



August 26, 1991

Mr. John Reynolds
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED

AUG 27 1991

Division of Air
resources Management

Re: Results of Particulate Matter Air Dispersion Modeling Analyses for Permitted Modifications to the Nos. 3 and 4 MAP Plant and the Proposed Modifications for the No. 5 DAP Plant for Cargill Fertilizer, Inc.,
Permit AC29-196763

Dear Mr. Reynolds:

At the request of Cleve Holladay, KBN Engineering and Applied Sciences, Inc. (KBN) has performed a particulate matter (PM) air dispersion modeling analyses for the modification of the Nos. 3 and 4 MAP plant and No. 5 DAP plant at the Cargill phosphate fertilizer plant located in Riverview, Florida. PM impacts were predicted for the existing No. 5 DAP unit, the Nos. 3 and 4 MAP units, and the MAP cooler on an annual averaging period basis. This letter describes the general methodology used in the modeling, including descriptions of the emission data and receptors, and building downwash considerations.

Mr. Holladay requested that the increase in annual average PM emissions from the No. 5 DAP plant be modeled to determine if a significant increase ($1 \mu\text{g}/\text{m}^3$) in impacts would occur. In addition, he requested that the recently permitted increase in PM emissions for the Nos. 3 and 4 MAP plants be included. To perform this analysis, the pre-modification actual annual PM emissions and stack parameters were modeled in conjunction with the post-modification allowable PM emissions and stack parameters.

The pre-modification and post-modification operating parameters are presented in Table 1. The pre-modification emissions were modeled as negative, while the post-modification emissions were modeled as positive in order to determine the net impact. The resulting predicted annual averages were compared against the PM significant impact level of $1 \mu\text{g}/\text{m}^3$. The post-modification conditions include redirecting the exhaust from the Nos. 3 and 4 MAP units into a modified MAP cooler stack. The existing stacks for the Nos. 3 and 4 MAP units will then be removed. The No. 5 DAP plant stack does not change, but the pre- and post-modification flow rate and temperatures are slightly different.

The Industrial Source Complex short-term (ISCST) dispersion model (EPA, 1990a) was used to predict annual impacts. Concentrations were predicted using a 5-year period of meteorological data from 1982 through 1986. This data consisted of hourly surface weather observations collected from the National

91007A1/3

KBN ENGINEERING AND APPLIED SCIENCES, INC.

1034 Northwest 57th Street Gainesville, Florida 32605 904/331-9000 FAX: 904/332-4189

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE

AIRBILL PACKAGE TRACKING NUMBER

9773687022

0934 9773687022

RECIPIENT'S COPY

Date 8-21-11

From (Your Name) Please Print: Gail C. Rompersaud, Company: KAN ENG & APPLIED SCIENCES, 1034 NW 57TH ST, GAINESVILLE FL 32610. To (Recipient's Name) Please Print: JOHN REYNOLDS, Company: FDER - BUREAU OF AIR REGULATION, 2600 ELAIR STONE ROAD, TALLAHASSEE FL 32397-2400.

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): PROJECT 91007

PAYMENT 1 [X] Bill Sender, 2 [] Bill Recipient's FedEx Acct No, 3 [] Bill 3rd Party FedEx Acct No, 4 [] Bill Credit Card, 5 [] Cash/Check

SERVICES (Check only one box): Priority Overnight, Standard Overnight, Economy Two-Day, Heavyweight Service. DELIVERY AND SPECIAL HANDLING (Check services required): 1 [] HOLD FOR PICK-UP, 2 [X] DELIVER WEEKDAY, 3 [] DELIVER SATURDAY, 4 [] DANGEROUS GOODS, 6 [] DRY ICE, 7 [] OTHER SPECIAL SERVICE, 9 [] SATURDAY PICK-UP, 12 [] HOLIDAY DELIVERY. PACKAGES, WEIGHT, YOUR DECLARED VALUE. Emp. No, Date, Federal Express Use, Base Charges, Declared Value Charge, Other 1, Other 2, Total Charges, REVISION DATE 8/99, PART #119-01, NCREC 8/90, FORMAT #041, [04], * 1990 F E C PRINTED IN USA.



Weather Service (NWS) station at the Tampa International Airport, which is located approximately 20 kilometers northwest of the Cargill facility, and mixing heights developed from twice-daily upper-air data collected at the NWS station at Ruskin.

A general receptor grid was used consisting of receptors located along 36 radials spaced at 10-degree increments outward from the facility, with the origin of the grid residing at the No. 5 DAP stack location. Receptors were spaced at 1,000; 1,200; 1,500; 2,000; 3,000; 5,000; 10,000; 15,000; 20,000; 30,000; 40,000; and 50,000 meters downwind from the origin along each radial in order to identify the significant impact area for annual PM concentrations. Also, discrete receptors were placed along and beyond the plant property boundaries in all directions from the plant site. These discrete receptors are summarized in Table 2.

For this analysis, all sources were modeled with building data to assess the potential for building downwash to occur. The specific building data used for each source is summarized in Table 3. These building data were compiled with the use of the Breez wake program, developed by Trinity Consultants, Inc. All storage and production buildings in the ammonium phosphate production area were considered in the determination of potential building downwash effects for each source.

The maximum predicted PM screening impacts for 5 years of meteorological data are summarized in Table 4. Total concentrations were predicted for all PM sources modeled. As presented, the maximum predicted annual impact from all modeled sources is $0.22 \mu\text{g}/\text{m}^3$, which is less than the PM significant impact level of $1 \mu\text{g}/\text{m}^3$ on an annual basis. This maximum occurred for the year 1984 and was located due south of the plant along the plant property boundary.

Based on these results, the proposed modifications will not exceed the PM annual significant impact level of $1 \mu\text{g}/\text{m}^3$. The maximum predicted annual impact is only 22 percent of the significant impact level.

If you have any questions concerning these analyses please contact Dave Buff or me at your earliest convenience.

Thank you,

A handwritten signature in cursive script that reads "Gail C. Rampersaud".

Gail C. Rampersaud
Associate Engineer

GCR/dmm

Enclosure

cc: David Jellerson, Cargill Fertilizer, Inc.

John Reynolds

Cleve Holladay - floppy disk given to Cleve } 8/27/91 from
(only 1 sent)

Barry Andrews

91007A1/3

Bill Thomas, SW District

Table 1. Operating and Emission Data for PM sources

	Relative Stack Location*		PM Emissions		Stack Height		Stack Diameter		Flow Rate	Velocity		Temperature	
	X (m)	Y (m)	(TPY)**	(g/s)	(ft)	(m)	(ft)	(m)	(acfm)	(ft/s)	(m/s)	(deg F)	(K)

Prior to Modifications***													

No. 3 MAP+	0	26.79	3.49	0.10	90.0	27.4	3.33	1.01	35,000	67.0	20.4	140	333
No. 4 MAP+	0	26.79	8.60	0.25	90.0	27.4	3.33	1.01	35,000	67.0	20.4	140	333
MAP Cooler	-24.02	33.22	61.38	1.77	80.0	24.4	4.33	1.32	55,000	62.3	19.0	110	316
No. 5 DAP	0	0	24.00	0.69	132.5	40.4	7.00	2.13	115,000	49.8	15.2	121	323

After Modifications++													

Modified Stack	-12.80	48.43	93.50	2.69	133.0	40.5	7.00	2.13	121,000	52.4	16.0	120	322
No. 3 MAP+++			21.25	0.61									
No. 4 MAP+++			21.25	0.61									
MAP Cooler+++			51.00	1.47									
No. 5 DAP	0	0	65.70	1.89	132.5	40.4	7.00	2.13	122,000	50.5	15.4	115	319

* Relative to the grid center at the No. 5 DAP stack location.

** Based on an average of 1989-1990 actual emissions from each source prior to modification, and allowable emissions for after modifications.

*** Modeled as negative emission sources.

+ These stacks were combined and collocated for the modeling analysis.

++ Modeled as positive emission sources.

+++ These sources will be combined into a single stack after modification. Stack parameters are for the total flow out new stack.

Table 2. List of Discrete Receptors Used to Identify Plant Property Boundaries For Modeling of PM Annual Impacts

Direction (degrees)	Distance (meters)	Direction (degrees)	Distance (meters)
10	1589	190	643 800
20	1369	200	697 800
30	1236	210	786
40	1148	220	934
50	1077	230	1023
60	1044	240	486 975
70	1040	250	483 806
80	1045	260	485 698
90	988	270	500 600 800
100	605 800	280	533 600 800
110	446 600 800	290	590 800
120	415 600 800	300	684 800
130	421 600 800	310	844
140	442 600 800	320	1019
150	481 600 800	330	1289
160	545 600 800	340	1829
170	606 800	350	1836
180	614 800	360	1829

Note: Grid centered at the No. 5 DAP stack location.
 First distance listed represents the closest distance to plant property within a 10-degree radial sector.

Table 3. Building Dimensions Associated with Modified Cargill PM Sources

Source	Direction of Building Influence (degrees)	Associated Buildings	Building Height (feet)	Building Length (feet)	Building Width (feet)	Most Dominant Building (Model Input)			
						Height		Length & Width (a)	
						(feet)	(meters)	(feet)	(meters)
Prior to Modifications									
Nos. 3,4 MAP	10, 40-150, 220-330, 350-360	#5 MAP Production, high section	127	36	30	127	38.71	137.5	41.91
		#3,4 MAP Production building	100	100	80				
	20-30, 160-210, 340	GTSP Production building	127	100	120				
MAP Cooler	10, 50-160 230-340	#5 MAP Production, high section	127	36	30	127	38.71	137.5	41.91
		#3,4 MAP Production building	100	100	80				
	20-40, 170-220 350-360	GTSP Production building	127	100	120				
No. 5 DAP	10-150, 210-360	#5 MAP Production, high section	127	36	30	127	38.71	137.5	41.91
		#3,4 MAP Production building	100	100	80				
	160-200	GTSP Production building	127	100	120				
After Modifications									
Proposed Stack(b)	50-150, 230-330	#5 MAP Production, high section	127	36	30	127	38.71	137.5	41.91
		#3,4 MAP Production building	100	100	80				
	10-40, 160-220 340-360	GTSP Production building	127	100	120				
No. 5 DAP	10-150, 210-360	#5 MAP Production, high section	127	36	30	127	38.71	137.5	41.91
		#3,4 MAP Production building	100	100	80				
	160-200	GTSP Production building	127	100	120				

(a) Calculated to result in model simulation of projected crosswind width.

(b) Vents emissions from Nos. 3 and 4 MAP and the MAP cooler units.

Table 4. Predicted Maximum Annual Impacts for All PM Sources Modeled

Year	Maximum Concentration (ug/m ³)	Receptor Location (a)	
		Direction (degrees)	Distance (meters)
1982	0.15	30	1236
1983	0.17	180	800
1984	0.22	180	614
1985	0.15	30	1236
1986	0.15	90	1000

(a) Relative to grid center at the No. 5 DAP stack location.



