

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

October 21, 1998

Florida Department of Environmental Protection
New Source Review Section
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Attention: Mr. A. A. Linero, P.E.

RE: CARGILL FERTILIZER, INC. MAP PLANT EXPANSION - RIVERVIEW DEP FILE
NO. 0570008-026-AC (PSD-FL-251)

Dear Mr. Linero:

On August 10, 1998, Cargill Fertilizer requested an extension of the time to respond to the Department's July 7, 1998, letter concerning the above referenced air construction permit application. The purpose of this correspondence is to request a further extension of time to respond to the Department's request. Cargill is still evaluating and developing data to respond to all of the Department's questions contained in the July letter. Cargill hereby requests an additional 60 days, or until December 20, 1998, in which to respond to the information request.

Thank you for considering this information. If you require anything further, please do not hesitate to call.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011 SEAL

DB/tds

cc: David Jellerson, Cargill
Kathy Edgemon, Cargill
Jerry Campbell, HCEPC
Bill Thomas, FDEP Tampa
File (2)

9837532A/01



RECEIVED

OCT 22 1998

BUREAU OF
AIR REGULATION



**CARGILL
FERTILIZER, INC.**

8813 Highway 41 South - Riverview, Florida 33569 - Telephone 813-677-9111 - TWX 810-876-0648 - Telex 52666 - FAX 813-671-6146

August 10, 1998

Certified Mail: 376 476 189

Mr. A. A. Linero, P.E.
New Source Review Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED

AUG 17 1998

**BUREAU OF
AIR REGULATION**

Dear Mr. Linero:

Subject: Cargill Fertilizer, Inc. - Tampa Plant
MAP Plant Expansion
DEP File No. 0570008-26-AC (PSD-FL-251)

This letter is in response to your letter dated July 7, 1989 regarding the above-referenced construction permit application. Cargill hereby requests an additional 30 days to gather the additional information requested. If you have any questions please call me at (813)671-6297 or e-mail me at david_jellerson@cargill.com.

Sincerely,

David B. Jellerson, P.E.
Environmental Superintendent

cc: D. Buff, Golder
Edgemon
File P-30-34-4

cc: J. Reynolds, BAR



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PS Form 3811, December 1994

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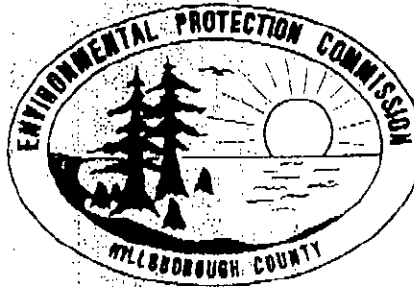
PS Form 3800, April 1995
 0570008-026-AC
 P.O.-FI-251

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ROGER P. STEWART



ADMINISTRATIVE OFFICES, LEGAL &
 WATER MANAGEMENT DIVISION
 1900 49TH AVENUE
 TAMPA, FLORIDA 33605
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AIR MANAGEMENT DIVISION
 TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
 TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
 TELEPHONE (813) 272-7104

MEMORANDUM

TO: John Reynolds, FDEP Tallahassee
FROM: *HS* Heidi Swanson, EPC Air Management
THROUGH: *RK* Richard C. Kirby IV, P.E.
DATE: July 7, 1998
SUBJECT: FDEP File No. 0570008-026-AC (PSD FL-251)
 Cargill Fertilizer, Inc., MAP Plant Expansion

In reference to the PSD Application for Cargill Fertilizer, Inc. MAP Plant Expansion received June 8, 1998, the following are our comments:

1. The NESHAP for Phosphoric Acid Manufacturing and Phosphate Fertilizers Production (40 CFR 63) will be finalized within the 90-day time clock for this project. Cargill should provide assurance that the facility can meet the requirements of the pending NESHAP.
2. The above referenced PSD application does not address the upstream and downstream emission changes as a result of the MAP Plant production increases.
3. Distillate fuel with a sulfur content of 0.5% is proposed by Cargill. Distillate fuel with a sulfur content of 0.05% is available. This should be required as part of this project.
4. The PM limit on the S. Cooler (0.40 lb/ton P₂O₅) is very near the upper limit of BACT (0.41 lb/ton P₂O₅). A lower limit should be easily attainable without an economic hardship.
5. Several modifications are taking place at the facility during the same time frame. These include the MAP Plant expansion, sulfuric acid production, and rock processing. This appears to be a facility wide upgrade with potential increases in all phases of production. Cargill should propose BACT for all units and processes affected by this expansion.





Department of Environmental Protection

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

July 8, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Jellerson
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Re: DEP File No. 0570008-026-AC (PSD-FL-251)
MAP Plant Expansion - Riverview

Dear Mr. Jellerson:

The Bureau of Air Regulation received additional questions (attached) from the Environmental Protection Commission of Hillsborough County regarding the referenced project.

Please address their questions and if further clarification is needed, please call John Reynolds at 850/921-9536.

Sincerely,

for A. A. Linero, P.E. Administrator
New Source Review Section

AAL/JR

Attachments

cc: Brian Beals, EPA
John Bunyak, NPS
Bill Thomas, SWD
Rick Kirby, EPCHC
David Buff, Golder Assoc.

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 David B. Jellerson, ES
 Catzill Fertilizer
 8813 Hwy 41 South
 Riverview, FL 33569

4a. Article Number
 P265 659 381
 4b. Service Type
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PS Form 3811, December 1994

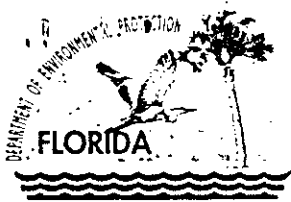
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PS Form 3800, April 1995
 0570006-026-AC
 PSD-FI-251



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 7, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Jellerson
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Re: DEP File No. 0570008-026-AC (PSD-FL-251)
MAP Plant Expansion - Riverview

Dear Mr. Jellerson:

The Bureau of Air Regulation reviewed the above application received on June 8 and found that additional information is required. The completeness items are listed below. Also, please respond to all of the issues and concerns addressed by the U.S. Fish & Wildlife Service in its faxed letter dated July 2, 1998 (attached).

1. The application contains only a summary of MAP plant stack test data. Please submit the detailed test report sheets for the last three annual tests containing data on stack flows, scrubber conditions, etc. for each test run. Provide sketches of the scrubbers and their configuration and provide design efficiencies for PM/PM10 and fluoride removal.

2. The BACT section of the application contains a carefully worded section attempting to justify the existing cyclonic spray scrubbers as BACT for fluorides without the need for packed scrubbing. There has not been a more consistent BACT determination made over the years than the requirement for packed scrubbing for fluoride control in the phosphate industry. Please revise the BACT determination to include an analysis for installing packed scrubbers or for adding equivalent packed sections to the existing cyclonic scrubbers as Cargill has done in the past.

3. The Department does not agree with the statements in Attachment CR-E01-B6 (Emissions Unit Comment) to the effect that the acid scrubbers are no longer considered as air pollution control equipment. Although the acid scrubbers recover ammonia and recycle it back to the process for economic reasons, these venturi scrubbers are very effective PM/PM10 control devices and are justified for that reason alone. They are still to be considered as the first stage in a two-stage scrubbing system, therefore, the application should be revised to reflect this fact.

4. 40 CFR Part 50.1(e) defines ambient air as "...that portion of the atmosphere, external to buildings, to which the general public has access." The exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers. Specifically, for stationary source air quality dispersion modeling, receptors should be placed anywhere outside inaccessible plant property. For


"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Mr. David B. Jellerson
Page 2 of 2
July 7, 1998

example, receptors should be included over bodies of water, unfenced plant property, over roadways, and over property owned by other sources. However, a river or a bay may form a sufficient natural/physical boundary and not require fencing along it if some conditions are met. The banks of the river or bay must be clearly posted and regularly patrolled by plant security. It must be very clear that the area is not public. Any areas where there is any question--i.e., grassy areas, etc.--should be fenced and marked, even if there is a very remote possibility that the public would attempt to use the property. Any property at your facility that does not have a definitive boundary precluding access to the public must be included in the air quality impact analysis and additional modeling to determine these impacts must be done.

If there are any questions regarding the above, please call John Reynolds or Cleve Holladay at 850/921-9536.

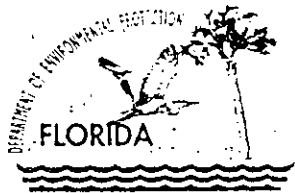
Sincerely,


for A. A. Linero, P.E. Administrator
New Source Review Section

AAL/JR

Attachments

cc: Brian Beals, EPA
John Bunyak, NPS
Bill Thomas, SWD
Jerry Campbell, EPCHC
David Buff, Golder Assoc.



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 7, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David B. Jellerson
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Re: DEP File No. 0570008-026-AC (PSD-FL-251)
MAP Plant Expansion - Riverview

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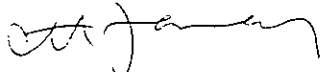
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Mr. David B. Jellerson
Page 2 of 2
July 7, 1998

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If there are any questions regarding the above, please call John Reynolds or Cleve Holladay at 850/921-9536.

Sincerely,


for A. A. Linero, P.E. Administrator
New Source Review Section

AAL/JR

Attachments

cc: Brian Beals, EPA
John Bunyak, NPS
Bill Thomas, SWD
Jerry Campbell, EPCHC
David Buff, Golder Assoc.

P 265 659 381

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PS Form 3800, April 1995

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U.S. FISH & WILDLIFE SERVICE
AIR QUALITY BRANCH

P.O. BOX 25287, Denver, CO 80225-0287

FACSIMILE COVER SHEET

Date: 7/2/98

Telephone: (303) 969-2617

Fax: (303) 969-2822

To: Cleve Holladay
John Reynolds

From: Ellen Porter

Subject: Cargill MAP - comments attached

Number of Pages: 11
(Including this cover sheet)

Office Location: 7333 West Jefferson Ave, Suite 450, Lakewood, CO 80235

Re: PSD-FL-251

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Our Air Quality Branch has reviewed the Prevention of Significant Deterioration Application for Cargill Fertilizer, Inc.'s, proposal to modify its monoammonium phosphate (MAP) plant in Riverview, Florida. The facility is located 86 km south-southeast of Chassahowitzka Wilderness, a Class I air quality area administered by the U.S. Fish and Wildlife Service. The technical review comments from our Air Quality Branch are enclosed. Specifically, we recommend that this project and two other recently proposed Cargill projects be considered as one project for Prevention of Significant Deterioration review. Emissions from all three projects should be combined and evaluated accordingly for best available control technology and Class I area impacts. In addition, we ask that your department require Cargill to meet lower limits than proposed for particulate matter and fluorides at the MAP plant.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have questions, please contact Ellen Porter of our Air Quality Branch in Denver at (303) 969-2617.

Sincerely,

Sam D. Hamilton
Regional Director

Enclosures

cc: Doug Neeley, Chief
Air and Radiation Branch
U.S. EPA, Region IV

100 Alabama St., SW
Atlanta, Georgia 30303

bcc: FWS-REG. 4: AQC
CHAS: Refuge Manager
AQD-DEN: Ellen Porter
National Park Service - AIR
P.O. Box 25287
Denver, CO 80225

**Technical Review of Prevention of Significant Deterioration Permit Application
For the Expansion of the Monoammonium Phosphate (MAP) Plant
Cargill Fertilizer Plant
Riverview, Florida
PSD-FL-251**

by

**Air Quality Branch, Fish and Wildlife Service – Denver
July 1, 1998**

Cargill Fertilizer, Inc. (Cargill), is proposing to modify the existing monoammonium phosphate (MAP) plant at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The modification will allow an increase in the maximum MAP production rate from 1,656 tons per day (TPD) to 2,016 TPD. The facility is located 86 km south-southeast of Chassahowitzka Wilderness, a Class I air quality area administered by the U.S. Fish and Wildlife Service (FWS). This project will result in PSD-significant increases in emissions of PM-10 (particulate matter less than 10 microns in diameter) and fluoride (F). Emissions (in tons per year – TPY) are summarized below.

POLLUTANT	EMISSIONS INCREASE (TPY)
PM-10	65
F	6.9

Prevention of Significant Deterioration (PSD) Applicability

Earlier this year, Cargill submitted two Prevention of Significant Deterioration (PSD) permit applications for its Riverview facility. The first, PSD-FL-247, proposed to install a new phosphate rock mill, with a resulting increase in PM-10 emissions of 24 TPY. The second, PSD-FL-250, proposed to expand its sulfuric acid plant (SAP) production capacity, with subsequent increases in emissions of sulfur dioxide (SO₂ - 793 TPY) and sulfuric acid mist (75 TPY). No mention was made at time regarding a subsequent expansion of other related facilities at the plant.

Cargill now proposes to expand its monoammonium phosphate (MAP) plant. Cargill states that this project triggers PSD only for PM-10 and F. Although Cargill has quantified the increases in emissions that occur at the existing MAP plant due to its increased production, it should also include any increases in emissions that could occur "upstream" at the phosphoric and sulfuric acid plants that supply materials to the MAP plant. Material handling system and load-out emissions occurring "downstream" should also be included, as well as any emissions resulting from the storage, handling, and use of ammonia associated with the MAP plant. If the MAP plant requires the production of additional phosphoric acid to supply its input, the resulting increase in fluorides must be considered. Furthermore, because production of more phosphoric acid typically requires the use of more sulfuric acid and phosphate rock, the SO₂, sulfuric acid mist, and PM-10 emissions that result from production and use of these substances at the facility

must be included.

For example, the additional 131,400 tons per year (TPY) of MAP will require the production of an extra 65,700 TPY of phosphoric acid, and consequently, an additional 73,465 TPY of sulfuric acid. If SO₂ emissions were limited to 3.5 pounds per ton (lb/ton), and sulfuric acid mist to 0.15 lb/ton, the resulting extra uncounted emissions would approach 130 TPY SO₂ and 5.5 TPY sulfuric acid mist. Thus, the SO₂ emissions from the present project would be subject to PSD review.

Because Cargill is proposing three closely related projects within a relatively short time period, the three projects should be considered a single project. Rather than treating this application as a separate modification of an existing facility, it should instead be considered with the other applications and the air quality impacts of all three projects should be reviewed. According to the EPA *New Source Review Workshop Manual*, "Usually, at least two basic questions should be asked when evaluating the construction of multiple minor projects to determine if they should have been considered a single project. First, were the projects proposed over a relatively short period of time? Second, could the changes be considered as part of a single project?" Because the projects occur within a few months of each other, and because they are interdependent (e.g., the SAP ultimately feeds the MAP), they should be considered a single project.

