



KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 • FAX 377-7158

KA 123-89-01

November 29, 1989

RECEIVED

NOV 30 1989

DER-BAQM

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

Subject: Response to Request for Additional Information
Farmland Industries, Inc.
Proposed Permit No. AC53-171751
PSD-FL-143
Sulfuric Acid Plant No. 5

Dear Mr. Fancy:

This is in response to your letter dated November 21, 1989, and in response to a letter dated November 29, 1989, from EPA, Region IV, both requesting additional information for the review of the subject permit application. Submitted for your review are the enclosed Attachments A and B which respond to the FDER and EPA comments, respectively.

In addition, it is my understanding that the issue of "emission credits" as it applies to Farmland's permit application has been resolved, i.e., both SO₂ and NO_x emission reduction credits from the permanent shutdown of Farmland's sulfuric acid plants No. 1 and 2 can be considered in permitting the subject plant since the emission reductions are federally enforceable.

Please feel free to contact me if you have any additional questions.

Sincerely,

KOOGLER & ASSOCIATES

Richard B. Tedder, P.E.

RBT:wa
Enc.

cc: Mr. Ed Ferking, Farmland
Mr. Bill Thomas, FDER, SW District

J. Reynolds
B. Andrews
S. Rogers
H. Aronson, EPA
CHF/BT



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Date: 11/20/89

From (Your Name) Please Print Richard Tiedler		Your Phone Number (Very Important) 904-377-5922	To (Recipient's Name) Please Print Mr. C. H. Fennell		Recipient's Phone Number (Very Important) 408-1111
Company GOGLER E. ASSOC		Department/Floor No.	Company CDR. Team Towers Office Bldg		Department/Floor No.
Street Address 14 NW 13TH ST		Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes) 2600 Blaine Stone Rd			
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ATTACHMENT A
RESPONSE TO FDER COMMENTS
DATED NOVEMBER 21, 1989
ON FARMLAND INDUSTRIES, INC.
PROPOSED PERMIT AC53-171751, PSD-FL-143

RECEIVED
NOV 30 1989
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1. Please submit your air quality modeling output for review. Preferably one hard copy and one copy on 5-1/4 inch floppy diskette. Include a copy of the input files used in the modeling on floppy diskette.

A hard copy of the air quality modeling output and a 5-1/4 inch floppy diskette copy of the input files used for the modeling were sent to you by Federal Express on November 28, 1989. Air quality modeling output on a 5-1/4 inch floppy diskette is not available.

2. Farmland cannot take credit for the emission reductions from the sulfuric acid plants Nos. 1 and 2 for the purposes of net emissions change. Since these sources were previously used to offset the NOx emissions for the green superphosphoric acid plant and it is a permit condition that these sources would be permanently shut down in that permit, these sources are no longer creditable for the construction of the new No. 5 plant. As a result, the net emissions increase is determined by the No. 5 H2SO4 plant only. All modeling must be redone and the question of preconstruction monitoring and the modeling of background sources reevaluated.

This confusion is a result of changes in the permit conditions for the green superphosphoric acid plant (GSPA) when the Operating Permit was issued and an error in subject permit application.

At the time the GSPA plant construction permit was issued, the available data indicated that the NOx emissions would be 90.0 tons per year. At that time, Farmland committed to permanently shutting down sulfuric acid plants No. 1 and No. 2 prior to the start-up of



the GSPA plant and that was made a condition of the construction permit. NOx offsets from the permanent shutdown of sulfuric acid plants No. 1 and No. 2 when netted with expected NOx emissions from the GSPA plant resulted in a less than significant increase in the annual NOx emissions (39.6 tpy) and, thus, a PSD review was not required.

When the operating permit (A053-157886) for the GSPA plant was applied for, additional stack test data indicated that the NOx emission estimates used in the construction permit application were high. In addition, Farmland was experiencing a sulfuric acid shortage due to the shutdown of sulfuric acid plants No. 1 and No. 2 and an unexpected increase in fertilizer demand. After negotiating with the Florida Department of Environmental Regulation, the operating permit for the GSPA plant was issued with a revised NOx emission limit of 64.8 tons per year. This revised NOx emission limit was based on best available emission test data and did not include any offset from the shutdown of sulfuric acid plants No. 1 or No. 2. Farmland had agreed, however, to permanently shutdown sulfuric acid plant No. 2; resulting in a net reduction in NOx emissions of 25.2 tons per year. The shutdown of sulfuric acid plant No. 2 and the reduction in permitted emissions from the GSPA plant resulted in a less than significant increase in the annual NOx emissions (again, 39.6 tpy) and, therefore, a PSD review was not required.



