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. B.O. Knoess, Jr., Director
Sulfuric Acid Training Co.
P.O. Box 61520
New Orleans, LA 70160

4. Article Number
P 256 395 200

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 — Addressee
X

6. Signature — Agent
X

7. Date of Delivery OCT 22 1990

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

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

P 256 395 200

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

Sent to B.O. Knoess	
Street and No. Sulfuric Acid Training Co	
P.O., State and ZIP Code P.O. Box 61520 New Orleans, LA	
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 10-18-90 AC 29-168895	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

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. B. O. Knoess, Jr., Director
Sulfuric Acid Trading Company
P. O. Box 61520
New Orleans, LA 70160

October 18, 1990

Enclosed is Construction Permit No. AC 29-168895 to construct the three (existing) storage tanks for molten sulfur and/or sulfuric acid storage and handling system. 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
I. Choronenko, HCEPC
John B. Koogler, P.E.

Final Determination

Sulfuric Acid Trading Company
(SATCO) Port Tampa Facility
Tampa, Hillsborough County, Florida

Molten Sulfur or Sulfuric Acid
Storage and Handling System
Permit No. AC 29-168895

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

October 11, 1990

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to construct the three (existing) storage tanks for molten sulfur and/or sulfuric acid storage and handling system at Sulfuric Acid Trading Company in Tampa, Hillsborough County, Florida, was distributed on June 22, 1990. The Notice of Intent to Issue was published in the Tampa Tribune on July 6, 1990. Copies of the evaluation were available for public inspection at the Department's Southwest District office in Tampa and Bureau of Air Regulation office in Tallahassee.

No comments were submitted on the Department's Intent to Issue the permit. However, the Department has comments on Section B of the Source Impact Analysis. These comments are as follows:

Air Quality Impacts

Because the H_2S emission estimates were 34.42 tons per year, air quality dispersion modeling was performed for H_2S emissions. One year of meteorological data was used in the model. This modeling was done after the Department had issued its Intent to Issue a permit for this project. The maximum predicted impacts of these H_2S emissions are as follows:

Concentration (ug/m^3)	Averaging Time
763	1-hour
284	8-hour
137	24-hour
15	Annual

The Department does not have any published H_2S ambient standards which apply to this project. The maximum predicted 8-hour concentration is 1/50th the value of the threshold limit value (TLV) of 14,000 ug/m^3, which is an 8-hour occupational exposure level. However, this maximum predicted 8-hour concentration is greater than the Department's unpublished guideline of 140 ug/m^3 for H_2S. This level is intentionally very conservative because an ample margin of safety is incorporated in developing the ambient guidelines. The maximum predicted 1-hour concentration of 763 ug/m^3 is compared with the following hourly concentrations taken from Table 2.1 of the EPA Guideline Series, Kraft Pulping-Control of TRS Emissions from Existing Mills, EPA-450/2-78-003b:

150 ug/m^3 - Smell slightly perceptible.
500 ug/m^3 - Smell definitely perceptible.
15,000 ug/m^3 - Minimum concentration causing eye irritation.
30,000 - 60,000 ug/m^3 - Strongly perceptible but not intolerable smell. Minimum concentration causing lung irritation.

The source is located in an industrial area and has been in existence for more than thirty years with no known complaints about H_2S emissions or odors. Moreover, the Department has allowed permitted TRS/H_2S emissions of greater than 200 tons per year for the pulp and paper mills in the state.

The final action of the Department will be to issue Construction Permit No. AC 29-168895 as proposed in the Technical Evaluation and Preliminary Determination.

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:
Sulfuric Acid Trading Company
P. O. Box 61520
New Orleans, LA 70160

Permit Number: AC 29-168895
Expiration Date: March 31, 1991
County: Hillsborough
Latitude/Longitude: 27°54'52"N
82°26'20"W
Project: Port Tampa Terminal/ Sulfuric Acid and Molten/Sulfur Storage and Handling System

This Permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 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 an after-the-fact construction permit for sulfuric acid and/or molten sulfur storage and handling facility consisting of three storage tanks with a capacity of 20,000 long tons, each tank; a ship unloading system; two truck loadout systems; and the associated transfer pumps and pipings. Emissions from this facility are controlled by limiting the throughput to 2.0×10^6 long tons per year of sulfuric acid and/or molten sulfur, and through proper operation and maintenance practices.

The facility is located on Maritime Blvd., Port Tampa and the UTM coordinates are Zone 17, 358.4 km East and 3088.4 km North.

The source was 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. SATCO's application received August 17, 1989.
2. DER's letter dated August 31, 1989.
3. SATCO's response received September 27, 1989.
4. DER's letter dated October 26, 1989.
5. SATCO's response received April 9, 1990.
6. DER's Preliminary Determination dated June 22, 1990.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

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. Neither 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 is not 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; 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 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 and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

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

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

c. Sample or monitor 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 provide the Department with the following information:

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

b. the period of noncompliance, including 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.

GENERAL CONDITIONS:

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 for revocation of this permit.

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 involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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 17-4.120 and 17-30.300, F.A.C., 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 or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold 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) required by the permit, copies of all reports required by this permit, and

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

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 dates 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 corrected promptly.

SPECIFIC CONDITIONS:

1. SATCO's sulfuric acid and/or molten sulfur storage and handling terminal shall be allowed to operate continuously (i.e. 8760 hrs/yr).

2. The maximum sulfuric acid and/or molten sulfur throughput shall neither exceed 5480 long tons per day, nor 2.0 million long tons per year. The maximum throughput may be increased to 7000 long tons per day as long as it does not exceed the 2.0 million long ton per calendar year limitation and it meets the requirements of Specific Condition Nos. 4 through 13 of this permit.

3. Visible emissions (VE) shall not exceed 10% opacity from any loading/unloading/storage operations from this facility, except during periods of ship unloading when VE shall not exceed 15% opacity.

4. No objectionable odors will be allowed in accordance with F.A.C. Rule 17-2.620(2).

SPECIFIC CONDITIONS:

5. The permittee shall employ proper operation and maintenance procedures to control emissions from the sulfuric acid and/or molten sulfur handling facilities subject to Rule 17-2.600(11) and Chapter 17-4 of the Florida Administrative Code.

6. Initial compliance tests shall be conducted before December 31, 1990, in accordance with the July 1, 1988, version of 40 CFR 60, Appendix A, using EPA Method 9, for visible emissions. Such tests shall be conducted for a minimum duration of thirty (30) minutes at each vent of storage tank, each storage tank , each truck and ship loadout, during sulfuric acid, and during molten sulfur loading/unloading/storage operations. VE tests shall be conducted annually if required by the Southwest District office at the time of issuing or renewing operation permits.

7. Any change in the method of operation, equipment, or operating hours shall be submitted to the Hillsborough County Environmental Protection Commission (HCEPC) office for approval.

8. Since only sulfuric acid is currently being stored at this facility, a written notification shall be provided to the HCEPC at least fifteen (15) days prior to storing molten sulfur at this facility.

9. For emission inventory and PSD purposes, the estimated maximum emissions from the ship unloading, storage tanks (during filling and non-filling) and truck loadouts for sulfuric acid and/or molten sulfur storage and handling system are:

Contaminant	Each Storage Tank		All (3) Storage Tanks		Ship Unloading		Truck Filling		Total Facility Emissions	
	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr
Molten Sulfur										
SP	0.44	1.10	1.32	3.3	0.27	0.30	0.09	0.35	1.68	3.95
PM_{10}	0.93	2.36	2.79	7.08	0.58	0.64	0.20	0.75	3.57	8.47
TP	1.06	2.68	3.18	8.04	0.66	0.73	0.22	0.85	4.06	9.62
VOC	1.30	3.29	3.90	9.87	0.81	0.90	0.28	1.05	4.99	11.82
SO_2	1.14	0.35	3.42	1.05	0.09	0.10	0.03	0.11	3.54	1.26
H_2S	2.87	7.27	8.61	21.81	6.59	7.32	2.61	5.29	17.86	34.42
Sulfuric Acid										
H_2SO4	0.002	0.002	0.006	0.006	0.002	0.002	0.001	0.003	0.009	0.011
SO_2	2.32	2.68	6.96	8.04	2.54	2.82	0.86	3.27	10.36	14.13

PERMITTEE:
Sulfuric Acid Trading Company

Permit Number: AC 29-168895
Expiration Date: March 31, 1991

SPECIFIC CONDITIONS:

10. The HCEPC office shall be given written notice at least 15 days prior to compliance testing. The compliance test results shall be submitted to the HCEPC office within 45 days of such testing.

11. 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 prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

12. An application for an operation permit must be submitted to the EPCHC office and the 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. Rule 17-4.220).