Best Available Control Technology (BACT)

Cargill proposes that the existing wet scrubbing system, consisting of two cyclonic spray scrubbers operating at 5 inches H₂O (pressure drop) and a venturi scrubber operating at 13.5 inches H₂O, represents BACT. In addition, Cargill contends that limits of 16.8 pounds per hour (lb/hr) of PM (equivalent to 0.48 lb PM/ton phosphate or 0.24 lb PM/ton MAP) and 1.8 lb F/hr (equivalent to 0.052 lb F/ton phosphate) are supported by stack testing at its existing facility. However, a limit based on mass per hour is inappropriate because it does not adjust emissions for lower production rates. Also, in the statistical analysis of stack test results, Cargill incorrectly calculated the upper bound of the 99% confidence interval. (Note: FWS suggests that a 95% confidence interval is more appropriate because states are unlikely to take enforcement action against a source that complies at least 95% of the time.) The corrected data and statistical analysis is presented in Table 1, and corrected test results are shown in Figure 1.

A closer inspection of the stack test data in Figure 1 indicates that Cargill has included results from 4/1/93 tests that are extraordinarily high and should have been deleted as "outliers." A comparison of the median and average PM stack test values in Table 1 shows that the average test value is almost double the median. Therefore, it is likely that an exceptionally high value is unduly biasing the results.

If the outlier results of the 4/1/93 test are eliminated, Table 2 and Figure 2 are the result. Not only is the scatter plot more regular, but the average and median PM values converge nicely, indicating that there are no unusual biases. The resulting 95% confidence intervals predict that, if the plant is operating properly, it should be able to meet limits of 0.13 lb PM/ton phosphate and 0.019 lb F/ton phosphate 95% of the time. Even if Cargill's emission limits are based upon

including all emissions, should be done.

Contact: Ellen Porter, Air Quality Branch (303) 969-2617.

Table 1. Summary of All MAP Plant Stack Test Data, Cargill Fertilizer Riverview

DATE	MAP (lb/ton)	PM (lb/ton)	EMissions (lb/ton)	MAP	PM	MAP	PM
7/31/97	68.4	34.2	1	0.94	1.21	0.018	0.035
			2	1.14			
			3	1.65			
8/1/96	68.2	34.1	1	2.66	2.81	0.041	0.083
			2	2.98			
			3	2.81			
7/13/95	68.8	34.4	1	3.16	2.13	0.031	0.062
			2	2.12			
			3	1.12			
7/14/94	68.3	34.15	1	2.13	1.43	0.021	0.042
			2	0.93			
			3	1.23			
4/1/94	68.2	29.6	1	5.84	5.31	0.090	0.180
			2	5.58			
			3	4.42			
4/1/93	68.6	29.3	1	18.6	14.09	0.241	0.481
			2	14.2			
			3	9.48			
3/24/92	69.2	28.6	1	3.09	3.19	0.054	0.108
			2	3.44			
			3	3.05			

DATE	MAP (lb/ton)	PM (lb/ton)	EMissions (lb/ton)	MAP	PM	MAP	PM
			1	0.268	0.180		0.005
			2	0.149			
			3	0.124			
			1	0.199	0.232		0.007
			2	0.235			
			3	0.262			
			1	0.485	0.704		0.020
			2	0.674			
			3	0.954			
			1	0.175	0.204		0.006
			2	0.196			
			3	0.242			
			1	0.657	0.670		0.023
			2	0.723			
			3	0.631			
			1	0.796	0.830		0.028
			2	1.101			
			3	0.592			
			1	0.537	0.408		0.014
			2	0.327			
			3	0.361			

lb/ton MAP for PM		
average	4.31	0.071
median	2.81	0.041
standard deviation		0.078
99% confidence level		0.077
	-0.006 < EF <	0.147
95% confidence level		0.058
	0.012 < EF <	0.129

lb/ton PM for PM		
average	0.461	0.015
median	0.408	0.014
standard deviation		0.0092
99% confidence level		0.009
	0.006 < EF <	0.023731
95% confidence level		0.007
	0.008 < EF <	0.021585

lb/ton P2O5 for PM		
average lb/ton P2O5 for PM		1.41
median		0.083
standard deviation		0.157
99% confidence level		0.153
	-0.012 < EF <	0.295
95% confidence level		0.117
	0.025 < EF <	0.258

Table 2. Summary of Edited MAP Plant Stack Test Data, Cargill Fertilizer Riverview

Date	MAP	OPR	R1	R2	Input	PM10	PM10	PM10	PM10	PM10
Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run
7/31/97	68.4		34.2			1	0.94	1.21	0.018	0.035
						2	1.14			
						3	1.55			
8/1/98	68.2		34.1			1	2.05	2.81	0.041	0.003
						2	2.98			
						3	2.81			
7/13/95	68.8		34.4			1	3.16	2.13	0.031	0.052
						2	2.12			
						3	1.12			
7/14/94	68.3		34.15			1	2.13	1.43	0.021	0.042
						2	0.93			
						3	1.23			
4/1/94	59.2		29.6			1	5.94	5.31	0.080	0.180
						2	5.58			
						3	4.42			
3/24/92	59.2		29.6			1	3.09	3.19	0.054	0.108
						2	3.44			
						3	3.05			

Date	MAP	OPR	R1	R2	Input	PM10	PM10	PM10	PM10	PM10
Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run
						1	0.268	0.180		0.005
						2	0.149			
						3	0.124			
						1	0.180	0.232		0.007
						2	0.235			
						3	0.262			
						1	0.485	0.704		0.020
						2	0.674			
						3	0.954			
						1	0.175	0.204		0.008
						2	0.196			
						3	0.242			
						1	0.657	0.670		0.023
						2	0.723			
						3	0.831			
						1	0.537	0.408		0.014
						2	0.327			
						3	0.381			

Parameter	Value	Upper	Lower
average	2.66	0.042	
median	2.47	0.036	
standard deviation		0.027	
99% confidence level		0.026	
	0.010 < EF <		0.068
95% confidence level		0.020	
	0.023 < EF <		0.062

Parameter	Value	Upper	Lower
average	0.400	0.012	
median	0.320	0.010	
standard deviation		0.0077	
99% confidence level		0.007	
	0.005 < EF <		0.018978
95% confidence level		0.006	
	0.007 < EF <		0.018189

Parameter	Value	Upper	Lower
average	0.085		
median	0.072		
standard deviation		0.053	
99% confidence level		0.052	
	0.033 < EF <		0.137
95% confidence level		0.040	
	0.045 < EF <		0.124

Figure 1. All PM Emissions Tests

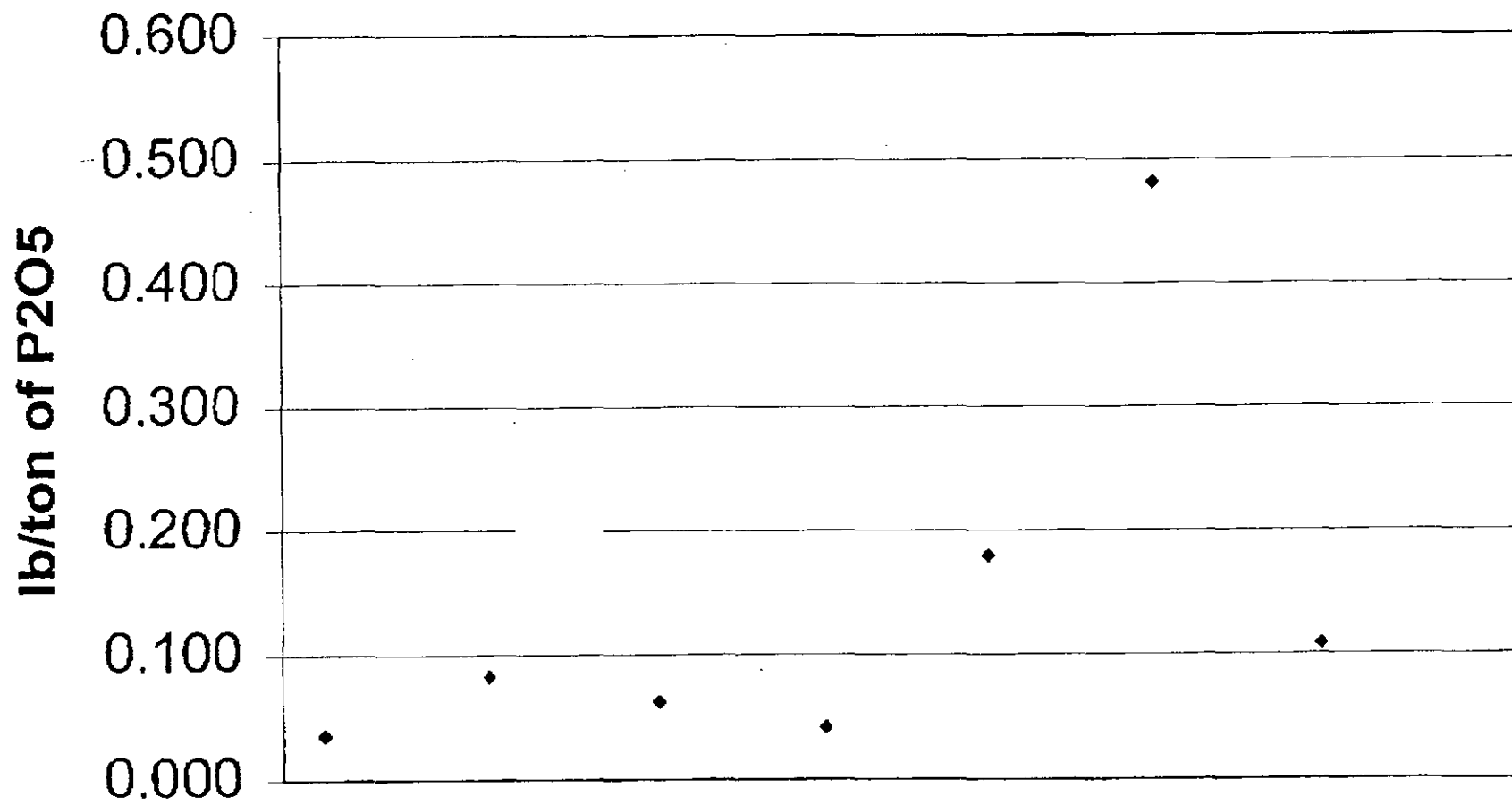
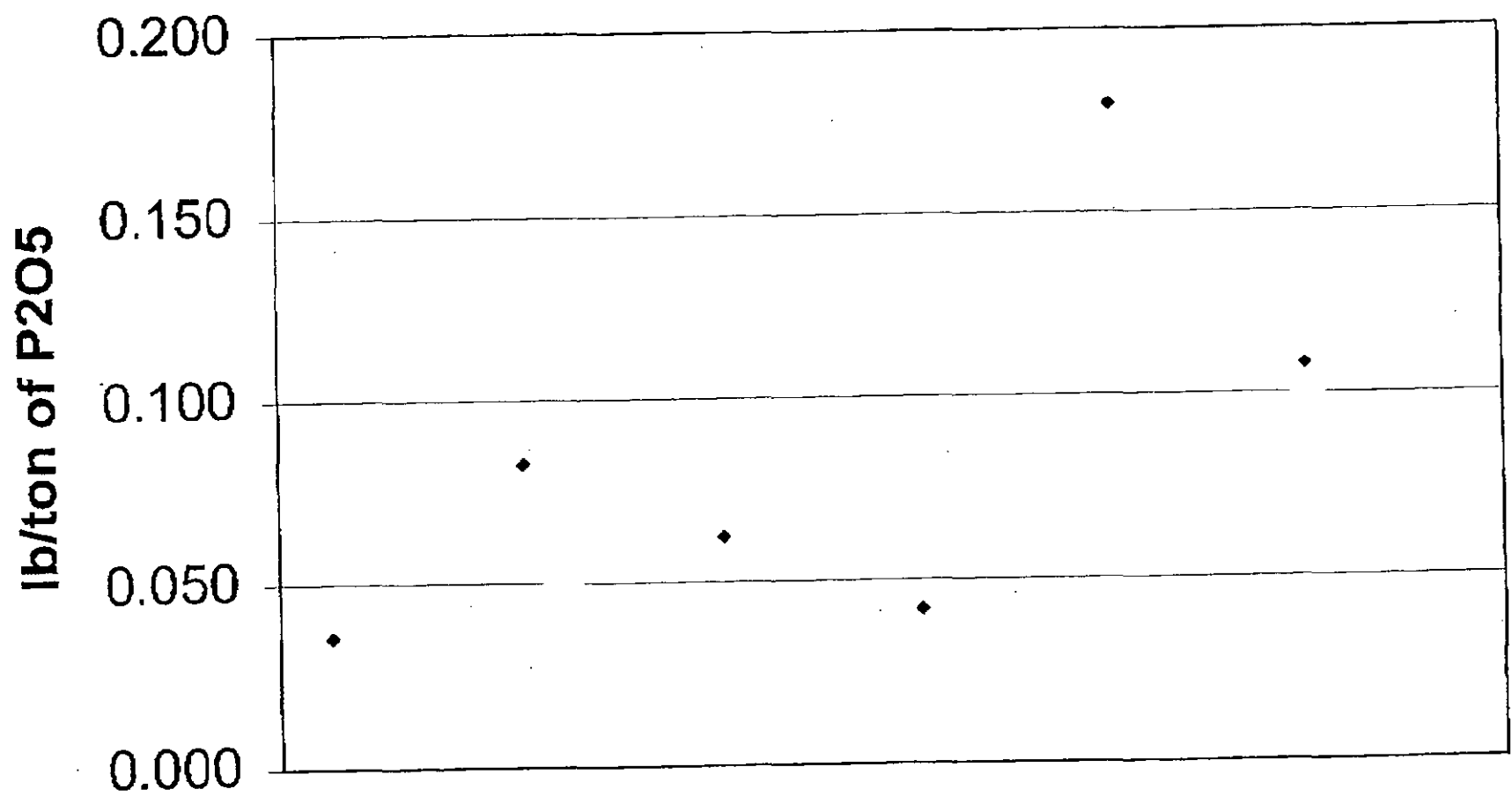


Figure 2. PM Emission without 4/1/93



the expected performance of the existing control equipment, those limits should be a function of the phosphate input rate and should be not more than 0.13 lb PM/ton phosphate and 0.019 lb F/ton phosphate.

Cargill states that because all similar plants are controlled by wet scrubbers, Cargill's scrubbers represent the top level of control. However, scrubber performance varies widely depending primarily upon pressure drop, and Cargill's scrubbers are into the low-to-medium pressure drop categories. For example, while all of the other scrubbers listed by Cargill in its Table 5-2 are achieving at least 99% control of fluorides, Cargill's scrubber is rated at only 93%, thus allowing seven times more fluoride emissions than the next least efficient scrubber.

Cargill rejected alternate control technologies on the basis of excessive cost. However, no documentation supporting any of the cost estimates was provided, and costs cannot be verified. In rejecting better controls, Cargill also refers to a BACT determination conducted for another source, but does not include information regarding that determination. Cargill should not base its analysis on information that cannot be examined or verified.

A review of the RBLC (enclosed) found that FDEP has issued permits for similar sources requiring that fluoride emissions be limited to 0.0417 lb/T of phosphate, and particulate be limited to 0.19 lb/T. These limits are significantly lower than the 0.052 lb F/T and 0.24 lb PM/T proposed by Cargill.

Conclusions and Recommendations

All of the recent applications from Cargill should be combined and reviewed as one project, and the effects of these projects on other emission sources at the facility should be evaluated with respect to PSD applicability and impacts.