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 6, 1991

OVERNIGHT DELIVERY

Mr. Clair Fancy
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

RECEIVED

AUG 07 1991

Division of Air
Resources Management

Subject: Construction Permit Application AC29-196763
No. 5 DAP Plant Expansion

Dear Mr. Fancy,

Following are responses to your letter dated July 12, 1991 regarding the above-referenced permit application:

1. The phosphoric acid utilization rate of the expanded source will be 67.16 TPH as P2O5. This is the rate listed in Attachment A to the application and is the rate used in the emission determinations listed in Section III, C on page 4 of the application. You were correct that the values provided in Section III, A were inconsistent. For your convenience, a revised page 4 of the application is attached which provides the raw material utilization rate and process rates on a P2O5 basis. The revised phosphoric acid utilization rate is based on a production rate of 134,320 lb/hr P2O5 using a feed acid having a 43.6% P2O5 content by weight ($134,320/0.436 = 308,073$). The P2O5 concentration of the feed acid is based on a mixture of 54% and 28% acids. Since the quality of the acids can vary, the ratio of 54% to 28% acids fed to the reactor is adjusted to maintain final product quality. However, the actual P2O5 input remains relatively constant. The normal ratio of 54% to 28% feed is 60:40, hence the above utilization rate assumes a 43.6% P2O5 feed acid. Note also, that the process data provided on page B-1 of the application is correct. The 46% P2O5 analysis for the product is on an actual (as-is) basis.

Also note that the raw material listing neglected to include urea, nitric acid and sulfuric acid. Urea or nitric acid are commonly utilized in the process to assure a product nitrogen concentration of 18%. When used, these material will offset consumption of anhydrous ammonia. Small amounts of sulfuric acid are also used in the process for grade control.



recycled paper

2. Based on communications with the USEPA and as confirmed by our consultant, David Buff, we understand that the issue of creditable offsets has been resolved and that the determination provided with the application is correct. Therefore, a revised PSD analysis is not necessary

Should you have any questions or require additional information, please feel free to call me or David Jellerson at 671-6153 or 671-6207, respectively.

Sincerely,

E. O. Morris
E. O. Morris
Environmental Manager

cc: J. Reynolds - FDER
D. Graziani - EPCHC
D. Jellerson
B. Weyers
D. Buff

P-44

C. Holladay
B. Andrews
B. Thomas, SW Dist
J. Harper, EPA
C. Shaur, NPS



SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Phos Acid	Particulate	100%	308,073	
	Fluoride	1.8		
Anhydrous Ammonia	-	-	64,210	
(or Urea or HNO ₃ equivalent)				
H ₂ SO ₄	-	-	5,280	

B. Process Rate, if applicable: (See Section V, Item 1)

- 1. Total Process Input Rate (lbs/hr): 377,563
- 2. Product Weight (lbs/hr): 292,000

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary) No change from original application.

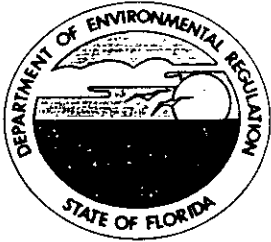
Name of Contaminant	Emission ¹		Allowed Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 12, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ozzie Morris, Environmental Manager
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Dear Mr. Morris:

Re: Permit Application AC 29-196763, No. 5 DAP Plant Expansion

The following issues remain from the preliminary review of the above application:

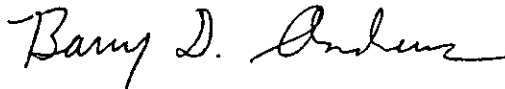
1. The Phos Acid utilization rate is still in question. Assuming 54% P₂O₅ content, the utilization rate given on page 4 is 212,500 lbs/hr x 0.54/2000 = 57.4 TPH P₂O₅ input. Elsewhere in the application the utilization rate is stated as 67.16 TPH P₂O₅ (292,000 x 0.46/2000), which is an output (production) figure. The 46 percent P₂O₅ analysis is on a dry basis and cannot be used with the wet basis production as was done on page B-1. Please revise the application to show the corrected input rate and corrected emission estimates.
2. Cargill may petition EPA for a different interpretation, however our rule (F.A.C. Rule 17-2.500(2)(e)) states that offsets are creditable if the Department or EPA has not relied on them in a prior PSD permit or if the Department has not relied on them in issuing a permit under the RACT rule (F.A.C. Rule 17-2.650). Since the Department relied on the TSP offsets in issuing a modification permit in 1987, and EPA relied on them in issuing their modified PSD permit conditions (PSD-FL-026) in 1988, any offsets would be creditable now only to the extent that they have not been relied on previously. Please provide the necessary revisions for the fluoride and PM PSD analyses. Also, revised analyses for the MAP plant expansion are required since that project will be affected by the revised offsets.

The revised PSD analyses should include air dispersion modeling analyses for both PM and fluoride emissions from the DAP plant expansion. These analyses must also include the impacts of the contemporaneous increases and decreases not relied on previously. In order for Cargill to consider the projected short-term PM emissions from the DAP plant expansion as a

Mr. Ozzie Morris
Page 2 of 2

decrease from 20 lbs/hr to 15 lbs/hr, justification needs to be provided showing that short-term emissions have actually been 20 lbs/hr during some time period within the last two years. However, since there is a proposed significant annual increase in PM emissions from the DAP plant expansion from 24.0 tons per year to 65.7 tons per year, annual average modeling of these increased emissions is required regardless of whether EPA considers the 1987 and 1988 PM decreases creditable.

Sincerely,

for 
C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/JR/plm

c: W. Thomas, SWD
S. Kukier, EPA
D. Buff, KBN
C. Hauer, NPS

P 832 539 864



Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

PS Form 3800, June 1990

Sent to Mr. Ozzie Morris, Cargill	
Street & No. Fertilizer 8813 Highway 41 South	
P.O., State & ZIP Code Riverview, FL 33569	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date Mailed: 7-12-91 Permit: AC 29-196763	

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Ozzie Morris
Environmental Manager
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, FL 33569

4a. Article Number
P 832 539 864

4b. Service Type
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery
7-15-91

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)



CARGILL FERTILIZER, INC.

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

RECEIVED

June 12, 1991

JUN 13 1991

Mr. Clair Fancy
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

Bureau of
Air Regulation

Subject: Construction Permit Application AC29-196763
No. 5 DAP Plant Expansion

Dear Mr. Fancy,

Following are responses to your letter dated May 30, 1991 and the letter from the Environmental Protection Commission of Hillsborough County (EPCHC) dated May 21, 1991 regarding the above-referenced permit application:

RESPONSES TO FDER QUESTIONS

1. The reference to a 57.4 TPH P205 is unclear. Page A-1 and B-1 correctly indicates the process input rate of 67.16 TPH P205. This same value is used in the calculation of allowable fluoride emissions on Page 4 of the application (0.06 lb/ton * 67.16 TPH = 4.03 lb/hr).
2. A revised Table C-1 is attached. Note also that attachment C of the application incorrectly indicated that the cooler/vents venturi scrubber would have an increased air flow. The air flow to this scrubber will actually decrease by approximately 15,000 ACFM as indicated in the revised Table C-1. This reduction in air flow is being accomplished by the recirculation of air to the granulator and dryer. Also, attached for your convenience, are revised Figures A-2 and A-3 indicating the air flows.
3. The statement on page A-2 of the application should actually have referred to the total gas flow out of the system. The revised Table C-1 and Figures A-2 and A-3 (attached) provide air flows throughout the system. The cooler recycle flow rate under the proposed system will be approximately 45,000 ACFM. This flow represents approximately 35% of the current total flow to the primary scrubbers of 128,400 ACFM.
4. The scrubbing medium for the tailgas scrubbers is pond water. Use of once-through fresh water in the tailgas scrubbers will result in a reduction in fluoride emissions of approximately



recycled paper

AIRBORNE EXPRESS

RECEIVER'S COPY

202 (5/86)

ORIGIN AIRBILL NO
TFA 495685304

FROM (COMPANY NAME) UNITA		TO (COMPANY NAME) DEPARTMENT - ENVIRONMENTAL - REGULATION	
ADDRESS 15 RIVINGTON DR		ADDRESS 2600 BLAIR STONE ROAD	
CITY TALLAHASSEE	STATE FL	ZIP CODE (REQUIRED) 33534	CITY TALLAHASSEE, FL
SENT BY (NAME/DEPT.) JTTT		PHONE	STATE FL
BILLING REFERENCE INFORMATION TO APPEAR ON INVOICE		ZIP CODE (REQUIRED) 32399	PHONE (904)488-3704
TYPE OF PACKAGING <input type="checkbox"/> EXPRESS/AD PACK ENVELOPE <input checked="" type="checkbox"/> LETTER EXPRESS (UP TO 8 OZ) <input type="checkbox"/> EXPRESS PACK BOX/TUBE <input type="checkbox"/> MAG TAPE PACK		DESCRIPTION OF CONTENTS	
BILL CHARGES TO <input type="checkbox"/> SENDER <input type="checkbox"/> 3RD PARTY <input type="checkbox"/> PAID IN ADVANCE \$ CHECK NUMBER		NO OF PACKAGES WEIGHT (LBS) SENDER'S C.O.D. \$	
AIRBORNE EXPRESS ACCOUNT NO		ROUTING TLH 4-X	
AIRBORNE SIGNATURE		DATE RECEIVED	
TYPE OF SPECIAL SERVICE (EXTRA CHARGES MAY APPLY) <input type="checkbox"/> SPECIAL PICKUP <input type="checkbox"/> SATURDAY DELIVERY <input type="checkbox"/> SPECIAL DELIVERY <input type="checkbox"/> HOLD AT AIRBORNE FOR PICKUP (NO CHARGE)			

Mr. Clair Fancy
June 12, 1991
Page 2

1.1 pounds per hour. However, other environmental concerns eliminate the viability of this option. The Cargill facility has a very sensitive water-management program designed to minimize the use for fresh water and prevent the need to treat and discharge process water. Use of once-through fresh water in the tail gas scrubbers would result in an additional 5,000 gpm of water entering the pond system. Such a large flow would quickly absorb the existing surge capacity mandated by Federal Regulations (40 CFR 418). Further, this magnitude of flow would also exceed our treatment capability. In addition to the water management problems use of fresh water would create, use of fresh water instead of recirculating process water would contradict Cargill's water reduction/conservation program and be contrary to the goals of the South West Florida Water Management District (SWFWMD). The Cargill facility is located in the Eastern Tampa Bay Water Use Caution Area. This area was established by SWFWMD due to the severe drawdown of groundwater within its boundaries. Cargill Fertilizer, Inc. currently has an aggressive program for the conservation and minimization of freshwater consumption and wastewater discharges. Use of fresh water in the No. 5 DAP Plant tailgas scrubbers would both significantly increase the facility fresh water consumption rate and adversely affect the process water balance, which would shut down the plant. These negative impacts are unwarranted in view of the fact that use of recycled pond water in the tailgas scrubbers will result in emissions meeting established New Source Performance Standards.

In addition to evaluating the affects of utilizing once-through fresh water in the tail gas scrubbers, an evaluation was made on the use of a recirculating fresh water system in these scrubbers. Such a system would require construction of a dedicated fresh-water pond and distribution system at considerable expense without improving emissions over the proposed system. Although the water in a recirculating fresh-water system will have a lower fluoride equilibrium concentration (500 ppm vs 7000 ppm), the temperature of such a system will be substantially higher (130 °F vs 95 °F). The higher temperature of the scrubbing liquid offsets the reduced fluoride equilibrium concentration. In addition, use of a dedicated pond system will require both a fresh-water make-up stream (in addition to the initial "charging" of the pond) and a blowdown stream to the process water system. As explained above, these impacts are contrary to the facility water management program and government mandates for water conservation. It is also unwarranted in view of the fact that no emission reductions will be realized.



Mr. Clair Fancy
June 12, 1991
Page 3

5. Additional ammonia recovery will be accomplished by installation of a new pump to circulate reactor granulator

primary scrubber liquid at approximately 700 gpm across the granulator duct and about 400 gpm across the reactor duct.

