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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

Mr. S. L. Presnell
Agrico Chemical Company - S. Pierce
P. O. Box 1110
Mulberry, Florida 33860

December 15, 1989

Enclosed is construction permit No. AC 53-167779 to Agrico for the existing molten sulfur system at Agrico's S. Pierce facility in Polk County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any party to this permit has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this permit is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copy furnished to:

B. Thomas, SW District
D. Lynch, P.E., Agrico

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 12-15-89.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kim Doben 12-15-89
Clerk Date

P 938 762 783

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. S. L. Presnell, Agrico Chem. Co.	
Street and No. P. O. Box 1110	
P.O., State and ZIP Code Mulberry, FL 33860	
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 Permit: AC 53-167779 Mailed: 12-15-89	

PS Form 3800, June 1985

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 box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Mr. S. L. Presnell
Agrico Chemical Co. - S. Pierce
P. O. Box 1110
Mulberry, FL 33860

4. Article Number
P 938 762 783

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X Pete Watson

7. Date of Delivery
12/18/89

8. Addressee's Address *(ONLY if requested and fee paid)*

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

Final Determination

Agrico Chemical Company
Mulberry, Polk County
Florida

Molten Sulfur Storage and Handling System

Permit Number: AC 53-167779

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

December 12, 1989

Final Determination

Agrico Chemical Company's application for the permitting of their existing molten sulfur system in Mulberry, Polk County, Florida, has been reviewed by the Bureau of Air Regulation.

Public Notice of the Department's Intent to Issue the permit was published in the Lakeland Ledger on November 21, 1989.

Copies of the Preliminary Determination have been available for inspection at the Department's Southwest District office in Tampa and the Department's Bureau of Air Regulation office in Tallahassee.

Comments received from Agrico during the public notice period are as follows:

a) The ventilation fans mentioned in the Preliminary Determination have an approximate ventilation rate of 1350 cfm each (manufacturers data).

b) Agrico requested a higher molten sulfur throughput rate based on the maximum past performance of the sulfuric acid plants.

c) Agrico requested a 30 minute duration for VE tests. Also, since truck unloading will occur in less than the VE test duration period, Agrico requested this be reflected in the permit.

The Department is in agreement with Agrico's comments and so Specific Conditions Nos. 2 and 6 were amended to reflect this.

The final action of the Department is to issue the permit as proposed in the Preliminary Determination with the above mentioned changes to Specific Conditions Nos. 2 and 6.

AGRICO
Division of Freeport-McMoRan Resource Partners

Agrico Chemical Company
P. O. Box 1110
Mulberry, FL 33860
(813) 428-1431

December 1, 1989

Mr. Pradeep Raval
Permitting Engineer
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: INTENT TO ISSUE PERMIT NO. AC53-167779

Dear Pradeep:

The notice of intent to issue the above referenced permit was published in the Lakeland Ledger on November 21, 1989, pursuant to Section 403.815, F.S. and Department Rule 17-103.150. An Affidavit of Publication documenting such is enclosed.

Should you have any questions or wish to discuss this matter in greater detail, please do not hesitate to call.

Thank you.

Sincerely,

AGRICO CHEMICAL COMPANY

Phillip A. Steadham
Environmental Chemist

PAS:sm

Enclosure

xc: S.L. Presnell
D.L. Chamberlain
D.W. Dudley

BEST AVAILABLE COPY

AFFIDAVIT OF PUBLICATION

THE LEDGER

Lakeland, Polk County, Florida

Case No........................

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Stephen DeWitt, who on oath says that he is Controller of The Ledger, a daily newspaper published at Lakeland in Polk County, Florida; that the attached copy of advertisement, being a .... Notice of Intent ....

in the matter of .... Molten Sulfur ....

in the ....

Court, was published in said newspaper in the issues of .... November 21; 1989 ....

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Signed .... [signature] ....
Controller

Sworn to and subscribed before me this .... 21st ....

day of .... November .... A.D. 19 89

(Seal) [signature]
Notary Public

NOTARY PUBLIC, STATE OF FLORIDA.
My Commission Expires [illegible] 11, 1990.
BONDED THRU NOTARY PUBLIC UNDERWRITERS.

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to Agrico Chemical Company, [illegible], Post Office Box 1110, Mulberry, FL [illegible] for the existing molten sulfur storage and handling system located at Agrico's facility in Mulberry, Polk County, Florida. A determination of the Best Available Control Technology (BACT) was not required. The Department is issuing this intent to issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 [illegible] Florida 323[illegible] [illegible] publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, [illegible] address, the Department [illegible] and the county in which the [illegible];

(b) A statement of how and when [illegible] received notice of the [illegible] proposed action;

(c) A statement of [illegible] substantial interests are affected by the [illegible] action or proposed action;

(d) A statement [illegible] Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is [illegible] process is designed [illegible] agency action. Accordingly the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a [illegible] quent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

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

Dept. of Environmental Regulation
Southwest District Office
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

RECEIVED
NOV 30 1989

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

Agrico Chemical Company - S. Pierce
Post Office Box 1110
Mulberry, FL. 33860

DER File No. AC 53-167779

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Agrico Chemical Company, applied on July 21, 1989, to the Department of Environmental Regulation for a construction permit for the existing molten sulfur storage and handling system located at Agrico's facility in Mulberry, Polk County, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit is required for the proposed work.

Pursuant to Section 403.815, F.S. and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department, at the address specified within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the applicant have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office in General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such

person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copies furnished to:

B. Thomas, SW District
D. Lynch, P.E., Agrico

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on 11-7-89.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kimi Dolan
Clerk

11-7-89
Date

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to Agrico Chemical Company - South Pierce, Post Office Box 1110, Mulberry, FL 33860, for the existing molten sulfur storage and handling system located at Agrico's facility in Mulberry, Polk County, Florida. A determination of the Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the

Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

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

Dept. of Environmental Regulation
Southwest District Office
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

Technical Evaluation
and
Preliminary Determination

Agrico Chemical Company
Mulberry, Polk County
Florida

Molten Sulfur Storage and Handling System

Permit Number: AC 53-167779

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

November 6, 1989

I. Application

A. Applicant

Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

B. Project and Location

The applicant proposes to permit the existing molten sulfur storage and handling system at Agrico's phosphate processing facility in Mulberry, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 407.6 km East and 3071.3 km North.

C. Facility Category

Agrico's facility is major in accordance with Rule 17-2.100 of the Florida Administrative Code (F.A.C.). The molten sulfur storage and handling system consists of several existing minor sources within the facility. The Standard Industrial Classification (SIC) Code is Industry No. 2819, Sulfuric Acid/Phosphate Processing.

The NEDs Source Classification Code (SCC) is 3-01-070-02, Storage and Transfer, Industrial Inorganic Chemicals Production.

Agrico applied for a construction permit on July 21, 1989, and the application was deemed complete on August 28, 1989.

II. Project Description

Agrico's molten sulfur storage and handling system consists of a rail and truck unloading system; two 1050 short ton (ST) molten sulfur storage tanks; one 100 ST rail pit; one 600 ST truck pit; and the associated transfer pumps and piping. All the molten sulfur received is used in the manufacture of sulfuric acid.

The venting configuration of both tanks consists of one vent at the center of the tank and four peripheral vents.

The molten sulfur is delivered by 90 ton capacity railcars, and 20 ton capacity trucks. Sulfur from the railcars is gravity fed to the rail receiving pit. Sulfur from the trucks is gravity fed to the truck receiving pit. The molten sulfur is then pumped to the two molten sulfur storage tanks. The sulfur is supplied to the two sulfuric acid plants from the storage tanks via the truck receiving pit. The pits and the storage tanks are steam heated to keep the sulfur molten. If the two acid plants were operated at their maximum design capacities of 87.5 tons 100% acid per hour (2100 tons per day) each, then the total sulfur requirement would be about 1370 tons per day, 500,000 tons per year (TPY).