The application should be rejected until the applicant provides a more complete BACT analysis including information on potential control technologies and documentation to support their costs. FWS suggests that a two-stage wet scrubber followed by an ammonia vaporizer and having a fluoride removal efficiency of 99.9% (similar to that used by Farmland Hydro) be considered BACT.

Cargill's emission limits should be based upon the expected performance of the existing control equipment. Those limits should be a function of the phosphate input rate and should not exceed 0.13 lb PM/ton phosphate and 0.019 lb F/ton phosphate. (Note: Under no circumstances should emission limits exceed the 0.19 lb PM/T phosphate and 0.0417 lb F/T limits required by other permits issued by FDEP to similar sources.)

Air Quality Related Values (AQRV) Analysis

Although emissions from this project alone are not expected to affect AQRVs at Chassahowitzka, as noted above, emissions from all of the Cargill projects recently proposed should be combined and evaluated accordingly. The combined emissions would be expected to have a more significant effect on resources at the Class I area. A revised AQRV analysis,



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO:

July 7, 1998

Re: PSD-FL-251

RECEIVED

JUL 13 1998

BUREAU OF
AIR REGULATION

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

PSD-FI-251

Cargill

Our Air Quality Branch has reviewed the Prevention of Significant Deterioration Application for Cargill Fertilizer, Inc.'s proposal to modify its monoammonium phosphate (MAP) plant in Riverview, Florida. The facility is located 86 km south-southeast of Chassahowitzka Wilderness, a Class I air quality area, administered by the Fish and Wildlife Service. The technical review comments from our Air Quality Branch are enclosed. Specifically, we recommend that this project and two other recently proposed Cargill projects be considered as one project for Prevention of Significant Deterioration review. Emissions from all three projects should be combined and evaluated accordingly for best available control technology and Class I area impacts. In addition, we ask that your department require Cargill to meet lower limits than proposed for particulate matter and fluorides at the MAP plant.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2617.

Sincerely yours,

for Sam D. Hamilton
Regional Director

Enclosures

cc: J. Reynolds
Fayed - D. Buff
K. Edgeman

**Technical Review of Prevention of Significant Deterioration Permit Application
For the Expansion of the Monoammonium Phosphate (MAP) Plant
Cargill Fertilizer Plant
Riverview, Florida
PSD-FL-251**

by

**Air Quality Branch, Fish and Wildlife Service – Denver
July 1, 1998**

Cargill Fertilizer, Inc. (Cargill), is proposing to modify the existing monoammonium phosphate (MAP) plant at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The modification will allow an increase in the maximum MAP production rate from 1,656 tons per day (TPD) to 2,016 TPD. The facility is located 86 km south-southeast of Chassahowitzka Wilderness, a Class I air quality area administered by the U.S. Fish and Wildlife Service (FWS). This project will result in PSD-significant increases in emissions of PM-10 (particulate matter less than 10 microns in diameter) and fluoride (F). Emissions (in tons per year – TPY) are summarized below.

POLLUTANT	EMISSIONS INCREASE (TPY)
PM-10	65
F	6.9

Prevention of Significant Deterioration (PSD) Applicability

Earlier this year, Cargill submitted two Prevention of Significant Deterioration (PSD) permit applications for its Riverview facility. The first, PSD-FL-247, proposed to install a new phosphate rock mill, with a resulting increase in PM-10 emissions of 24 TPY. The second, PSD-FL-250, proposed to expand its sulfuric acid plant (SAP) production capacity, with subsequent increases in emissions of sulfur dioxide (SO₂ - 793 TPY) and sulfuric acid mist (75 TPY). No mention was made at time regarding a subsequent expansion of other related facilities at the plant.

Cargill now proposes to expand its monoammonium phosphate (MAP) plant. Cargill states that this project triggers PSD only for PM-10 and F. Although Cargill has quantified the increases in emissions that occur at the existing MAP plant due to its increased production, it should also include any increases in emissions that could occur “upstream” at the phosphoric and sulfuric acid plants that supply materials to the MAP plant. Material handling system and load-out emissions occurring “downstream” should also be included, as well as any emissions resulting from the storage, handling, and use of ammonia associated with the MAP plant. If the MAP plant requires the production of additional phosphoric acid to supply its input, the resulting increase in fluorides must be considered. Furthermore, because production of more phosphoric acid typically requires the use of more sulfuric acid and phosphate rock, the SO₂, sulfuric acid

mist, and PM-10 emissions that result from production and use of these substances at the facility must be included.

For example, the additional 131,400 tons per year (TPY) of MAP will require the production of an extra 65,700 TPY of phosphoric acid, and consequently, an additional 73,465 TPY of sulfuric acid. If SO₂ emissions were limited to 3.5 pounds per ton (lb/ton), and sulfuric acid mist to 0.15 lb/ton, the resulting extra uncounted emissions would approach 130 TPY SO₂ and 5.5 TPY sulfuric acid mist. Thus, the SO₂ emissions from the present project would be subject to PSD review.

Because Cargill is proposing three closely related projects within a relatively short time period, the three projects should be considered a single project. Rather than treating this application as a separate modification of an existing facility, it should instead be considered with the other applications and the air quality impacts of all three projects should be reviewed. According to the EPA *New Source Review Workshop Manual*, "Usually, at least two basic questions should be asked when evaluating the construction of multiple minor projects to determine if they should have been considered a single project. First, were the projects proposed over a relatively short period of time? Second, could the changes be considered as part of a single project?" Because the projects occur within a few months of each other, and because they are interdependent (e.g., the SAP ultimately feeds the MAP), they should be considered a single project.

Best Available Control Technology (BACT)

Cargill proposes that the existing wet scrubbing system, consisting of two cyclonic spray scrubbers operating at 5 inches H₂O (pressure drop) and a venturi scrubber operating at 13.5 inches H₂O, represents BACT. In addition, Cargill contends that limits of 16.8 pounds per hour (lb/hr) of PM (equivalent to 0.48 lb PM/ton phosphate or 0.24 lb PM/ton MAP) and 1.8 lb F/hr (equivalent to 0.052 lb F/ton phosphate) are supported by stack testing at its existing facility. However, a limit based on mass per hour is inappropriate because it does not adjust emissions for lower production rates. Also, in the statistical analysis of stack test results, Cargill incorrectly calculated the upper bound of the 99% confidence interval. (Note: FWS suggests that a 95% confidence interval is more appropriate because states are unlikely to take enforcement action against a source that complies at least 95% of the time.) The corrected data and statistical analysis is presented in Table 1, and corrected test results are shown in Figure 1.

A closer inspection of the stack test data in Figure 1 indicates that Cargill has included results from 4/1/93 tests that are extraordinarily high and should have been deleted as "outliers." A comparison of the median and average PM stack test values in Table 1 shows that the average test value is almost double the median. Therefore, it is likely that an exceptionally high value is unduly biasing the results.

If the outlier results of the 4/1/93 test are eliminated, Table 2 and Figure 2 are the result. Not only is the scatter plot more regular, but the average and median PM values converge nicely, indicating that there are no unusual biases. The resulting 95% confidence intervals predict that, if the plant is operating properly, it should be able to meet limits of 0.13 lb PM/ton phosphate and 0.019 lb F/ton phosphate 95% of the time. Even if Cargill's emission limits are based upon the expected performance of the existing control equipment, those limits should be a function of the phosphate input rate and should be not more than 0.13 lb PM/ton phosphate and 0.019 lb F/ton phosphate.

Cargill states that because all similar plants are controlled by wet scrubbers, Cargill's scrubbers represent the top level of control. However, scrubber performance varies widely depending primarily upon pressure drop, and Cargill's scrubbers are into the low-to-medium pressure drop categories. For example, while all of the other scrubbers listed by Cargill in its Table 5-2 are achieving at least 99% control of fluorides, Cargill's scrubber is rated at only 93%, thus allowing seven times more fluoride emissions than the next least efficient scrubber.

Cargill rejected alternate control technologies on the basis of excessive cost. However, no documentation supporting any of the cost estimates was provided, and costs cannot be verified. In rejecting better controls, Cargill also refers to a BACT determination conducted for another source, but does not include information regarding that determination. Cargill should not base its analysis on information that cannot be examined or verified.

A review of the RBLC (enclosed) found that FDEP has issued permits for similar sources requiring that fluoride emissions be limited to 0.0417 lb/T of phosphate, and particulate be limited to 0.19 lb/T. These limits are significantly lower than the 0.052 lb F/T and 0.24 lb PM/T proposed by Cargill.

Conclusions and Recommendations

All of the recent applications from Cargill should be combined and reviewed as one project, and the effects of these projects on other emission sources at the facility should be evaluated with respect to PSD applicability and impacts.

The application should be rejected until the applicant provides a more complete BACT analysis including information on potential control technologies and documentation to support their costs. FWS suggests that a two-stage wet scrubber followed by an ammonia vaporizer and having a fluoride removal efficiency of 99.9% (similar to that used by Farmland Hydro) be considered BACT.

Cargill's emission limits should be based upon the expected performance of the existing control equipment. Those limits should be a function of the phosphate input rate and should not exceed 0.13 lb PM/ton phosphate and 0.019 lb F/ton phosphate. (Note: Under no circumstances should emission limits exceed the 0.19 lb PM/T phosphate and 0.0417 lb F/T limits required by other permits issued by FDEP to similar sources.)

Air Quality Related Values (AQRV) Analysis

Although emissions from this project alone are not expected to affect AQRVs at Chassahowitzka, as noted above, emissions from all of the Cargill projects recently proposed should be combined and evaluated accordingly. The combined emissions would be expected to have a more significant effect on resources at the Class I area. A revised AQRV analysis, including all emissions, should be done.

Contact: Ellen Porter, Air Quality Branch (303) 969-2617.

Table 1. Summary of All MAP Plant Stack Test Data, Cargill Fertilizer Riverview

Date	MAP Prod Rate (TPH)	P2O5 Input (TPH)	PM Emissions				
			Run #	lb/h	avg. lb/h	lb/ton MAP	lb/ton P2O5
7/31/97	68.4	34.2	1	0.94	1.21	0.018	0.035
			2	1.14			
			3	1.55			
8/1/96	68.2	34.1	1	2.65	2.81	0.041	0.083
			2	2.98			
			3	2.81			
7/13/95	68.8	34.4	1	3.16	2.13	0.031	0.062
			2	2.12			
			3	1.12			
7/14/94	68.3	34.15	1	2.13	1.43	0.021	0.042
			2	0.93			
			3	1.23			
4/1/94	59.2	29.6	1	5.94	5.31	0.090	0.180
			2	5.58			
			3	4.42			
4/1/93	58.6	29.3	1	18.6	14.09	0.241	0.481
			2	14.2			
			3	9.48			
3/24/92	59.2	29.6	1	3.09	3.19	0.054	0.108
			2	3.44			
			3	3.05			

Fluoride Emissions			
Run #	lb/h	avg. lb/h	lb/ton P2O5
1	0.268	0.180	0.005
2	0.149		
3	0.124		
1	0.199	0.232	0.007
2	0.235		
3	0.262		
1	0.485	0.704	0.020
2	0.674		
3	0.954		
1	0.175	0.204	0.006
2	0.196		
3	0.242		
1	0.657	0.670	0.023
2	0.723		
3	0.631		
1	0.796	0.830	0.028
2	1.101		
3	0.592		
1	0.537	0.408	0.014
2	0.327		
3	0.361		

LB/TON MAP FOR PM		
average	4.31	0.071
median	2.81	0.041
standard deviation		0.079
99% confidence level		0.077
	-0.006 < EF <	0.147
95% confidence level		0.058
	0.012 < EF <	0.129

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average	0.461	0.015
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standard deviation		0.0092
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	0.006 < EF <	0.023731
95% confidence level		0.007
	0.008 < EF <	0.021585

LB/TON P2O5 FOR PM	
average lb/ton P2O5 for PM	0.141
median	0.083
standard deviation	0.157
99% confidence level	0.153
	-0.012 < EF <
95% confidence level	0.117
	0.025 < EF <

Figure 1. All PM Emissions Tests

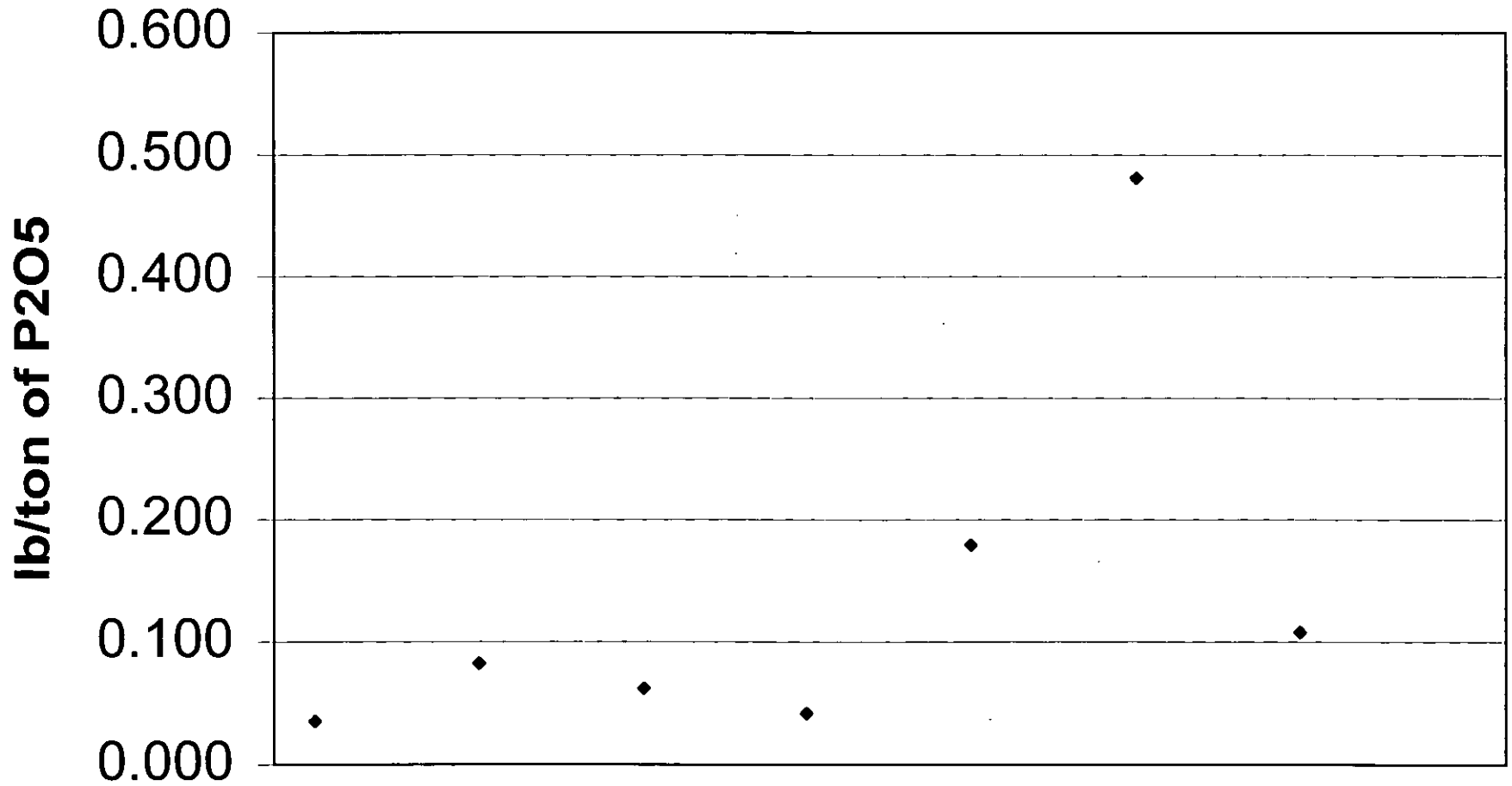


Table 2. Summary of Edited MAP Plant Stack Test Data, Cargill Fertilizer Riverview