The scrubber liquid has P/N mole ratio of approximately 0.6 and will catch about 30% of the ammonia and fluorine reducing loading to the reactor/granulator venturi scrubber. A sketch of this system is attached as Figure A-6.

6. The "previous actual" emissions shown in Table A-2 of the application, totalling 100.7 TPY for PM, includes 43.8 TPY representative of the existing No. 5 DAP plant operation at that time, and 56.9 TPY from the sources to be shut down. The sources to be shut down consisted of the Nos. 3 and 4 TSP reactor belts, the Nos. 3 and 4 TSP dryers, and the ROP/TSP sizing unit. Actual PM emissions were based on calendar year 1979, which was determined by FDER to be the most representative of normal source operation. These PM emissions are documented in DER's Technical Evaluation & Preliminary Determination (TE&PD) for AC29-135083 dated August 12, 1987.

Similarly, the contemporaneous emission offsets approved by DER for fluorides were 37.2 TPY, plus 6.1 TPY for the existing No. 5 DAP plant, for a total of 43.3 TPY. For SO₂, the contemporaneous emission offsets approved by DER were 168.2 TPY, plus 70.1 TPY for the existing No. 5 DAP plant, for a total of 238.3 TPY. All of these offsets are documented in DER's TE&PD for the 1987 permit.

The actual shutdown dates for the above sources were as follows:

No. 3 TSP	- August 1987
No. 4 TSP	- August 1987
ROP/TSP sizing unit	- December 1987

7. The modifications made to the PSD permit by EPA on May 16, 1988, were simply changes made to the conditions of PSD-FL-026. These changes are synonymous to "amendments" DER makes to permits. They were necessary in order to revise or add specific conditions to the original federal PSD permit issued by EPA on July 11, 1980. However, PSD review was not triggered, and this was not a PSD permit.



Mr. Clair Fancy
June 12, 1991
Page 4

8. RESPONSES TO EPCHC QUESTIONS

A. Application Requirements:

1. Our records indicate that a letter authorizing E. O. Morris to sign the permit application was attached to the submittal. Nevertheless, please find another copy attached to this response.
2. The EPC case No. 80407KS000804 was issued on 1/17/89 and was terminated on 9/25/91 with all terms and conditions being met.
3. It is acknowledged that the source is located in the Hillsborough County "Maintenance Area" for particulates, not a "Non-attainment Area".
4. The application correctly indicates that RACT requirements apply to the source. However, it is acknowledged and was indicated on the application that BACT requirements also apply.
5. The P205 input rates to the source were addressed in Attachments A & B to the application. The source will have a P205 input rate of 67.16 tons per hour.
6. As documented in the permit application, PSD review does not apply to fluorides, and therefore, BACT review does not apply to fluorides.
7. The control equipment for the modified source is the same equipment currently in use at the plant except for the modifications identified in Attachment C to the application. Drawings showing these modifications are attached where appropriate. In addition, please note that the emission estimates are not from manufacturer test data. Rather they are based on historical performance and calculated performance of the upgrades.
8. Plot plans showing the location of the facility and the production unit are attached.

B. Attachments:

1. As stated previously, PSD review does not apply to fluorides. Also, the molten sulfur handling facility is not related to this permit application, nor does it emit SO₂.
2. The modifications made to the PSD permit by EPA on May 16, 1988, were simply changes made to the conditions of



recycled paper

Mr. Clair Fancy
June 12, 1991
Page 5

PSD-FL-026. These changes are synonymous to "amendments" DER makes to permits. They were necessary in order to revise or add specific conditions to the original federal PSD permit issued by EPA on July 11, 1980. However, PSD review was not triggered, and this was not a PSD permit.

In regards to the potential impacts upon the sulfuric acid plants, increase in production at the No. 5 DAP plant will not increase phosphoric acid production and associated sulfuric acid production beyond that permitted under the current construction permit AC29-186726. Sulfuric acid is used in the 5 DAP plant at a typical rate of approximately 0.022 tons H₂SO₄/ton DAP. Increasing production by 32 TPH will require approximately 0.7 TPH or 17 TPD additional H₂SO₄. This represents approximately 0.2% of the permitted production capacity of the three sulfuric acid plants located at the facility. However, Cargill currently operates its sulfuric acid plants near capacity and sells excess sulfuric acid as a product. The additional sulfuric acid to be used at the No. 5 DAP plant represents only a fraction of total sulfuric acid sales.

In regards to the materials handling operations, the increase in DAP will result in a corresponding increase in material handling requirements. Currently, total dry products production (MAP, DAP & GTSP) is permitted at approximately 235 TPH. The proposed upgraded system will increase this to approximately 267 TPH (a 13.6 % increase). Total particulate emissions from the material handling systems averaged a total of 18.62 tons for 1989-1990 (based on annual air operating reports). Assuming that emissions increase in proportion to material handling, the DAP production increase would result in an additional 2.5 TPY of total particulate emissions. This will increase the proposed particulate emissions listed on page A-11 of the application from 65.7 TPY to 68.2 TPY. It should also be noted that the FDER is currently reviewing applications to increase production of MAP at the facility. In this application it was reported that increased MAP production would increase emissions from material handling operations up to 0.9 TPY. In the context of that permit the increase was not sufficient to trigger new source review. Addition of those emissions for consideration with this permit will result in total proposed emissions of 69.1 TPY for a net increase of 57.3 TPY.



Mr. Clair Fancy
June 12, 1991
Page 6

3. Ambient PM impacts have been addressed on page A-14 of the application. Cargill is proposing to reduce the already permitted, approved level of 20 pounds per hour. Ambient impact analyses are always based on allowable emissions, not actual emissions. Since the allowable emissions are decreasing, no ambient impact analysis is necessary. If it were performed, it would only show a decrease in impacts, since stack height and other stack parameters are essentially unchanged.
4. Based on the response to B.3. above, a net reduction in impacts will result, since allowable emissions must be used in modeling. Therefore, no ambient monitoring analysis is required.
5. See the response to B.3. and B.4., above.

Should you have any questions or require additional information, please feel free to call me or David Jellerson at 671-6153 or 671-6207, respectively.

Sincerely,

David B. Jellerson

For

E. O. Morris
Environmental Manager

cc: D. Graziani - EPCHC
D. Jellerson
B. Weyers
D. Buff
P-44

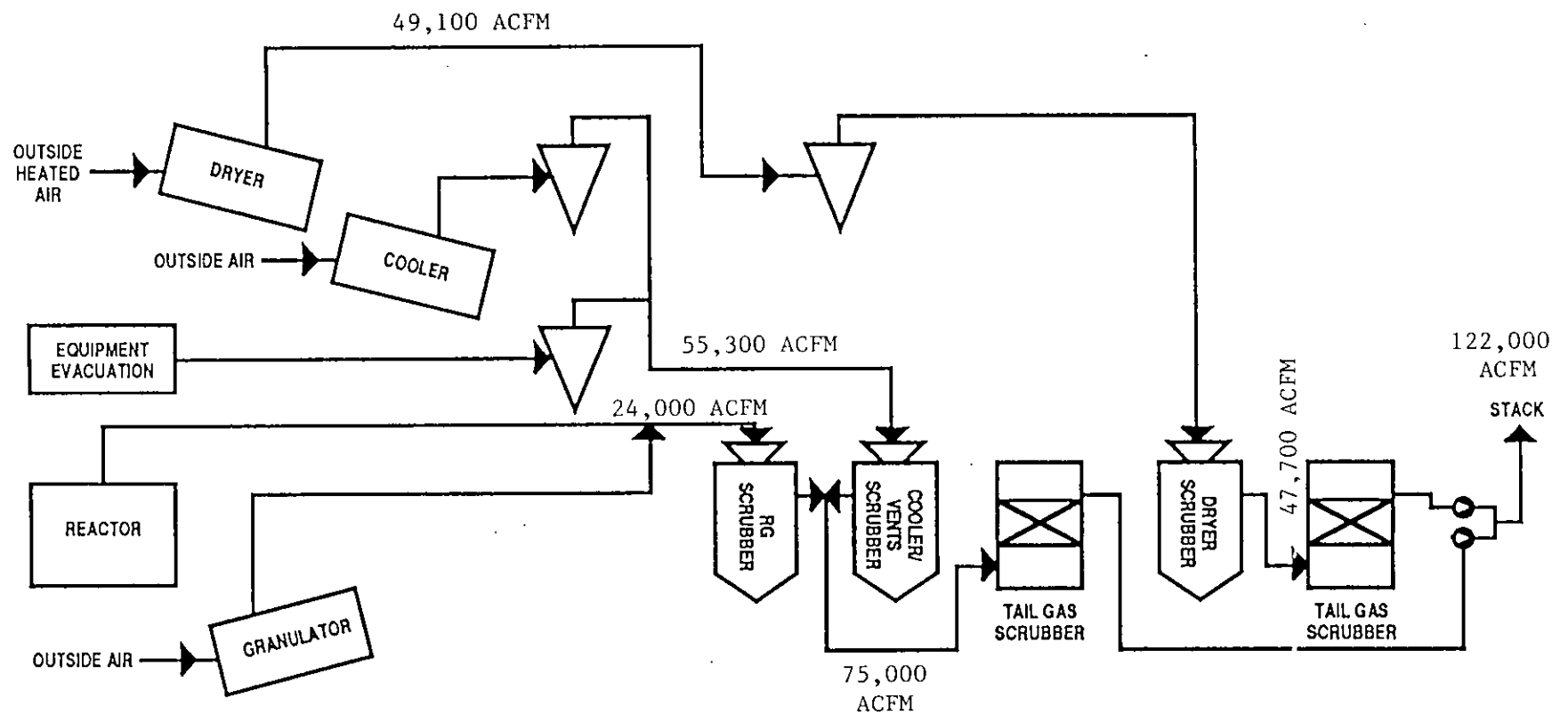
J. Reynolds
C. Holladay
P. Lewis
B. Thomas, SW Dist
J. Harper, EPA
C. Shaver, WPS
B. Andrews



TABLE C-1 PRELIMINARY SCRUBBER DESIGN PARAMETERS, EXPANDED NO. 5 DAP PLANT

(revised 6/12/91)

SOURCE	SCRUBBER TYPE	MANUFACTURER	INLET FLOW (ACFM)	EFFICIENCY		PRESSURE DROP (IN. W.G.)	GAS/LIQUID RATIO (ACFM/GPM)	SCRUBBING LIQUID	
				PM	FL				
REACTOR/GRANULATOR/PACKED UP-FLOW COOLER VENTS		D.M. WEATHERLY	CURRENT ACTUAL	75,000	82	95	2.5 - 10	31.3	SINGLEPASS POND WATER
			PROPOSED DESIGN	78,000	72	94	2.5 - 10	26.0	SINGLEPASS POND WATER
DRYER	PACKED UP-FLOW	D.M. WEATHERLY	CURRENT ACTUAL	47,700	81	95	2.5 - 10	39.8	SINGLEPASS POND WATER
			PROPOSED DESIGN	48,500	81	94	2.5 - 10	24.3	SINGLEPASS POND WATER
REACTOR/GRANULATOR	VENTURI	D.M. WEATHERLY	CURRENT ACTUAL	24,000	86	86	13 - 18	17.1	RECIRCULATING PHOS. ACID
			PROPOSED DESIGN	40,000	86	85	13 - 18	16.0	RECIRCULATING PHOS. ACID
COOLER VENTS	VENTURI	D.M. WEATHERLY	CURRENT ACTUAL	55,300	98	62	13 - 18	46.1	RECIRCULATING PHOS. ACID
			PROPOSED DESIGN	40,000	98	67	13 - 18	33.3	RECIRCULATING PHOS. ACID
DRYER	VENTURI	D.M. WEATHERLY	CURRENT ACTUAL	49,100	98	88	13 - 18	49.1	RECIRCULATING PHOS. ACID
			PROPOSED DESIGN	52,000	98	89	13 - 18	49.5	RECIRCULATING PHOS. ACID



