for the milling, classification, and cooling equipment. The Florida DEP also approved this as BACT in the final construction permit (Permit No. 0570008-036-AC;PSD-FL-315, issued November 21, 2001).

Although Cargill is requesting to control the fluoride emissions from the defluorination system by utilizing only the packed cross-flow scrubber, this still represents BACT since the approved BACT is an emission limit, and the changes to the control equipment will not result in any change to the permitted emission limits. The proposed control technology will represent equivalent control, capable of attaining the same emission rates. The venturi scrubber controlling particulates from both the granulation system and the milling, classification, and cooling equipment also represents BACT, since it will provide equivalent control, capable of attaining the same emission rates.

The proposed BACT for the AFI Plant No. 2 in the application was based on wet scrubber technology (i.e., venturi scrubber) for the granulation system and a baghouse for the milling, classification, and cooling equipment. The Florida DEP also approved this as BACT in the final construction permit (Permit No. 0570008-036-AC;PSD-FL-315, issued November 21, 2001). The changes to the control equipment will not result in any change to the permitted emission limits. The control technology will represent equivalent control, capable of attaining the same emission rates. Therefore, the venturi scrubber will represent BACT for the AFI Plant No. 2.

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

Sincerely,

Kathy Edgemon, P.E.
Environmental Superintendent

Enclosures

cc: D. Buff, F. Howard, Golder
S. Woodard, EPCHC (Certified Mail: 7000 0520 0014 8868 9976)
Jellerson,
File: P-05-01
B. Arif
C. Holladay
G. [illegible], HCEPC
G. Kissel, SWD
B. Worley, EPA
G. [illegible], NPS

Table 2-3. Stack and Vent Geometry and Operating Data for the Modified Emissions Units -- Cargill Riverview (Revised 9/11/02)

Source	EU ID	Plot Plan ID	Stack/Vent Release Height (ft)	Stack/Vent Diameter (ft)	Actual Exhaust Gas Flow Rate ACFM	SCFM	DSCFM	Exhaust Gas Exit Temperature (Deg. F)	Exhaust Gas Water Vapor Content (%)	Exhaust Gas Velocity (ft/sec)
EXISTING OPERATIONS										
No. 8 Sulfuric Acid Plant	005	8 SAP	150	8.00	118,900	100,400	100,400	165	0.00%	39.4
No. 9 Sulfuric Acid Plant	006	9 SAP	150	9.00	159,600	137,000	137,000	155	0.00%	41.4
Phosphoric Acid Plant--Prayon Reactor/No. 1 Filtration Unit[a]	073	PAP 1	110	4.00	18,300	17,102	16,200	105	5.13%	24.2
Phosphoric Acid Plant--No. 1 Filtration Unit[a]/No. 2 Filtration Unit/Dorrco Reactor	073	PAP 2	110	4.83	38,900	35,720	33,400	115	6.48%	35.3
Phosphoric Acid Plant--No. 3 Filtration Unit	073	PAP 3	115	4.92	57,100	54,816	52,700	90	3.92%	41.3
GTSP Plant Common Stack	007	GTSP	126	8.00	171,700	153,138	138,900	132	9.30%	51.1
AFI Defluorination System/Granulation System	078	AFI	136	6.00	108,400	94,300	79,600	147	15.60%	63.9
AFI Diatomaceous Earth Hopper	079	DE Silo	64	1.50	600	580	518	90	10.00%	5.7
AFI Limestone Silo	080	Limestone	85	1.50	800	770	691	90	10.00%	5.7
AFI Product Loadout	081	AFI Product Loadout	30	3.00	21,100	20,300	18,300	90	10.00%	49.5
No. 5 DAP Plant	055	5 DAP	133	7.00	140,600	125,400	109,600	132	12.60%	60.9
MODIFIED OPERATIONS										
No. 8 Sulfuric Acid Plant	005	8 SAP	150	8.00	129,400	109,300	109,300	165	0.00%	39.4
No. 9 Sulfuric Acid Plant	006	9 SAP	150	9.00	171,100	146,900	146,900	155	0.00%	41.8
Phosphoric Acid Plant--Prayon Reactor	073	PAP 1	110	4.00	20,900	19,531	18,500	105	5.13%	24.2
Phosphoric Acid Plant--Nos. 1 and 2 Filtration Units	073	PAP 2	110	4.83	45,000	41,322	38,600	115	6.48%	35.3
Phosphoric Acid Plant--Dorrco Reactor, New Digester, and Prayon Reactor	073	Dorrco	300	8.00	55,000	50,947	47,600	110	6.48%	18.2
Phosphoric Acid Plant--No. 3 Filtration Unit	073	PAP 3	115	4.92	57,100	54,816	52,700	90	3.92%	41.3
EPP Plant--Common Stack	007	EPP	126	8.00	237,000	211,378	179,700	132	15.00%	25.0
AFI Defluorination System/Milling, Classification, and Cooling Equipment/Granulation (Reactor, Pug Mill, Granulator, Dryer) System No. 1	078	AFI 1	136	6.00	196,100	169,700	163,000	150	3.92%	103.0
AFI Granulation System (Reactor, Pug Mill, Granulator, Dryer)/Milling, Classification, and Cooling Equipment No. 2	103	AFI 2	145	7.00	153,200	132,600	120,000	150	9.50%	66.0
AFI Diatomaceous Earth Hopper	079	DE Silo	64	1.50	600	580	518	90	10.00%	5.7
AFI Limestone Silo	080	Limestone	85	1.50	3,500	3,400	3,100	90	10.00%	5.7
AFI Product Loadout	081	AFI Product Loadout	30	3.00	23,100	22,200	20,000	90	10.00%	49.5
No. 5 DAP Plant	055	5 DAP	133	7.00	148,000	132,000	115,400	132	12.60%	64.1