The two 1050 ST sulfur storage tanks are 32 ft in diameter and 24 ft in height. Both tanks have five vents where one vent is in the center, the other four are peripheral (90° apart). The rail pit is about 45 ft x 7 ft x 5.5 ft deep, while the truck pit is 83 ft x 24 ft x 5.5 ft deep. The rail pit has two vents, while the truck pit has four vents. Two out of the four vents on the truck pit have vent fans providing forced ventilation of 1350 cfm.

Emissions of particulate matter (PM) and particulates less than 10 microns in size (PM_{10}) from the individual tanks are expected to be about 1 ton per year (TPY). The rail pit particulate emissions are expected to be less than 1 TPY. The emissions of particulate from the truck pit are estimated to be about 4 TPY. The emissions data referenced by Agrico estimates the sulfur particulate (SP) emissions to be about half of the total particulates emitted, PM/PM_{10}. Small amounts of sulfur dioxide (SO_2), hydrogen sulfide (H_2S), reduced sulfur compounds (TRS), and volatile organic compounds (VOCs), will also be emitted.

III. Rule Applicability

The existing Agrico facility is major in accordance with F.A.C. Rule 17-2.100. The molten sulfur storage and handling system will emit particulate matter and will be permitted in accordance with F.A.C. Rules 17-2 and 17-4; and, Chapter 403 of the Florida Statutes.

The facility is located in Polk County, an area designated as attainment for all the criteria pollutants, in accordance with F.A.C. Rule 17-2.420.

The project is not subject to the new source review requirements of F.A.C. Rule 17-2.500(5), Prevention of Significant Deterioration-Preconstruction Review Requirements, because the projected emissions do not exceed significance levels in Table 500-2.

The project is subject to F.A.C. Rule 17-2.520, Sources Not Subject to PSD or Nonattainment Requirements.

The project is subject to F.A.C. Rule 17-2.600(11), Specific Emission Limiting and Performance Standards for Sulfur Storage and Handling Facilities, which lists specific operational emission reduction procedures that are to be followed. Visible emissions (VE) will be limited to 20% opacity.

The project is subject to F.A.C. Rule 17-2.620, General Pollutant Emission Limiting Standards, which prohibits objectionable odors.

The project is subject to compliance testing and reporting requirements in accordance with F.A.C. Rule 17-2.700. Compliance testing for the sources shall be conducted using EPA Method 9 for visible emissions in accordance with F.A.C. Rule 17-2.700(6)(b)9. VE tests will be required to be conducted for every emission point in the sulfur system (every vent) for the initial compliance demonstration. Several emission points may be done simultaneously if possible within the requirements of EPA Method 9. The Department will require a retest at the time of operation permit renewals.

IV. Source Impact Analysis

A. Emission Limitations

The maximum emissions from the molten sulfur system are estimated to be as follows, based on test results from other similar sources:

Source		Expected Emissions				
		PM/PM_{10}	SP	SO_2	TRS/H_2S	VOC
Tank 1 (east)	lb/hr	0.2	0.1	0.2	0.1	0.2
	TPY	0.8	0.4	0.9	0.5	0.7
Tank 2 (west)	lb/hr	0.2	0.1	0.2	0.1	0.2
	TPY	0.8	0.4	0.9	0.5	0.7
Truck Pit	lb/hr	1.0	0.5	1.2	0.7	0.8
	TPY	4.0	2.0	5.2	3.1	3.7
Rail Pit	lb/hr	0.2	0.1	0.3	0.2	0.2
	TPY	0.2	0.1	0.1	0.1	0.1

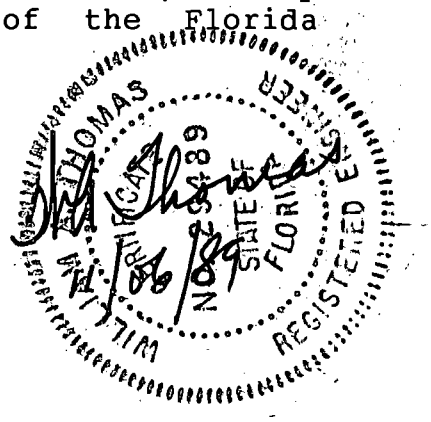
Visible emissions will be limited to 20% opacity.

B. Air Quality Impacts

The technical evaluation of this project determined that ambient air monitoring or modeling would not be required to provide reasonable assurance that Florida'a air quality standards would not be violated.

V. Conclusion

Based on the information provided by Agrico, the Department has reasonable assurance that the existing molten sulfur storage and handling system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.



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

PERMITTEE:
Agrico Chemical Company
Post Office Box 1110
Mulberry, FL 33860

Permit Number: AC 53-167779
Expiration Date: Jan. 1, 1991
County: Polk
Latitude/Longitude: 27°46'56"N
81°55'55"W
Project: Molten Sulfur Storage and Handling System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the permitting of the molten sulfur storage and handling system consisting of a rail and truck unloading system; two 1050 short ton (ST) molten sulfur storage tanks; one 100 ST rail pit; one 600 ST truck pit; and the associated transfer pumps and piping. The molten sulfur system is located at the Agrico's facility in Mulberry, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 407.6 km East and 3071.3 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Agrico's application received July 21, 1989.
2. DER's letter dated August 18, 1989.
3. Agrico's response received August 28, 1989.
4. DER's Preliminary Determination dated November 6, 1989.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

GENERAL CONDITIONS:

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

14. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Agrico's molten sulfur storage and handling system shall be allowed to operate continuously (i.e. 8760 hours/year).

2. The maximum molten sulfur throughput rate shall neither exceed 1370 tons per day (TPD), nor 500,000 tons per year (TPY), based on the combined maximum permitted sulfuric acid production rate of 4200 TPD 100% sulfuric acid for the two plants.

3. Visible emissions (VE) shall not exceed 20% opacity from any source in the molten sulfur system.

4. The permittee shall employ procedures to minimize emissions, from the molten sulfur system pursuant to the applicable requirements of F.A.C. Rule 17-2.600(11)(a) [Molten Sulfur Storage and Handling Facilities]. The permittee shall also comply with other applicable provisions of F.A.C. Rules 17-2 and 17-4.

5. No objectionable odors shall be allowed, in accordance with F.A.C. Rule 17-2.620(2) [Objectionable Odor Prohibited].

SPECIFIC CONDITIONS:

6. Initial compliance tests shall be conducted in accordance with the July 1, 1988, version of 40 CFR 60 Appendix A, using EPA Method 9, for visible emissions. For the storage tank vents and the sulfur pits' vents the tests shall be conducted while the tank and pits are being filled. VE tests shall be required again at the time of renewing the operation permits.

7. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Southwest District office for approval.

8. For emission inventory and PSD purposes, the estimated maximum emissions from the sources in the molten sulfur storage and handling system are:

Source		Expected Emissions				
		PM/PM_{10}	SP	SO_2	TRS/H_2S	VOC
Tank 1 (east)	lb/hr	0.2	0.1	0.2	0.1	0.2
	TPY	0.8	0.4	0.9	0.5	0.7
Tank 2 (west)	lb/hr	0.2	0.1	0.2	0.1	0.2
	TPY	0.8	0.4	0.9	0.5	0.7
Truck Pit	lb/hr	1.0	0.5	1.2	0.7	0.8
	TPY	4.0	2.0	5.2	3.1	3.7
Rail Pit	lb/hr	0.2	0.1	0.3	0.2	0.2
	TPY	0.2	0.1	0.1	0.1	0.1

9. A minimum of 15 days prior written notification of the compliance tests shall be given to DER's Southwest District office. The compliance test results shall be submitted to the district office within 45 days of test completion.

10. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation (BAR) prior to 60 days before the expiration of the permit (F.A.C. 17-4.090).

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-167779
Expiration Date: Jan. 1, 1991

SPECIFIC CONDITIONS:

11. An application for an operation permit must be submitted to DER's Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. 17-4.220).