Date	MAP Prod Rate (TPH)	P2O5 Input (TPH)	PM Emissions				
			Run #	lb/h	avg lb/h	lb/ton MAP	lb/ton P2O5
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			3	2.81			
7/13/95	68.8	34.4	1	3.16	2.13	0.031	0.062
			2	2.12			
			3	1.12			
7/14/94	68.3	34.15	1	2.13	1.43	0.021	0.042
			2	0.93			
			3	1.23			
4/1/94	59.2	29.6	1	5.94	5.31	0.090	0.180
			2	5.58			
			3	4.42			
3/24/92	59.2	29.6	1	3.09	3.19	0.054	0.108
			2	3.44			
			3	3.05			

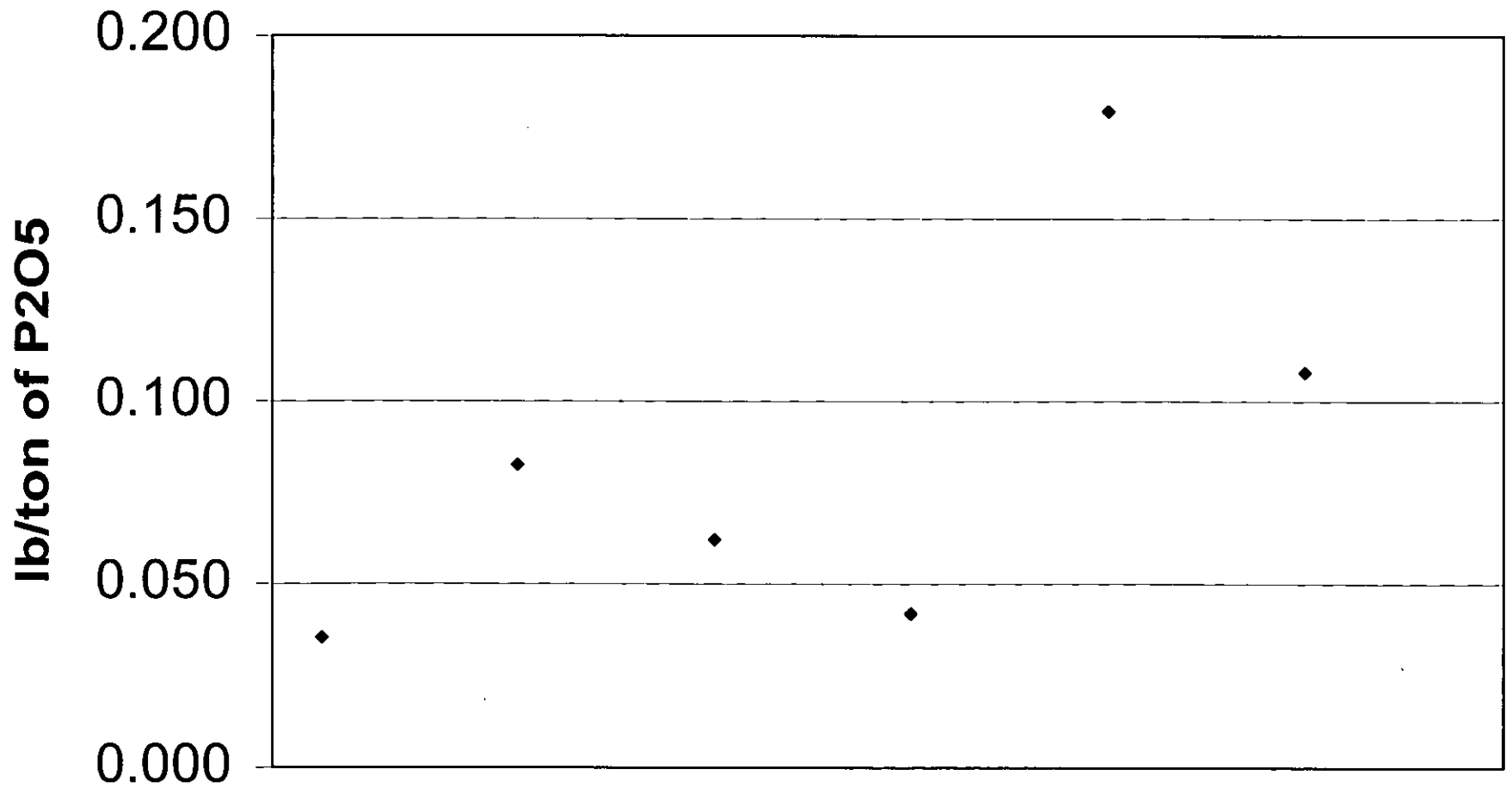
Fluoride Emissions			
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2	0.327		
3	0.361		

LB/TON MAP FOR PM		
average	2.68	0.042
median	2.47	0.036
standard deviation		0.027
99% confidence level		0.026
	0.016 < EF <	0.068
95% confidence level		0.020
	0.023 < EF <	0.062

LB/TON P2O5 FOR FLUORIDE		
average	0.400	0.012
median	0.320	0.010
standard deviation		0.0077
99% confidence level		0.007
	0.005 < EF <	0.019979
95% confidence level		0.006
	0.007 < EF <	0.01819

LB/TON P2O5 FOR PM	
average	0.085
median	0.072
standard deviation	0.053
99% confidence level	0.052
	0.033 < EF <
95% confidence level	0.040
	0.045 < EF <

Figure 2. PM Emission without 4/1/93



Florida Department of
Environmental Protection

Memorandum

TO: Jim McDonald
Southwest District Office

FROM: Mike Harley
Emissions Monitoring Section

DATE: May 29, 1996

SUBJECT: Alternative Monitoring Request - Cargill Fertilizer - Permit No. AO 29-239263
File No. 0570008-008-AC

The Emissions Monitoring Section has reviewed the alternative monitoring request (Reference Permit No. AO29-239263 DEP File No. 0570008-008-AC). Since the proposed alternative monitoring system is not a proven continuous emission monitoring system technology for this type of source, the monitoring system should only be approved for the first three years of operation. If it is found that the alternative monitoring system does not adequately monitor excess emissions, the permit should be conditioned to require the permittee to install, certify, operate and maintain a conventional continuous opacity monitoring system.

The permit should be conditioned to require submission of an approvable alternative monitoring plan which:

- Satisfies each of the items in David McNeal's March 11, 1996 letter (Attached).
- Describes the daily calibration procedure and provides a preventative maintenance schedule. The permittee will need to maintain a copy of the daily calibration procedure and preventative maintenance procedure as well as associated logs at the facility.
- Shall be implemented immediately when the modified phosphate grinder/dryer operation commences commercial operation.
- Include a corrective action procedure for excess emissions. The permittee should perform an EPA Method 9 evaluation as soon as the broken bag detector provides an indication of elevated particulate emissions. If solar conditions prevent valid EPA Method 9 observations, an EPA Method 9 evaluation should be performed as soon as valid conditions exist. If the EPA Method 9 evaluation indicates visible emissions, the problem must be corrected within 2 hours. During that time the process must be correlated so as to minimize emissions. If the problem cannot be corrected within 2 hours, the plant shall either cease operations or obtain approval to continue operations from the Hillsborough County Environmental Commission.

MEMORANDUM

Jim McDonald

May 23, 1996

Page Two

- Includes frequent simultaneous particulate and visible emissions testing in order to determine the relationship between opacity particulate concentration and particulate mass data. The initial test conducted pursuant to of 40 CFR 60.8(a) can be included in the comparable data. The Department believes at a minimum, the particulate and opacity testing should be conducted on a quarterly basis in order to assess the ongoing performance of the monitor.
- Includes a daily EPA Method 9 visible emission observations. The basis for this requirement is that the alternative monitoring system will not supply data in the terms of the applicable opacity standard for which is required under Subpart NN of 40 CFR 60.
- Contains provisions for reporting excess emissions based upon EPA Method 9 observations as well as the alternative system. For reporting purposes, excess emissions for the alternative system will be defined as any 6 minute period during which the average millivolt response for the alternative monitoring system exceeds the particulate concentration at which compliance was last demonstrated.

If you have any questions about the above please call Cate Stoecklin or me at 904/488-6140.

MH/cms

Attachment

cc: Dotty Diltz
Bill Thomas
Jerry Kissel
Bill Proses

Bill Farthing
Southern



RECEIVED

MAY 13 1996

May 6, 1996

Bureau of Air Monitoring
& Mobile Sources

Mr. Jim McDonald, ~~REDACTED~~
Air Permitting Engineer
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619-8218

Re: Cargill Fertilizer, Inc.
Permit No. AO29-239263
Modification of Raymond Mills No. 5 and 9, Riverview
DEP File No. 0570008-008-AC

RECEIVED
MAY 07 1996

Department of Environmental Protection
SOUTHWEST DISTRICT

BY _____

Dear Mr. McDonald:

This letter is in response to the Florida Department of Environmental Protection letter dated April 16, 1996, regarding the above referenced construction permit application. Response are presented to each of the Department's comments below, in the same order as they appeared in the letter.

1. As discussed with you, although the instructions to the air permit application long form state the responsible official must sign all applications for Title V sources, in reality, such signature is only required for a Title V operating permit application. This position is supported by the Department's rules regarding permit applications. For construction permit applications, an authorized representative may sign the application. Melody Russo, Environmental Superintendent for the Cargill Riverview facility, is an authorized representative of Cargill, as stated in the attached letter from Cargill.
2. The long form application instructions allow flexibility in specifying how emission unit are structured. An emission unit can consist of single process/production unit or activity, or a group of collectively regulated process/production units or activities. In the case of the Phosphate Rock Grinding/Drying operation, we have included all of the emission points/sources associated with this operation as a single emissions unit, since it is a single process/production unit. This is the most efficient manner to treat this process. To treat the sources as four separate emission units would cause a significant amount of unnecessary additional technical and document production time, as well as make the application much longer, causing the Department personnel additional review time. No new information would be presented.

In addition, the Department currently regulates the entire process under one air operating permit. The instructions for the long form specifically allows multiple emission points for a single emission unit. Also, future reports required for this production unit (such as annual Air Operating Report

15281Y/F1/RTC2/1

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Suite 500
Gainesville, Florida 32653-1500
352-336-5600 FAX 352-336-6603

5405 West Cypress Street
Suite 215
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1801 Clint Moore Road
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407-994-9910 FAX 407-994-9393

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Jacksonville, Florida 32256
904-739-5600 FAX 904-739-7777

1616 'P' Street NW
Suite 350
Washington, DC 20036
202-462-1100 FAX 202-462-2270



and excess emissions reports) would be included in a single emission unit instead of several separate reports.

In conclusion, there does not appear to be any reason for splitting this production unit into several emission units. Doing so will only cause undue effort on everyone's part, while not providing any additional information. Please note that the Department may still assign individual emission point ID numbers to the individual emission points in this production unit.

3. As stated in our previous Response, Page 10 of the application relates to the facility as a whole (refer to Page 16 of the instructions and the definition of facility). The facility as a whole is not a synthetic minor source of pollutants other than hazardous air pollutants (HAPs). The Cargill facility is a major source of several non-HAP pollutants. Therefore, we are required to mark the box as "No".
- 4, 5. Please be advised that Cargill has decided to not install the total ground rock storage silo as previously shown on the flow diagram for the proposed system. A revised flow diagram is attached. The entire phosphate rock grinding drying operation will not exceed an average input rate of 50 tons per hour (TPH) of dry rock at 1 percent moisture (equivalent to 58.2 TPH wet rock at 15 percent moisture). Since the operation consists of some surge storage capacity both on the front end of the process and on the back end, it is possible that the 50 TPH hourly rate may be exceeded for short periods in certain pieces of process equipment, such as the storage silos and surge bins. However, the grinders/dryers are not capable of processing a combined amount greater than 50 TPH (at 1 percent moisture).

Please note that Cargill has decided to retain the existing 180 ton unground rock bin, although it will be modified to allow discharge to a new unground rock bin for the No. 9 mill (see revised flow diagram). The maximum transfer rate of wet rock from the railcar unloading operation, to the 180 ton unground rock bin, will be approximately 60 TPH wet rock (51.5 TPH dry rock at 1 percent moisture). Thus, less than one railcar per hour will be unloaded (each railcar is approximately 100 ton capacity).

Currently, the internal material transfer rates within the rock grinding/drying operation are not measured. The input of material is recorded from the weighing of the railcars bringing phosphate rock to the facility. There are no plans to measure the internal material transfer rates in the future since they do not affect the maximum emission rates stated in the application. The ground rock dust collector serves all of the evacuations from these internal transfer operations, and maximum emissions are based upon the worst-case air flow and outlet dust loading for the dust collector. Therefore, these internal transfer rates are not material.

For compliance testing purposes, Cargill will agree to process the maximum amount of wet phosphate rock possible through the rock dryers (up to 50 TPH, dry), as well as unload wet



phosphate rock during this period. This will ensure that worst-case emission conditions are tested. Since Cargill will normally not be processing dry rock once the wet rock system is completed, Cargill requests that compliance testing not be required for dry rock, unless dry rock is processed for more than 400 hours in any calendar year.

6. The dust collected in the grinders/dryers dust collectors will now be conveyed to a new ground rock bin or the modified ground rock surge bin. The flow diagram has been corrected. The existing ground rock surge bin is shown as modified since the material flows to the bin will be modified as part of this project (i.e., the bin will now receive rock from both the mill dust collectors and from the cyclones conveying system).
7. The flow diagram has been updated to show that the baghouse is an emission point.
8. The operating hours of the single existing baghouse on the mills are at a minimum equal to the GTSP plant operating hours since the dry rock produced in the mills is now sent immediately to the GTSP plant. The only storage between the two systems when operating in this manner is a 200-ton-capacity surge bin at the GTSP plant. Normally, the dry rock is pneumatically transferred directly from the mills to the surge bin at the GTSP plant. This bin is normally kept full and, therefore, the mills are normally operating whenever the GTSP plant is operating.
9. The actual reported operating hours for the baghouse controlling the mills were as follows:

1994: No. 5 Mill - 6,272 hr
No. 9 Mill - 6,508 hr

1995: No. 5 Mill - 6,263 hr
No. 9 Mill - 6,696 hr
10. Ms. Edgemon was referring to the conveying air from the bins to the GTSP plant. This air pneumatically conveys the dry rock from the mills to the GTSP plant. Evacuation air from the bins is sent to the baghouse for dust control.
11. The flow diagram of the existing system has been corrected to show the ground rock can discharge to either the ground rock bin or the surge bin.
12. At the maximum process rate, the proposed emission limit for the rock grinders/dryers is equivalent to 0.09 lb/ton of wet rock feed (5.18 lb/hr / 58.2 TH). These emissions were based on the manufacturer's guarantee of the baghouse performance. At these emission levels, each mill would be able to operate at rates as low as 10 TPH and still meet the 0.26 lb/ton combined limit (2.59 lb/hr / 10 TPH = 0.26 lb/ton). However, at lower process rates, it is reasonable to expect that the dust loading to the baghouse will decrease proportionately with the decrease in production

Mr. Jim McDonald, P.E.