Issued this 18th day
of October, 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Steve Smallwood

FROM: Clair Fancy

DATE: October 11, 1990

SUBJ: Approval of Construction Permit AC 29-168895

Attached for your approval and signature is a permit prepared by the Bureau of Air Regulation for the above mentioned company to construct the three (existing) storage tanks for molten sulfur and/or sulfuric acid storage and handling system.

No comments were received during the public notice period. However, Cleve Holladay made comments on Section B of the Source Impact Analysis, which is reflected in the Final Determination.

Day 90, after which this permit will be issued by default, is October 19, 1990.

I recommend your approval and signature.

CF/MB/plm

Attachments

Check Sheet

Company Name: Sulfuric Acid Trading Company
Permit Number: AC 29-168895
PSD Number:
Permit Engineer:

Application:

- ☑ Initial Application
  - ☐ Incompleteness Letters
  - ☐ Responses
  - ☐ Waiver of Department Action
  - ☐ Department Response
  - ☐ Other

Cross References:
- ☑ AO 29-189919
- ☐
- ☐

Intent:

- ☑ Intent to Issue
- ☑ Notice of Intent to Issue
- ☑ Technical Evaluation
- ☐ BACT or LAER Determination
- ☑ Unsigned Permit

  Correspondence with:
  - ☐ EPA
  - ☐ Park Services
  - ☐ Other
- ☑ Proof of Publication
  - ☐ Petitions - (Related to extensions, hearings, etc.)
  - ☐ Waiver of Department Action
  - ☐ Other

Final Determination:

- ☑ Final Determination
- ☑ Signed Permit
- ☐ BACT or LAER Determination
  - ☐ Other

Post Permit Correspondence:

- ☐ Extensions/Amendments/Modifications
- ☑ Other

Amy Carlson 913-339-7425

Comments by Sept 25th

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

Kissimmee Utility Authority (KUA)
Cane Island Combustion Turbine Project

B&V Project 17645
B&V File 32.0403
September 9, 1991

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

Subject: Ambient Air Quality Analysis
Workplan

Attention: Mr. Clair H. Fancy
Chief--Bureau of Air Regulation

Gentlemen:

Kissimmee Utility Authority (KUA) proposes the phased installation and operation of two simple cycle combustion turbines (40 to 50 MW each) at the Cane Island site located near Intercession City, Florida.

Enclosed are three copies of the Cane Island Combustion Turbine Project Ambient Air Quality Analysis Workplan submitted on behalf of KUA. The workplan describes source and pollutant applicability, modeling methodology, and the Best Available Control Technology (BACT) analysis techniques that will be used for air quality permitting of the project. This workplan will provide a mutually agreed upon basis between the Florida Department of Environmental Regulation and KUA for conducting the air permitting of the project.

Florida Department of Environmental Regulation
Mr. Clair H. Fancy

B&V Project 17645
September 9, 1991

Please review the workplan and provide comments to Amy Carlson at Black & Veatch by September 25, 1991. If you have any questions, please contact Amy Carlson at (913) 339-7425 or David Lefebvre at (913) 339-2164.

Very truly yours,

BLACK & VEATCH

Hobart L. Jacobs

alc
Enclosures

cc: Mr. Ben Sharma, KUA w/encl

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc.
1615 Poydras Street
New Orleans, LA 70112

P.O. Box 61119
New Orleans, LA 70161

Telephone: 504-582-4000

April 4, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED
APR 8 1991
DER - BAQM

Mr. Darrel J. Graziani
Chief, Air Permitting Section
Hillsborough County Environmental
Protection Commission
1410 N. 21st Street
Tampa, FL 33605

RE: SULPHURIC ACID TRADING COMPANY (SATCO)
AIR PERMIT NO. A029-189419

Dear Mr. Graziani:

The regional air permitting section of the FDER has issued the enclosed Operations Permit for the SATCO storage tanks and truck loading racks in Tampa (Construction Permit Number AC29-168895).

A check for $2490.00 is enclosed as a permit processing fee.

If we do commence molten sulphur activities, compliance testing will be initiated within thirty days, and you will be notified in writing fifteen days prior to testing.

Please contact me if I can be of further assistance.

Sincerely,

Mike Sheehan

Mike Sheehan

MJS/vcc
Enclosure
cc: Mirza Baig
Air Permits Section
Florida Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Florida Department of Environmental Regulation
Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561
Lawton Chiles, Governor Carol Browner, Secretary Richard Garrity, Deputy Assistant Secretary

NOTICE OF PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT ISSUANCE

February 5, 1991

In the Matter of an Application for Permit by:

DER File No. AO29-189419
Hillsborough County

Mr. Bernard O. Knoess, Jr.
Director
Sulphuric Acid Trading Company
P.O. Box 61520
New Orleans, LA. 70161

Enclosed is permit number AO29-189419 to operate a sulfuric acid and/or molten sulfur storage and handling facility, issued pursuant to Section 403, Florida Statutes.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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 warrants 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 permit. 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 receipt 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order 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 the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Gary A. Maier

Gary A. Maier, BSChE, JD

copies to: (1) John B. Koogler, P.E.
(2) Environmental Protection Commission
of Hillsborough County

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on FEB - 6 1991 to the listed persons.

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

Marilyn Quispe
Clerk

FEB - 6 1991
Date

Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Lawton Chiles, Governor Carol Browner, Secretary Richard Garrity, Deputy Assistant Secretary

PERMITTEE:
Sulphuric Acid Trading Company
Post Office Box 61520
New Orleans, LA 70161

PERMIT/CERTIFICATION
Permit No: AO29-189419
County: Hillsborough
Expiration Date: 02/05/96
Project: Molten Sulfur/
Sulfuric Acid
Handling and Storage

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 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 operation of a sulfuric acid and/or molten sulfur handling and storage facility consisting of three (3) storage tanks, two (2) truck loading racks and the associated transfer pumps and piping.

There is no add-on emission controls at this facility. Emissions are limited by an annual throughput limitation.

Location: Maritime Blvd., Port Tampa

UTM: 17-358.4 E 3088.4 N NEDS NO: 0099 Point ID: 03 - Truck Loading Racks
04 - Storage Tanks

Replaces Permit No.: AC29-168895

PERMITTEE:
Sulphuric Acid Trading Company
Post Office Box 61520
New Orleans, LA 70161

PERMIT/CERTIFICATION
Permit No: AO29-189419
County: Hillsborough
Expiration Date: 02/05/96
Project: Molten Sulfur/
Sulfuric Acid
Handling and Storage

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.

2. Except as provided in specific condition #3, visible emissions from any emission point in the molten sulfur facility shall not exceed 10 percent opacity (six minute average).
[Rule 17-2.600(11)(a)7., F.A.C.].

3. Visible emissions of sulfur particulate matter during ship unloading shall not exceed 15 percent opacity (six minute average).
[Rule 17-2.600(11)(a)9., F.A.C.].

4. Emissions of sulfur particulate matter shall not exceed 0.672 pounds per hour from each molten sulfur storage tank.
[Rule 17-2.600(11)(a)3., F.A.C.].

5. Sulphuric Acid Trading Company shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 17-2.620(2), F.A.C.].

6. The combined sum total throughput rate of molten sulfur and sulfuric acid shall not exceed 7,000 long tons per day.
[Permit AC29-168895].

7. The combined sum total throughput rate of molten sulfur and sulfuric acid shall not exceed 2,000,000 long tons in any consecutive 12 month period (resulting in an average of 5,480 long tons per day).
[Permit AC29-168895].

8. These sources are permitted to operate 24 hours per day, 7 days per week, and 52 weeks per year (8,760 hours per year).

9. Test the emissions for the following pollutants during the first unloading or loading of molten sulfur, and submit 2 copies of test data to the Air Section of the Environmental Protection Commission of Hillsborough County office within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 17-2.700, F.A.C.:

(X) Particulates (storage tanks only)
(X) Opacity (storage tanks and loading racks)

PERMITTEE:
Sulphuric Acid Trading Company
Post Office Box 61520
New Orleans, LA 70161

PERMIT/CERTIFICATION
Permit No: AO29-189419
County: Hillsborough
Expiration Date: 02/05/96
Project: Molten Sulfur/
Sulfuric Acid
Handling and Storage

SPECIFIC CONDITIONS:

10. Compliance with the emission limitations of specific conditions #2, #3, and #4 shall be demonstrated using EPA Method 5 contained in 40 CFR 60, Appendix A (adopted by reference in Rule 17-2.700, F.A.C.), and DER Method 9. The EPA Method 5 test shall be conducted in accordance with the special conditions listed for molten sulfur facilities in Table 700-1 of Rule 17-2.700, F.A.C. The DER Method 9 observation period shall be at least 30 minutes in duration. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Rule 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

11. Approved compliance stack testing of emissions shall be conducted within $\pm$10% of the maximum permitted throughput rate of 7,000 tons per day. A compliance test submitted at operating levels less than 90% of permitted throughput rate will automatically constitute an amended permit at the lesser rate until another test is submitted. Failure to submit the throughput rate or operating at conditions during testing which do not reflect actual operating conditions may invalidate the test. [Rule 17-4.070(3), F.A.C.].