Issued this _____ day
of _____, 1989

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Dale Twachtmann, Secretary

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

PERMITTEE:
Agrico Chemical Company
Post Office Box 1110
Mulberry, FL 33860

Permit Number: AC 53-167779
Expiration Date: Jan. 1, 1991
County: Polk
Latitude/Longitude: 27°46'56"N
81°55'55"W
Project: Molten Sulfur Storage and Handling System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the permitting of the molten sulfur storage and handling system consisting of a rail and truck unloading system; two 1050 short ton (ST) molten sulfur storage tanks; one 100 ST rail pit; one 600 ST truck pit; and the associated transfer pumps and piping. The molten sulfur system is located at the Agrico's facility in Mulberry, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 407.6 km East and 3071.3 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Agrico's application received July 21, 1989.
2. DER's letter dated August 18, 1989.
3. Agrico's response received August 28, 1989.
4. DER's Preliminary Determination dated November 6, 1989.
5. Agrico's letter received November 17, 1989.
6. DER's Final Determination dated December 12, 1989.

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-167779
Expiration Date: Jan. 1, 1991

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

GENERAL CONDITIONS:

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

14. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Agrico's molten sulfur storage and handling system shall be allowed to operate continuously (i.e. 8760 hours/year).

2. The maximum molten sulfur throughput rate shall neither exceed 1580 tons per day (TPD), nor 550,000 tons per year (TPY), based on the combined sulfuric acid production capacity of about 4620 TPD 100% sulfuric acid for the two plants.

3. Visible emissions (VE) shall not exceed 20% opacity from any source in the molten sulfur system.

4. The permittee shall employ procedures to minimize emissions, from the molten sulfur system pursuant to the applicable requirements of F.A.C. Rule 17-2.600(11)(a) [Molten Sulfur Storage and Handling Facilities]. The permittee shall also comply with other applicable provisions of F.A.C. Chapters 17-2 and 17-4.

5. No objectionable odors shall be allowed, in accordance with F.A.C. Rule 17-2.620(2) [Objectionable Odor Prohibited].

SPECIFIC CONDITIONS:

6. Initial compliance tests shall be conducted in accordance with the July 1, 1988, version of 40 CFR 60 Appendix A, using EPA Method 9, for visible emissions. Test run duration shall not be less than 30 minutes. For the storage tank vents and the sulfur pits' vents the tests shall be conducted while the tank and pits are being filled (filling does not have to be continuous during the entire test). VE tests shall be required again at the time of renewing the operation permits.

7. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Southwest District office for approval.

8. For emission inventory and PSD purposes, the estimated maximum emissions from the sources in the molten sulfur storage and handling system are:

Source		Expected Emissions				
		PM/PM_{10}	SP	SO_2	TRS/H_2S	VOC
Tank 1 (east)	lb/hr	0.2	0.1	0.2	0.1	0.2
	TPY	0.8	0.4	0.9	0.5	0.7
Tank 2 (west)	lb/hr	0.2	0.1	0.2	0.1	0.2
	TPY	0.8	0.4	0.9	0.5	0.7
Truck Pit	lb/hr	1.0	0.5	1.2	0.7	0.8
	TPY	4.0	2.0	5.2	3.1	3.7
Rail Pit	lb/hr	0.2	0.1	0.3	0.2	0.2
	TPY	0.2	0.1	0.1	0.1	0.1

9. A minimum of 15 days prior written notification of the compliance tests shall be given to DER's Southwest District office. The compliance test results shall be submitted to the district office within 45 days of test completion.

10. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation (BAR) prior to 60 days before the expiration of the permit (F.A.C. 17-4.090).

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-167779
Expiration Date: Jan. 1, 1991

SPECIFIC CONDITIONS:

11. An application for an operation permit must be submitted to DER's Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. 17-4.220).

Issued this 14 day
of December, 1989

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Dale Twachtmann, Secretary

ATTACHMENTS AVAILABLE UPON REQUEST

AGRICO
Division of Freeport-McMoRan Resource Partners

Agrico Chemical Company
P. O. Box 1110
Mulberry, FL 33860
(813) 428-1431

November 14, 1989

Mr. Pradeep Raval
Permitting Engineer
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: **Proposed Permit No. AC53-167779, Molten Sulfur Storage and Handling System, South Pierce Plant**

Dear Pradeep:

The proposed permit and Technical Evaluation and Preliminary Determination for the above-referenced source was received under cover of correspondence dated November 6, 1989. As discussed during our telephone conversations of November 13 and 14, we wish to submit comments on these documents and to recommend clarification of several specific conditions of the proposed permit.

Our comments are as follows:

1. In the Project Description (Section II) of the Technical Evaluation and Preliminary Determination, reference is made to the four vents on the truck pit - two of which have forced ventilation at a rate of 1350 cfm each. We wish to point out that this ventilation rate is based on a specification sheet supplied by the fan manufacturer and has never actually been measured. We suggest that the language be revised to reflect the ventilation rate as an approximation.

2. Specific Condition No. 2 imposes a maximum molten sulfur throughput rate on a daily and annual basis and refers to a "combined maximum permitted sulfuric acid production rate".

In fact, our sulfuric acid plant operating permits, A053-101764 and A053-145510, do not impose maximum production rates, but allow production rates to increase above design capacity as long as the emission limitations imposed by the permits are not exceeded. The subject permit would effectively limit sulfuric acid production rates by limiting the throughput of molten sulfur. We object to this limitation since sulfuric acid production rates are addressed by separate and independent permits. To avoid the possibility of the molten sulfur throughput maximum being exceeded and subsequently being interpreted as a permit violation, we request that the limits imposed by this condition be revised to allow for sulfuric acid production rates which may be required to meet product demand.

Based on our conversations we agreed to the following language:

> The molten sulfur throughput rate shall neither exceed 1507 tons per day (TPD) average (1580 TPD maximum), nor 550,000 tons per year (TPY), based on the combined sulfuric acid production capacity of about 4620 TPD 100% sulfuric acid for the two plants.

3. Specific Condition No.3 establishes the compliance test method as EPA method 9, for visible emissions. We request that the duration of each test be specified as thirty (30) minutes.

   You also agreed to include additional language which recognizes that the tank and pit filling is not continuous. We would agree to assure a minimum of one filling during each VE test.

We appreciate the opportunity to submit these comments and have made the necessary arrangements to have "Notice Of Intent To Issue" published as required. We will forward an Affidavit of Publication as soon thereafter as possible. Should you have any questions or wish to discuss this matter further, please do not hesitate to call.

Thank you.

Sincerely,

Phillip A. Steadham
Environmental Chemist

xc: S.L. Presnell
D.L. Chamberlain
D.W. Dudley
F.J. Muntz

copy to Pradeep file 11/20 PK

AGRICO
Division of Freeport-McMoRan Resource Partners

Agrico Chemical Company
P. O. Box 1110
Mulberry, FL 33860
(813) 428-1431

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 24, 1989

C.H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: **South Pierce Molten Sulfur Storage and Handling Facility, AC53-16779**

Dear Mr. Fancy:

In response to your August 18, 1989 request for additional information on the above-referenced construction permit application, we submit the following:

1. The currently permitted sulfuric acid manufacturing design capacity at South Pierce is 83.3 TPH of 100% H2S04 for each of two plants, or 166.6 TPH total. However, our permit allows the actual production rate to increase above this amount as long as the emission limitations specified by the permit are not exceeded. The corresponding molten sulfur requirement for the design capacity of 166.6 TPH 100% H2S04 would be 54.31 TPH sulfur. The corresponding molten sulfur requirement for any production rate is given by the following equation:

   Molten Sulfur required = Production Rate (TPH)
   x 0.326 (tons S/ton H2S04)

2. Emissions from molten sulfur delivery vehicles were included in the emission estimates for the truck and rail receiving pits. These were presented in the subject permit application.

Best Available Copy

AGRICO
Division of Freeport-McMoRan Resource Partners

Agrico Chemical Company
P. O. Box 1110
Mulberry, FL 33860

Fold at line over top of envelope to the right of the return address.

CERTIFIED

P 895 312 636

MAIL

Mr. C.H. Fancy, P.E.
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RETURN RECEIPT REQUESTED

3. There are no other source/equipment/process within or associated with the sulfur facility at South Pierce.

4. The physical dimensions of the sulfur pits and tanks at South Pierce are:

   a) Truck pit: 83 feet x 24 feet x 5.5 feet
   b) Rail pit: 45 feet x 7 feet x 5.5 feet
   c) Storage tanks (2): 32 feet(diameter) x 24 feet(height)

Should you require any additional information, please do not hesitate to call.