[a] No. 1 Filter can be vented to either the Teller scrubber or the Vescor scrubber.

Table 2-7a. Summary of Pollution Control Equipment and Allowable Emission Rates for the AFI Plant (Revised 9/11/02)

Source	EU ID	Control Equipment	Design Capacity	Operating Hours	Fluoride Allowable Emission Rate lb/hr	Fluoride Allowable Emission Rate TPY	PM/PM_{10} PM/PM_{10} Allowable Emission Rate gr/dscf	PM/PM_{10} PM/PM_{10} Allowable Emission Rate lb/hr	PM/PM_{10} PM/PM_{10} Allowable Emission Rate TPY
Existing AFI Plant No. 1									
Defluorination System/AFI Granulation System (Reactor, Pug Mill, Granulator, and Dryer System)	078	Packed Cross-Flow Scrubber	100,000 acfm	8,760	1.0	4.30	N/A	8.0	35.04
Diatomaceous Earth Hopper	079	Baghouse	518 dscfm	8,760	N/A	N/A	0.012	0.053	0.23
Limestone Silo	080	Baghouse	691 dscfm	8,760	N/A	N/A	0.012	0.071	0.31
AFI Product Loadout	081	Baghouse	18,280 dscfm	8,760	N/A	N/A	0.012	1.88	8.24
Total Emissions from the Exisiting AFI Plant No. 1					1.0	4.30		10.00	43.82
Modifications to the Existing AFI Plant No. 1									
Defluorination System	078	Packed Cross-Flow Scrubber (new)	26,500 acfm	8,760	2.11	9.25	--	--	--
AFI Granulation System No. 1 (Reactor, Pug Mill, Granulator, and Dryer System)/Milling Classification, and Cooling Equipment Train No. 1	078	Venturi Scrubber	140,000 dscfm	8,760	--	--	N/A	13.14	57.57
Diatomaceous Earth Hopper	079	Baghouse	518 dscfm	8,760	N/A	N/A	0.012	0.053	0.23
Limestone Silo	080	Baghouse (new)	3,100 dscfm	8,760	N/A	N/A	0.012	0.32	1.40
AFI Product Loadout	081	Baghouse	20,000 dscfm	8,760	N/A	N/A	0.012	2.06	9.01
Addition of AFI Plant No. 2									
AFI Granulation System No. 2 (Reactor, Pug Mill, Granulator, and Dryer System)/Milling, Classification, and Cooling Equipment	103	2 Venturi Scrubbers (new)	120,000 dscfm	8,760	N/A	N/A	N/A	13.14	57.57
Total Emissions from the Modified AFI Plants No. 1 and 2					2.1	9.25		28.71	68.21

Table 2-7b. Summary of Stack and Operating Parameters for the AFI Plant
Cargill Fertilizer, Inc., Riverview