A.4

Figure A-2 AIR EVACUATION SYSTEM, EXISTING NO.5 DAP PLANT

(R 6/12/91)



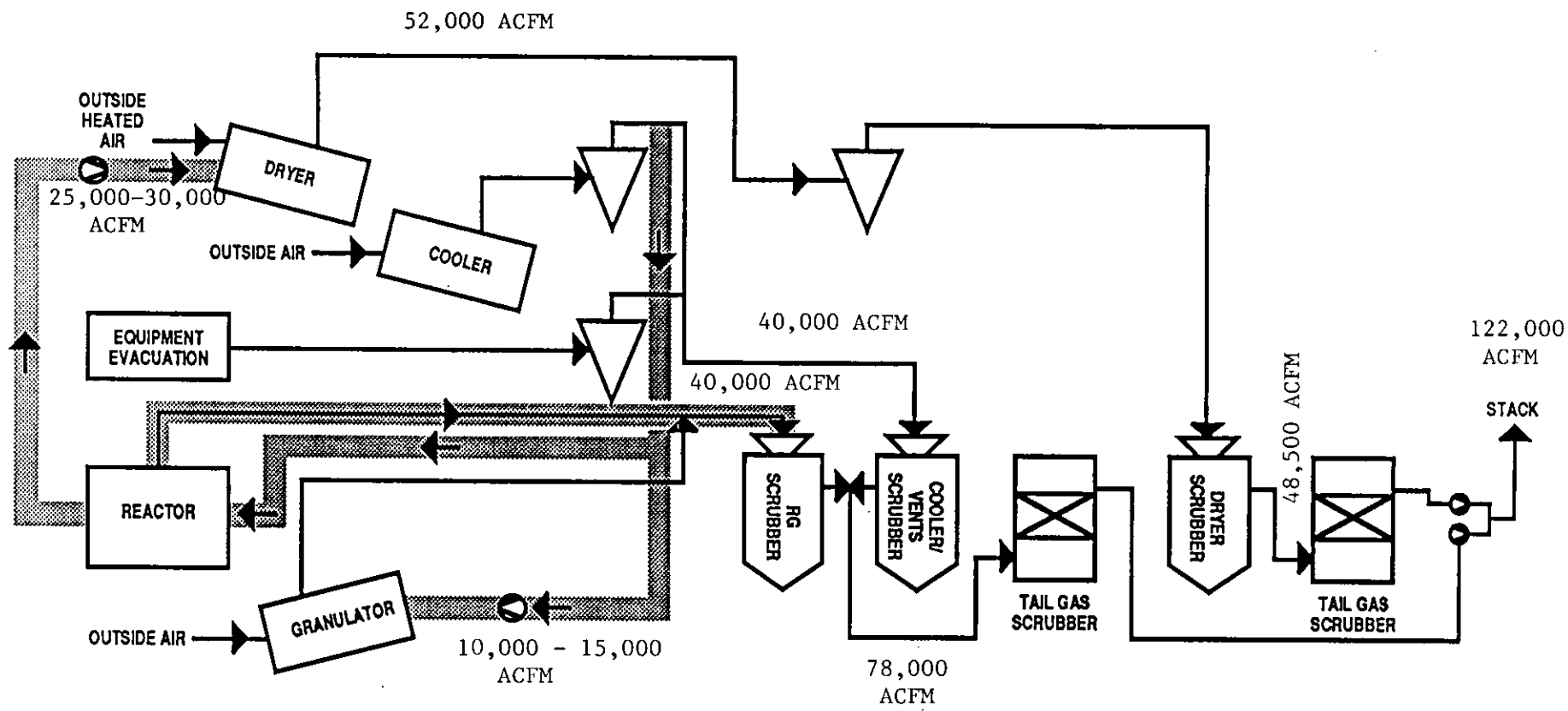


Figure A-3 AIR EVACUATION SYSTEM, EXPANDED NO. 5 DAP PLANT

(R 6/12/91)



NEW SCRUBBER/SPRAY SYSTEM WITH SCRUBBER SLURRY IN GRANULATOR AND REACTOR DUCTS

NEW:

CIRCULATION PUMP FOR SPRAYS IN GRANULATOR AND REACTOR DUCTS
 SPRAYS SYSTEM WITH LIQUID AT 1.6 MOL RATIO
 TOTAL LIQUID FLOW THROUGH VENTURI IS 2,500 GPM

PURPOSE:

PRE-SCRUBBING VIA SPRAYS CATCHES MAIN PART
 OF THE AMMONIA AND FLUORINE VAPORS (25%)

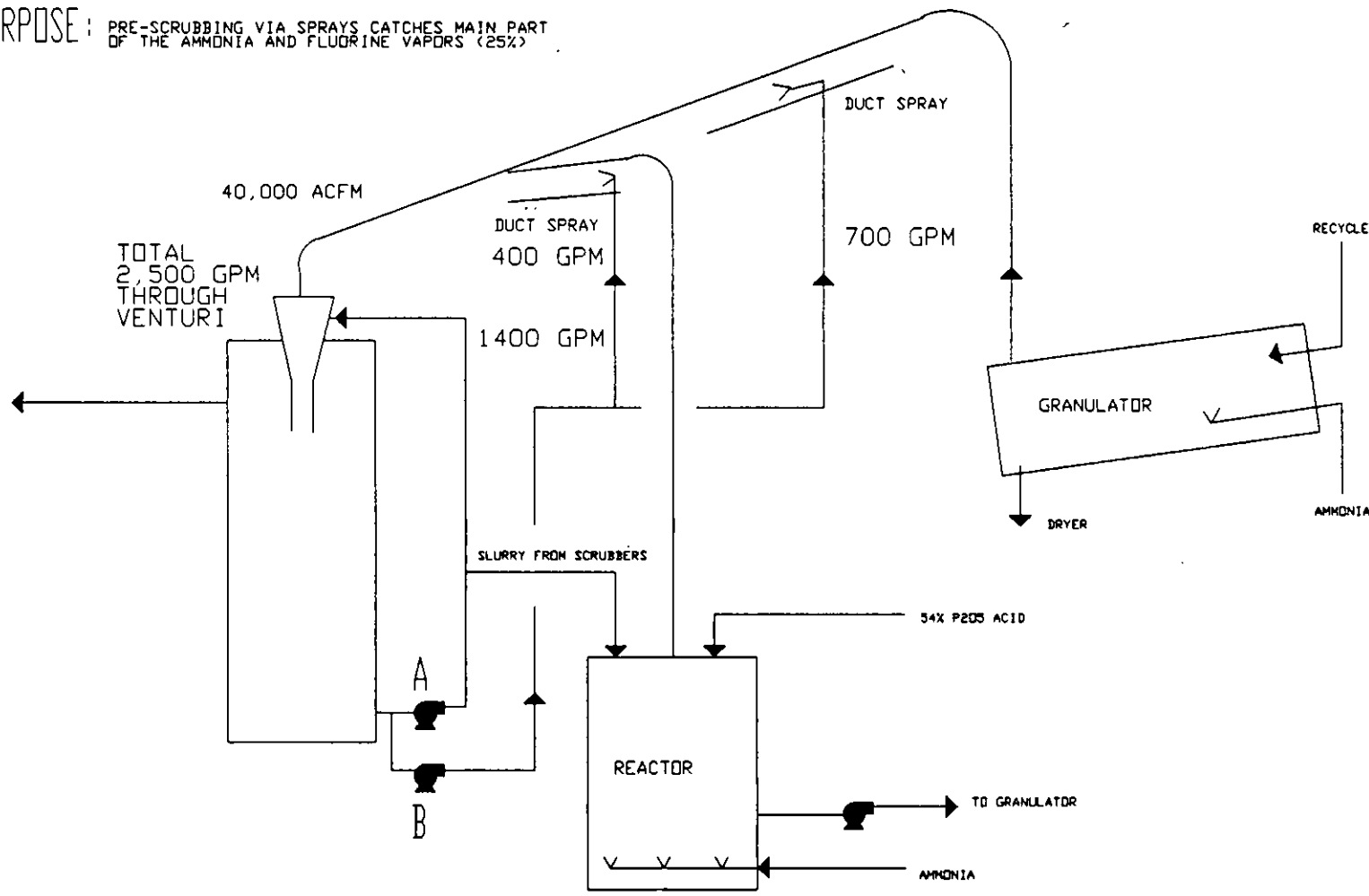


FIGURE A-6



CARGILL FERTILIZER, INC.

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

I hereby certify that I am Secretary of Cargill Fertilizer, Inc., a Delaware corporation; that as such 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 an excerpt of a resolution adopted by said Board of Directors on February 22, 1990, 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;

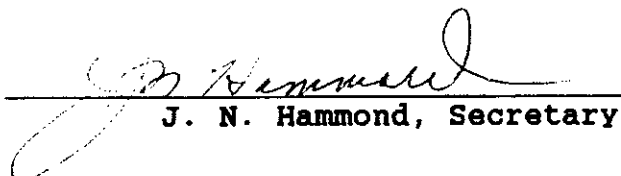
"NOW THEREFORE, BE IT RESOLVED, That the Environmental Manager and the Mine Manager are hereby authorized, for and on behalf of the Company, to execute and submit all routine environmental reports, permit applications and follow-up responses, where signature of an officer is not otherwise mandated by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

I further certify that as of this date, the following noted individuals currently hold the titles set opposite their names:

Edgar Oswald Morris
John R. Schmedeman

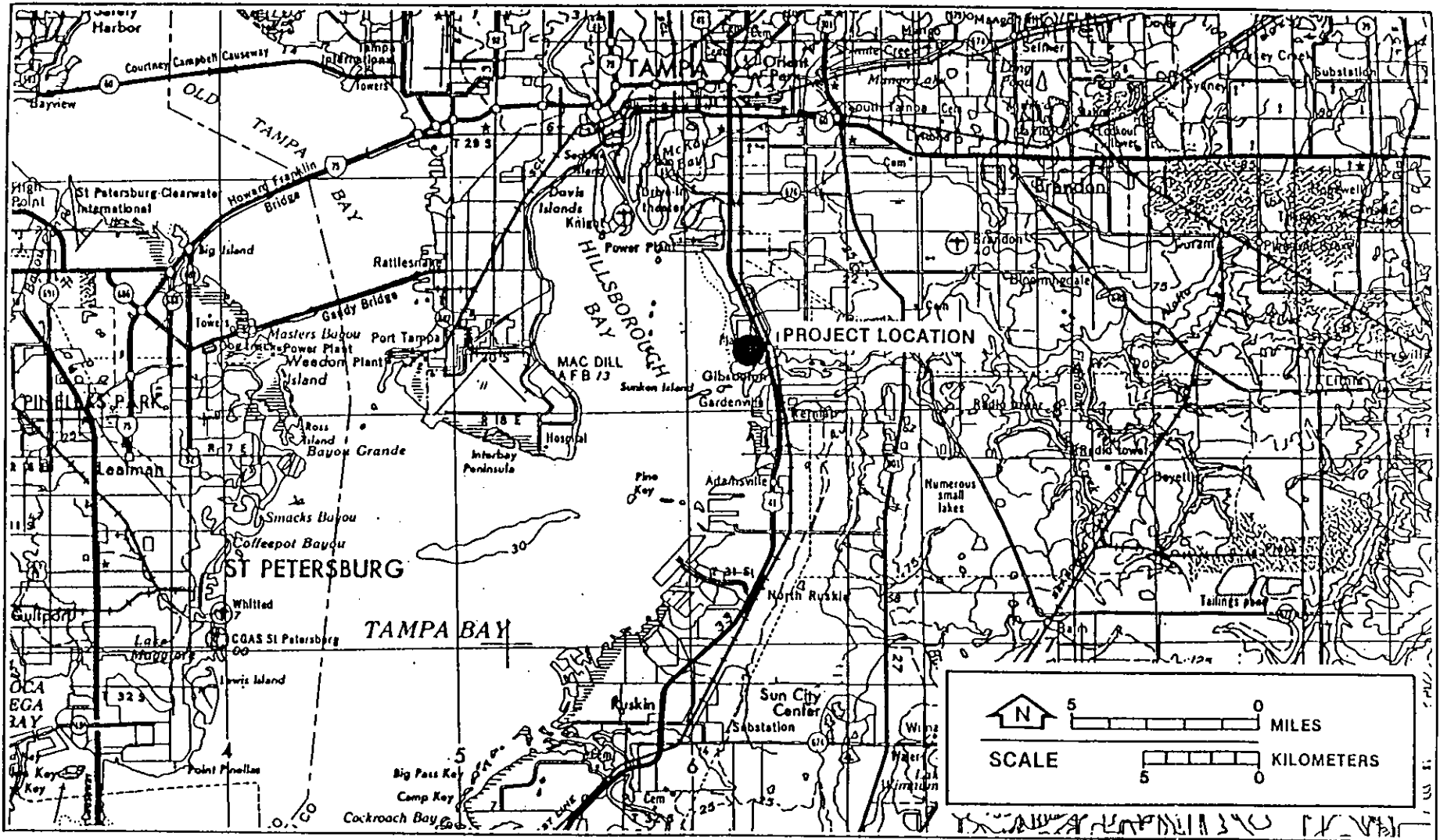
Environmental Manager
Mine Manager

21st WITNESS MY HAND AND THE SEAL of Cargill Fertilizer, Inc. this
day of May, 1991.


J. N. Hammond, Secretary



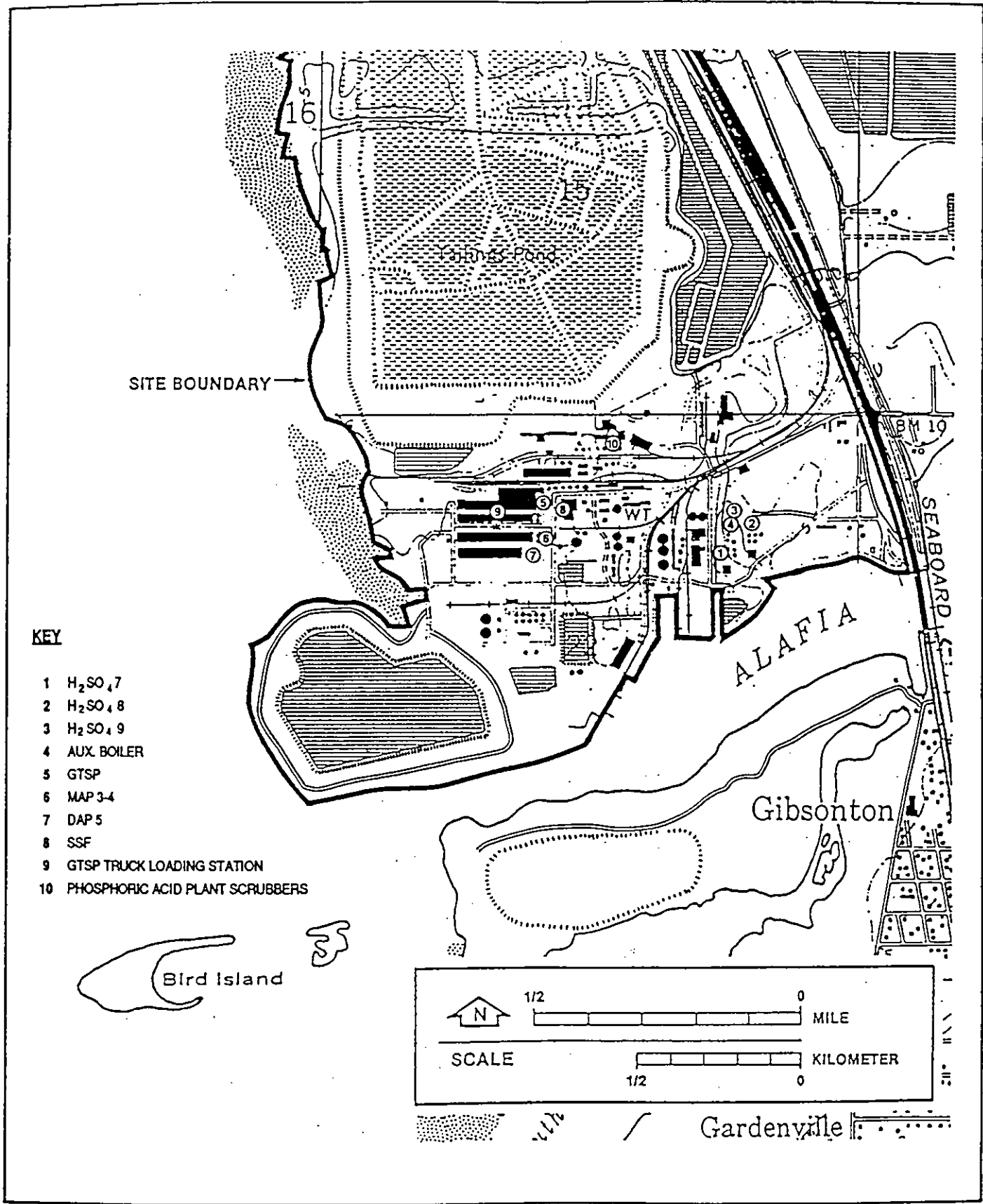
RECYCLED PAPER



GENERAL LOCATION MAP OF CARGILL FERTILIZER, INC.

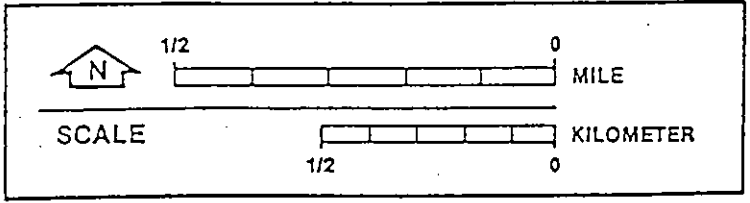
SOURCE: USGS, 1981.





KEY

- 1 H₂SO₄ 7
- 2 H₂SO₄ 8
- 3 H₂SO₄ 9
- 4 AUX. BOILER
- 5 GTSP
- 6 MAP 3-4
- 7 DAP 5
- 8 SSF
- 9 GTSP TRUCK LOADING STATION
- 10 PHOSPHORIC ACID PLANT SCRUBBERS



SITE LOCATION MAP OF CARGILL FERTILIZER, INC.



SOURCE: USGS, 1981.



CARGILL FERTILIZER, INC.

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

June 12, 1991

RECEIVED

Mr. Clair Fancy
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

JUN 13 1991

Bureau of
Air Regulation

Subject: Construction Permit Application AC29-196763
No. 5 DAP Plant Expansion

Dear Mr. Fancy,

Following are responses to your letter dated May 30, 1991 and the letter from the Environmental Protection Commission of Hillsborough County (EPCHC) dated May 21, 1991 regarding the above-referenced permit application:

RESPONSES TO FDER QUESTIONS

1. The reference to a 57.4 TPH P2O5 is unclear. Page A-1 and B-1 correctly indicates the process input rate of 67.16 TPH P2O5. This same value is used in the calculation of allowable fluoride emissions on Page 4 of the application (0.06 lb/ton * 67.16 TPH = 4.03 lb/hr).
2. A revised Table C-1 is attached. Note also that attachment C of the application incorrectly indicated that the cooler/vents venturi scrubber would have an increased air flow. The air flow to this scrubber will actually decrease by approximately 15,000 ACFM as indicated in the revised Table C-1. This reduction in air flow is being accomplished by the recirculation of air to the granulator and dryer. Also, attached for your convenience, are revised Figures A-2 and A-3 indicating the air flows.
3. The statement on page A-2 of the application should actually have referred to the total gas flow out of the system. The revised Table C-1 and Figures A-2 and A-3 (attached) provide air flows throughout the system. The cooler recycle flow rate under the proposed system will be approximately 45,000 ACFM. This flow represents approximately 35% of the current total flow to the primary scrubbers of 128,400 ACFM.
4. The scrubbing medium for the tailgas scrubbers is pond water. Use of once-through fresh water in the tailgas scrubbers will result in a reduction in fluoride emissions of approximately



RECYCLED PAPER

AIRBORNE EXPRESS

RECEIVER'S COPY

202 (5/86)

ORIGIN AIRBILL NO
FLA 495685304

FROM (COMPANY NAME) ADDRESS CITY STATE SENT BY (NAME/DEPT)		TO (COMPANY NAME) DEPARTMENT ENVIRONMENTAL REGULATION ADDRESS 2600 BLAKE STONE ROAD CITY TALLAHASSEE, FL STATE ATTN (NAME/DEPT) MR. CLAY FANCY RECEIVER'S AIRBORNE EXPRESS ACCOUNT NO	
BILLING REFERENCE INFORMATION TO APPEAR ON INVOICE		ZIP CODE (REQUIRED) 32309	ZIP CODE (REQUIRED) 32309
PHONE		PHONE (904)488-3704	
TYPE OF PACKAGING <input type="checkbox"/> EXPRESS/AD PACK ENVELOPE <input checked="" type="checkbox"/> LETTER EXPRESS (UP TO 8 OZ) <input type="checkbox"/> EXPRESS PACK (VOLUME) <input type="checkbox"/> MAG TAPE PACK		DESCRIPTION OF CONTENTS NO OF PACKAGES WEIGHT (LBS)	
BILL CHARGES TO <input type="checkbox"/> SENDER <input type="checkbox"/> 3RD PARTY <input type="checkbox"/> PAID IN ADVANCE \$ CHECK NUMBER		TYPE OF SPECIAL SERVICE (EXTRA CHARGES MAY APPLY) <input type="checkbox"/> SPECIAL PICKUP <input type="checkbox"/> SATURDAY DELIVERY <input type="checkbox"/> SPECIAL DELIVERY TIME <input type="checkbox"/> HOLD AT AIRBORNE FOR PICKUP (NO CHARGE)	
AIRBORNE SIGNATURE		SENDER'S C.O.D. \$ ROUTING TLH 4-X	
DATE RECEIVED			

Mr. Clair Fancy
June 12, 1991
Page 2

1.1 pounds per hour. However, other environmental concerns eliminate the viability of this option. The Cargill facility has a very sensitive water-management program designed to minimize the use for fresh water and prevent the need to treat and discharge process water. Use of once-through fresh water in the tail gas scrubbers would result in an additional 5,000 gpm of water entering the pond system. Such a large flow would quickly absorb the existing surge capacity mandated by Federal Regulations (40 CFR 418). Further, this magnitude of flow would also exceed our treatment capability. In addition to the water management problems use of fresh water would create, use of fresh water instead of recirculating process water would contradict Cargill's water reduction/conservation program and be contrary to the goals of the South West Florida Water Management District (SWFWMD). The Cargill facility is located in the Eastern Tampa Bay Water Use Caution Area. This area was established by SWFWMD due to the severe drawdown of groundwater within its boundaries. Cargill Fertilizer, Inc. currently has an aggressive program for the conservation and minimization of freshwater consumption and wastewater discharges. Use of fresh water in the No. 5 DAP Plant tailgas scrubbers would both significantly increase the facility fresh water consumption rate and adversely affect the process water balance, which would shut down the plant. These negative impacts are unwarranted in view of the fact that use of recycled pond water in the tailgas scrubbers will result in emissions meeting established New Source Performance Standards.