Sincerely,

Phillip A. Steadham

Phillip A. Steadham
Environmental Chemist

PAS:sm
8/24/89

xc: S. Presnell
D. Lynch

copied: P. Raval
A. Kuna, SW Dist.
CHF/BT

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

August 18, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. S. L. Presnell
Agrico Chemical Company - S. Pierce
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Presnell:

Re: Agrico - S. Pierce Sulfur Facility Permitting, AC 53-167779

The Department has received your application dated July 18, 1989, and deemed it incomplete. Please submit the following information including all assumptions, calculations and reference material:

1. What is the currently permitted sulfuric acid manufacturing capacity of Agrico's South Pierce facility and the corresponding molten sulfur requirement?

2. Provide estimates of any expected emissions from the molten sulfur delivery vehicles.

3. Please submit air emission estimates for any other source/equipment/process within (or associated with) the sulfur facility which has not yet been permitted by DER.

4. Verify the physical dimensions (length x width x depth) of the sulfur pits located in the sulfur facility.

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

Sincerely,

for C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/PR

cc: B. Thomas, SW District
D. Lynch, P.E., Agrico

Agrico

A Division of
Freeport-McMoRan Resource Partners

Agrico Chemical Company
State Road 630
Bartow, FL 33830

P. O. Box 1110
Mulberry, FL 33860
(813) 428-1423

July 18, 1989

Mr. Pradeep A. Raval, Engineer
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: Molten Sulfur Storage and Handling Facility -
Construction Permit Application For South Pierce

Dear Pradeep:

Enclosed is a construction permit application with the appropriate processing fee for the above-referenced sources, which consist of a tank receiving pit, a rail receiving pit, and two storage tanks.

Should you have any questions following your receipt and review of the enclosed application and attachments, please do not hesitate to call.

Thank you.

Sincerely,

Phillip A. Steadham
Environmental Chemist

PAS:sm
7/18/89

xc: S. Presnell
D. Chamberlain
W. W. Forman

1031

P 938 762 655

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. S. L. Presnell, Agrico	
Street and No. P. O. Box 1110 Chemical Co.	
P.O., State and ZIP Code Mulberry, FL 33860	
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: 8-18-89 Permit: AC 53-167779	

PS Form 3800, June 1985

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 box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to: Mr. S. L. Presnell Agrico Chemical Company, S. Pierce P. O. Box 1110 Mulberry, FL 33860	4. Article Number P 938 762 655 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature – Address X Doug Holloway	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature – Agent X	
7. Date of Delivery 8-21-89	

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

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 6, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. S. L. Presnell
Agrico Chemical Company - S. Pierce
Post Office Box 1110
Mulberry, Florida 33860

Dear Mr. Presnell:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit for Agrico's molten sulfur storage and handling system in Mulberry, Polk County, Florida.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Bill Thomas of the Bureau of Air Regulation.

Sincerely,

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

CHF/pr

Attachments

cc: B. Thomas, SW District
D. Lynch, P.E., Agrico

P 938 762 740

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. S. L. Presnell	
Street and No. Agrico Chem. Co. P.O. Box 1110	
P.O. State and ZIP Code. Mulberry, FL 33860	
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: 11-7-89 Permit: AC 53-167779	

PS Form 3800, June 1985

● **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 box(es) for additional service(s) requested.

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

3. Article Addressed to:

Mr. S. L. Presnell
Agrico Chemical Company
S. Pierce
Post Office Box 1110
Mulberry, FL 33860

4. Article Number
P 938 762 740

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery
11-9-89

8. Addressee's Address *(ONLY if requested and fee paid)*

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

AGRICO CHEMICAL COMPANY
IMPREST ACCOUNT
PHONE 813-428-1431
P.O. BOX 1110
MULBERRY, FLORIDA 33860

4457

[redacted]

July 18 19 89

PAY TO THE ORDER OF Florida Department of Environmental Regulation $ 200.00

----------Two Hundred and no/100---------- DOLLARS

Sun First National Bank of Polk County
Mulberry Office 185
400 North Church Ave., Mulberry, FL 33860

AGRICO CHEMICAL COMPANY IMPREST ACCOUNT

[redacted]

M-W-V: HARLAND NO. 802

2600 Blair Stone Road
Tallahassee, Florida 32301

Re: Molten Sulfur Storage and Handling Facility -
Construction Permit Application For South Pierce

Dear Pradeep:

Enclosed is a construction permit application with the appropriate processing fee for the above-referenced sources, which consist of a tank receiving pit, a rail receiving pit, and two storage tanks.

Should you have any questions following your receipt and review of the enclosed application and attachments, please do not hesitate to call.

Thank you.

Sincerely,

Phillip A. Steadham
Environmental Chemist

PAS:sm
7/18/89

xc: S. Presnell
D. Chamberlain
W. W. Forman

1031

$200 pd.
7-21-89
Rcpt.# 117648

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

AC 53-167779

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Molten Sulfur Storage and Handling Facility [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Agrico Chemical Company - South Pierce COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) See Attachment 7

SOURCE LOCATION: Street Highway 630, Box 1110 City Mulberry

UTM: East 7407900 North 307100

Latitude 27 ° 46 ' 56 "N Longitude 81 ° 55 ' 55 "W

APPLICANT NAME AND TITLE: Selwyn Presnell, Environmental Manager

APPLICANT ADDRESS: P.O. Box 1110, Mulberry, Florida 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Selwyn L Presnell

Selwyn Presnell, Environmental Manager
Name and Title (Please Type)

Date: 7-18-89 Telephone No. (813) 428-1431

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed Daniel H. Lynch

DANIEL H. LYNCH
Name (Please Type)

Agrico Chemical Company
Company Name (Please Type)

Box 1110 Mulberry, Florida 33860
Mailing Address (Please Type)

Florida Registration No. 9437 Date: July 19, 1989 Telephone No. (813) 428-1431

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

This project consists of storage facilities for the handling of molten sulfur and includes two (2) - 1050 ton storage tanks (east and west), one (1) - 100 ton rail receiving pit, and one (1)- 600 ton truck receiving pit. The project is in full compliance with the applicable sections of F.A.C. Chapter 17.2.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction 1964 Completion of Construction 1964

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

None

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr _____; if seasonal, describe: _____

F. If this is a new source or major modification, answer the following questions. (Yes or No) Not Applicable.

1. Is this source in a non-attainment area for a particular pollutant? _____

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. _____

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. _____

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? _____

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? _____

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? _____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

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		
Molten Sulfur	See Attachment I		114,100	1, 2, 3, 4

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

1. Total Process Input Rate (lbs/hr): 114,100

2. Product Weight (lbs/hr): 350,000

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Truck Receiving Pit - See Attachment 3A

Name of Contaminant	Emission[1]		Allowed[2] 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	
S Particulate	0.46	2.03	N/A	N/A	4060	2.03	2
H2S	0.70	3.07	N/A	N/A	6140	3.07	2
SO2	1.19	5.22	N/A	N/A	10440	5.22	2
VOC's	0.84	3.71	N/A	N/A	7420	3.71	2
Total Reduc S	Reported as H2S		above				

[1]See Section V, Item 2.

[2]Reference 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)

[3]Calculated from operating rate and applicable standard.

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

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		

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Rail Receiving Pit - See Attachment 3B

Name of Contaminant	Emission[1]		Allowed[2] 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	
S Particulate	0.11	0.03	N/A	N/A	60	0.03	4
H2S	0.18	0.05	N/A	N/A	100	0.05	4
SO2	0.29	0.08	N/A	N/A	160	0.08	4
VOC's	0.18	0.05	N/A	N/A	100	0.05	4
Total Reduc S	Reported sa H2S		above				

[1]See Section V, Item 2.

[2]Reference 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)

[3]Calculated from operating rate and applicable standard.