12. The Environmental Protection Commission of Hillsborough County shall be notified in writing 15 days in advance of any compliance test to be conducted on this source.

13. All molten sulfur transfer shall be through enclosed piping systems where feasible and practical. In user facilities, molten sulfur may be transferred by covered trench or a movable spout which is positioned over a receiving pit. Contact surfaces between movable unloading arms and stationary pipes shall seat effectively around the entire circumference to minimize spillage.
[Rule 17-2.600(11)(a)1., F.A.C.].

14. All areas surrounding points where molten sulfur pipes are routinely disconnected and areas where molten sulfur is transferred to trucks or railcars shall be paved and curbed within 20 feet of the point of disconnection or transfer to contain any spilled molten sulfur, or shall be provided with noncorrosible drip pans or other secondary containment, positioned to collect spills, that are adequate to contain amounts of sulfur that may escape during routine disconnection, reconnection or operation of the piping system.
[Rule 17-2.600(11)(a)2., F.A.C.].

PERMITTEE:
Sulphuric Acid Trading Company
Post Office Box 61520
New Orleans, LA 70161

PERMIT/CERTIFICATION
Permit No: AO29-189419
County: Hillsborough
Expiration Date: 02/05/96
Project: Molten Sulfur/
Sulfuric Acid
Handling and Storage

SPECIFIC CONDITIONS:

15. All spilled molten sulfur shall be collected and properly disposed of whenever the containment area is filled to one-half its containment capacity, or monthly, whichever is more frequent. Spills of molten sulfur outside of a containment area, or where subject to vehicular traffic, shall be collected and disposed of as soon as possible, but no later than 24 hours after the spill occurs. Drip pans or other secondary containment shall be cleaned as needed to prevent exceedance of capacity, but at least weekly. [Rule 17-2.600(11)(a)4., F.A.C.].

16. All vent surfaces shall be cleaned monthly to remove captured particles. [Rule 17-2.600(11)(a)5., F.A.C.].

17. Sulphuric Acid Trading Company shall maintain records of spills outside of containment areas and of collection and disposal of spilled sulfur. Such records shall be retained for a minimum of two years and shall be available for inspection by the Department upon request. [Rule 17-2.600(11)(a)6., F.A.C.].

18. Sulphuric Acid Trading Company shall follow the operational procedures (submitted with the permit application) to minimize spills from any movable loading arm or pipe upon disconnection, reconnection or operation. [Rule 17-2.600(11)(a)8., F.A.C.].

19. Maintain for this facility, each calendar year, an emission report for the preceding calendar year containing the following information pursuant to Chapter 1-4.04(2), Rules of the Environmental Protection Commission of Hillsborough County:

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).

20. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, F.A.C., or any other requirements under federal, state, or local law. [Rule 17-2.210, F.A.C.].

PERMITTEE:
Sulphuric Acid Trading Company
Post Office Box 61520
New Orleans, LA 70161

PERMIT/CERTIFICATION
Permit No: AO29-189419
County: Hillsborough
Expiration Date: 02/05/96
Project: Molten Sulfur/
Sulfuric Acid
Handling and Storage

SPECIFIC CONDITIONS:

21. Four applications to renew this operating permit shall be submitted to the Environmental Protection Commission of Hillsborough County by December 7, 1995.
[Rules 17-4.050(2) and 17-4.090(1), F.A.C.].

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

For Dr. Richard D. Garrity
Deputy Assistant Secretary
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561

ATTACHMENT - GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

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), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither 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 is not 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 this 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; 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.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are 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 and at reasonable times, access to the premises where the permitted activity is located or conducted to:

(a) Have access to and copy any records that must be kept under conditions of the permit;

(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

(c) Sample or monitor 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 provide the Department with the following information:

(a) A description of and cause of noncompliance; and

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

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 for revocation of this permit.

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 involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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 Rule 17-4.120 and 17-730.300, Florida Administrative Code, 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 or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)

( ) Determination of Prevention of Significant Deterioration (PSD)

( ) Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)

( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold 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) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used;
6. the results of such analyses.

15. 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 the 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 corrected promptly.

SULPHURIC ACID TRADING COMPANY

A joint venture between Freeport Sulphur Company, a Division of Freeport-McMoRan Resource Partners, Limited Partnership, and IMIC Holdings Inc., Panama

50-937
213

0001009

NOVEMBER 14, 1990

PAY

*******2490*DOLLARS AND 00*CENTS $2,490.00

TO THE ORDER OF

THE HILLSBOROUGH COUNTY
EVINR. PROT. COMMISSION
1410 NORTH 21ST STREET
TAMPA,FL 33605

TWO SIGNATURES REQUIRED OVER $10,000

FREEPORT

AUTHORIZED SIGNATURE

CHASE MANHATTAN BANK
SYRACUSE, NEW YORK

AUTHORIZED SIGNATURE

[redacted]

PLEASE DETACH BEFORE DEPOSITING CHECK

IN FULL PAYMENT OF ITEMS LISTED BELOW

016-805-00-010-227-1000	2490.00	110890	2490.00
			$2,490.00

SULPHURIC ACID TRADING COMPANY

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc.
1615 Poydras Street
New Orleans, LA 70112

P.O. Box 61119
New Orleans, LA 70161

Russell G. Olivier
Manager of Sulphur Environmental and Safety
Telephone: 504-582-4757
Fax: 504-582-1810

December 27, 1990

Certified Mail - Return Receipt Requested

Mr. Barry Andrews
Bureau of Air Regulation
Florida Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Sulphuric Acid Trading Company (SATCO)
Air Permit AC 29-168895

Dear Mr. Andrews:

Sulphuric Acid Trading Company is a terminal situated on Tampa Bay which has facilities in place to handle either sulphuric acid or molten sulphur. In accordance with Florida's Air Regulations related to handling of molten sulphur, SATCO recently applied-for and was granted an after-the-fact construction permit for this facility (AC 29-168895). Page 6 of this permit requires that visible emission tests be conducted for both sulphuric acid operations and molten sulphur operations. Page 7 of the permit requires submission of an application for an operating permit within 45 days after completion of compliance testing.

SATCO has not handled molten sulphur since the effective date of AC 29-168895, and will not handle molten sulphur before the March 31, 1991 permit expiration date. It is not known when molten sulphur might again be handled at the facility.

During October, 1990, visible emissions tests were conducted for sulphuric acid operations, and an application for an operating permit was submitted to the Southwest District of DER and to the Hillsborough County Environmental Protection Commission on November 12, 1990 (copy of cover letter attached). On November 26, 1990, the Hillsborough County Environmental Protection Commission returned the application, stating that SATCO should resubmit the application once testing has been conducted for molten sulphur handling (copy attached).

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc.
1615 Poydras Street
P.O. Box 61119
New Orleans, LA 70161

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

CERTIFIED

P 961 997 605

MAIL

NEW ORLEANS LA. DEC 27 '90

U.S. POSTAGE

$2.20

MR. BARRY ANDREWS
BUREAU OF AIR REGULATION
FLORIDA DEPT. OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399 2400

Since SATCO will not handle molten sulphur before the March 31, 1991 permit expiration date and it is not known when molten sulphur will again be handled at the facility, we respectfully request that the expiration date of construction permit AC 29-168895 be administratively extended until molten sulphur is again handled at the facility. Please advise if additional information is needed to assist you in consideration of this request. We at SATCO sincerely appreciate your time spent in consideration of this request.

Sincerely,

R. H. Olivier

RGO:rrw
Attachment

c: Mr. H. Kerns - Southwest District of DER
Mr. M. Baig - Florida DER
Mr. Graziani - EPCHC

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc.
1615 Poydras Street
New Orleans, LA 70112

P.O. Box 61119
New Orleans, LA 70161

Russell G. Olivier
Manager of Sulphur Environmental and Safety
Telephone: 504-582-4757
Fax: 504-582-1810

November 12, 1990

RECEIVED
NOV 16 1990
E.P.C. OF H.C.
AIR PROGRAM

Certified Mail - Return Receipt Requested

Air Division
Hillsborough County Environmental
Protection Commission
1410 N. 21st Street
Tampa, FL 33605

RE: SULPHURIC ACID TRADING COMPANY
AIR PERMIT #AC 29-168895

Gentlemen:

Attached is an application for an operating permit related to the subject construction permit. Also attached are a check for $2490 to cover the permit fee, and a report documenting visible emission tests performed in accordance with requirements of construction permit AC 29-168895.

Since molten sulphur was not handled at the subject facility during the duration of the construction permit, it was not possible to conduct visible emissions tests related to molten sulphur handling. Further, we are not presently able to predict when molten sulphur might again be handled at the facility. We therefore request that construction permit AC 29-168895 be extended for 5 years as it relates to molten sulphur storage.