Source	Stack Locations [a] X (ft)	X (m)	Y (ft)	Y (m)	Stack Release Height ft	Stack Release Height m	Stack Diameter ft	Stack Diameter m	Design Flow Rate (acfm)	Exit Velocity ft/s	Exit Velocity m/s	Exit Temperature °F	Exit Temperature K
Existing AFI Plant No. 1													
Defluorination System/AFI Granulation System (Reactor, Pug Mill, Granulator, and Dryer System)	-1,230	-375	490	149	136	41.45	6.0	1.8	108,400	63.9	19.48	147	337
Diatomaceous Earth Hopper	-1,840	-561	760	232	64	19.51	1.5	0.5	600	5.7	1.73	90	305
Limestone Silo	-1,090	-332	540	165	85	25.91	1.5	0.5	800	8.3	2.51	90	305
AFI Product Loadout	-860	-262	528	161	30	9.14	3.0	0.9	21,100	49.8	15.16	90	305
Modified AFI Plant No. 1													
Defluorination System/AFI Granulation System (Reactor, Pug Mill, Granulator, and Dryer System)/Milling, Classification, and Cooling Equipment No. 1	-1,230	-375	490	149	136	41.45	6.0	1.83	196,100	103	31.39	135	330
Diatomaceous Earth Hopper	-1,840	-561	760	232	64	19.51	1.5	0.5	600	5.7	1.73	90	305
Limestone Silo	-1,090	-332	540	165	85	25.91	1.5	0.5	3,500	8.3	2.51	90	305
AFI Product Loadout	-860	-262	528	161	30	9.14	3.0	0.9	23,100	49.8	15.16	90	305
Addition of AFI Plant No. 2													
AFI Granulation System No. 2 (Reactor, Pug Mill, Granulator, and Dryer System) and Milling, Classification, and Cooling Equipment Train No. 2	-1,414	-431	420	128	145	44.20	7.0	2.13	153,200	66.3	20.22	150	339

[a] Relative to the No. 9 Sulfuric Acid Plant stack location.

ATTACHMENT A

REVISED APPLICATION PAGES

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(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

(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.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], 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 schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], 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.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], 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.

David A. Buff — Signature

9/12/2002 — Date

(seal)

* Attach any exception to certification statement.

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? **AFI**	2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **AFI 1 (granulation system, defluorination system, and milling, classification, and cooling equipment), DE Silo, Limestone Silo, AFI Product Loadout**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **136** feet	7. Exit Diameter: **6** feet
8. Exit Temperature: **135** °F	9. Actual Volumetric Flow Rate: **196,100** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters): **Parameters are for the common stack for the AFI Plant No. 1 Granulation Train, Defluorination system, and material handling equipment. See PSD Report for the stack parameters for other sources in this emissions unit.**		

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

Venturi Scrubber

2. Control Device or Method Code(s): **75**

Emissions Unit Details

1. Package Unit: Manufacturer:	Model Number:	
2. Generator Nameplate Rating:	MW	
3. Incinerator Information:		
Dwell Temperature:		°F
Dwell Time:		seconds
Incinerator Afterburner Temperature:		°F

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? **AFI 2**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **145** feet	7. Exit Diameter: **7.0** feet
8. Exit Temperature: **150** °F	9. Actual Volumetric Flow Rate: **153,200** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters): **Represents design stack parameters.**		

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **13** lb/hour **58** tons/year	4. Synthetically Limited? [**X**]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **2**
8. Calculation of Emissions (limit to 600 characters): **See Table 2-7 of Part B**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Emissions set equal to those permitted for the existing AFI Granulation Train. Includes emissions from the granulation system and the milling, classification, and cooling equipment venturi scrubbers.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: **13** lb/hour **58** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 5**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Proposed BACT Limit**	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