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

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		

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Storage Tanks (2)* - See Attachment 3C

Name of Contaminant	Emission[1]		Allowed[2] 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	
S Particulate	0.16	0.72	N/A	N/A	1440	0.72	3
H2S	0.24	1.07	N/A	N/A	2140	1.07	3
SO2	0.42	1.82	N/A	N/A	3640	1.82	3
VOC's	0.30	1.30	N/A	N/A	2600	1.30	3
Total Reduc S	Reported as H2S		above				

[1]See Section V, Item 2.

[2]Reference 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)

[3]Calculated from operating rate and applicable standard.

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

* These emissions represent the total from two identical tanks.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
None				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average N/A Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Small spills of molten sulfur may occur from time to time. These solidify upon cooling, are collected in a curbed bin, and are sold to a recycling operation.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: Not Applicable ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)] (Attachment 2)

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (Attachment 3A, 3B & 3C)

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). (Same as Attachment 3A, 3B & 3C)

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.) Not Applicable

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency). Not Applicable

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. (Attachment 4)

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). (Attachment 5)

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. (Attachment 6)

ATTACHMENT 1

MOLTEN SULFUR CONTAMINANTS

The following contaminants are present in the vapor space above molten sulfur in the concentrations shown:

	Concentration, lb/acf
Sulfur Particulate	1.757×10^{-5}
Hydrogen Sulfide	$1.719 \times 10^{-2} \times (V^{-0.938})$*
Sulfur Dioxide	5.472×10^{-6}
Volatile Organic Compounds	5.224×10^{-5}
Total Reduced Sulf. Compounds	$1.719 \times 10^{-2} \times (V^{-0.938})$*

* where V - ventilation rate (acf) to the -0.938 power

ATTACHMENT 2

SECTION V.I: DERIVATION OF TOTAL PROCESS INPUT RATE AND PRODUCTION RATE

TOTAL PROCESS INPUT RATE:

= 0.326 tons sulfur/ton sulfuric acid produced x 4200 TPD sulfuric acid x 1/24 days/hr x 2000 #/ton
= 114,100 lbs/hr.

PRODUCTION RATE:

At the calculated total process rate above, the production rate is a design rate of 4200 TPD for the two plants combined.

ATTACHMENT 3A

BASIS OF EMISSIONS ESTIMATE FOR TRUCK RECEIVING PIT

ASSUMPTIONS

1. Plant sulfur throughput is 500,525 tpy based on two sulfuric acid plants operating at 2100 tpd, 365 dpy.

= (2 plants x 2100 tpd)(365 dpy)(0.3265 ton S/ton H_2SO_4)
= 500,525 tpy.

2. Truck receiving pit throughput is 90% of plant throughput, or 450,473 tpy.

3. Rail receiving pit throughput is 10% of plant throughput, or 50,052 tpy.

4. Truck pit has forced ventilation rate of 2700 cfm, by two fans, 1350 cfm each and a capacity of 600 tons.

5. The head space over the molten sulfur is 3000 cu ft, based on dimensions of the pit and freeboard.

6. Sulfur particle concentration in vent gas when pit is being filled is 0.2 grains/dscf (based on data obtained from Koogler and Enviroplan).

7. Sulfur vapor concentration in the truck pit at a 300 minute/turnover ventilation rate is at equilibrium with an equilibrium concentration of 0.2 grains/cu ft. At a 0 minute/turnover ventilation rate(infinite dilution), the sulfur vapor concentration would be 0 grains/cu ft. The sulfur vapor concentration was approximated with a first order equation(see attached curve), which uses the above boundary conditions and forces the concentration to 10% of the equilibrium value at a one minute/turnover ventilation rate.

EMISSIONS

Sulfur Particulate

= (2 vents x 1350 cfm) x 60 min/hr x 0.2 grains/cu ft x 0.1 1/7000 lb/grain x 1/2000 ton/lb x 8760 hr/yr

= 2.03 tpy

= 2.03 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.46 lb/hr

Hydrogen Sulfide, Sulfur Dioxide, and Volatile Organics

Equilibrium concentrations:

H2S = 0.303 grains/cu ft
SO2 = 0.515 grains/cu ft
VOC = 5.224×10^{-5} lb/cu ft

Total ventilation = 2700 cu ft/min

H2S Emissions = 2700 cu ft/min x 60 min/hr x 0.303 grains/ cu ft x 0.1 x 1/7000 lb/grain x 1/2000 ton/lb x 8760 hr/yr
= 3.07 tpy, or

= 3.07 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.70 lb/hr

SO2 Emissions = 2700 cu ft/min x 60 min/hr x 0.515 grains/ cu ft x 0.1 x 1/7000 lb/grain x 1/2000 ton/lb x 8760 hr/yr
= 5.22 tpy, or

= 5.22 tpy x 2000 lb/ton x 1/8760 yr/hr

= 1.19 lb/hr

VOC Emissions = 2700 cu ft/min x 60 min/hr x 5.224×10^{-5} lb/cu ft x 0.1 x 1/2000 ton/lb x 8760 hr/yr
= 3.71 tpy, or

= 3.71 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.84 lb/hr

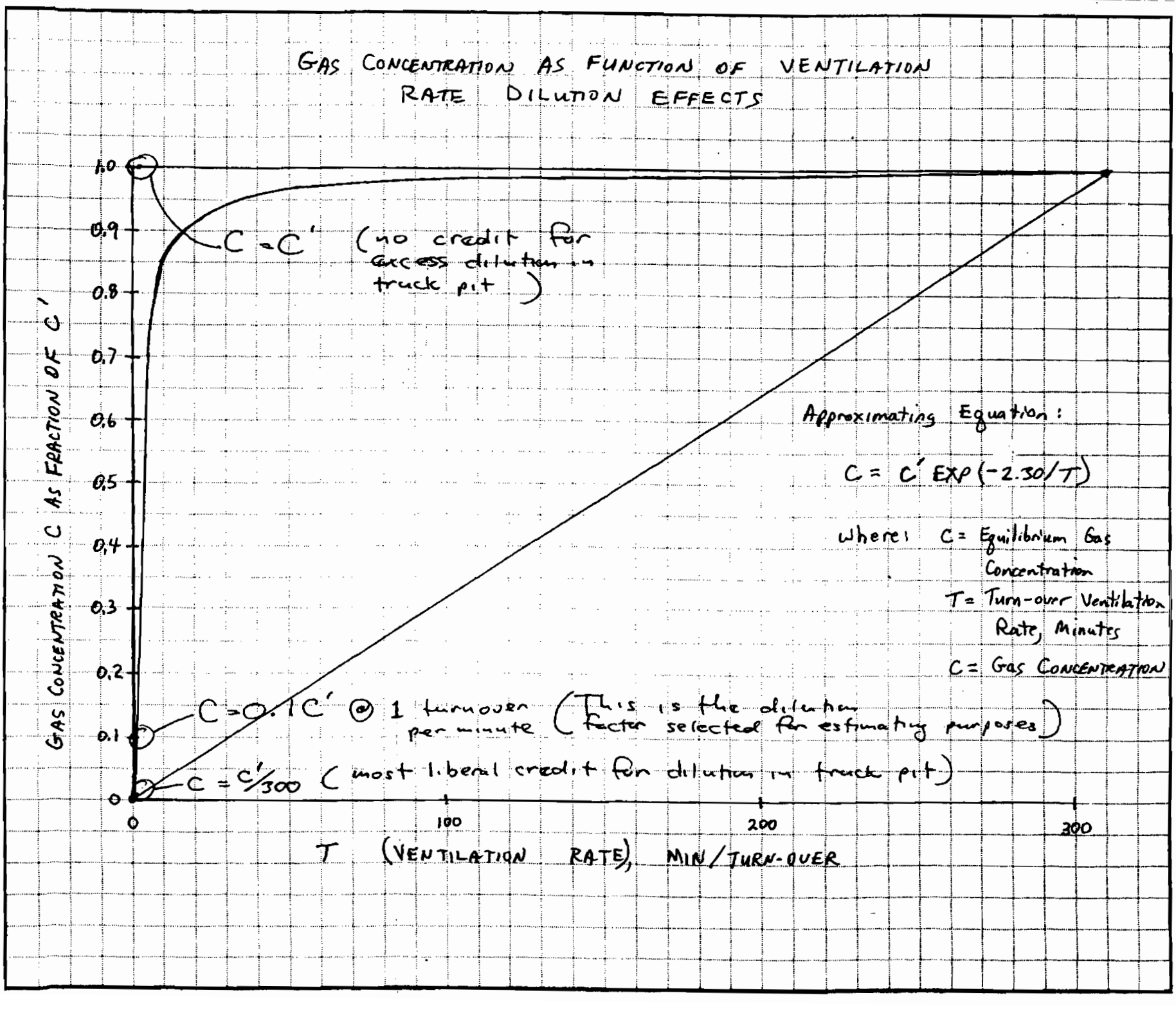
REFERENCES FOR EMISSION ESTIMATES

1. SULFUR PARTICULATE ---- prepared by Dr. John B. Koogler, Koogler & Associates, Gainesville, Florida for Agrico Chemical Company using actual measurements of a similar system and data obtained from Enviroplan, Inc.