Visible emissions tests were conducted for sulphuric acid operations on October 2, 1990 in accordance with AC 29-168895, and emissions were determined to be within acceptable limits. Since this facility is used only for terminaling and no production or processing functions presently take place at the facility, and because changes are not anticipated in the acid quality or other characteristics, we respectfully request that there not be a requirement for visible emission testing in the facility operating permit.

Please advise if additional information is needed or if there are questions about the information provided. SATCO sincerely appreciates your time spent in processing this permit application and in evaluating our requests related to the facility permit.

Sincerely,

R. G. Olivier

RGO/phd
Attachment
A:1/1

ROGER P. STEWART
EXECUTIVE DIRECTOR
MAIN OFFICES
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960

AIR PROGRAM
TELEPHONE (813) 272-5530

WASTE MANAGEMENT PROGRAM
TELEPHONE (813) 272-5788

ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

November 26, 1990

CERTIFIED MAIL # P 259 764 154

Mr. Russell G. Olivier
Manager of Sulphur Environmental
and Safety
Freeport - McMoRan Inc.
Post Office Box 61119
New Orleans, LA 70161

Re: Sulfuric Acid Trading Company
Air Permit No. AC29-168895

Dear Mr. Olivier:

As we discussed, I am returning your check and applications for the operating permit for the above source. You should resubmit the application once you have unloaded molten sulfur and conducted the necessary compliance tests.

By copy of this letter, I am transmitting your request to extend the expiration date of the construction permit to Mr. Barry Andrews of the Florida Department of Environmental Regulation in Tallahassee.

If you have any questions please feel free to contact me at (813) 272-5530.

Sincerely,

Darrel J. Graziani
Chief, Air Permitting Section

bb

cc: Barry Andrews, FDER-Tallahassee
J. Harry Kerns, FDER-Tampa

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc.
1615 Poydras Street
New Orleans, LA 70112

P.O. Box 61119
New Orleans, LA 70161

Russell G. Olivier
Manager of Sulphur Environmental and Safety
Telephone: 504-582-4757
Fax: 504-582-1810

December 27, 1990

Certified Mail - Return Receipt Requested

Mr. Barry Andrews
Bureau of Air Regulation
Florida Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Sulphuric Acid Trading Company (SATCO)
Air Permit AC 29-168895

Dear Mr. Andrews:

Sulphuric Acid Trading Company is a terminal situated on Tampa Bay which has facilities in place to handle either sulphuric acid or molten sulphur. In accordance with Florida's Air Regulations related to handling of molten sulphur, SATCO recently applied-for and was granted an after-the-fact construction permit for this facility (AC 29-168895). Page 6 of this permit requires that visible emission tests be conducted for both sulphuric acid operations and molten sulphur operations. Page 7 of the permit requires submission of an application for an operating permit within 45 days after completion of compliance testing.

SATCO has not handled molten sulphur since the effective date of AC 29-168895, and will not handle molten sulphur before the March 31, 1991 permit expiration date. It is not known when molten sulphur might again be handled at the facility.

During October, 1990, visible emissions tests were conducted for sulphuric acid operations, and an application for an operating permit was submitted to the Southwest District of DER and to the Hillsborough County Environmental Protection Commission on November 12, 1990 (copy of cover letter attached). On November 26, 1990, the Hillsborough County Environmental Protection Commission returned the application, stating that SATCO should resubmit the application once testing has been conducted for molten sulphur handling (copy attached).

Since SATCO will not handle molten sulphur before the March 31, 1991 permit expiration date and it is not known when molten sulphur will again be handled at the facility, we respectfully request that the expiration date of construction permit AC 29-168895 be administratively extended until molten sulphur is again handled at the facility. Please advise if additional information is needed to assist you in consideration of this request. We at SATCO sincerely appreciate your time spent in consideration of this request.

Sincerely,

R. G. Olivier

RGO:rrw
Attachment

c: Mr. H. Kerns - Southwest District of DER
Mr. M. Baig - Florida DER ✓
Mr. Graziani - EPCHC

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc
1615 Poydras Street
New Orleans, LA 70112

P.O. Box 61119
New Orleans, LA 70161

Russell G. Olivier
Manager of Sulphur Environmental and Safety
Telephone: 504-582-4757
Fax: 504-582-1810

November 12, 1990

Certified Mail - Return Receipt Requested

Air Division
Hillsborough County Environmental
Protection Commission
1410 N. 21st Street
Tampa, FL 33605

RE: SULPHURIC ACID TRADING COMPANY
AIR PERMIT #AC 29-168895

Gentlemen:

Attached is an application for an operating permit related to the subject construction permit. Also attached are a check for $2490 to cover the permit fee, and a report documenting visible emission tests performed in accordance with requirements of construction permit AC 29-168895.

Since molten sulphur was not handled at the subject facility during the duration of the construction permit, it was not possible to conduct visible emissions tests related to molten sulphur handling. Further, we are not presently able to predict when molten sulphur might again be handled at the facility. We therefore request that construction permit AC 29-168895 be extended for 5 years as it relates to molten sulphur storage.

Visible emissions tests were conducted for sulphuric acid operations on October 2, 1990 in accordance with AC 29-168895, and emissions were determined to be within acceptable limits. Since this facility is used only for terminaling and no production or processing functions presently take place at the facility, and because changes are not anticipated in the acid quality or other characteristics, we respectfully request that there not be a requirement for visible emission testing in the facility operating permit.

Please advise if additional information is needed or if there are questions about the information provided. SATCO sincerely appreciates your time spent in processing this permit application and in evaluating our requests related to the facility permit.

Sincerely,

R. G. Olivier

RGO/phd
Attachment
A:1/1

ROGER P. STEWART
EXECUTIVE DIRECTOR
MAIN OFFICES
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
AIR PROGRAM
TELEPHONE (813) 272-5530
WASTE MANAGEMENT PROGRAM
TELEPHONE (813) 272-5788
ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

November 26, 1990

CERTIFIED MAIL # P 259 764 154

Mr. Russell G. Olivier
Manager of Sulphur Environmental
and Safety
Freeport - McMoRan Inc.
Post Office Box 61119
New Orleans, LA 70161

Re: Sulfuric Acid Trading Company
Air Permit No. AC29-168895

Dear Mr. Olivier:

As we discussed, I am returning your check and applications for the operating permit for the above source. You should resubmit the application once you have unloaded molten sulfur and conducted the necessary compliance tests.

By copy of this letter, I am transmitting your request to extend the expiration date of the construction permit to Mr. Barry Andrews of the Florida Department of Environmental Regulation in Tallahassee.

If you have any questions please feel free to contact me at (813) 272-5530.

Sincerely,

Darrell Graziani

Darrel J. Graziani
Chief, Air Permitting Section

bb

cc: Barry Andrews, FDER-Tallahassee
J. Harry Kerns, FDER-Tampa

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ROGER P. STEWART
EXECUTIVE DIRECTOR
MAIN OFFICES
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
AIR PROGRAM
TELEPHONE (813) 272-5530
WASTE MANAGEMENT PROGRAM
TELEPHONE (813) 272-5788
ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

November 26, 1990

CERTIFIED MAIL # P 259 764 154

Mr. Russell G. Olivier
Manager of Sulphur Environmental
and Safety
Freeport - McMoRan Inc.
Post Office Box 61119
New Orleans, LA 70161

Re: Sulfuric Acid Trading Company
Air Permit No. AC29-168895

Dear Mr. Olivier:

As we discussed, I am returning your check and applications for the operating permit for the above source. You should resubmit the application once you have unloaded molten sulfur and conducted the necessary compliance tests.

By copy of this letter, I am transmitting your request to extend the expiration date of the construction permit to Mr. Barry Andrews of the Florida Department of Environmental Regulation in Tallahassee.

If you have any questions please feel free to contact me at (813) 272-5530.

Sincerely,

Darrel J. Graziani
Chief, Air Permitting Section

bb

cc: Barry Andrews, FDER-Tallahassee
J. Harry Kerns, FDER-Tampa
M. Baig

FREEPORT-McMoRan
Global Resource Companies

Freeport-McMoRan Inc.
1615 Poydras Street
New Orleans, LA 70112

P.O. Box 61119
New Orleans, LA 70161

Russell G. Olivier
Manager of Sulphur Environmental and Safety
Telephone: 504-582-4757
Fax: 504-582-1810

November 12, 1990

Certified Mail - Return Receipt Requested

Air Division
Hillsborough County Environmental
Protection Commission
1410 N. 21st Street
Tampa, FL 33605

RE: SULPHURIC ACID TRADING COMPANY
AIR PERMIT #AC 29-168895

Gentlemen:

Attached is an application for an operating permit related to the subject construction permit. Also attached are a check for $2490 to cover the permit fee, and a report documenting visible emission tests performed in accordance with requirements of construction permit AC 29-168895.