In addition to evaluating the affects of utilizing once-through fresh water in the tail gas scrubbers, an evaluation was made on the use of a recirculating fresh water system in these scrubbers. Such a system would require construction of a dedicated fresh-water pond and distribution system at considerable expense without improving emissions over the proposed system. Although the water in a recirculating fresh-water system will have a lower fluoride equilibrium concentration (500 ppm vs 7000 ppm), the temperature of such a system will be substantially higher (130 °F vs 95 °F). The higher temperature of the scrubbing liquid offsets the reduced fluoride equilibrium concentration. In addition, use of a dedicated pond system will require both a fresh-water make-up stream (in addition to the initial "charging" of the pond) and a blowdown stream to the process water system. As explained above, these impacts are contrary to the facility water management program and government mandates for water conservation. It is also unwarranted in view of the fact that no emission reductions will be realized.



Mr. Clair Fancy
June 12, 1991
Page 3

5. Additional ammonia recovery will be accomplished by installation of a new pump to circulate reactor granulator

primary scrubber liquid at approximately 700 gpm across the granulator duct and about 400 gpm across the reactor duct.

The scrubber liquid has P/N mole ratio of approximately 0.6 and will catch about 30% of the ammonia and fluorine reducing loading to the reactor/granulator venturi scrubber. A sketch of this system is attached as Figure A-6.

6. The "previous actual" emissions shown in Table A-2 of the application, totalling 100.7 TPY for PM, includes 43.8 TPY representative of the existing No. 5 DAP plant operation at that time, and 56.9 TPY from the sources to be shut down. The sources to be shut down consisted of the Nos. 3 and 4 TSP reactor belts, the Nos. 3 and 4 TSP dryers, and the ROP/TSP sizing unit. Actual PM emissions were based on calendar year 1979, which was determined by FDER to be the most representative of normal source operation. These PM emissions are documented in DER's Technical Evaluation & Preliminary Determination (TE&PD) for AC29-135083 dated August 12, 1987.

Similarly, the contemporaneous emission offsets approved by DER for fluorides were 37.2 TPY, plus 6.1 TPY for the existing No. 5 DAP plant, for a total of 43.3 TPY. For SO₂, the contemporaneous emission offsets approved by DER were 168.2 TPY, plus 70.1 TPY for the existing No. 5 DAP plant, for a total of 238.3 TPY. All of these offsets are documented in DER's TE&PD for the 1987 permit.

The actual shutdown dates for the above sources were as follows:

No. 3 TSP	- August 1987
No. 4 TSP	- August 1987
ROP/TSP sizing unit	- December 1987

7. The modifications made to the PSD permit by EPA on May 16, 1988, were simply changes made to the conditions of PSD-FL-026. These changes are synonymous to "amendments" DER makes to permits. They were necessary in order to revise or add specific conditions to the original federal PSD permit issued by EPA on July 11, 1980. However, PSD review was not triggered, and this was not a PSD permit.



Mr. Clair Fancy
June 12, 1991
Page 4

8. RESPONSES TO EPCHC QUESTIONS

A. Application Requirements:

1. Our records indicate that a letter authorizing E. O. Morris to sign the permit application was attached to the submittal. Nevertheless, please find another copy attached to this response.
2. The EPC case No. 80407KS000804 was issued on 1/17/89 and was terminated on 9/25/91 with all terms and conditions being met.
3. It is acknowledged that the source is located in the Hillsborough County "Maintenance Area" for particulates, not a "Non-attainment Area".
4. The application correctly indicates that RACT requirements apply to the source. However, it is acknowledged and was indicated on the application that BACT requirements also apply.
5. The P205 input rates to the source were addressed in Attachments A & B to the application. The source will have a P205 input rate of 67.16 tons per hour.
6. As documented in the permit application, PSD review does not apply to fluorides, and therefore, BACT review does not apply to fluorides.
7. The control equipment for the modified source is the same equipment currently in use at the plant except for the modifications identified in Attachment C to the application. Drawings showing these modifications are attached where appropriate. In addition, please note that the emission estimates are not from manufacturer test data. Rather they are based on historical performance and calculated performance of the upgrades.
8. Plot plans showing the location of the facility and the production unit are attached.

B. Attachments:

1. As stated previously, PSD review does not apply to fluorides. Also, the molten sulfur handling facility is not related to this permit application, nor does it emit SO₂.
2. The modifications made to the PSD permit by EPA on May 16, 1988, were simply changes made to the conditions of



Mr. Clair Fancy
June 12, 1991
Page 5

PSD-FL-026. These changes are synonymous to "amendments" DER makes to permits. They were necessary in order to revise or add specific conditions to the original federal PSD permit issued by EPA on July 11, 1980. However, PSD review was not triggered, and this was not a PSD permit.

In regards to the potential impacts upon the sulfuric acid plants, increase in production at the No. 5 DAP plant will not increase phosphoric acid production and associated sulfuric acid production beyond that permitted under the current construction permit AC29-186726. Sulfuric acid is used in the 5 DAP plant at a typical rate of approximately 0.022 tons H₂SO₄/ton DAP. Increasing production by 32 TPH will require approximately 0.7 TPH or 17 TPD additional H₂SO₄. This represents approximately 0.2% of the permitted production capacity of the three sulfuric acid plants located at the facility. However, Cargill currently operates its sulfuric acid plants near capacity and sells excess sulfuric acid as a product. The additional sulfuric acid to be used at the No. 5 DAP plant represents only a fraction of total sulfuric acid sales.

In regards to the materials handling operations, the increase in DAP will result in a corresponding increase in material handling requirements. Currently, total dry products production (MAP, DAP & GTSP) is permitted at approximately 235 TPH. The proposed upgraded system will increase this to approximately 267 TPH (a 13.6 % increase). Total particulate emissions from the material handling systems averaged a total of 18.62 tons for 1989-1990 (based on annual air operating reports). Assuming that emissions increase in proportion to material handling, the DAP production increase would result in an additional 2.5 TPY of total particulate emissions. This will increase the proposed particulate emissions listed on page A-11 of the application from 65.7 TPY to 68.2 TPY. It should also be noted that the FDER is currently reviewing applications to increase production of MAP at the facility. In this application it was reported that increased MAP production would increase emissions from material handling operations up to 0.9 TPY. In the context of that permit the increase was not sufficient to trigger new source review. Addition of those emissions for consideration with this permit will result in total proposed emissions of 69.1 TPY for a net increase of 57.3 TPY.



Mr. Clair Fancy
June 12, 1991
Page 6

3. Ambient PM impacts have been addressed on page A-14 of the application. Cargill is proposing to reduce the already permitted, approved level of 20 pounds per hour. Ambient impact analyses are always based on allowable emissions, not actual emissions. Since the allowable emissions are decreasing, no ambient impact analysis is necessary. If it were performed, it would only show a decrease in impacts, since stack height and other stack parameters are essentially unchanged.
4. Based on the response to B.3. above, a net reduction in impacts will result, since allowable emissions must be used in modeling. Therefore, no ambient monitoring analysis is required.
5. See the response to B.3. and B.4., above.

Should you have any questions or require additional information, please feel free to call me or David Jellerson at 671-6153 or 671-6207, respectively.

Sincerely,

David B. Jellerson

For E. O. Morris
Environmental Manager

cc: D. Graziani - EPCHC
D. Jellerson
B. Weyers
D. Buff
P-44

J. Reynolds
C. Bullard
P. Lewis
K. Shuman, SW Dist
D. Walker, SW
H. Hall, OPS
B. Anderson



TABLE C-1: PRELIMINARY SCRUBBER DESIGN PARAMETERS, EXPANDED NO. 5 DAP PLANT

(revised 6/12/91)

SOURCE	SCRUBBER TYPE	MANUFACTURER	INLET FLOW (ACFM)	EFFICIENCY		PRESSURE DROP (IN. W.G.)	GAS/LIQUID RATIO (ACFM/GPM)	SCRUBBING LIQUID	
				PM	FL				
REACTOR/GRANULATOR/PACKED UP-FLOW COOLER VENTS		D.M. WEATHERLY	CURRENT ACTUAL	75,000	82	95	2.5 - 10	31.3	SINGLEPASS POND WATER
			PROPOSED DESIGN	78,000	72	94	2.5 - 10	26.0	SINGLEPASS POND WATER
DRYER	PACKED UP-FLOW	D.M. WEATHERLY	CURRENT ACTUAL	47,700	81	95	2.5 - 10	39.8	SINGLEPASS POND WATER
			PROPOSED DESIGN	48,500	81	94	2.5 - 10	24.3	SINGLEPASS POND WATER
REACTOR/GRANULATOR	VENTURI	D.M. WEATHERLY	CURRENT ACTUAL	24,000	86	86	13 - 18	17.1	RECIRCULATING PHOS. ACID
			PROPOSED DESIGN	40,000	86	85	13 - 18	16.0	RECIRCULATING PHOS. ACID
COOLER VENTS	VENTURI	D.M. WEATHERLY	CURRENT ACTUAL	55,300	98	62	13 - 18	46.1	RECIRCULATING PHOS. ACID
			PROPOSED DESIGN	40,000	98	67	13 - 18	33.3	RECIRCULATING PHOS. ACID
DRYER	VENTURI	D.M. WEATHERLY	CURRENT ACTUAL	49,100	98	88	13 - 18	49.1	RECIRCULATING PHOS. ACID
			PROPOSED DESIGN	52,000	98	89	13 - 18	49.5	RECIRCULATING PHOS. ACID