Modeling for NO_x in Farmland's new sulfuric acid plant No. 5 construction permit application was based on maximum allowable emissions from the GSPA plant (64.8 tpy), estimated emissions from the new sulfuric acid plant No. 5 (43.4 tpy), and offsets from the permanent shutdown of sulfuric acid plants No. 1 and No. 2 (2 x 25.2 tpy). On page 22 of the report supporting a PSD review of Farmland's new sulfuric acid plant, Note 2 incorrectly states that the permitted emission rates for the GSPA plant included an offset from the permanent shutdown of sulfuric acid plant No. 2. As has already been stated, the permitted emission rates for the GSPA plant were based upon best available data for actual emission rates and did not include an offset from the permanent shutdown of sulfuric acid plant No. 2. As a result, the modeling efforts performed for the new sulfuric acid plant are based upon best available estimates of actual NO_x emissions from the GSPA plant and the proposed No. 5 sulfuric acid plant and offsetting NO_x emissions from the No. 1 and No. 2 sulfuric acid plants.

3. Show your calculations for determining the GEP stack height. That is, include the dimensions of all nearby structures.

Stack height calculations are shown in the attached Table 1. No existing structure at the facility is considered a nearby structure and hence, will not affect GEP stack height or be a factor in plume downwash. The structures associated with the proposed No. 5 sulfuric acid plant will likewise not result in plume downwash or affect GEP stack height calculations.



The maximum GEP stack height (by rule) is 213 feet while the maximum building wake height is 140 feet. The proposed stack height for the No. 5 sulfuric acid plant is 150 feet.

TABLE 1

GOOD ENGINEERING PRACTICE STACK HEIGHT ANALYSIS

FARMLAND INDUSTRIES, INC.
GREEN BAY, FLORIDA

BUILDING	-H- BUILDING HEIGHT (FT)	BUILDING LENGTH X WIDTH (FT)	-PW- PROJECTED WIDTH (1) (FT)	-L- LESSER OF H or PW (FT)	5L (2) (FT)	DISTANCE FROM BUILDING TO H2S04 #5 (FT)	H + 1.5L (3) (FT)
DAP/MAP	109	161 x 102	145	109	545	1008	>5L (4)
Shipping	111	107 x 86	108	108	540	1085	>5L
Fert Stg	69	370 x 161	275	69	345	1085	>5L
Phos Acid #1 Filter Bldg	76	225 x 107	175	76	380	733	>5L
Phos Acid #2 Filter Bldg	76	75 x 75	85	76	380	687	>5L
Laboratory	15	86 x 75	91	15	75	611	>5L
Warehouse/ Maintenance	22	209 x 107	169	22	110	474	>5L
SPA	15	43 x 27	38	15	75	555	>5L
H2S04 #3 & #4	80	-	150 (5)	80	400	516	>5L
H2S04 #5	80	16 x 80 (6)	40	40	200	0	140 (7)
Cooling Towers	26	170 x 50	104	26	130	300	>5L
Electrical Bldg	20	20 x 30	28	20	100	180	>5L
Oxide Bldg	40	88 x 90	100	40	200	280	>5L

(1) Projected Width = $(4/\pi \times \text{Bldg Width} \times \text{Bldg Length})^{1/2}$.

(2) S x L is distance from a building within which wake effect is observed.

(3) H (Bldg Height) + 1.5L (Lesser of H or PW) is stack height necessary to eliminate downwash.

(4) Distance from structure to H2S04 #5 is greater than 5L; therefore, no wake effect.

(5) There is no single structure associated with H2S04 plants #3 and #4 that is of significant size. The projected width is a nominal width of all structures associated with the two plants.

(6) Most significant group of structures associated with H2S04 #5 is the interpass tower, final absorption tower and drying tower.

(7) Stack height of H2S04 #5 will be 150 ft.; therefore, downwash will not be a factor.

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ATTACHMENT B

NOV 30 1989

RESPONSE TO EPA, REGION IV COMMENTS
DATED NOVEMBER 29, 1989
ON FARMLAND INDUSTRIES, INC.
PROPOSED PERMIT AC53-171751, PSD-FL-143

DER-BAQM

1. As of 1977, the existing facility at Farmland Industries apparently consisted of four sulfuric acid plants (SAP), two phosphoric acid plants, two ammonium phosphate plants and one superphosphoric acid plant. In 1982, sulfuric acid plants #3 and #4 were expanded. Did the expansions constitute major modifications to an existing major source? (i.e., greater than 40 tpy increase in SO₂ emissions).