Since molten sulphur was not handled at the subject facility during the duration of the construction permit, it was not possible to conduct visible emissions tests related to molten sulphur handling. Further, we are not presently able to predict when molten sulphur might again be handled at the facility. We therefore request that construction permit AC 29-168895 be extended for 5 years as it relates to molten sulphur storage.

Visible emissions tests were conducted for sulphuric acid operations on October 2, 1990 in accordance with AC 29-168895, and emissions were determined to be within acceptable limits. Since this facility is used only for terminaling and no production or processing functions presently take place at the facility, and because changes are not anticipated in the acid quality or other characteristics, we respectfully request that there not be a requirement for visible emission testing in the facility operating permit.

Please advise if additional information is needed or if there are questions about the information provided. SATCO sincerely appreciates your time spent in processing this permit application and in evaluating our requests related to the facility permit.

Sincerely,

R. G. Olivier

RGO/phd
Attachment
A:1/1

1641-3489-297
7-11-90
UPS; Next Day Air

File Copy

SATCO
Sulphuric Acid Trading Company
Al Foley, General Manager

4041 Maritime Boulevard
Tampa, Florida 33605
Telephone (813) 247-5674
FAX (813) 247-5032

July 11, 1990

UPS-NEXT DAY AIR-DELIVERY SIGNATURE REQUIRED

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

Dear Mr. Fancy:

As directed in your letter to Mr. B. O. Knoess dated June 22, 1990, enclosed please find proof of publication in The Tampa Tribune our legal ad "Notice of Intent to Issue" - date of publication July 06, 1990.

Thank you.

Best regards,

Al Foley /by P. Dewitt

Al Foley,
General Manager

/ptd

Enclosure

cf: Mr. Russ Olivier, FSC/NOLA

cc: Mirza

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 become a party to the proceeding. The party to 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 subsequent proceeding. Any 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 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

Department of Environmental Regulation Southwest District Office 4520 Oak Fair Blvd Tampa, Florida 33610-7347

Hillsborough County Environmental Protection Commission 1410 N. 21st Street Tampa, Florida 33605

Any person may send written comments on the proposed action to Mr. Barry Andrews 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.

3521

7/6/90

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 an after-the-fact construction permit to Sulfuric Acid Trading Company (SATCO), P.O. Box 61520, New Orleans, LA 70160, for the existing three (3) storage tanks with a capacity of 20,000 long tons each for storing sulfuric acid and/or molten sulfur, located in Port Tampa, Hillsborough County, Florida. A determination of 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 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 statement of which statutes petitioner contends require reversal or

Announcements
001 — 049

001 LOST

18KT GOLD BRACELET N. Tampa, 6/26 OR 27TH. Great sentimental value. Reward. 931-5704

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:	4. Article Number
B.O. Knoess, Jr., Director Sulfuric Acid Trading Co. P.O. Box 61520 New Orleans, LA 70160	P 256 396 103
	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	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X BO	
7. Date of Delivery 6/26/90	

P 256 396 103

RECEIPT FOR CERTIFIED MAIL

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

Sent to BO Knoess	
Street and No. Sulfuric Acid T.Co	
P.O., State and ZIP Code P.O. Box 61520 New Orleans, LA	
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 6-22-90 AC 29-168895	

PS Form 3800, June 1985

☆U.S.G.P.O. 1989-234-555

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

June 22, 1990

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. B. O. Knoess, Jr., Director
Sulfuric Acid Trading Company
P. O. Box 61520
New Orleans, LA 70160

Dear Mr. Knoess:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed after-the-fact construction permit for Sulfuric Acid Trading Company, for sulfuric acid/molten sulfur storage tanks and handling system at Port of Tampa facility in Hillsborough County, Florida.

Please publish the attached "Notice of Intent to Issue" in the legal ad of the Tampa Tribune, within 30 days of receipt of this letter and provide the proof of publication to the Department within 7 days of publication.

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

Sincerely,

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

CHF/MPB/plm

Attachments

c: B. Thomas, SW District
I. Choronenko, HCEPC
John B. Koogler, P.E.

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

Sulfuric Acid Trading Company
P. O. Box 61520
New Orleans, LA 70160

DER File No. AC 29-168895

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, Sulfuric Acid Trading Company, applied on August 17, 1989, to the Department of Environmental Regulation for an after-the-fact construction permit for the existing three (3) storage tanks with a capacity of 20,000 long tons each (32 ft. high and 129 ft. in diameter) to store either sulfuric acid (97%) or molten sulfur. The annual throughput at this facility will be 2.0 million long tons of sulfuric acid or molten sulfur. Each tank has six (6) perimeter vents and one (1) center vent. The sulfuric acid and/or molten sulfur is received at this facility either by ship or by tank trucks, but is distributed to its customers by tank trucks only, employing the two truck load-out systems.

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 application(s) 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
I. Choronenko, HCEPC
John B. Koogler, P.E.

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 6-22-90.

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.

Kari Tober — Clerk

6-22-90 — 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 an after-the-fact construction permit to Sulfuric Acid Trading Company (SATCO), P. O. Box 61520, New Orleans, LA 70160, for the existing three (3) storage tanks with a capacity of 20,000 long tons each for storing sulfuric acid and/or molten sulfur, located in Port Tampa, Hillsborough County, Florida. A determination of 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 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 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 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

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

Hillsborough County Environmental
Protection Commission
1410 N. 21st Street
Tampa, Florida 33605

Any person may send written comments on the proposed action to Mr. Barry Andrews 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

Sulfuric Acid Trading Company
(SATCO) Port Tampa Facility
Tampa, Hillsborough County, Florida

Molten Sulfur or Sulfuric Acid
Storage and Handling System
Permit No. AC 29-168895

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

June 22, 1990

I. Application

A. Applicant

Sulfuric Acid Trading Company
P. O. Box 61520
New Orleans, LA 70160

B. Project and Location

SATCO has applied for an after-the-fact construction permit application for the three existing storage tanks for molten sulfur and/or sulfuric acid storage and handling system in Tampa (Port Tampa), Hillsborough County, Florida.

C. Facility Category

The SIC Code is 5169 and the SCC Code is 3-01-070-02. SATCO applied for a construction permit on August 17, 1989 and was deemed complete on April 9, 1990.

II. Project Description

The SATCO terminal consists of a ship unloading system; two truck loadout systems; three storage tanks with a capacity of 20,000 long tons, each tank, to store sulfuric acid and/or molten sulfur; and the associated transfer pumps and pipings. The SATCO terminal currently distributes only sulfuric acid, using trucks, to various consumers. They plan to handle molten sulfur in the future.

The sulfuric acid is delivered to the facility by ships with a capacity of about 24,000 LT. Sometimes they receive sulfuric acid by trucks. Currently, they do not store molten sulfur. The storage tanks have to be cleaned properly when the product is switched from sulfuric acid to molten sulfur or vice versa. The sulfuric acid is transferred from the storage tanks to either of the two truck loadout systems. The trucks usually have a capacity of about 25 long tons. When molten sulfur is stored in the tanks they have to be steam heated.

Each of the three storage tanks are 32 ft. high and 129 ft. in diameter, and well insulated. Each tank has 6 perimeter vents and 1 center vent (0.5 ft. in diameter). The maximum annual throughput is 2.0 million long tons of sulfuric acid and/or molten sulfur. When sulfuric acid is being transferred or stored only, the center vent is open. During the molten sulfur storing and transfer operations, all seven vents may be opened. The ship unloading system consists of two chicksan hydraulic control flexible arms connecting to a pipeline system running to the storage tanks.

III. Rule Applicability

The existing SATCO facility is minor in accordance with Rule 17-2.100. The sulfuric acid and/or molten sulfur storage and handling system will emit sulfur particulate matter and will be permitted in accordance with F.A.C. Rules 17-2 and 17-4; and Chapter 403 of the Florida Administrative Codes.

The facility is located in Port Tampa, in Hillsborough County, an area designated as nonattainment for ozone and particulate matter; unclassifiable for sulfur dioxide; and attainment for the other criteria pollutants; in accordance with F.A.C. Rules 17-2.410, 17-2.430 and 17-2.420, respectively.

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, or F.A.C. Rule 17-2.510(4), Nonattainment Area Review, because it is minor.

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 10% opacity, except during periods of ship unloading when VE shall not exceed 15% opacity. The sources are not subject to a weight emission limiting standard, in accordance with F.A.C. Rule 17-2.600(11)(3), since the sulfur particulate emissions from each individual source are less than 25 tons per year.

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 point in the storage and handling system (every vent, truck/ship loading or transferring) for the initial compliance demonstration.

IV. Source Impact Analysis

A. Emission Limitations

Although molten sulfur is not being stored or handled currently at this facility, the maximum hourly and annual emission estimates of SP, PM_{10}, VOC, H_2S, SO_2, and TP (for molten sulfur storage) and SO_2 and H_2SO4 emissions (for sulfuric acid storage) are summarized below.