Page 4

May 6, 1996



rate and that the baghouse efficiency will remain constant. Therefore, there is reasonable assurance that the 0.26 lb/ton limit will be met at all times. Note that Cargill does not normally operate the mills at rates lower than 10 TH, however, the above discussion should be sufficient to allow the Department to issue the permit without limitations on minimum production rates.

Since the above-discussed changes affect Attachment A of the permit application, a revised Attachment A is being provided.

Thank you for consideration of these comments and responses. If you have any further questions, please call me or Kathy Edgemon.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

S E A L

DAB/lcb

cc: Kathy Edgemon
David Jellerson
Carlos Gonzalez
File (2)



CARGILL FERTILIZER, INC.

6813 Highway 41 South - Riverview, Florida 33569 - Telephone 813-677-9111 - TWX 810-876-0648 - Telex 52666 - FAX 813-671-6148

I hereby certify that I am Assistant Secretary of Cargill Fertilizer, Inc., a Delaware corporation; that as such Assistant Secretary I have custody of certain of the books and records of said corporation, including the minutes of meetings of the Board of Directors and Stockholders thereof; that the following is a true and correct copy of a resolution adopted by said Board of Directors on September 9, 1993, which resolution is still in full force and effect.

"WHEREAS, Pursuant to SECTION 3 of ARTICLE IV of the By-laws of the Company, the President is primarily responsible for the execution of corporate documents; and

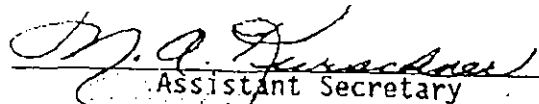
"WHEREAS, In the judgment of the Board, it is deemed advisable to delegate some of the responsibility for executing and submitting various documents to certain other individuals of the Company;

"NOW, THEREFORE, BE IT RESOLVED, That the Environmental Manager, the Environmental Superintendent, and the Mine Manager are hereby authorized, for and on behalf of the Company, to execute and submit all routine environmental reports, permit applications and follow-up responses, where the signature of an officer is not otherwise mandated by law, statute or regulation.

"RESOLVED FURTHER, That the Plant Manager, Mine Manager and the Director of Supply & Distribution are hereby authorized, for and on behalf of the Company, to execute and submit all purchase orders, where signature of an officer is not otherwise mandated by law, statute or regulation.

"RESOLVED FURTHER, That this resolution cancels and supercedes all prior authority granted."

WITNESS MY HAND AND THE SEAL of Cargill Fertilizer, Inc, this 30th day of November, 1993.


Assistant Secretary



ATTACHMENT A
CARGILL FERTILIZER, INC.
PHOSPHATE ROCK GRINDING/DRYING SYSTEM
(Revised 5/4/96)

1.0 INTRODUCTION

Cargill Fertilizer, Inc., operates a phosphate fertilizer manufacturing facility located in Riverview, Florida, just south of Tampa (refer to Figures 1-1 and 1-2). As part of the overall manufacturing process, two existing phosphate rock dryers/grinders are operated. The phosphate rock dryers/grinders are referred to as the No. 5 and No. 9 Raymond Mills. Phosphate rock is dried and ground in the mills. The dried rock is then used to make GTSP in the GTSP plant.

Cargill is proposing to change its present method of operation of this system to a system that allows for increased moisture removal. The current permitted maximum process rate for each mill of 25 tons per hour (TPH) of phosphate rock will not change. The existing fuel burner system on the No. 5 and No. 9 Raymond Mills will be upgraded to provide additional heat for drying. A new wet phosphate rock bin and transfer conveyor will be installed to feed the mills. Two new baghouses will be installed, one serving each mill, to replace the existing single baghouse serving both mills. In addition, a new ground rock pneumatic transfer system, storage bin, and a new baghouse to serve the ground rock handling system will be added. These new baghouses will replace the dust collection system currently in service.

This attachment presents a detailed project description, proposed maximum emission rates, and source applicability for the proposed project. Supportive information is presented in additional attachments.

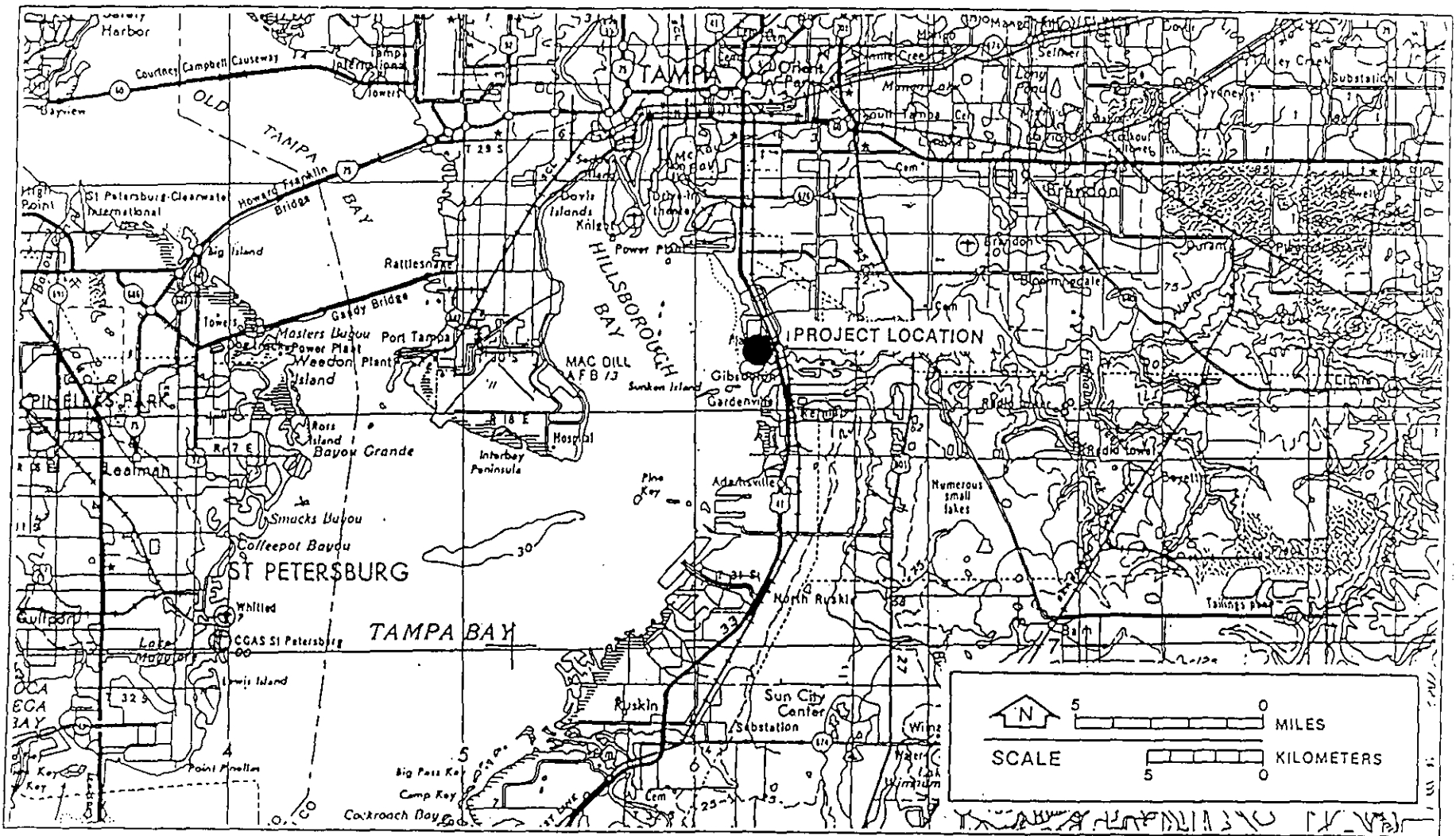


Figure 1-1
 General Location Map of Cargill Fertilizer, Inc.

Source: USGS, 1981.



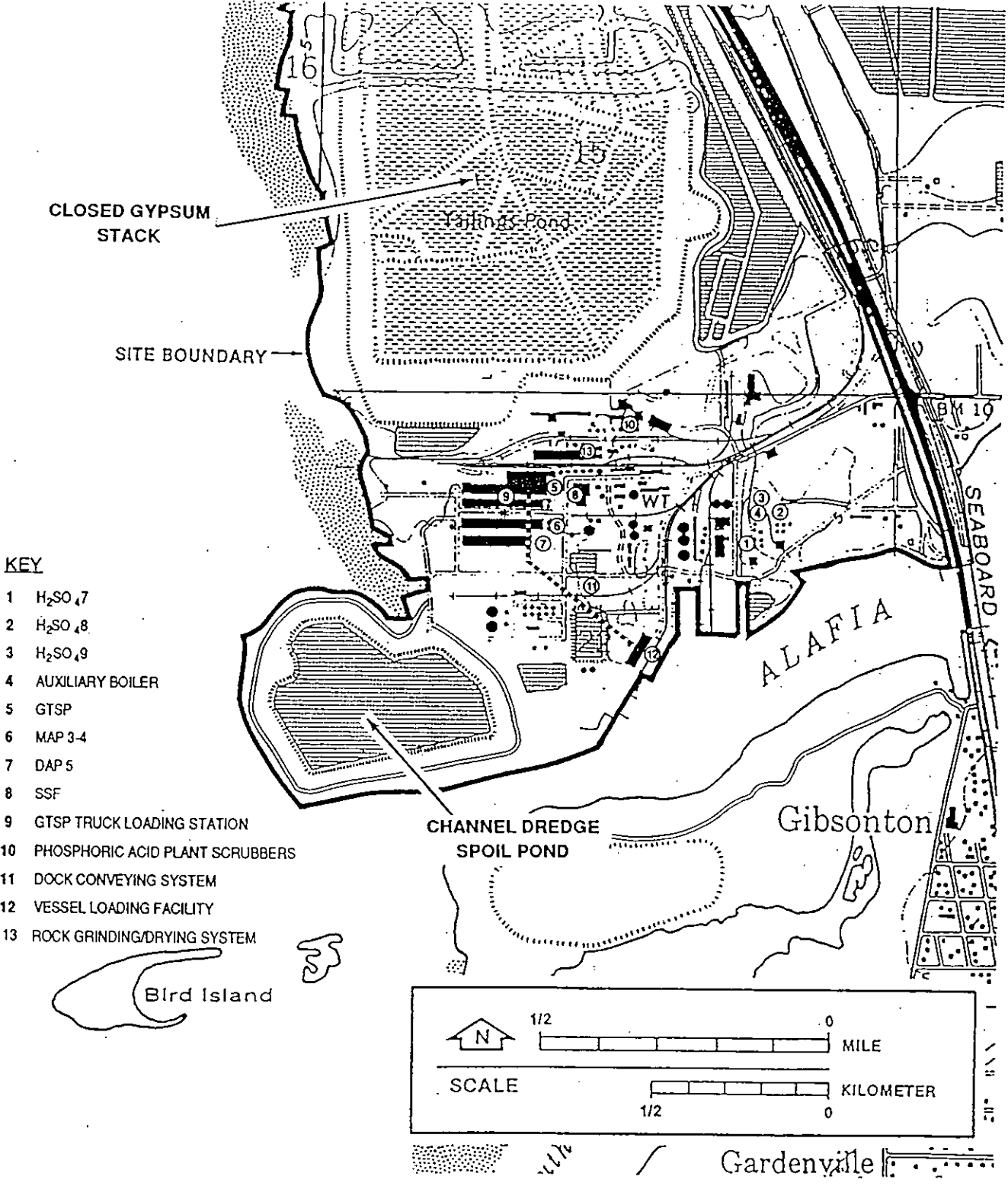


Figure 1-2
Site Location Map of Cargill Fertilizer, Inc.

Source: USGS, 1981.



2.0 PROJECT DESCRIPTION

2.1 EXISTING SYSTEM

The existing phosphate rock unloading and grinding system at Cargill Riverview is depicted in the flow diagram shown in Figure 2-1. Phosphate rock ranging from approximately 1 to 3 percent moisture is received from rail cars and discharged to an unloading pit. From the pit, pit conveyors transfer the material to a bucket elevator, which transfers material to the unground rock silo. The phosphate rock is then introduced into one of two identical dryer/grinder units by means of feed chutes. The dryer/grinder units are integral devices which provide heated air for drying as the phosphate rock is ground in the grinder. A natural gas burner with a maximum heat input of 9.0 MMBtu/hr supplies the two dryer/grinder units with heated air for drying. The moisture content of the rock is reduced from approximately 1 to 3 percent to a moisture content of approximately 1 percent in the dryers/grinders.

After exiting the dryer/grinder units, the ground rock is pneumatically conveyed to cyclones, one per mill. The ground rock is then separated from the conveying air stream and discharged to a transfer screw conveyer and to the ground rock bin or surge bin. A portion of the conveying air streams for both mills are recirculated back to the mills, and the remainder is vented to a single dust collector for particulate matter (PM) control. The No. 5 and No. 9 Raymond Mills are currently permitted to process up to a total of 50 TPH of phosphate rock (dry basis).

The dust collector also controls dust emissions from the bucket elevator and the ground rock bin and surge bin. Captured rock product from the baghouse is discharged to a conveyor, and conveyed to either the ground rock bin or to the surge bin.

2.2 PROPOSED MODIFICATIONS

The existing unloading system will be modified to allow wet rock unloading and storage, and Raymond Mills No. 5 and No. 9 will be modified to allow drying and grinding of high grade wet phosphate rock at a total design rate of 50 tons per hour (dry @ 1 percent moisture). Each mill will be rated at 25 tons per hour (dry @ 1 percent moisture). The wet phosphate rock feed will contain 10 to 15 percent moisture by weight. The ground phosphate rock product will be dried to approximately 1 percent moisture and ground to finer than 90 percent minus 200 mesh. The equivalent maximum wet rock feed at 15 percent moisture is 58.24 TPH total or 29.12 TPH each mill. A flow diagram of the proposed system is shown in Figure 2-2.

Dry rock is now received at the No. 5 and No. 9 Raymond mills. Reasonable precautions to prevent fugitive PM emissions, implemented now and in the future, include:

- Partial enclosure of railcar unloading station
- Bottom loading from railcar
- Underground receiving hopper
- Elevator and transfer to the mills are totally enclosed.