2. HYDROGEN SULFIDE, SULFUR DIOXIDE, and VOLATILE ORGANICS ---- prepared by Dr. John B. Koogler for Agrico Chemical Company using data collected at Sulfur Terminals(Tampa) in November, 1983 and other data collected by Enviroplan, Inc.

3. VOLATILE ORGANIC COMPOUNDS ---- prepared by Dr. John B. Koogler for Agrico Chemical Company using concentration data obtained from Enviroplan, Inc.

GAS CONCENTRATION AS FUNCTION OF VENTILATION RATE DILUTION EFFECTS



Approximating Equation:

$$C = C' \, EXP(-2.30/T)$$

where: C = Equilibrium Gas Concentration

T = Turn-over Ventilation Rate, Minutes

C = Gas Concentration

KOGER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 • FAX 377-7158

JOB _____

CALCULATED BY _____ DATE _____

SHEET NO. 8 OF 8

ATTACHMENT 3B

BASIS OF EMISSION ESTIMATES FOR RAIL RECEIVING PIT

ASSUMPTIONS

Applicable assumptions incorporated by reference from Attachment 3A.

In addition, the following assumptions are noted:

1. Rail receiving pit capacity is 100 tons.

2. The pit has two vents with a ventilation rate of 18 cu ft/min/vent plus the volume of air displaced during filling of the pit.

3. Sulfur is transferred from a 90 ton rail car at a rate of one car/hr. Sulfur is pumped to the west storage tank at a rate of 90 tph.

4. The rail pit is empty when sulfur transfer is not occuring.

5. The ventilation rate during filling is 3767 cu ft/hr. This is based on the following:

= (2 vents x 18 cu ft/min/vent x 60 min/hr) + volume displaced by the sulfur during filling of the pit

= 2160 + 1607 = 3767 cu ft/hr

6. The sulfur particulate concentration = 0.2 grains/cu ft.

7. Annual use of the pit is about 50052 tons/yr / 90 tph, or about 556 hr/yr.

EMISSIONS

Sulfur Particulate

= 3767 cu ft /hr x 556 hr/yr x 0.2 grains/cu ft x 1/7000 lb/grain x 1/2000 ton/lb

= 0.03 tpy

= 0.03 tpy x 2000 lb/ton x 1/556 yr/hr

= 0.11 lb/hr

Hydrogen Sulfide, Sulfur Dioxide, and Volatile Organics

Equilibrium concentrations:

H2S = 0.303 grains/cu ft
SO2 = 0.515 grains/cu ft
VOC = 5.224×10^{-5} lb/cu ft

Total ventilation = 3767 cu ft/hr
Transfer Time = 556 hr/yr

H2S Emissions = 3767 cu ft/hr x 556 hr/yr x 0.303 grains/cu ft
x 1/7000 lb/grain x 1/2000 ton/lb
= 0.05 tpy, or

= 0.05 tpy x 2000lb/ton x 1/556 yr/hr

= 0.18 lb/hr

SO2 Emissions = 3767 cu ft/hr x 556 hr/yr x 0.515 grains/cu ft
x 1/7000 lb/grain x 1/2000 ton/lb
= 0.08 tpy, or

= 0.08 tpy x 2000lb/ton x 1/556 yr/hr

= 0.29 lb/hr

VOC Emissions = 3767 cu ft/hr x 556 hr/yr x 5.224×10^{-5} lb/cu ft
x 1/2000 ton/lb
= 0.05 tpy, or

= 0.05 tpy x 2000lb/ton x 1/556 yr/hr

= 0.18 lb/hr

REFERENCES

See Attachment 3A.

ATTACHMENT 3C

BASIS OF EMISSION ESTIMATE FOR STORAGE TANKS

ASSUMPTIONS

Applicable assumptions incorporated by reference from Attachment 3A.

In addition, the following assumptions are noted:

1. All sulfur delivered by rail and 20% delivered by truck is transferred to storage tanks. This is about 140147 tpy.

   = 50052 + (0.2 x 450473) = 140147 tpy

2. The transfer rate from truck pit to storage tanks is 425 gpm, or about 190 tph.

   = 425 gpm x 60 min/hr x 1/7.5 gal/cu ft x 112 lb sulfur/cu ft x 1/2000 ton/lb

   = 190 tph

3. Sulfur throughput is divided evenly between the two tanks.

4. Ventilation rates are:

   a) 50052 tpy from rail cars is transferred at a rate of 90 tph, which displaces 27 cu ft/min.

   b) 90095 tpy from truck pit is transferred at a rate of 190 tph, which displaces about 57 cu ft/min.

   c) Wind induced ventilation from each 5 vent tank is about 90 cu ft/min (5 vents x 18 cu ft/min/vent).

EMISSIONS

Sulfur Particulate

a) During filling from truck pit, based on 57 + 90 = 147 cu ft/min total ventilation rate and a sulfur particle concentration of 0.2 grains/cu ft:

Transfer time = 90095 tons/190 tph = 474 hr/yr

Emissions = 147 cu ft/min x 60 min/hr x 474 hr/yr x
0.2 grains/cu ft x 1/7000 lb/grain x
1/2000 ton/lb
= 0.06 tpy, for both tanks

b) During filling from rail pit, based on 27 + 90 = 117 cu ft total ventilation rate and a sulfur particle concentration of 0.2 grains/cu ft:

Transfer time = 50052 tons/90 tph = 556 hr/yr

Emissions = 117 cu ft/min x 60 min/hr x 556 hr/yr x
0.2 grains/cu ft x 1/7000 lb/grain x
1/2000 ton/lb
= 0.06 tpy, for both tanks

c) During withdrawal or when idle, based on a 90 cu ft total ventilation rate and a sulfur particle concentration of 0.2 grains/cu ft:

Time = 8760 hr/yr - (474 + 556) = 7730 hr/yr

Emissions = 90 cu ft/min x 60 min/hr x 7730 hr/yr x
0.2 grains/cu ft x 1/7000 lb/grain x
1/2000 ton/lb
= 0.60 tpy, for both tanks

Total Tank Emissions:

= 0.06 + 0.06 + 0.60 = 0.72 tpy, for both tanks

= 0.72 tpy x 2000 lb/ton x 1/8760 yr/hr = 0.16 lb/hr

Hydrogen Sulfide, Sulfur Dioxide, and Volatile Organics

Equilibrium concentrations:

H2S = 0.303 grains/cu ft
SO2 = 0.515 grains/cu ft
VOC = 5.224×10^{-5} lb/cu ft

a) Emissions from tank during filling from truck pit:

Total ventilation = 147 cu ft/min
Transfer Time = 474 hr/yr

H2S Emissions = 147 cu ft/min x 60 min/hr x 474 hr/yr
x 0.303 grains/cu ft x 1/7000 lb/grain
x 1/2000 ton/lb
= 0.09 tpy, or

= 0.09 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.02 lb/hr for both tanks

On same basis, using equilibrium concentrations shown above, the emissions of SO2 and VOC's may be calculated.