Contaminant	Each Storage Tank		All (3) Storage Tanks		Ship Unloading		Truck Filling		Total Facility Emissions	
	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr
Molten Sulfur										
SP	0.44	1.10	1.32	3.3	0.27	0.30	0.09	0.35	1.68	3.95
PM_{10}	0.93	2.36	2.79	7.08	0.58	0.64	0.20	0.75	3.57	8.47
TP	1.06	2.68	3.18	8.04	0.66	0.73	0.22	0.85	4.06	9.62
VOC	1.30	3.29	3.90	9.87	0.81	0.90	0.28	1.05	4.99	11.82
SO_2	1.14	0.35	3.42	1.05	0.09	0.10	0.03	0.11	3.54	1.26
H_2S	2.87	7.27	8.61	21.81	6.59	7.32	2.61	5.29	17.86	34.42
Sulfuric Acid										
H_2SO4	0.002	0.002	0.006	0.006	0.002	0.002	0.001	0.003	0.009	0.011
SO_2	2.32	2.68	6.96	8.04	2.54	2.82	0.86	3.27	10.36	14.13

The ship's emissions during ship unloading are expected to be temporary and negligible.

Visible emissions (VE) will be limited to 10% opacity during all loading/unloading operations, except 15% opacity during periods of ship unloading.

B. Air Quality Impacts

The Technical Evaluation of this project determined that ambient air monitoring or modelling would not be required to provide reasonable assurance that the Florida's air quality standards would not be violated.

V. Conclusion

Based on the information provided by Sulfuric Acid Trading Company, the Department has reasonable assurance that the existing storage tanks and handling terminal, 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.

6/21/90

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

DRAFT

PERMITTEE:
Sulfuric Acid Trading Company
P. O. Box 61520
New Orleans, LA 70160

Permit Number: AC 29-168895
Expiration Date: March 31, 1991
County: Hillsborough
Latitude/Longitude: ~~30°24'08"N~~ 27°54'52"N
82°26'20"W
Project: Port Tampa Terminal/
Sulfuric Acid and Molten/Sulfur
Storage and Handling System

This Permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 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 an after-the-fact construction permit for sulfuric acid and/or molten sulfur storage and handling facility consisting of three storage tanks with a capacity of 20,000 long tons, each tank; a ship unloading system; two truck loadout systems; and the associated transfer pumps and pipings. Emissions from this facility are controlled by limiting the throughput to 2.0×10^6 long tons per year of sulfuric acid and/or molten sulfur, and through proper operation and maintenance practices.

The facility is located on Maritime Blvd., Port Tampa and the UTM coordinates are Zone 17, 358.4 km East and ~~3008.4~~ 3088.4 km North.

The source was 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. SATCO's application received August 17, 1989.
2. DER's letter dated August 31, 1989.
3. SATCO's response received September 27, 1989.
4. DER's letter dated October 26, 1989.
5. SATCO's response received April 9, 1990.
6. DER's Preliminary Determination dated June 22, 1990.

DRAFT

PERMITTEE: Permit Number: AC 29-168895
Sulfuric Acid Trading Company Expiration Date: March 31, 1991

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

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. Neither 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 is not 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; 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 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 and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

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

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

c. Sample or monitor 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 provide the Department with the following information:

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

b. the period of noncompliance, including 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.

GENERAL CONDITIONS:

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 for revocation of this permit.

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 involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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 17-4.120 and 17-30.300, F.A.C., 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 or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold 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) required by the permit, copies of all reports required by this permit, and

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

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 dates 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 corrected promptly.

SPECIFIC CONDITIONS:

1. SATCO's sulfuric acid and/or molten sulfur storage and handling terminal shall be allowed to operate continuously (i.e. 8760 hrs/yr).

2. The maximum sulfuric acid and/or molten sulfur throughput shall neither exceed 5480 long tons per day, nor 2.0 x 10^6 long tons per year. The maximum throughput may be increased to 7000 long tons per day as long as it does not exceed the 2.0 million long ton per calendar year limitation and it meets the requirements of Specific Conditions Nos. 4 through 13 of this permit.

3. Visible emissions (VE) shall not exceed 10% opacity from any loading/unloading/storage operations from this facility, except during periods of ship unloading when VE shall not exceed 15% opacity.

4. No objectionable odors will be allowed in accordance with F.A.C. Rule 17-2.620(2).

DRAFT

PERMITTEE:
Sulfuric Acid Trading Company

Permit Number: AC 29-168895
Expiration Date: March 31, 1991

SPECIFIC CONDITIONS:

5. The permittee shall employ proper operation and maintenance procedures to control emissions from the sulfuric acid and/or molten sulfur handling facilities subject to Rule 17-2.600(11) and Chapter 17-4 of the Florida Administrative Code.

6. Initial compliance tests shall be conducted before December 31, 1990, in accordance with the July 1, 1988, version of 40 CFR 60, Appendix A, using EPA Method 9, for visible emissions. Such tests shall be conducted for a minimum duration of thirty (30) minutes at each vent of storage tank, each storage tank , each truck and ship loadout, during sulfuric acid, and during molten sulfur loading/unloading/storage operations. VE tests shall be conducted annually if required by the Southwest District office at the time of issuing or renewing operation permits.

7. Any change in the method of operation, equipment, or operating hours shall be submitted to the Hillsborough County Environmental Protection Commission (HCEPC) office for approval.

8. Since only sulfuric acid is currently being stored at this facility, a written notification shall be provided to the HCEPC at least fifteen (15) days prior to storing molten sulfur at this facility.

9. For emission inventory and PSD purposes, the estimated maximum emissions from the ship unloading, storage tanks (during filling and non-filling) and truck loadouts for sulfuric acid and/or molten sulfur storage and handling system are:

Contaminant	Each Storage Tank		All (3) Storage Tanks		Ship Unloading		Truck Filling		Total Facility Emissions	
	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr
Molten Sulfur										
SP	0.44	1.10	1.32	3.3	0.27	0.30	0.09	0.35	1.68	3.95
PM_{10}	0.93	2.36	2.79	7.08	0.58	0.64	0.20	0.75	3.57	8.47
TP	1.06	2.68	3.18	8.04	0.66	0.73	0.22	0.85	4.06	9.62
VOC	1.30	3.29	3.90	9.87	0.81	0.90	0.28	1.05	4.99	11.82
SO_2	1.14	0.35	3.42	1.05	0.09	0.10	0.03	0.11	3.54	1.26
H_2S	2.87	7.27	8.61	21.81	6.59	7.32	2.61	5.29	17.86	34.42
Sulfuric Acid										
H_2SO4	0.002	0.002	0.006	0.006	0.002	0.002	0.001	0.003	0.009	0.011
SO_2	2.32	2.68	6.96	8.04	2.54	2.82	0.86	3.27	10.36	14.13

DRAFT

PERMITTEE: Permit Number: AC 29-168895
Sulfuric Acid Trading Company Expiration Date: March 31, 1991

SPECIFIC CONDITIONS:

10. The HCEPC office shall be given written notice at least 15 days prior to compliance testing. The compliance test results shall be submitted to the HCEPC office within 45 days of such testing.

11. 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 prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

12. An application for an operation permit must be submitted to the EPCHC office and the 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. Rule 17-4.220).

Issued this _____ day
of _____, 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

PEEPLES, EARL & BLANK
PROFESSIONAL ASSOCIATION
ATTORNEYS AT LAW
1800 2ND STREET
SUITE 888
SARASOTA, FLORIDA 34236
TELEPHONE (813) 366-1180
TELEFAX (813) 366-1183

MIAMI OFFICE
ONE BISCAYNE TOWER, SUITE 3636
TWO SOUTH BISCAYNE BOULEVARD
MIAMI, FLORIDA 33131
(305) 358-3000
FAX (305) 358-5079

JUDITH S. KAVANAUGH

REPLY TO:
Sarasota

June 21, 1990

Mr. Mirza Baig
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32399-2400

Re: SATCO - Tampa Sulphur Facility Permitting - AC29-168895

Dear Mirza:

It appears that through a clerical error, the EnviroPlan Report enclosed with the SATCO Application was a later, incomplete version of the Report. As Dr. Koogler's certification reflects, the Report that should have been enclosed was dated February 13, 1990. Unfortunately, the Report which was enclosed was dated the next day and did not contain the pertinent information relating to H2SO4 emissions.

It is my understanding that C. J. Doiron has sent to you by facsimile copies of the pertinent pages. A complete copy of the Report will be forwarded to you immediately, and it is requested that you substitute the February 13, 1990 EnviroPlan Report for the incomplete report, dated February 14, 1990, which was attached to the permit application.

Additionally, SATCO has indicated that a permit condition limiting the through-put of the facility, whether handling sulphur or sulfuric acid, to Two Million Tons (2,000,000 T) annually, and to Seven Thousand Tons (7,000 T)/* on a daily basis, is feasible and acceptable.