Although minimal PM emissions are expected from wet rock unloading, these preventative measures will be retained for both wet and dry rock.

Although it is expected that normally wet rock will be received in the future at Riverview, Cargill will retain the ability to receive and process dry rock at up to 50 TPH, as presently permitted.

2.2.1 Wet Rock Unloading and Storage

The equipment in this area will be modified to handle both dry and wet phosphate rock: The bucket elevator and rock bin will be modified to accommodate wet rock. The phosphate rock will be unloaded from railcars and onto the existing pit conveyors. The conveyor discharges into a transfer hopper, which feeds the transfer conveyor. This conveyor will discharge to the existing underground rock elevator which discharges into the existing 180-ton underground rock bin. This underground rock bin will feed rock via an existing chute to the No. 5 Mill. In order to feed the No. 9 Mill, a new surge bin, transfer conveyor and feed hopper will be installed. The feed hopper will discharge phosphate rock to the No. 9 Mill.

The moisture content of wet phosphate rock varies, and can range from 10 percent to 15 percent moisture. The moisture content of dry phosphate rock can also vary, and ranges from 1 percent to 3 percent moisture. The equipment will continue to be able to process dry rock, as it does now, as well as wet rock. There are no plans to formally document or routinely measure the moisture content of wet or dry rock. The dry rock moisture is now controlled through operator experience. There is no regulatory requirement or basis for regulating the moisture content, and the proposed maximum emissions are not dependent upon the moisture content. The emission sources are all enclosed and/or controlled.

2.2.2 Rock Mill Drying and Grinding Systems

There will be two separate but identical systems in terms of capacity and equipment. The grinding equipment systems are already in operation and are called No. 5 and No. 9 Raymond Mills. The drying and dust collection equipment which will be added will also be alike in terms of capacity for each of the individual systems. Both systems may be run completely independent of each other at up to 25 TPH (dry) each. However, the two systems will have a common surge bin and product storage bin.

The No. 5 Raymond Mill (existing) will receive wet rock from the modified unground rock bin by gravity feed. Hot air from the upgraded air heaters will also be sent to the mill. When wet rock is being processed, the hot air will flash dry the moisture in the rock feed from approximately 10 to 15 percent moisture to approximately 1 percent moisture. The mill will grind the rock to >90 percent minus 200 mesh.

As the mill grinds and dries the rock, air will be swept through the mill by the existing recirculation air fans. This air will carry the ground rock to the existing cyclones (one per mill). The cyclones will separate the majority of the ground rock from the air stream and discharge the rock to an existing screw conveyor. This conveyor will discharge to the existing ground rock surge bin. The cyclone discharge air will then return to the main recirculation fan and is sent through the mill again.

The hot air for drying in the mills will be produced in the upgraded air heaters (one for each mill) by burning natural gas. Each air heater will have a natural gas burner designed for up to 13 MMBtu/hr heat input. Additional quench air will be pulled into the air heater by induced draft. The heated air at approximately 700°F will be introduced into each mill through the hot air duct.

The entire mill circuit will be maintained under negative pressure by the new exhaust fans. This keeps a negative pressure on the entire system thus preventing fugitive dust emissions, and it also exhausts the water vapor produced by drying the wet rock. The hot exhaust gases will be pulled from the circuit at the discharge of the existing recirculation fan.

The exhaust gases will pass through the new dust collectors (one per mill), which filters the gases through fabric bags to remove any dust that is entrained in this air stream. The dust will be

collected in the bottom of the dust collector and conveyed to the existing ground rock surge bin. The combustion gasses and water vapor discharged from the new exhaust fans will be sent via the new baghouses and stacks (one per mill) to the atmosphere, discharging approximately 75 feet above grade.

A new ground rock storage bin will be added to pneumatically receive ground rock from the ground rock surge bin. As shown in Figure 2-2, product storage will occur in both the existing product storage bin and the new ground rock bin. PM emissions from these bins will be controlled by the ground rock dust collector.

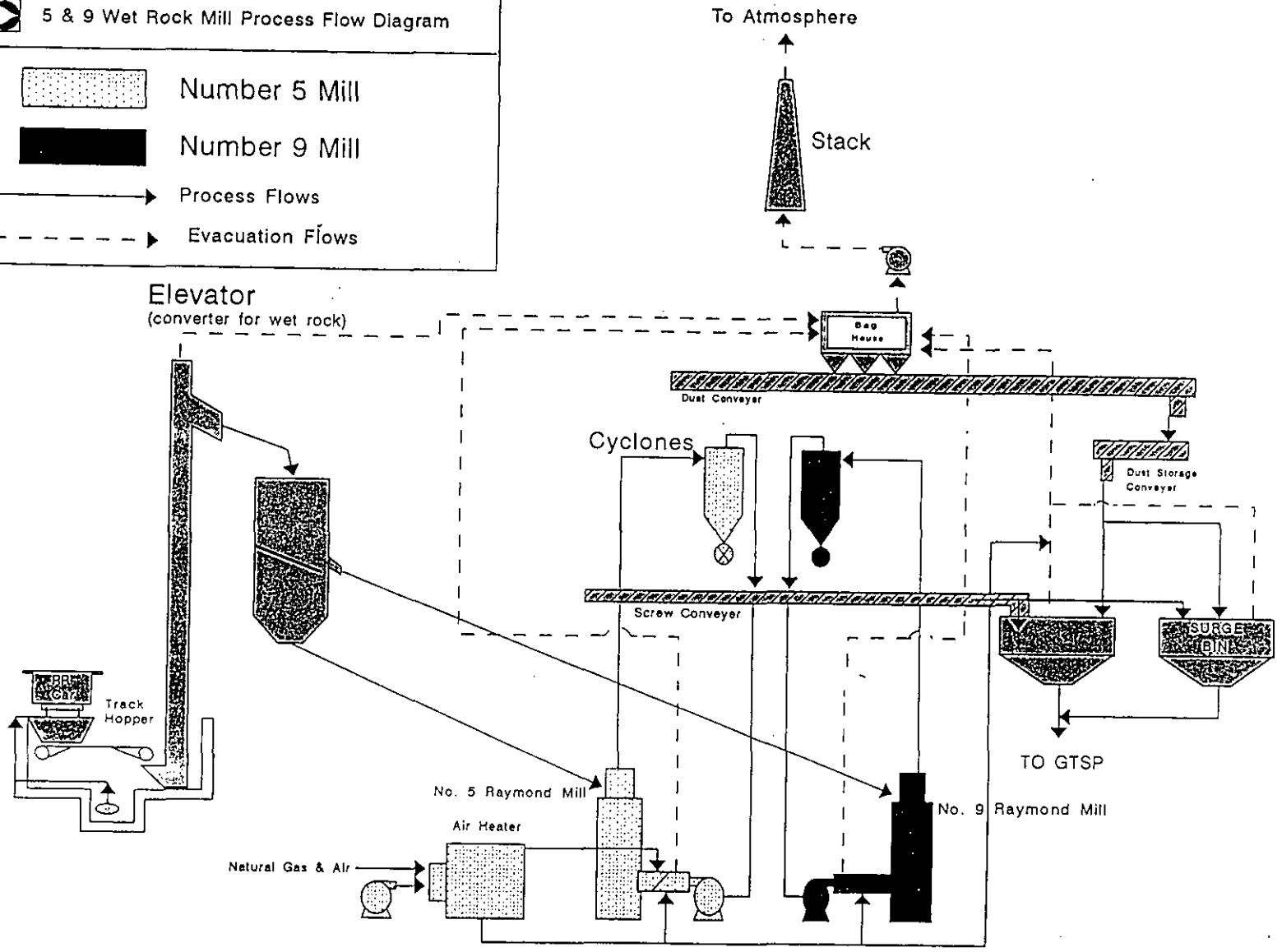
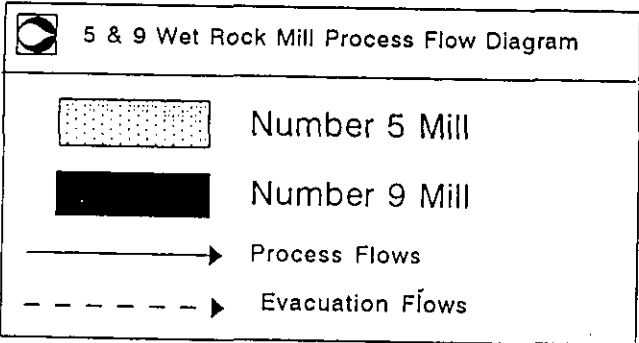
2.2.3 Pollution Control Equipment

The air pollution control equipment for this operation will consist of three baghouses: one for each mill and one for the ground rock handling system. Each mill baghouse will have approximately 4,600 sq. ft. of filter area. Each will be equipped with an automatic air pulse system which will continuously remove the dust from the bags. Each of the mill baghouses will have a capacity of 19,000 acfm (15,100 dscfm) and be designed to achieve an outlet dust loading of 0.02 gr/dscf. Dacron fabric bags or equivalent will be used. Both baghouses will be operated under negative pressure to prevent fugitive emissions. Each baghouse will have its own fan. The exhaust from the fans will be sent to the new stacks.

The ground rock silo dust collector has not yet been selected, but will have a design air flow of 2,500 acfm (2,380 dscfm) and a design outlet dust loading of 0.02 gr/dscf. Additional information regarding the dust collectors is provided in Section 3.0 (Table 3-2).

2.2.4 Fuel Utilization Rates

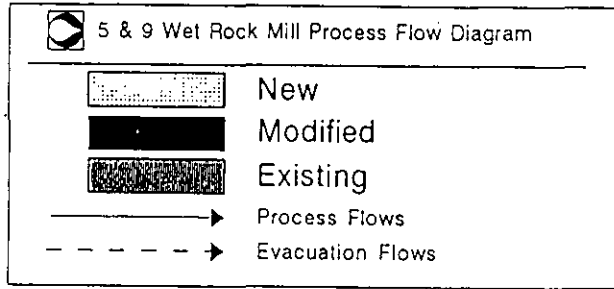
The two upgraded air heaters will be each rated at 13.0 million Btu per hour. The maximum gas usage per mill will be approximately 13,000 scf/hr of natural gas. Natural gas is the primary fuel source and will be used most of the time. Provisions are made to use No. 2 fuel oil as a stand-by fuel in case of natural gas interruption. No. 2 fuel oil may be used for up to 400 hours per year.



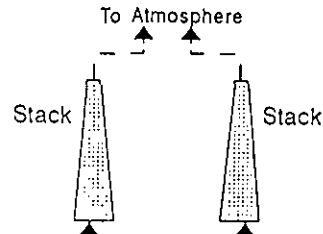
A-8

Figure 2-1
Process Flow Diagram of Existing System

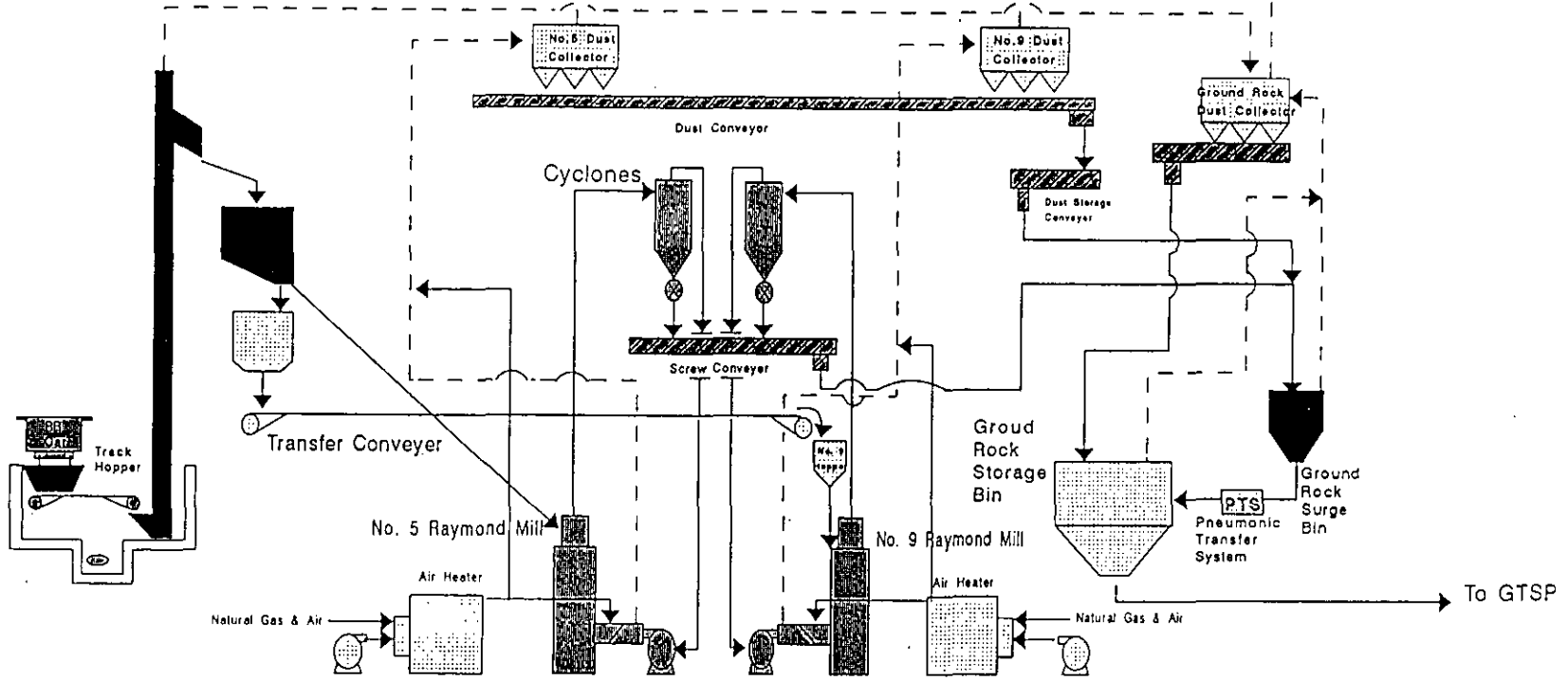




Elevator



To Atmosphere



A-9

Figure 2-2
Process Flow Diagram of Proposed System



3.0 EMISSION RATES

Air emissions due to fuel combustion are presented for nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), and volatile organic compounds (VOC) in Table 3-1. Estimated emissions from fuel combustion were developed using factors specified in the Environmental Protection Agency's (EPA) Compilation of Air Pollution Emission Factors (AP-42) (see Attachment B). Emissions are presented for natural gas and No. 2 fuel oil use. Fuel oil use will be limited to 400 hr/yr. Maximum operating hours for the mills and the ground rock silo dust collector will be 8,760 hr/yr.