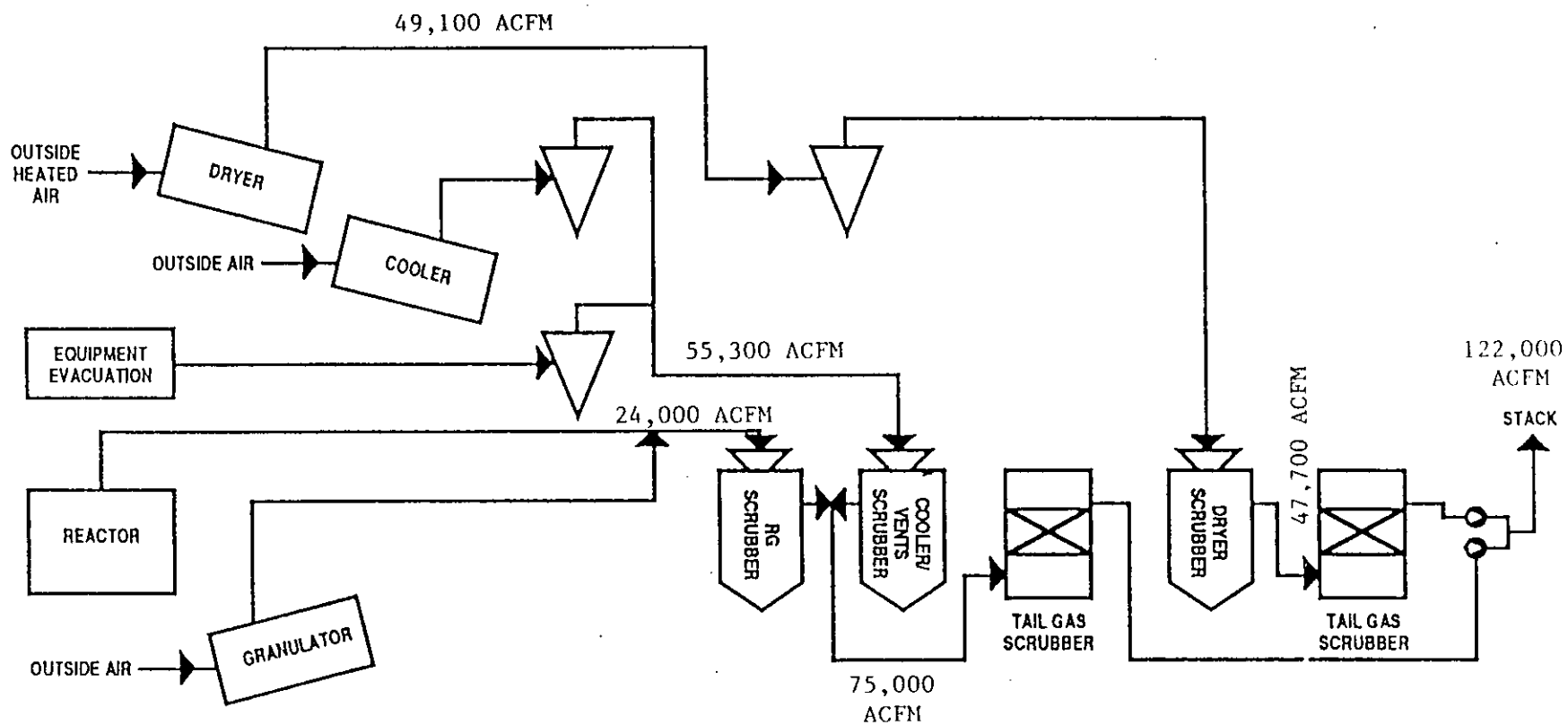


Figure A-2 AIR EVACUATION SYSTEM, EXISTING NO.5 DAP PLANT

(R 6/12/91)



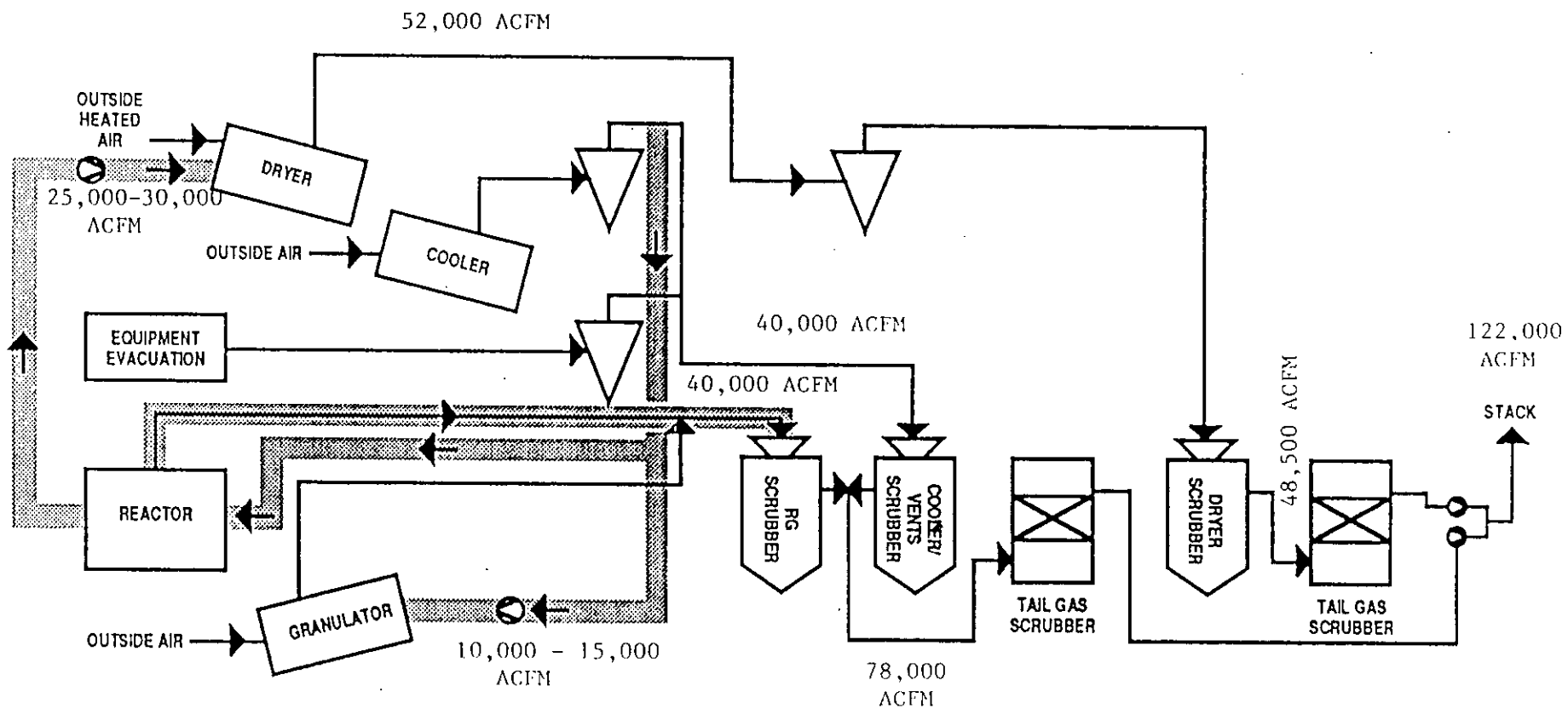


Figure A-3 AIR EVACUATION SYSTEM, EXPANDED NO. 5 DAP PLANT

(R 6/12/91)



NEW SCRUBBER/SPRAY SYSTEM WITH SCRUBBER SLURRY IN GRANULATOR AND REACTOR DUCTS

NEW:

CIRCULATION PUMP FOR SPRAYS IN GRANULATOR AND REACTOR DUCTS
SPRAYS SYSTEM WITH LIQUID AT 1:6 MOL RATIO
TOTAL LIQUID FLOW THROUGH VENTURI IS 2,500 GPM

PURPOSE:

PRE-SCRUBBING VIA SPRAYS CATCHES MAIN PART
OF THE AMMONIA AND FLUORINE VAPORS (25%)

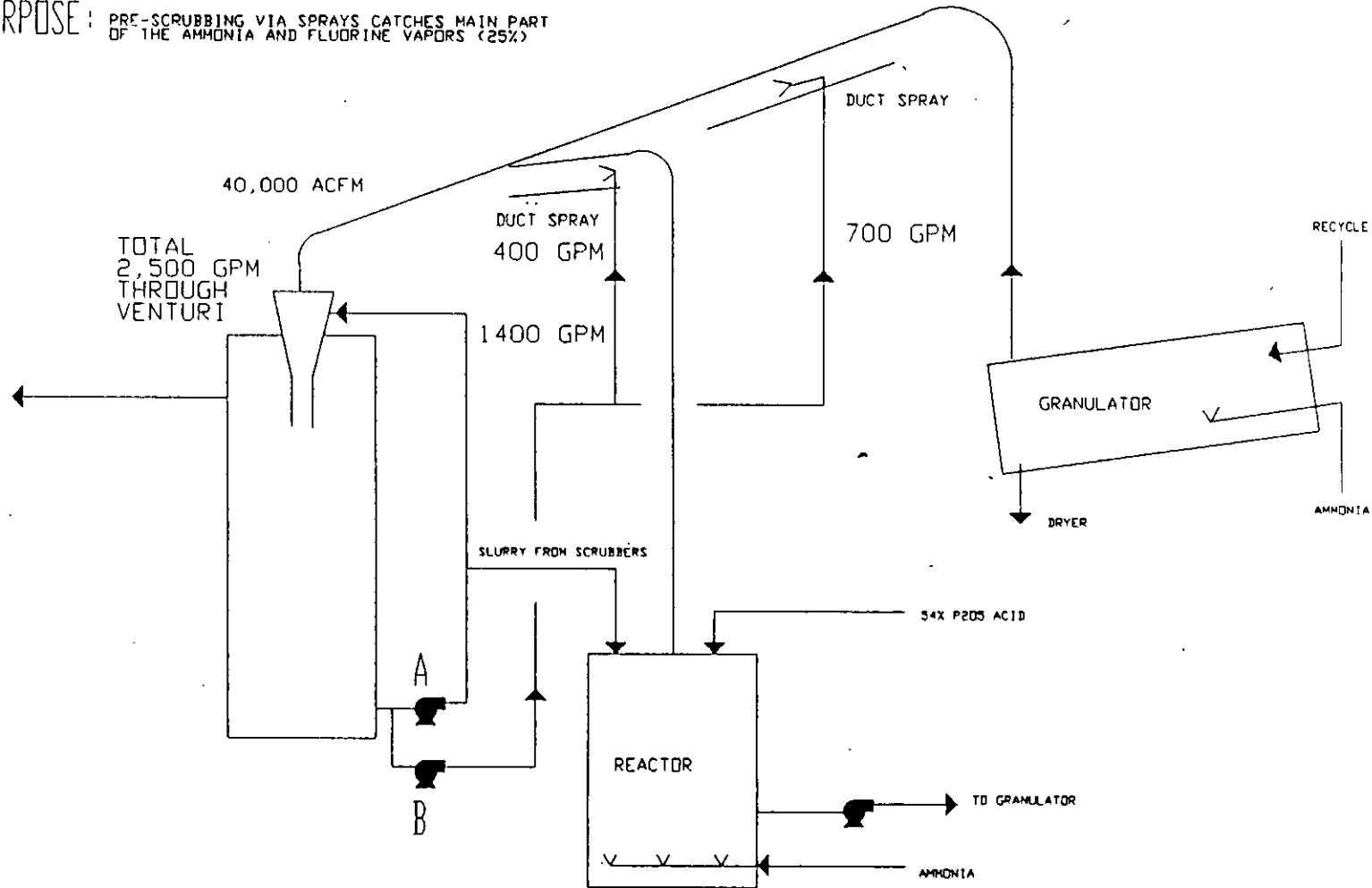
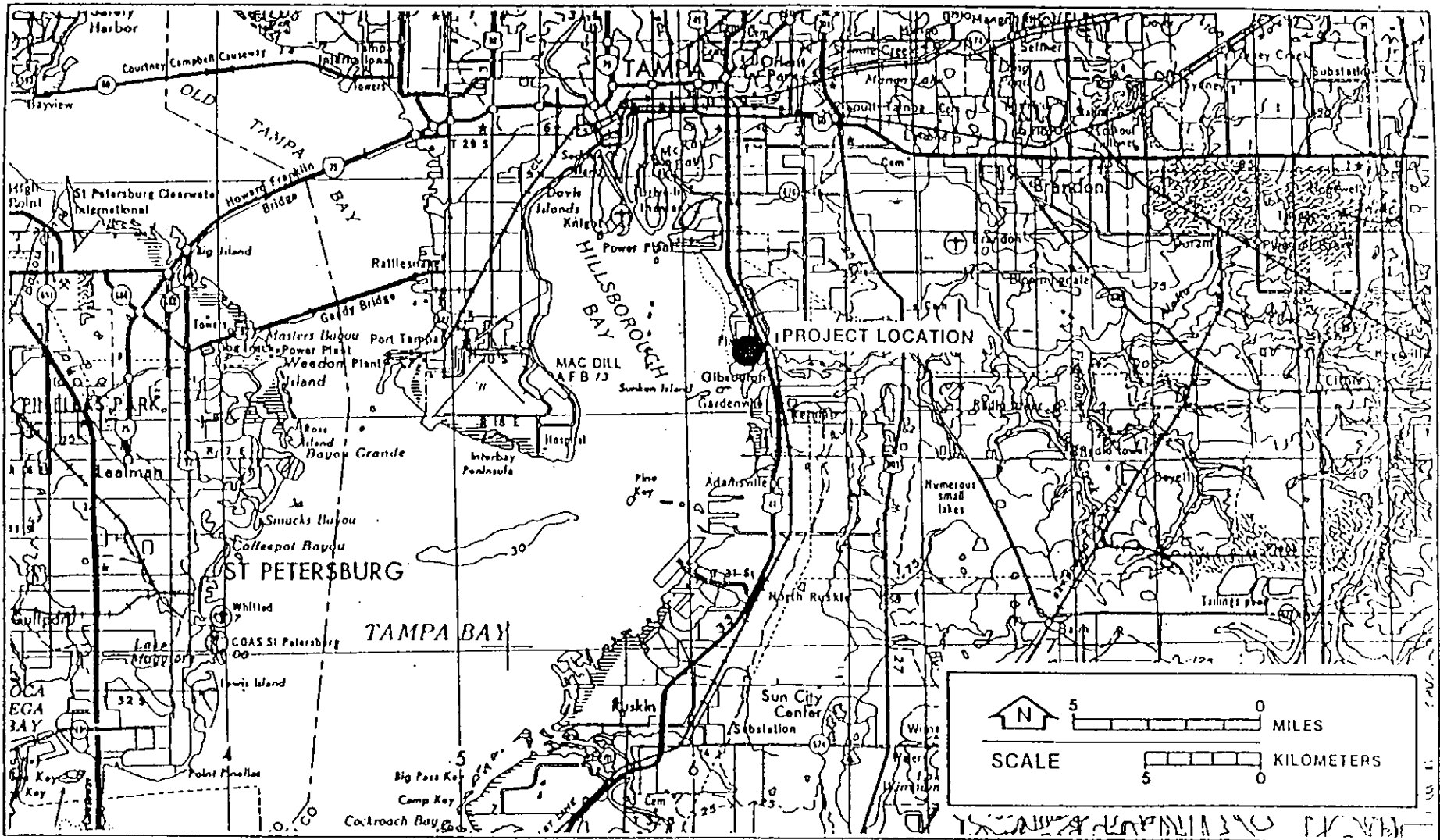