SO2 Emissions = 147 cu ft/min x 60 min/hr x 474 hr/yr
x 0.515 grains/cu ft x 1/7000 lb/grain
x 1/2000 ton/lb
= 0.15 tpy, or

= 0.15 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.03 lb/hr for both tanks

VOC Emissions = 147 cu ft/min x 60 min/hr x 474 hr/yr
x 5.224 x 10^{-5} lb/cu ft) x 1/2000 ton/lb
= 0.11 tpy, or

= 0.11 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.025 lb/hr for both tanks

b) Emissions from tank during filling from rail pit:

Total ventilation = 117 cu ft/min
Transfer Time = 556 hr/yr

H2S Emissions = 117 cu ft/min x 60 min/hr x 556 hr/yr
x 0.303 grains/cu ft x 1/7000 lb/grain
x 1/2000 ton/lb
= 0.08 tpy, or

= 0.08 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.018 lb/hr for both tanks

On same basis, using equilibrium concentrations shown above, the emissions of SO2 and VOC's may be calculated.

SO2 Emissions = 117 cu ft/min x 60 min/hr x 556 hr/yr
x 0.515 grains/cu ft x 1/7000 lb/grain
x 1/2000 ton/lb
= 0.14 tpy, or

= 0.14 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.03 lb/hr for both tanks

VOC Emissions = 117 cu ft/min x 60 min/hr x 556 hr/yr
x 5.224 x 10^{-5} lb/cu ft) x 1/2000 ton/lb
= 0.10 tpy, or

= 0.10 tpy x 2000 lb/ton x 1/8760 yr/hr

= 0.023 lb/hr for both tanks

c) Emissions from tank when idle or sulfur is withdrawn:

Total ventilation = 90 cu ft/min
Transfer Time = 7730 hr/yr

H2S Emissions = 90 cu ft/min x 60 min/hr x 7730 hr/yr
x 0.303 grains/cu ft x 1/7000 lb/grain
x 1/2000 ton/lb
= 0.90 tpy, or

= 0.90 tpy x 2000lb ton x 1/8760 yr/hr

= 0.21 lb/hr for both tanks

On same basis, using equilibrium concentrations shown above, the emissions of SO2 and VOC's may be calculated.

SO2 Emissions = 90 cu ft/min x 60 min/hr x 7730 hr/yr
x 0.515 grains/cu ft x 1/7000 lb/grain
x 1/2000 ton/lb
= 1.53 tpy, or

= 1.53 tpy x 2000lb ton x 1/8760 yr/hr

= 0.35 lb/hr for both tanks

VOC Emissions = 90 cu ft/min x 60 min/hr x 7730 hr/yr
x 5.224 x 10^{-5} lb/cu ft) x 1/2000 ton/lb
= 1.09 tpy, or

= 1.09 tpy x 2000lb ton x 1/8760 yr/hr

= 0.25 lb/hr for both tanks

d) Total H2S, SO2, and VOC Emissions

H2S = 0.09 + 0.08 + 0.90 = 1.07 tpy, or 0.24 lb/hr

SO2 = 0.15 + 0.14 + 1.53 = 1.82 tpy, or 0.42 lb/hr

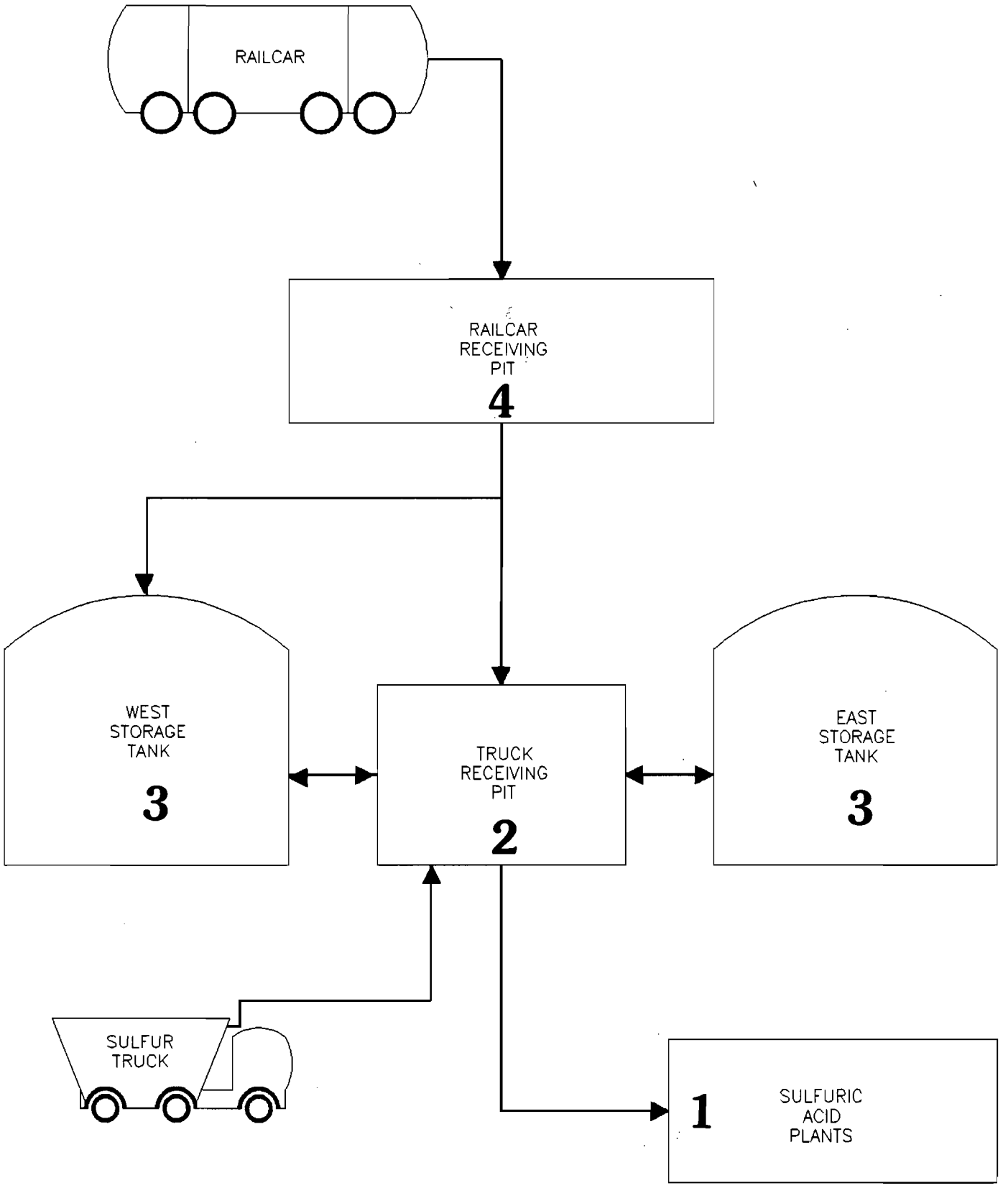
VOC = 0.11 + 0.10 + 1.09 = 1.30 tpy, or 0.30 lb/hr

REFERENCES

See Attachment 3A.