Total PM emissions, as well as control equipment data for each of the three proposed baghouses, are presented in Table 3-2. The PM emissions from each of the mill baghouses are required to meet the current Florida emission limiting standard for phosphate rock processing operations located in PM nonattainment or maintenance areas (Rule 62-296.705), which limits PM emissions to 0.2 lb/ton of phosphate rock processed. This limitation is the current PM limitation which applies to the No. 5 and No. 9 Mills. Based on the maximum phosphate rock production rate of 25 TPH for each mill, the maximum PM emissions based on Rule 62-296.705 are 5.0 lb/hr and 21.9 TPY for each mill. However, Cargill will utilize baghouses capable of achieving an outlet dust loading of 0.02 gr/dscf, which equates to a PM emission rate for each mill of 2.59 lb/hr and 10.10 TPY (see Table 3-2). This also equates to an emission rate of 0.09 lb/ton of wet rock feed at the maximum operating rate of 29.12 TPH wet rock feed to each mill.

Maximum PM emissions from the ground rock silo dust collector are based on an outlet dust loading of 0.02 gr/dscf. This dust loading equates to maximum emissions of 0.41 lb/hr and 1.78 TPY. The Florida air rules require that the PM emissions from this source be less than 0.03 gr/dscf (RACT rule; Rule 62-296.711).

Table 3-1. Summary of Emissions from Fuel Combustion, Nos. 5 and 9 Raymond Mills

Parameter	No. 2 Fuel Oil	Natural Gas			
OPERATING DATA					
Operating Time (hr/yr)	400	7,800			
Combined Heat Input Rate (MMBtu/hr)	26.0	26.00			
Fuel Oil Use (gal/hr) ^a	185.7	NA			
Fuel Oil Use (gal/yr)	74,286	NA			
Maximum Sulfur Content (Wt %)	0.5	NA			
Natural Gas Use (scf/hr)	NA	26,000			
Natural Gas Use (MMscf/yr)	NA	202.80			
Pollutant	Emission Factors	No. 2 Fuel Oil lb/hr	Natural Gas lb/hr	Maximum Annual Emissions (TPY)	
				400 hr/yr fuel oil and 7,400 hr/yr natural gas	100% Natural Gas
EMISSIONS DATA					
SO ₂ : Fuel Oil	142*S lb/Mgal	13.19	0.016	2.69	0.061
Natural Gas	0.6 lb/MMft ³				
NO _x : Fuel Oil	20 lb/Mgal	3.71	3.64	14.21	14.20
Natural Gas	140 lb/MMft ³				
CO: Fuel Oil	5 lb/Mgal	0.93	0.91	3.55	3.55
Natural Gas	35 lb/MMft ³				
NM VOC: Fuel Oil	0.2 lb/Mgal	0.037	0.073	0.28	0.28
Natural Gas	2.8 lb/MMft ³ ^d				

Note: NA = not applicable.

These emissions are discharged through the mill stacks.

PM emission data from both stacks is presented in Table 3-2.

- a Based on 140,000 Btu/gal for 0.5% S oil; 1000 BTU/SCF for Natural Gas.
 b Emission factors based on AP-42.
 c "S" denotes the weight % sulfur in fuel oil; max sulfur content = 0.5%
 d Methane comprises 52% of total VOC

Table 3-2. Summary of Pollution Control Equipment and PM Emissions

Source	Control Type	Air/Cloth Ratio	Design Capacity		Control Efficiency (percent)	Operating Hours	PM Emissions		
			acfm	dscfm			Basis	(lb/hr)	(TPY)
No.5 Mill Dust Collector	Baghouse	4.10	19,000	15,100	99.9	7,800	0.02 gr/dscf	2.59	10.10
No. 9 Mill Dust Collector	Baghouse	4.10	19,000	15,100	99.9	7,800	0.02 gr/dscf	2.59	10.10
Ground Rock Silo Dust Collector	Baghouse	To be selected	2,500	2,376	99.9	8,760	0.02 gr/dscf	0.41	1.78
							Total	5.58	21.97

Note: acfm = actual cubic feet per minute
dscfm = dry standard cubic foot per minute.
gr/scf = grains per standard cubic foot

4.0 SOURCE APPLICABILITY

4.1 NEW SOURCE PERFORMANCE STANDARDS

Federal new source performance standards (NSPS) have been promulgated for phosphate rock plants. The NSPS, contained in 40 CFR 60, Subpart NN, apply to all phosphate rock plants which have a maximum production capacity greater than 4 TPH and were constructed, modified, or reconstructed after September 21, 1979. The NSPS covers several pieces of equipment at phosphate rock plants, including dryers, grinders, calciners, and ground phosphate rock handling and storage systems. A copy of the Subpart NN NSPS is contained in Attachment C.

"Modification" under the NSPS is defined as any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility. The change in emission rate is expressed in units of pounds per hour.

The NSPS, Subpart NN, covers "drying" and "grinding" of phosphate rock. There are separate PM standards for each of these operations. Therefore, they are considered as separate facilities for NSPS purposes. A "dryer" is defined as a unit in which the moisture content of phosphate rock is reduced by contact with a heated gas stream. A "grinder" is defined as a unit which is used to pulverize dry phosphate rock to the final product size used in the manufacture of phosphate fertilizer and does not include crushing devices used in mining.

Based on the NSPS definitions, Cargill has existing rock dryers and grinders integral in a single piece of equipment. Since Cargill has existing rock grinders and dryers, the project must be evaluated to determine if a modification to an existing facility has occurred. The existing dryers are being physically modified by the addition of the upgraded air heaters. Since the emissions of PM on a lb/hr basis would be increasing due to the modification, the NSPS for the dryers would apply. The NSPS limit for rock dryers is 0.06 lb/ton of phosphate rock feed, and 10% opacity.

The existing grinders, although being physically the same piece of equipment as the dryers (excluding the air heaters), are not being physically modified. Since the existing grinders are clearly capable of handling the wet rock, and were also capable of wet rock handling prior to January 5, 1974, the existing grinders are not being modified under the NSPS provisions.

Since the existing grinders are not being modified, the Florida RACT emission limit of 0.2 lb/ton will continue to apply to the grinders. An additional allowance of emissions (0.06 lb/ton) would be allowed for the modified rock dryers under the NSPS, resulting in a total allowable of 0.26 lb/ton. However, Cargill will limit total PM emissions from the combination dryers/grinders to 0.02 gr/dscf, or 5.18 lb/hr total both units, equivalent to 0.09 lb/ton of phosphate rock at the maximum production rate. The 0.26 lb/ton limitation will be met at the maximum production rate, as well as at lower operating rates due to the baghouse control devices.

At the maximum process rate, the proposed emission limit for the rock grinder/dryers is equivalent to 0.09 lb/ton of wet rock feed (5.18 lb/hr / 58.2 TPH). These emissions were based on the manufacturer's guarantee of the baghouse performance. At these emission levels, each mill would be able to operate at rates as low as 10 TPH and still meet the 0.26 lb/ton combined limit (2.59 lb/hr / 10 TPH = 0.26 lb/ton). However, at lower process rates, it is reasonable to expect that the dust loading to the baghouse will decrease proportionately with the decrease in production rate and that the baghouse efficiency will remain constant. Therefore, there is reasonable assurance that the 0.26 lb/ton limit will be met at all times. Note that Cargill does not normally operate the mills at rates lower than 10.0 TPH, however, the above discussion should be sufficient to allow the Department to issue the permit without limitations on minimum production rates.

The NSPS also limits visible emissions from ground phosphate rock storage and handling systems to zero-percent opacity (40 CFR 60.402(5)). Since Cargill will be installing a new ground rock storage silo, visible emissions from the silo baghouse will be limited to zero-percent opacity.

The NSPS requires that a continuous opacity monitoring system (COMS) be installed on rock dryers subject to the NSPS (40 CFR 60.403(a)). However, due to the large expense of installing and operating a COMS, and the utilization of the baghouse control device, an alternative monitoring method is requested under 40 CFR 60.13 (I). This NSPS provision allows alternatives to any monitoring procedures or requirements to be approved by the reviewing agency after written request from the permittee. The request for an alternative monitoring method is presented in Attachment D.

Cargill now measures the weight of phosphate rock feed to the mills by weighing the incoming railcars. Therefore, there are records of daily phosphate rock feed to the wet rock bin and the mills. Note that this measurement device is only required for the performance tests under 40 CFR 60.8. The measurement device that Cargill uses is a state certified scale, and is accurate within 0.5 percent. This meets the requirement of the NSPS.

4.2 PREVENTION OF SIGNIFICANT DETERIORATION

Cargill has reported PM emissions from the Nos. 5 and 9 Raymond Mills for the last 2 years as 22.78 TPY total. However, stack test data to support this level of emissions could not be located. One historic test was found in Cargill's files for the No. 5 and No. 9 Mills. These test data, provided in Attachment E, showed an average PM emission rate of 1.93 lb/hr at a production rate of 51.4 TPH.

The No. 5 and No. 9 Mills at Cargill operate independently from each other. Total operating hours for each mill are recorded. However, the total operating hours for the single baghouse are not known, but as a minimum, the operating hours would equal the total operating hours of the GTSP plant, which receives the ground rock from the Nos. 5 and 9 Mills. For estimating baseline PM/PM10 emissions, therefore, the GTSP operating hours for the last two years (1994-1995) was used:

$$(7,673 \text{ hr/yr} + 7,102 \text{ hr/yr}) / 2 \times 1.93 \text{ lb/hr} = 7.13 \text{ TPY}$$

Based on the future total PM/PM10 emissions of 21.97 TPY (see Table 3-2), the net increase in PM/PM10 emissions due to the proposed project is 14.84 TPY. This increase is less than the PSD significant emission rate for PM10 of 15 TPY and for PM of 25 TPY. Therefore, PSD review for PM/PM10 is not required for this modification.

DEP ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION) 3. DARM - BAM + MS
1. MIKE HARLEY, P.E. 4. MS# 5505
2. FDEP - TALLAHASSEE 5. _____

PLEASE PREPARE REPLY FOR:
 SECRETARY'S SIGNATURE
 DIV/DIST DIR SIGNATURE
 MY SIGNATURE
 YOUR SIGNATURE
 DUE DATE _____

COMMENTS:
CARGILL FERTILIZER, INC.
additional information

FYI

RECEIVED

MAY 10 1996

Bureau of Air Monitoring
& Mobile Sources

ACTION/DISPOSITION
 DISCUSS WITH ME
 COMMENTS/ADVISE
 REVIEW AND RETURN
 SET UP MEETING
 FOR YOUR INFORMATION
 HANDLE APPROPRIATELY
 INITIAL AND FORWARD
 SHARE WITH STAFF
 FOR YOUR FILES

FROM: *Lisa McDonald* DATE: *5-9-96* PHONE: *30542-6100*
x106

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ADMINISTRATIVE OFFICES, LEGAL &
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33608
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FAX (813)272-5187

AIR MANAGEMENT DIVISION
TELEPHONE (813)272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813)272-5788

ECSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813)272-7104

EXECUTIVE DIRECTOR

ROGER P. STEWART

**RECEIVED ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY**

APR 15 1996

FAX TRANSMITTAL SHEET

Starkley Woodard

Bureau of Air Monitoring
& Mobile Sources

DATE: 4/15/96

TO: Ms. Kate Stoekoring

FAX PHONE: (904) 922-6979 VOICE PHONE: (904) 488-6146

TOTAL NUMBER OF PAGES INCLUDING THIS COVER PAGE: 6

EPC FAX TRANSMISSION LINE: (813) 272-5605
FOR RETRANSMISSION OR ANY FAX PROBLEMS, CALL: (813) 272-5530

FROM: CARLOS GONZALEZ

(CIRCLE APPLICABLE SECTION BELOW)

AIR DIVISION

- ENFORCEMENT

- ENGINEERING

- SUPPORT OPERATIONS

SPECIAL INSTRUCTIONS: As requested - Caspell Fertilizer Phos
Rock Dopes (Raymond Mills 5 + 9)

**COMPLIANCE TEST SAMPLING
OF THE
72 BPL ROCK UNLOADING AND GRINDING SYSTEM**

Permit No. AO29-239263

AIRS No. 0570008

Emission Unit ID No. 034

June 28, 1995

Conducted by: Cargill Fertilizer, Inc.

PROCESS DESCRIPTION

In this system, crude phosphate rock from mining and beneficiation plants is unloaded, stored, and milled for subsequent processing. Milling takes place in two roller mills. All rock flow through milling, sizing, and reclamation circuits is pneumatic. Air is continuously exhausted from the system to prevent condensation of moisture liberated from the rock during milling. The exhausted air passes through a bag filter to remove rock dust before discharge to the atmosphere.

SOURCE TEST EMISSIONS RESULTS

Company Name: Cargill Fertilizer, Inc.

Company Conducting Test: Cargill Fertilizer, Inc.

Source Identification: 72 BPL Rock Unloading and Grinding System

Sampling Date: June 28, 1995

Test Location	Method Number	Percent Opacity	Comments
72 BPL Rock Unloading and Grinding System	9	0	

Maximum Allowable Emissions: 5% Opacity

PLANT OPERATORS PROCESS STATEMENT

Date: June 28, 1995

Sampling Time:

Statement of Process Weight:

Company Name: Cargill Fertilizer, Inc.
Mailing Address: 8813 HWY 41 South, Riverview, FL 33569
Source ID: Bag Filter, Nos. 5 & 9 Raymond Mills
Source Location: 72% BPL Rock Unloading & Grinding Facility

Data on Operatig Cycle Time:

Start of Observation Time: 0831
End of Observation Time: 0901
Elapsed Time: 0.50 hrs
Idle Time During Cycle: 0 hrs

Data on Actual Process Rate During Operation Cycle:

Material: Phosphate Rock *Rate: 37 TPH

- * For phosphate process expressed as actual TPH and as tons of P_2O_5 per hour.
For fossil fuel steam generators expressed as BTU/hr heat input.
- ** For sulfuric acid plants expressed as 100% H_2SO_4 .

I certify that the above statement is true to the best of my knowledge and belief.

Signature: 
Title: Area Superintendant

VISIBLE EMISSION OBSERVATION FORM

No. 1

COMPANY NAME
Carroll Fertilizer, Inc.