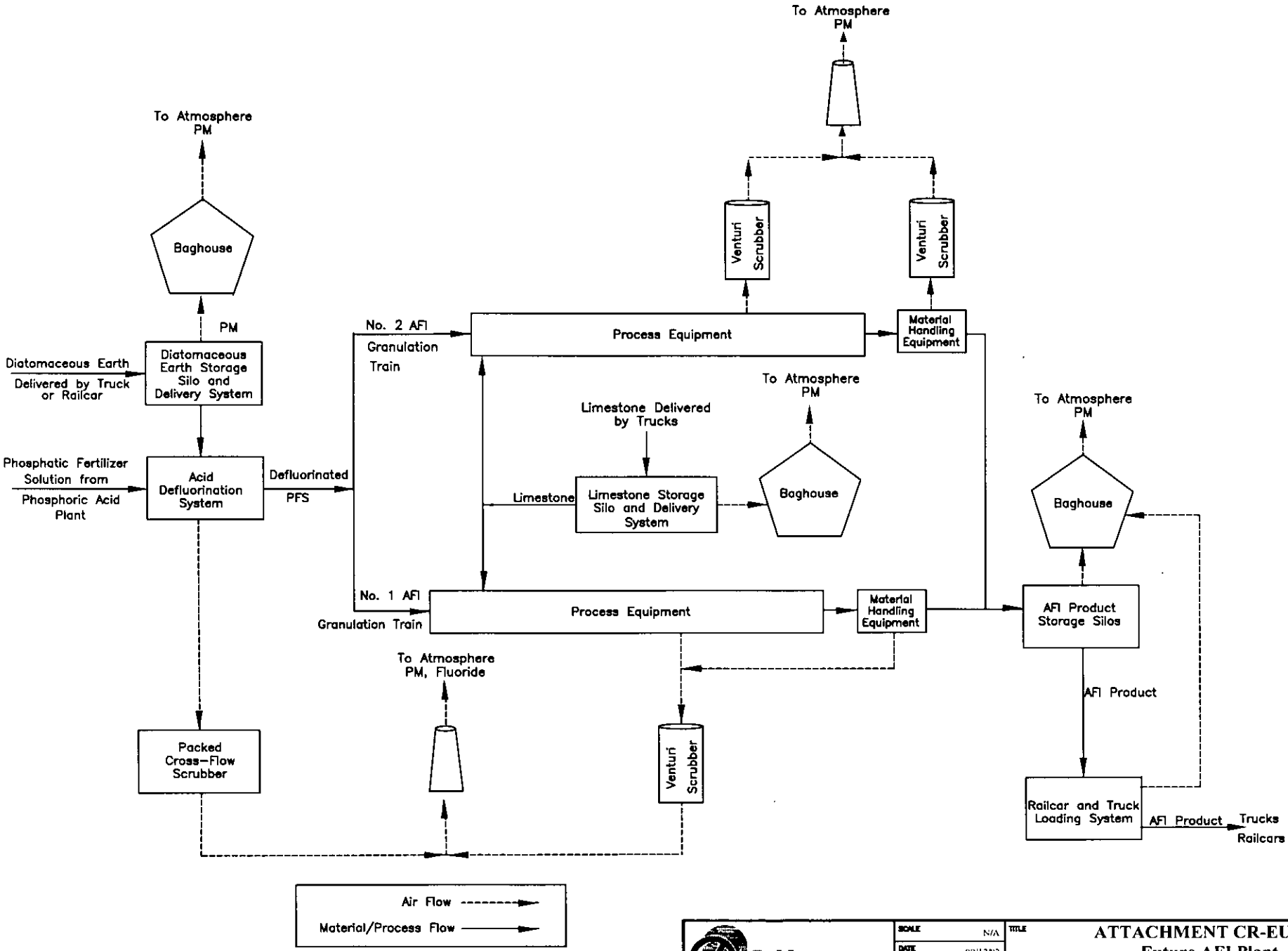
1. Pollutant Emitted: **PM_{10}**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **13** lb/hour **58** tons/year	4. Synthetically Limited? [**X**]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **2**
8. Calculation of Emissions (limit to 600 characters): **See Table 2-7 of Part B**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Emissions set equal to those permitted for the existing AFI Granulation Train. Includes emissions from the granulation system and milling, classification, and cooling equipment venturi scrubbers.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: **13** lb/hour **58** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 5**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Proposed BACT limit.**	