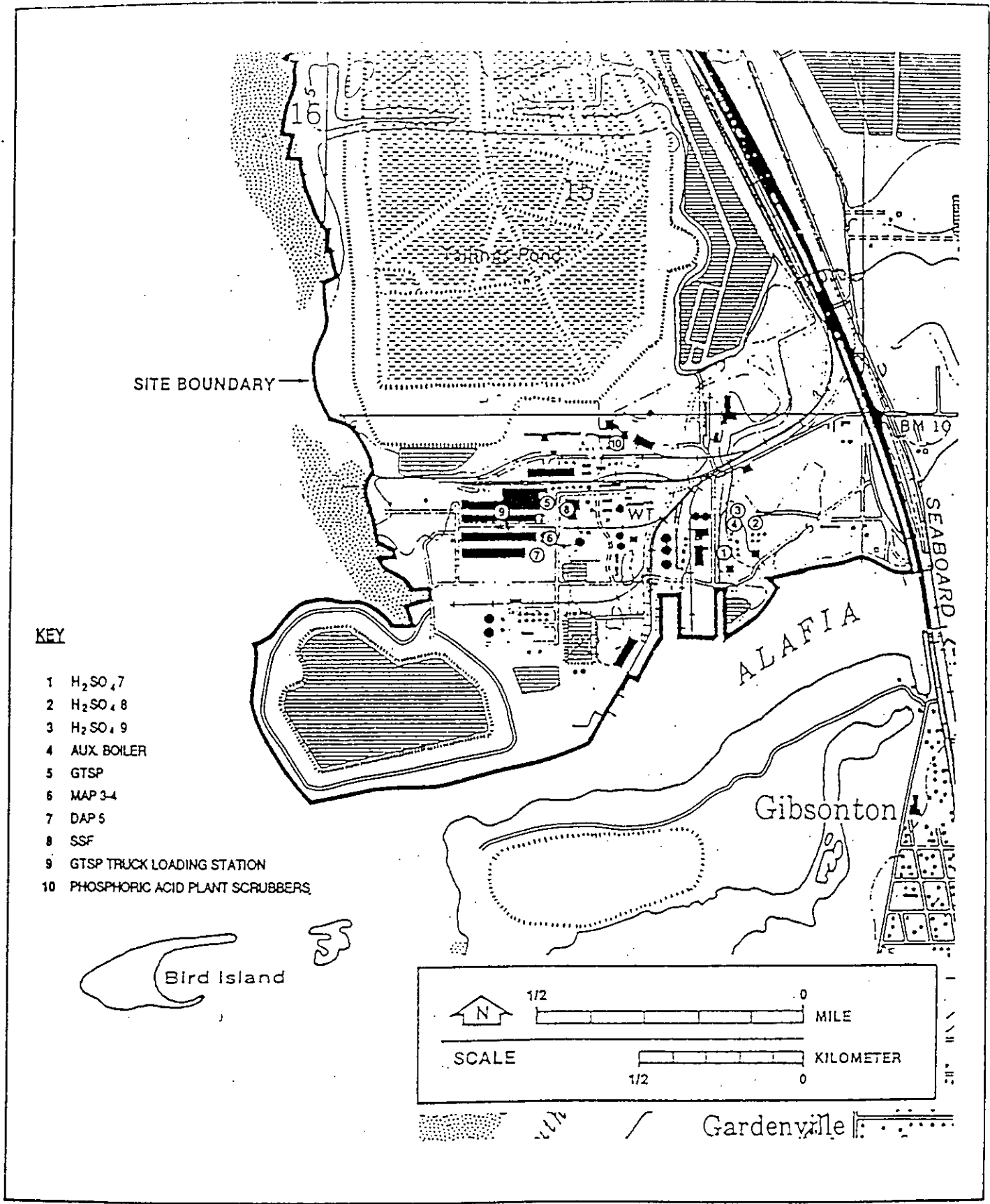
FIGURE A-6



GENERAL LOCATION MAP OF CARGILL FERTILIZER, INC.

SOURCE: USOS, 1981.

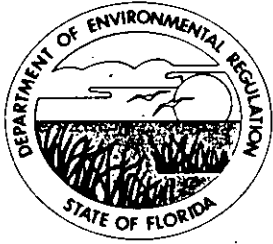




SITE LOCATION MAP OF CARGILL FERTILIZER, INC.

SOURCE: USGS, 1981.





Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 30, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ozzie Morris, Environmental Manager
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Dear Mr. Morris:

Re: Permit Application AC 29-196763
No. 5 DAP Plant Expansion

This is to provide notice that the following additional information is required for preliminary review of the above application:

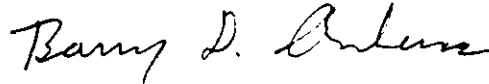
- 1) Explain the apparent discrepancy in P_2O_5 input rate shown on page 4 vs. page A-1 (57.4 vs. 67.16 TPH P_2O_5) and how this affects the emission calculations.
- 2) Table C-1 should be resubmitted showing both current and proposed scrubber parameters. Include actual operating as well as design parameters.
- 3) Explain proposed improvement 2.f. (page C-1) in view of the statement on page A-2 that no additional air flow will result. How can the current gas-to-liquid ratio in the reactor granulator scrubber remain constant while increasing the liquor flow (without increasing the air flow as well)? What percent of current air flow will be made up by recycled cooler exhaust gases?
- 4) Identify the scrubbing medium for the tail gas scrubbers (i.e., pond water, fresh water)? If pond water, show what difference in emissions would result if fresh water is used.
- 5) Describe the additional ammonia recovery "system" mentioned on page A-2.
- 6) Identify the sources making up the "previous actual" emissions footnoted on Table A-2 and show all shutdown dates. Also show dates (or years) for which previous actuals are based.

Mr. Ozzie Morris
Page 2 of 2

- 7) The Bureau questions certain parts of the PSD applicability analysis, particularly regarding previous offsets. Please provide further explanation of your position that the "slate" was not wiped clean when the PSD permit was modified on October 16, 1987 (that modification was equivalent to issuing a new PSD permit). Unless sufficient information is submitted to show the slate was not wiped clean regarding offsets, new source review requirements will apply for fluoride emissions.
- 8) Please address each of the comments/questions raised by the Environmental Protection Commission of Hillsborough County in their letter dated May 21, 1991. Their letter is hereby adopted as part of this incompleteness letter.

When this information is received, processing of application AC 29-196763 will resume. If you have any questions, please call John Reynolds at 904-488-1344.

Sincerely,



for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/JR/plm

c: B. Thomas, SW Dist.
G. Worley, EPA
D. Buff, KBN
J. Campbell, EPCAC
C. Strawn, NPS

P 407 852 701

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

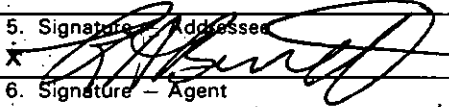

U.S.G.P.O. 1989-234-555

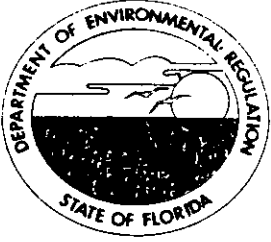
PS Form 3800, June 1985

Sent to Mr. Ozzie Morris, Cargill	
Street and No. Fertilizer 8813 Highway 41 South	
City, State, and ZIP Code Riverview, FL 33569	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date Mailed: 5-30-91 Permit: AC 29-196763	

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check boxes for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. Ozzie Morris Environmental Manager Cargill Fertilizer, Inc. 8813 Highway 41 South Riverview, FL 33569	4. Article Number P 407 852 701
5. Signature - Addressee X 	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery 6-3-91 	8. Addressee's Address (ONLY if requested and fee paid)



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 17, 1991

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Harper:

RE: Cargill Fertilizer, Inc.
Hillsborough County
PSD-FL-178

Enclosed for your review and comments is the above referenced PSD permit application. If you have any comments or questions, please contact John Reynolds or Cleve Holladay at the above address or at (904)488-1344.

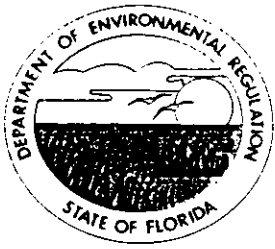
Sincerely,

Patricia G. Adams

Patricia G. Adams
Planner
Bureau of Air Regulation

/pa

Enclosure



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 17, 1991

Mrs. Christine Shaver, Chief
Permit Review and Technical Support Branch
National Park Service-Air Quality Division
P. O. Box 25287
Denver, Colorado 80225

Dear Ms. Shaver:

RE: Cargill Fertilizer, Inc.
Hillsborough County
PSD-FL-178

Enclosed for your review and comment is the above referenced PSD permit application. If you have any comments or questions, please contact John Reynolds or Cleve Holladay at the above address or at (904)488-1344.

Sincerely,

Patricia G. Adams

Patricia G. Adams
Planner
Bureau of Air Regulation

/pa

Enclosure