STREET ADDRESS
8813 Hwy 41 South

CITY
Riverview STATE
FL ZIP
33569

PHONE (KEY CONTACT)
(941) 534-9616 SOURCE ID NUMBER
000834

PROCESS EQUIPMENT
Unloading and Grinding System OPERATING MODE
Running

CONTROL EQUIPMENT
Baghouse OPERATING MODE
Running

DESCRIBE EMISSION POINT
Circular stack

HEIGHT ABOVE GROUND LEVEL
60 feet HEIGHT RELATIVE TO OBSERVER
Start *60 feet* End *60 feet*

DISTANCE FROM OBSERVER
Start *275 feet* End *275 feet* DIRECTION FROM OBSERVER
Start *WSW* End *WSW*

DESCRIBE EMISSIONS
Start *None* End *None*

EMISSION COLOR
Start *None* End *None* IF WATER DROPLET PLUME
Attached *N/A* Detached

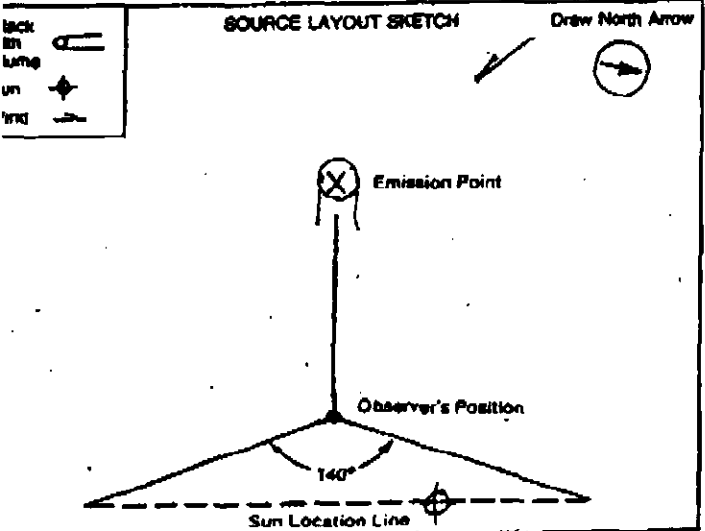
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED
Start *Stack Exit* End *Stack Exit*

DESCRIBE PLUME BACKGROUND
Start *Blue sky* End *Blue sky*

BACKGROUND COLOR
Start *Blue* End *Blue* SKY CONDITIONS
Start *Clear* End *Clear*

WIND SPEED
Start *3-5 mph* End *3-5 mph* WIND DIRECTION
Start *NW* End *NW*

AIR TEMP
Start *81° F* End *81° F* WET BULB TEMP
N/A RH, percent
96



ADDITIONAL INFORMATION

OBSERVATION DATE		START TIME		END TIME	COMMENTS
SEC	MIN	0	15	30	
June 28, 1995		0	33	1	RECEIVED AUG 01 1995
1	0	0	0	0	
2	0	0	0	0	EPC OF HC AIR MANAGEMENT
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

OBSERVER'S NAME (PRINT)
Thomas B. Lindsay

OBSERVER'S SIGNATURE
Thomas B. Lindsay DATE
6-28-95

ORGANIZATION
Carroll Fertilizer, Inc.

CERTIFIED BY
ETA DATE
March 2, 1996

CONTINUED ON VED FORM NUMBER



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

February 8, 1996

Ms. Melody Russo
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

Dear Ms. Russo:

Re: Application dated 01/10/96
Reference Permit No. A029-239263
DEP File No. 0570008-008-AC

On January 11, 1996, the Department received your air pollution application to modify the Phosphate Rock Grinding/Drying Operations regarding Raymond Mill Nos. 5 and 9. After reviewing the application and as a result of an inspection by Mr. Carlos Gonzalez of the EPCHC and myself on February 5, 1996, the Department will need the following additional information, pursuant to Rules 62-4.055 and 62-4.070(1), F.A.C.:

1. Since Cargill Fertilizer, Inc. is a Title V source, submit documentation that supports how you qualify as a "Responsible Official" pursuant to Rule 62-213, F.A.C.
2. Explain why the application only addresses 1 Emission Unit instead of 3 separate Emission Units. [Two similar emission units (Raymond Mill Nos. 5 and 9) and a third emission unit (ground rock storage/handling system), since each Mill can operate independently and the ground rock storage/handling system has a different allowable emission limitation by rule than the 2 Mills.]
3. Should No. 5 on page 10 of the application be marked "Yes" for Synthetic Minor Source of Pollutants Other than HAPs, since you are requesting a particulate emission limitation of 0.02 gr/dscf in order to avoid PSD review?
4. Explain why the List of Applicable Regulations for the facility only shows "62-212.200 - Permits Required". Note, Rule 62-212.200, F.A.C. is a definition section. Attached is a list from another application submitted to the Department which may assist you in completing this section of the application.

Page 1 of 4

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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5. As we discussed during our meeting on February 5, 1996 at your facility, submit a revised Attachment A, which includes Figure 2-1 and Figure 2-2, that **accurately** describes the existing operation and the proposed modified operation. Be sure the submittal describes/shows all air flows, all raw material/fuel flows, all dry rock flows, clearly explains/shows the existing vs. new vs. upgraded equipment, consistently uses the same terms/names, and explains what equipment operates simultaneously and/or can operate independently (e.g., wet/dry receiving elevator can operate independently of the dryers/grinders - Mills). Be sure the associated maximum operating rates are also included for each possible operating scenario.
6. All previous applications on file indicate the existing burner has a maximum heat input rate of 0.22 MMBTU/hr. Page A-1 of this application states the existing burner has a maximum heat input rate of 9.0 MMBTU/hr. Explain this difference.
7. Page A-5, Section 2.2 of the application states wet phosphate rock feed will contain a maximum of 12% moisture by weight. Section 2.21 on this same page states that all of the equipment in this area will handle only wet phosphate rock. Based on these 2 statements explain the following:
 - A. What is the minimum moisture content of wet phosphate rock?
 - B. During our meeting you stated Cargill Fertilizer, Inc. also wants to retain the capability to receive dry phosphate rock. Therefore, what is the maximum moisture content of dry phosphate rock.
 - C. How will the moisture content of the dry phosphate rock and wet phosphate rock be determined and documented?
8. Submit documentation to support that a capital expenditure is defined as an amount exceeding approximately 10% of the facility's existing basis as stated on page A-11 of Attachment A.
9. Page A-13 of Attachment A states Cargill has reported actual PM emissions for the last 2 years as 22.78 tons/yr. to support that PSD review is not triggered. As we discussed, explain in detail how the emission factors were derived and actual hours of operation were determined to calculate this actual emission rate. NOTE - The 1993 AOR we discussed reported approximately 6,300 hrs./yr. of actual operating time vs. the 8,760 hrs./yr. used in the emission calculation.

10. Section 2.0, No. 1 on Page D-1 in Attachment D states, "The rock dryers are subject to an opacity standard of zero percent opacity," Explain how this opacity standard was determined.
11. Page 31 of the application states you intend to use the Auburn International Model 2240-2 (or equivalent) broken bag detector and Attachment D lists a Model 2240-2, Model 2602, and Model 2402. Which Model or Models are you proposing to use (for basis of equivalency)?
12. Page D-5 of Attachment D states, "Time to take initial action: Inspection to isolate problem and define solution within 4 to 24 hours of indication of problem ..."

The first page of the manufacturer's data for Auburn International's Model 2240-2 broken bag detector states, "Additionally, Triboflow's alarm time delay feature prevents false signals"

Based on these 2 statements, explain how Rule 62-210.650, F.A.C. regarding Circumvention and Rule 62-210.700, F.A.C. regarding Excess Emissions will not be violated.

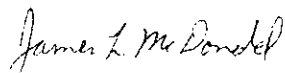
13. If the alarm of the broken bag detector is activated, will all operations associated with the baghouse cease operation immediately? If no, explain.
14. Page 22 of the application states Rule 62-296.310(3), F.A.C. is applicable. Therefore, submit the reasonable precautions you intend to implement to prevent unconfined particulate emissions. Remember dry phosphate rock will also be received.
15. Explain why page 24 of application for the baghouse controlling the equipment associated with the ground rock is not also submitted to the detail possible, since the actual manufacturer is unknown at this time.
16. Explain why Section E. of the application does not include emissions from the baghouse controlling the equipment associated with the ground rock.
17. Regarding Nos. 3 and 5 on the top half of page 30 of the application, should the maximum allowable visible emissions from each dryer be 10% per 40 CFR 60.402(a)(1)(ii)?
18. Explain how compliance with 40 CFR 60.403(d) will be demonstrated regarding the requirement to install a device that measures the phosphate rock feed rate during testing.

GENERAL INFORMATION: In accordance with Rule 62-297.620, F.A.C., this office is forwarding your proposed alternative to continuous opacity monitor (Attachment D) to the Department's Division of Air Resources Management located in Tallahassee for processing.

NOTE - Rule 62-4.050, F.A.C. requires applications of this type 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. Therefore, your response to the above requests should be certified by a professional engineer.

Your response should be submitted by March 20, 1996 and a copy of your response should also be sent to Mr. Carlos Gonzalez of the Environmental Protection Commission of Hillsborough County. If you have any questions, please call me at (813)744-6100 extension 106.

Sincerely,



James L. McDonald
Air Permitting Engineer

Attachment

cc: Carlos Gonzalez - EPCHC

David A. Buff, P.E.
KBN Engineering and Applied Sciences
6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500

Mike Harley, P.E.
Florida Department of Environmental Protection
111 South Magnolia Drive
Tallahassee, FL 32301

B. FACILITY REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of federal, state, and local regulations applicable to the facility as a whole. (Regulations applicable to individual emissions units within the facility are addressed in Subsection III-B of the form.)

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See **Instructions**.)

Federal

40 CFR 82: Protection of Stratospheric Ozone

40 CFR 82, Subpart B: Servicing of Motor Vehicle Air Conditioners (MVAC)

40 CFR 82, Subpart E: The Labeling of Products Using Ozone-Depleting Substances

40 CFR 82, Subpart F: Recycling and Emissions Reduction

State

Chapter 62-4, FAC: PERMITS

62-4.030, FAC: General Prohibitions

62-4.040, FAC: Exemptions

62-4.060, FAC: Consultation

62-4.070, FAC: Standards for Issuing or Denying Permits; Issuance; Denial

62-4.080, FAC: Modification of Permit Conditions

62-4.090, FAC: Renewals

62-4.100, FAC: Suspension and Revocation

62-4.110, FAC: Financial Responsibility

62-4.120, FAC: Transfer of Permits

62-4.130, FAC: Plant Operations - Problems

62-4.160, FAC: Permit Conditions

CHAPTER 62-103, FAC: RULES OF ADMINISTRATIVE PROCEDURE

62-103.150, FAC: Public Notice of Application and Proposed Agency Action

CHAPTER 62-210, FAC: STATIONARY SOURCES - GENERAL REQUIREMENTS

62-210.300, FAC: Permits Required

62-210.300(1), FAC: Air Construction Permits

62-210.300(2), FAC: Air Operation Permits

62-210.300(3), FAC: Exemptions

62-210.300(4), FAC: Temporary Exemptions

62-210.300(5), FAC: Notification of Startup

62-210.350, FAC: Public Notice and Comment

62-210.360, FAC: Administrative Permit Corrections

62-210.370(3), FAC: Annual Operating Report for Air Pollutant Emitting Facility

62-210.400, FAC: Emission Estimates

62-210.650, FAC: Circumvention

62-210.700, FAC: Excess Emissions

62-210.900, FAC: Forms and Instructions

62-210.900(1), FAC: Application for Air Permit - Long Form, Form and Instructions

62-210.900(5), FAC: Annual Operating Report for Air Pollutant Emitting Facility,
(2) Form and Instructions

**CHAPTER 62-212,³⁰⁰ FAC: STATIONARY SOURCES - PRECONSTRUCTION
REVIEW**

62-212.700, FAC: Source Reclassification

CHAPTER 62-296, FAC: STATIONARY SOURCES - EMISSION STANDARDS

62-296.310(3), FAC: Unconfined Emissions of Particulate Matter

62-296.320(1), FAC: Volatile Organic Compounds Emissions or Organic Solvents
Emissions

62-296.320(2), FAC: Objectionable Odor Prohibited

CHAPTER 62-297, FAC: STATIONARY SOURCES - EMISSIONS MONITORING

62-297.310, FAC: General Test Requirements

62-297.330, FAC: Applicable Test Procedures

62-297.340, FAC: Frequency of Compliance Tests

62-297.345, FAC: Stack Sampling Facilities Provided by the Owner of an Emissions Unit

62-297.310, FAC: Determination of Process Variables

62-297.310, FAC: Test Report

62-297.310, FAC: Exceptions and Approval of Alternate Procedures and Requirements

Miscellaneous:

62-281, FAC: Motor Vehicle Air Conditioning Refrigerant Recovery and Recycling



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

February 8, 1996

Mr. Mike Harley, P.E.
Florida Department of Environmental Protection
111 South Magnolia Drive
Tallahassee, FL 32301

Mike:

Ref: Cargill Fertilizer, Inc.
Proposed ASP from NSPS Subpart NN
Application dated January 10, 1996

Please find attached the following:

1. A copy of Cargill Fertilizer, Inc.'s air pollution application to modify the Phosphate Rock Grinding/Drying Operations. Attachment D of the application proposes an alternative to continuous opacity monitor as required by 40 CFR 60.403(a) - Subpart NN.
2. A copy of the incompleteness letter dated February 8, 1996.

In accordance with DARM's procedures and Rule 62-297.620, F.A.C., the alternative sampling procedure (ASP) to use a broken bag detector instead of a continuous opacity monitor for each dryer's emissions is provided for your review/processing.

My initial comments regarding this ASP request are:

1. Page D-5 of Attachment D states, "Time to take initial action: Inspection to isolate problem and define solution within 4 to 24 hours of indication of problem ..."

The first page of the manufacturer's data for Auburn International's Model 2240-2 broken bag detector states, "Additionally, Triboflow's alarm time delay feature prevents false signals"

Based on these 2 statements, I'm asking Cargill to explain how Rule 62-210.650, F.A.C. regarding Circumvention and Rule 62-210.700, F.A.C. regarding Excess Emissions will not be violated.

Page 1 of 2

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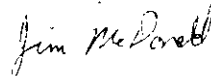
Mike Harley, P.E.
February 8, 1996

Page 2 of 2

2. I'm asking Cargill to answer, "If the alarm of the broken bag detector is activated, will all operations associated with the baghouse cease operation immediately? If no, explain."

If you have any questions regarding this matter or if I can help you in any way, please let me know. My telephone number is SC 542-6100 extension 106.

Sincerely,



Jim McDonald
Air Permitting Engineer

cc: EPCHC

Jim McDonald
Air Permitting Engineer
Hillsborough County Environmental
Protection Commission
1900 Ninth Avenue
Tampa Florida 33605

Dear Jim McDonald:

This is in reference to your letter regarding Cargill
Fertilizer application dated 01/10/96 Reference Permit No. AO29-
239263 DEP File No. 0570008-008-AC dated April 16, 1996.

Please include the following Quality Assurance Plan as a
condition to the permit application.

These following items should be included in the Quality Assurance
Plan

- The Quality Assurance Plan shall be implemented
immediately after initiation of the modified phosphate
grinder/dryer plant operation.
- The quality Assurance Plan will include a corrective
action procedure. The corrective action procedure will
implement performance of the EPA Method 9 immediately
after the detection of the broken bag. If the EPA
Method Nine test is fails rectification of the problem
shall occur within 2 hours of detection of a broken.
bag. If the problem cannot be rectified within 2
hours the plant shall cease operations.
- The Quality Assurance Plan should also include a
maintenance procedure. The owner or operator must
follow the calibration procedure given by the supplier.
Copies of the calibration procedure shall be sent the
Florida Department of Environmental Protection and
Hillsborough County Environmental Protection
Commission. A maintenance schedule shall be documented
and kept at the plant.

NN. 6

Division of Air Resources Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

(904) 488-0114

Goodbad 939 De Lorea

222 6045