The expansions were not considered major modifications to existing major sources. Both plants were modified from single absorption 1100 tons per day plants to double absorption 1600 ton per day plants. For each plant, the permitted sulfur dioxide emissions decreased from 10 pounds per ton of 100 percent acid (458 lb/hr) to four pounds per ton of 100 percent acid (267 lb/hr) and the permitted acid mist emissions decreased from 0.3 pounds per ton of 100 percent acid (13.8 lb/hr) to 0.15 pounds per ton of 100 percent acid (10.0 lb/hr). Though records are no longer available, it is believed that the actual emissions from the original 1100 ton per day sulfuric acid plants were near that of the permitted emission rates. Additionally, the annual operating times of the plants before and after modification were essentially the same. Thus, the actual sulfur dioxide and acid mist emissions decreased due to the expansion and the modifications of plants No. 3 and No. 4 were not subject to a PSD review.



2. On March 29, 1985, sulfuric acid plant #2 was permanently shut down. Why was the plant shut down? Was the shutdown made federally enforceable? Were the permits for SAP #2 rescinded?

Sulfuric acid plant No. 2 was originally shutdown due to a prolonged period of low demand for fertilizer products. In the negotiations for the green superphosphoric acid (GSPA) plant permit, Farmland agreed to permanently shutdown sulfuric acid plant No. 2. The shutdown of sulfuric acid plant No. 2 was made federally enforceable by requiring the shutdown prior to the start-up of the GSPA plant in Specific Condition No. 9 of the construction permit (AC53-138041) and, also, in Specific Condition No. 13 of the operating permit (A053-157886) for the GSPA plant. The permit for sulfuric acid plant No. 2 was surrendered by Farmland.

3. In 1987, a green superphosphoric acid plant (GSPAP) was permitted. Apparently the reduction in NOx emissions from the shutdown of SAP #2 was used to "net" the new plant out of PSD review. Was there a significant (3 tpy) increase in fluoride emissions from the new facility? Was the shutdown of SAP #2 made federally enforceable at the time of the netting transaction?

The green superphosphate acid plant did not result in a significant increase in fluoride emissions for the facility. It was estimated that the maximum fluoride emissions from the GSPA plant would be no more than 0.4 tons per year. Most of the fluorine in the phosphoric acid is evolved in the early evaporation stages and captured in fluosilicic acid absorbers to be sold as product. As a result, fluoride emissions from the GSPA plant are low.

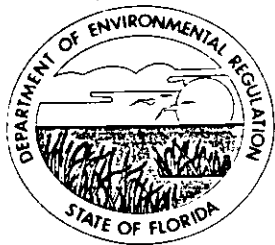


As has been stated, the shutdown of sulfuric acid plant No. 2 was made federally enforceable by being required as permit conditions in both the construction permit and the operating permit for the GSPA plant.

4. What emissions are associated with the proposed cogeneration facility? Will any of the electricity or steam be sold to outside parties. If so, approximately what percent?

The only emissions from the proposed cogeneration facility are those associated with the new sulfuric acid plant No. 5. The turbine for the cogeneration facility will be driven by excess steam from the new sulfuric acid plant.

It is estimated that approximately 15 to 20 percent of the electricity generated by the cogeneration facility will be sold to outside parties.



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

November 21, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. C. M. Farris
General Manager
Farmland Industries, Inc.
P. O. Box 960
Bartow, Florida 33830

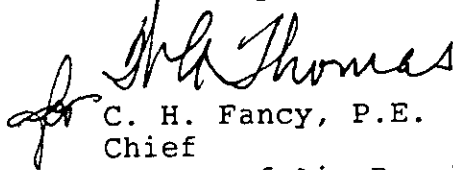
Dear Mr. Farris:

Re: Proposed Permit No. AC 53-171751, PSD-FL-143
No. 5 H₂SO₄ Plant

This is to provide notice that additional information is required for preliminary review of the above application. The Bureau of Air Monitoring and Assessment requests a redetermination of air quality modeling using revised emission estimates (see attached memo). Also, the EPA faxed several questions received today (see attached).