ATTACHMENT CR-EU8-J1

PROCESS FLOW DIAGRAM



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		DESIGN	N/A
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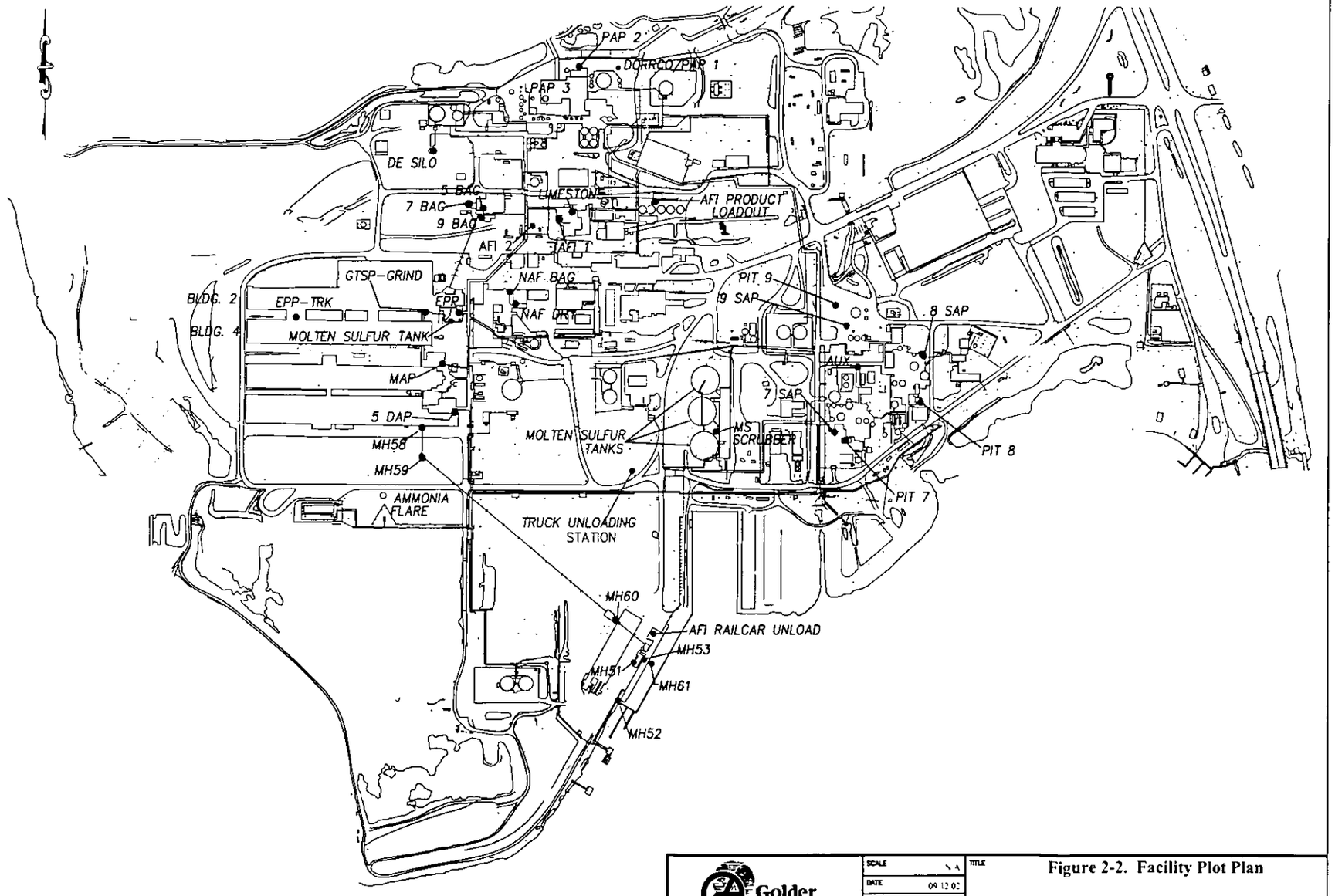
PROJECT No.	023-7575 REV. 1	REVIEW	N/A

TITLE

ATTACHMENT CR-EU8-J1
Future AFI Plant
Process Flow Diagram
Cargill Riverview

PATH 0237575\4.1\091202\CR-EU8-J1.dwg FIGURE



Golder Associates GAINESVILLE, FLORIDA	SCALE N.A.	TITLE	Figure 2-2. Facility Plot Plan
	DATE 09.12.02		Cargill Riverview
	DESIGN N.A.		
	CADD N.A.		
FILE Name: Figure 2-2.dwg	LAST REVISED ARZ	PATH	0237575\4.1\091202\Figure 2-2.dwg
PROJECT No. 023-7575 REV. 1	REVIEW N.A.		