I apologize for the apparent confusion about the EnviroPlan Report and hope you have all the information now needed to process the permit application. If there are any further discrepancies or you have any other questions, please do not hesitate to contact me.

I was out of the office, "on the road", most of the time last week, but will be here this week, and will be happy to offer any assistance I can to complete review of the SATCO application.

With continued thanks for your courtesy and patience, I remain

Sincerely,

PEEPLES, EARL & BLANK, P.A.

Judith S. Kavanaugh
For The Firm

JSK/gc

cc: D. J. Miller
Wayne Forman
Russ Olivier
C. J. Doiron
Howard Ellis
John Koogler
Ed Huck

---

* Long tons for sulphuric acid, short tons for sulphur.

copied: M. Baig
B. Thomas, SW Dist.
J. Campbell, EPCHC

DRAFT SATCO

PERMITTEE: Permit Number: AC 29-168895
Sulfuric Acid Trading Company Expiration Date: March 31, 1991

SPECIFIC CONDITIONS:

5. The permittee shall employ proper operation and maintenance procedures to control emissions from the sulfuric acid and/or molten sulfur handling facilities subject to Rule 17-2.600(11) and Chapter 17-4 of the Florida Administrative Code.

6. Initial compliance tests shall be conducted before December 31, 1990, in accordance with the July 1, 1988, version of 40 CFR 60, Appendix A, using EPA Method 9, for visible emissions. Such tests shall be conducted for a minimum duration of thirty (30) minutes at each vent of storage tank, each storage tank , each truck and ship loadout, during sulfuric acid, and during molten sulfur loading/unloading/storage operations. VE tests shall be conducted annually if required by the Southwest District office at the time of issuing or renewing operation permits.

7. Any change in the method of operation, equipment, or operating hours shall be submitted to the Hillsborough County Environmental Protection Commission (HCEPC) office for approval.

8. Since only sulfuric acid is currently being stored at this facility, a written notification shall be provided to the HCEPC at least fifteen (15) days prior to storing molten sulfur at this facility.

9. For emission inventory and PSD purposes, the estimated maximum emissions from the ship unloading, storage tanks (during filling and non-filling) and truck loadouts for sulfuric acid and/or molten sulfur storage and handling system are:

Contaminant	Each Storage Tank		All (3) Storage Tanks		Ship Unloading		Truck Filling		Total Facility Emissions	
	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr
Molten Sulfur										
SP	0.44	1.10	1.32	3.3	0.27	0.30	0.09	0.35	1.68	3.95
PM_{10}	0.93	2.36	2.79	7.08	0.58	0.64	0.20	0.75	3.57	8.47
TP	1.06	2.68	3.18	8.04	0.66	0.73	0.22	0.85	4.06	9.62
VOC	1.30	3.29	3.90	9.87	0.81	0.90	0.28	1.05	4.99	11.82
SO_2	1.14	0.35	3.42	1.05	0.09	0.10	0.03	0.11	3.54	1.26
H_2S	2.87	7.27 5066 lbs	8.61	21.81 5066 lbs	6.59	7.32	2.61	5.29	17.86	34.42
Sulfuric Acid										
H_2SO4	0.002	0.002	0.006	0.006	0.002	0.002	0.001	0.003	0.009	0.011
SO_2	2.32	2.68	6.96	8.04	2.54	2.82	0.86	3.27	10.36	14.13

6 - 10,000 ton tanks
40' = h
81' = diameter
@ 2 perimeter vents = .83 dia

2 - 15,000 ton tanks
40' = h
99' = diameter
@ 2 perimeter vents = .83 dia

Throughput is 3.5 MM LT of S
Vents open during storing and transferring

201-325-1544

H_2S

Filling 2.92 (729 hours) = 1.06 TPY
Non filling 1.42 (8031 hours) = 5.71 TPY
6.77 TPY

Dr. Dittenhefer
plan

Storage temp 275° F

During Filling

$\frac{21,840 \text{ ft}^3/\text{hr}}{.54} \div 60 \text{ min/hr} = \frac{364 \text{ cfm}}{.54}$

23.36 lbs/hr 674 cfm = 11.23 fps

T = 200° F

168° × 5/9 = T = 366° K

During Non-filling $\frac{177 \text{ acfm}}{60} = \frac{2.95}{.54} = 5.46 \text{ fps}$

23.36 lbs/hr = 2.94 g/s

T = 366° K

velocity = 11.23 fps × .3048 = 3.42 m/s

d = .83 ft = .25 m

h = 40 × .3048 = 12.2

1438 ug/m³ at 100 m

574 ug ≈ 140 ug/m³

M/b pth2s.out

to get out push F9 key then F8 key

.9	24	Ann	200, 240	
	1153	1hr	100, 220	
140	532.7	8hr	100	70°
	229.8	24hr	200,	300°
33	2hi 187.3	24hr	100,	90°

Get w/ FJG

Explain modeling — TLV is 14,000 ug/m³

No TRS rule

After intent was pss was determined during public notice period to model for H_2S

We Modeled and found the following results

We don't have any H2S standards

No rule for these

Modeled value 1/30th of TLV

No houses in area - industrial area

1/100th of TLV, 1/30th

Include effects of H_2S from Table 2-1 put in tabular form

Pulp & Paper industry emits 200 TPY

EPA reference conc is .9 ug/m³ annual impact

SATCO 10/03

3 Storage Tanks

1. 32 ft high = 9.75 m
2. 207 ACFM → then x = cross sectional area?
   x = .20 ft
3. $\frac{207 \text{ ACFM}}{.20 \text{ ft}} \frac{1 \text{ min}}{60 \text{ sec}} = 17.3 \text{ fps} \times .3048 \text{ m/ft}$ 7 vents
   = 5.26 m/s
4. Amb temp is 3 deg (200°F or 366°K)
5. Diameter of vents is .5 ft × .3048 m/ft =
   0.152 m

Source Number 100

Stack height = 9.75 m
Stack velocity = 5.26 m/s
Stack temp = 366°K
Stack diameter = .152 m
Emission rate = 1.09 g s^{-1}

Met Data SD Tampa 12842 1984
VAD Tampa 12842 1984

Rings R 100, 200, 300, 400, 500
Dir 10° to 360°

Title SATCO H_2S One Year Run

2.16 lbs/hr $\Rightarrow$ .27 gs^{-1}

SH = 32.5' = 9.91 m

SV = 0.32 ms^{-1}

ST = 366°K

SD = 0.61 m

SATCO.

Tank sizes — Configuration, vents in use

No plot plan

Surface area:

aspiration — with compressed air

Ventilation Rate 207 ACFM

Ship Ventilation Rate 51.8 ACFM

S particulate and SPM_{10}

$1.757 \times 10^{-}$

[redacted]

Bill Thomas Xn 339.

AL Foley 813-247-5674

Wayne Forman 504-582-4391

Envr. Mgr. Asked permitting questions.

Daily Max 7000 Tons as per Al Foley phone conversation on 6-20-90. Miss

SATCO

		m	deg
763	1 hour	100	80
284	8 hour	100	70
137	24 hour	200	300
14.5	Annual	100	240

Sulfur Terminals Co.

Unocal

EPA Guideline Series ② EPA-450/2-78-003b
① Kraft Pulping – Control of TRS Emissions from Existing Mills ③

Table 2-1

EFFECTS OF HYDROGEN SULFIDE INHALATION ON HUMANS

Hydrogen Sulfide Concentration, $\mu g/m^3$ (ppm)	Effects
1-45 (7.2×10^{-4} - 3.2×10^{-2})	Odor threshold. No reported injury to health
10 (7.2×10^{-3})	Threshold of reflex effect on eye sensitivity to light
150 (0.10)	Smell slightly perceptible
500 (0.40)	Smell definitely perceptible
15,000 (10.0)	Minimum concentration causing eye irritation
30,000 (20.0)	Maximum allowable occupational exposure for 8 hours (ACGIH Tolerance Limit)
30,000-60,000 (20.0-40.0)	Strongly perceptible but not intolerable smell. Minimum concentration causing lung irritation
150,000 (110)	Olfactory fatigue in 2-15 minutes; irritation of eyes and respiratory tract after 1 hour; death in 8 to 48 hrs
270,000-480,000 (200-350)	No serious damage for 1 hour but intense local irritation; eye irritation in 6 to 8 minutes
640,000-1,120,000 (460-810)	Dangerous concentration after 30 minutes or less
900,000 (650)	Fatal in 30 minutes
1,160,000-1,370,000 (840-990)	Rapid unconsciousness, respiration arrest, and death, possibly without odor sensation
1,500,000+ (1100+)	Immediate unconsciousness and rapid death

Need 1986 data
on Orlando.