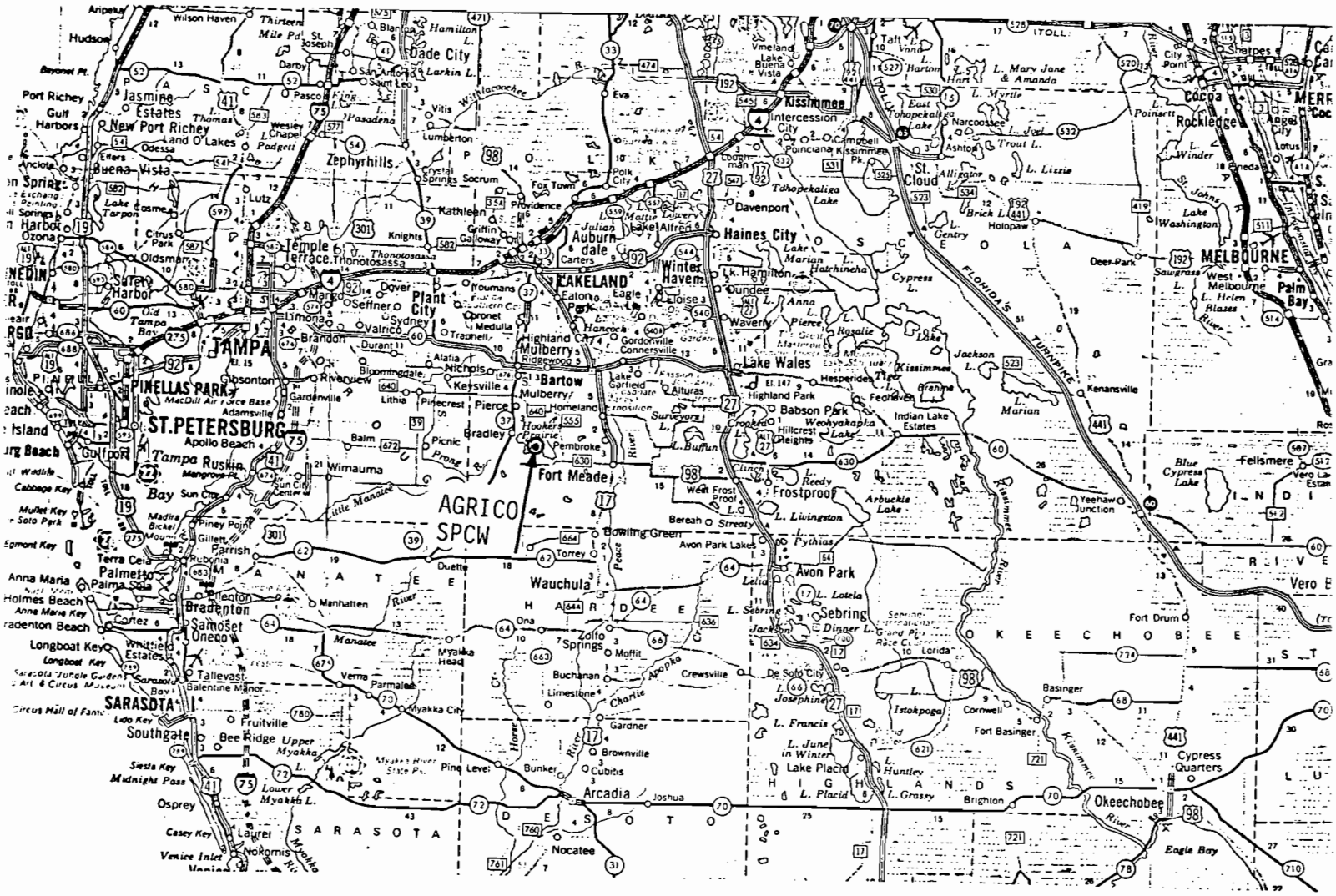
ATTACHMENT 4

MOLTEN SULFUR STORAGE AND HANDLING FACILITY



ATTACHMENT 5

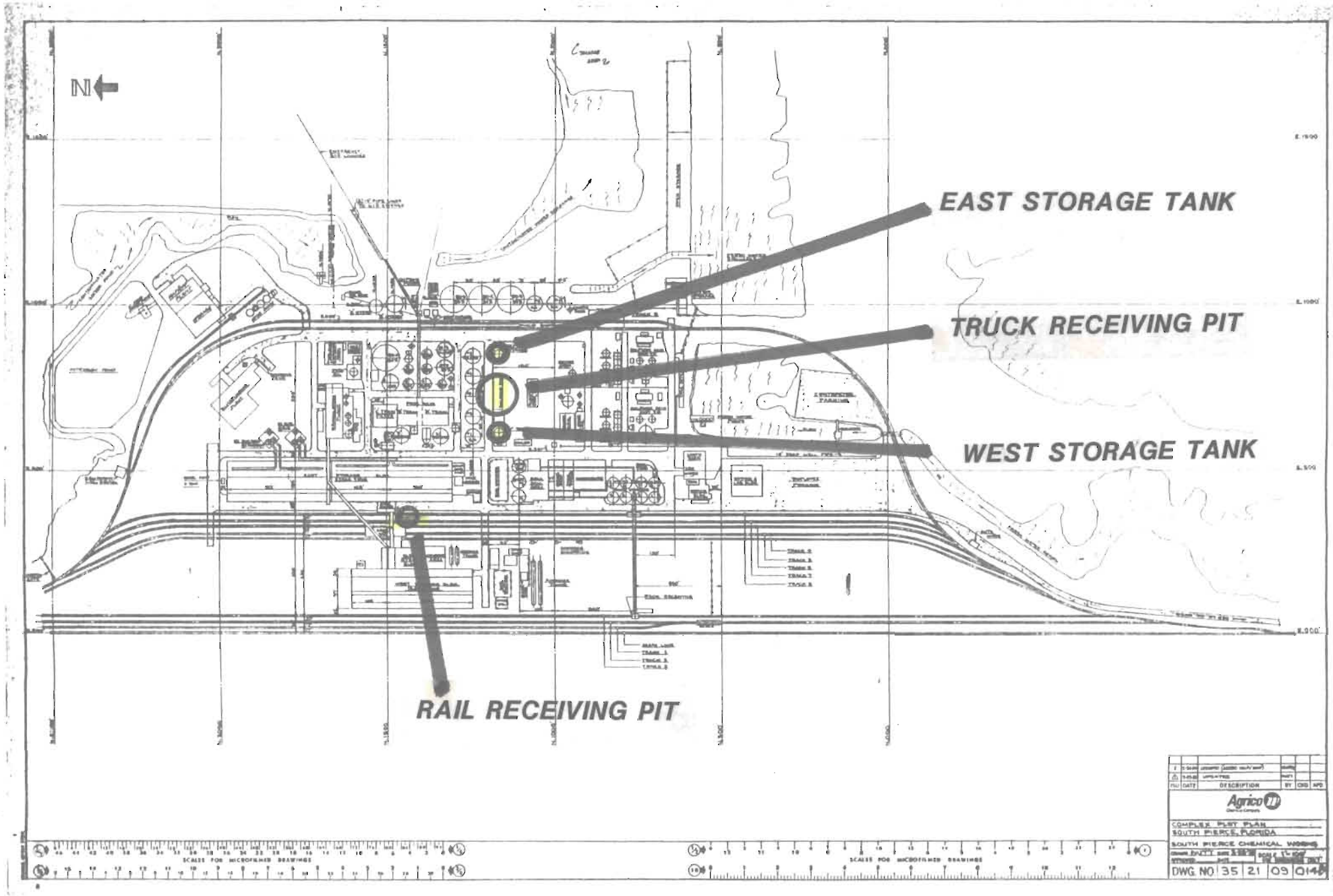
LOCATION MAP
AGRICO CHEMICAL COMPANY
SOUTH PIERCE CHEMICAL WORKS



Scale: One inch: approximately 17.5 miles

miles: 0 5 10 15 20 30 40

Inches: 0 1 2


N
EAST STORAGE TANK
TRUCK RECEIVING PIT
WEST STORAGE TANK
RAIL RECEIVING PIT
DESCRIPTION
Agrico
COMPLEX PLOT PLAN
SOUTH PIERCE, FLORIDA
SOUTH PIERCE CHEMICAL WORKS
DWG. NO 35 21 09 014

PHYSICAL DESCRIPTION

The molten sulfur storage and handling facility at South Pierce consists of the following:

(1) two - 1050 ton storage tanks measuring 32 feet in diameter and 24 feet in height. Each tank has five vents with no forced ventilation - one in the center and four at the periphery at 90 degree angles. Material throughput is approximately 140,000 tons per year.

(2) one - 670 ton truck receiving pit measuring 83 feet in length and 24 feet in width. The pit has four vents, two of which have vent fans providing ventilation at a rate of 1350 cfm. Material throughput is approximately 450,000 tons per year.

(3) one - 100 ton railcar receiving pit measuring 45 feet in length and 7 feet in width. The pit has two vents with no forced ventilation. Material throughput is approximately 50,000 tons per year.

OPERATION PROCEDURES

Operation procedures for minimizing spills/fugitive emissions consist of the applicable work practice standards established by Chapter 17-2.600 (11) (a) 1-9, F.A.C.