If you have any questions, please call John Reynolds at (904) 488-1344 or write to me at the above address.

Sincerely,



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

CHF/JR/plm

Attachment

cc: M. Armentrout, EPA
B. Thomas, SW District
R. Tedder, P.E.

P 938 762 758

RECEIPT FOR CERTIFIED MAIL

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PS Form 3800, June 1985

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

3. Article Addressed to: Mr. C. M. Farris, Gen. Mgr. Farmland Industries, Inc. Green Bay Complex P. O. Box 960 Bartow, FL 33830	4. Article Number P 938 762 758 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
5. Signature - Address X <i>Jean Hicks</i>	Always obtain signature of addressee or agent and DATE DELIVERED.
6. Signature - Agent X	8. Addressee's Address (ONLY if requested and fee paid)
7. Date of Delivery <i>11/27/89</i>	

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT



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DEPARTMENT OF ENVIRONMENTAL REGULATION

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Interoffice Memorandum

TO: John Reynolds

FROM: Tom Rogers *TR*

DATE: November 21, 1988

SUBJECT: Farmland Industries, Inc. -- Incompleteness Questions
ACS-171751, PGD-FI-143

I have the following incompleteness questions regarding Farmland's permit application to construct a new sulfuric acid plant (H₂SO₄ No. 5).

1. Please submit your air quality modeling output for review. Preferably, one hard copy and one copy on 5 1/4 inch floppy diskette. Include a copy of the input files used in the modeling on floppy diskette.
2. Farmland can not take credit for the emission reductions from the sulfuric acid plants No. 1 and 2 for the purposes of net emissions change. Since these sources were previously used to offset the NOx emissions for the green superphosphoric acid plant, and it is a permit condition that these sources would be permanently shut down in that permit, these sources are no longer creditable for the construction of the new No. 5 plant. As a result, the net emissions increase is determined by the No. 5 H₂SO₄ plant only. All modeling must be redone and the question of preconstruction monitoring and the modeling of background sources reevaluated.
3. Show your calculations for determining the GEP stack height. That is include the dimensions of all nearby structures.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION IV
345 Courtland Street, N.E.
ATLANTA, GA 30308

FACSIMILE TRANSMISSION SHEET

DATE: 11/21/89 NUMBER OF PAGES: 5 (Included Cover Sheet)

TO: Barry Andrews PHONE: _____

ADDRESS: FL DER FAX NUMBER: _____

FROM: Wayne Ironson PHONE: _____

If the following message is received poorly, Please call _____
in our office at F.S 257- _____ or commercial (404) 347- _____

SPECIAL INSTRUCTIONS: EPA Review not complete,
Letter forthcoming,

PLEASE NUMBER ALL PAGES

The facility as it existed prior to PSD regulations appears to be:

Sulfuric Acid Plants (SIC 2819)

- #1 constructed 1965
- #2 constructed 1965
- #3 constructed 1972
- #4 constructed 1972

Phosphoric Acid Plants (SIC 2874)

- #1
- #2

Ammonium Phosphate Plants (SIC 2874)

- DAP
- MAP

SUPERPHOSPHORIC ACID PLANTS (SIC 2874)

- SPA

After 1977, the chronology appears to be as follows:

1982: SAP #3 + #4 are expanded
- apparently No PSD permit is issued.

question: Did the expansions constitute major modifications to an existing major source?
(i.e., $>40 \text{ tpy } \text{SO}_2$ or $>74 \text{ tpy } \text{SAM}$)

shut down.

question: Why was #2 shut down?

1987: A Green Superphosphoric acid plant is permitted. Apparently the emissions reductions from the shutdown of SAP #2 were used to net the GSPPA out of PSD.

question: ① Was there a significant increase of fluorides (3 tpy)?

② Was the shut down of #2 made federally enforceable?

③ Should the GSPPA have received a PSD?

Nov. 1989: Application to construct SAP #5 and cogeneration facility.

The applicant ~~is~~ wishes to use the shutdown of SAP #2 and the proposed shutdown of SAP #1 for netting purposes.

The modelling uses the decrease from #1 and #2 SAP along with the increases of GSPPA and SAP #5

questions: ① What emissions are associated with the proposed cogeneration facility?

② Will any of the electricity generated ^{or steam} by the cogen be sold to outside parties? If so, approximately what percent?

other questions

electricity or steam
ask for clarification

were permits rescinded for #2
emissions not carried in
inventory
"banked emissions"

"federally enforceable"?