Federal Express Number
1093-9548-0

Black + Veatch
11401 Lamar
Overland Park, KS 66211

Phone #
913-339-
7425

H2Spt.inp — input file

H2Spt.out

Windows

pt of it - End session

C:\>cd \fort>1sc.st
C:\FORT\1SC.ST>m h2spt.out

FREEPORT
McMoRan

Freeport-McMoRan Inc.
1615 Poydras Street
New Orleans, Louisiana

P. O. Box 61119
New Orleans, LA 70161

TELECOPY TRANSMITTAL LETTER

The following 1 pages are being telecopied to the following person(s):

TO: Mr. Mirza Baig
Room 309 D
904/488-6579
DER Air Program

FROM: Freeport-McMoRan Corporate Environmental and Safety Department
C. J. Delaune
504/582-2473

The telecopy number is (504) 582-1810.

Please contact Kelly Lohr at telephone number 504/582-4376 if there is any difficulty in the receipt of this transmission.

SATCO FACILITY REPORT DATED 6/15/90
FULL COPY OF REPORT TO
FOLLOW BY FED-EX.

2-11

ENVIROPLAN

2.3 SUMMARY

Maximum hourly and annual emissions of SP, PM-10, TP, VOC, SO_2, and H_2S (for molten sulfur storage) and H_2SO_4 and SO_2 (H_2SO_4 storage) are summarized below:

	Source Type					
	Single Storage Tank		Ship		Truck Filling	
	Max	Actual	Max	Actual	Max	Actual
Contaminant	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Molten S						
SP	0.44	1.70	0.27	0.30	0.09	0.38
PM-10	0.[illegible]	1.36	0.58	0.64	0.20	0.[illegible]
TP	[illegible]	[illegible]98	0.66	0.73	0.22	0.9[illegible]
VOC	[illegible]	3.29	0.81	0.90	0.28	1.05
SO_2	0	[illegible]11	0.09	0.10	0.03	0.11
H_2S	7	27	55	7[illegible]	1.61	5.29
H_2SO_4						
H_2SO_4	[illegible]	[illegible]	[illegible]03	0.002	0.001	0.003
SO_2		6[illegible]	[illegible].54	2.82	0.86	3.27

The [illegible] indicates that, for molten sulfur storage, the [illegible] emissions are roughly 41% and 88% of the TP emissions. [illegible] ge (i.e., factor of 2.5) difference between [illegible] ons is due to emissions of condensible [illegible] ls affect TP measurements [illegible] measurements using the sulfur-type [illegible].

PEEPLES, EARL & BLANK
PROFESSIONAL ASSOCIATION
ATTORNEYS AT LAW
1800 2ND STREET
SUITE 888
SARASOTA, FLORIDA 34236
TELEPHONE (813) 366-[illegible]
TELEFAX (813) 366-[illegible]

MIAMI OFFICE
ONE BISCAYNE TOWER, SUITE 3636
TWO SOUTH BISCAYNE BOULEVARD
MIAMI, FLORIDA 33131
(305) 358-3000
FAX (305) 358-5079

JUDITH S. KAVANAUGH

REPLY TO: Sarasota

April 6, 1990

Mr. Pradeep Raval
Air Resources Management
Department of Environmental Resources
2600 Blair Stone Road
Tallahassee, Florida 34399-2400

Re: Sulfuric Acid Trading Company (SATCO), Tampa Bulk Liquid Terminal; AC 29-168895

Dear Pradeep:

Enclosed please find an original and three copies of the revised Technical Report in support of the above-referenced application, as well as an executed Certificate of Engineer. Also, please note an error in the UTM coordinates provided in the application for the facility. The correct coordinates are:

UTM: Zone 17
358.4 Km East
3008.4 Km North
Latitude: 30°24'08" North
Longitude: 82°26'20" West

On behalf of Sulphuric Acid Trading Company (SATCO), this letter is to request that the Department of Environmental Regulation accept this additional information to amend and supplement, and it is to be hoped to complete, the pending permit application.

I would be most grateful if you would contact me if you have any questions about the new information submitted. SATCO appreciates your courtesy and assistance in completing the application, and is ready to offer any further information DER may require in order to accomplish the permitting of these facilities.

I look forward to talking with you soon, and with best regards, I remain

Sincerely,

PEEPLES, EARL & BLANK, P.A.

Judith S. Kavanaugh
For The Firm

JSK/gc
Enclosure

cc: SATCO
B. Thomas, SW Dist.
J. Campbell, EPC HC

CERTIFICATION OF
ENGINEERING REVIEW OF AIR POLLUTION SOURCE
CONSTRUCTION PERMIT APPLICATION FOR THE
SULPHURIC ACID TRADING COMPANY (SATCO)
Port of Tampa
Tampa, Florida

Rule 17-4.05(3),FAC requires that applications and supporting plans and calculations for an air pollution source construction permit be reviewed by a Professional Engineer registered in the State of Florida. The air pollution source construction permit application for the Sulphuric Acid Trading Company located at the Port of Tampa in Tampa, Florida, has been reviewed.

The location of the facility, as identified on page 1 of 12 of the permit application, should read:

UTM: East - (17) 358.4 km North - 3088.4 km

Latitude: 27° 54′ 52" N Longitude: 82° 26′ 20" W

Additionally, the attached report entitled, Pollutant Emission Estimates for the Sulphuric Acid Trading Company Tampa Bulk Liquid Sulfur and Sulfuric Acid Storage Facility, February 13, 1990, and prepared by Enviroplan, West Orange, New Jersey, is to replace Attachment B of the original permit application (an Enviroplan report dated June 12, 1989) and the Enviroplan report dated May 23, 1989, submitted to the Department under cover of a letter dated September 25, 1989, from Judith Kavanaugh of Peeples, Earl and Blank to Clair Fancy.

This is to certify that with the changes noted above, the engineering features and calculations contained in this air permit application have been examined by me and found to be in conformity with modern engineering principles applicable to the characterization of air pollutants addressed in the permit application. There is reasonable assurance, in my professional judgment, that the air pollution sources described in the application, 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 and required by the Department, a set of instructions for the proper maintenance and operation of the pollution sources.

Signed _____

Date: 3/21/90 Telephone No (904) 377-5822

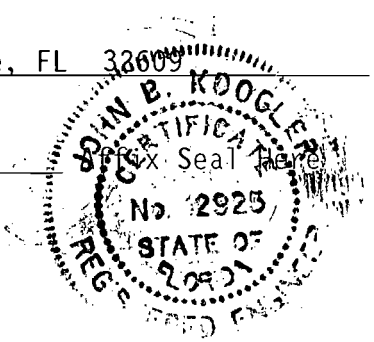
John B. Koogler
Name

Koogler & Associates
Company Name

4014 N.W. 13th Street Gainesville, FL 32609
Mailing Address

Florida Registration No. 12925

Affix Seal Here



ENVIROPLAN

PARTICULATE EMISSION ESTIMATES FOR THE SULFURIC ACID TRADING COMPANY TAMPA BULK LIQUID SULFUR AND SULFURIC ACID STORAGE FACILITY

Submitted on behalf of:

SULPHUR TERMINALS COMPANY, INC.

February 14, 1990
Ref. No. 51-2116-471

59 MAIN STREET ■ WEST ORANGE, N.J. 07052 ■ 201-325-1544 ■ FAX: 201-325-8477

TABLE OF CONTENTS

LIST OF TABLES

1. INTRODUCTION

On February 27, 1985, the Florida Environmental Regulation Commission adopted amendments to Chapter 17-2, Florida Administrative Code which regulates the storage and handling of elemental sulfur in the State of Florida. These amendments, known as the Sulfur Storage and Handling Rule (or "sulfur rule"), established new standards for liquid (molten) sulfur storage facilities. The Florida Department of Environmental Regulation (DER) is now in the process of implementing the sulfur rule through permitting of the existing liquid sulfur storage facilities.

This report summarizes the particulate emission calculations in support of permit applications for the Sulfuric Acid Trading Company (SATCO) facility in Tampa. This facility stores and handles molten elemental sulfur and sulfuric acid (H_2SO_4). Pertinent information on elemental sulfur and H_2SO_4 annual throughputs for this facility, as well as information on storage tank capacities and vent configurations, is contained in Table 1-1.

Emission calculations for elemental sulfur storage were primarily based on a series of monitoring studies carried out over the past four and one-half years at the STI and Pennzoil Tampa molten sulfur facilities[1], [2], [3]. The test results have been submitted to DER. In these studies storage tank ventilation rates and particulate emission rates were measured over a range of meteorological conditions; storage tank capacities, liquid levels, and vent configurations; and sulfur product characteristics. This work included the development and testing of a sulfur-specific sampling procedure for accurate measurement of sulfur particulate emission rates[3]. This alternate sampling method was necessary

because of the unique conditions and tank design at the STI facility which interfered with accurate measurements using standard reference methods. The sulfur-specific method was approved by DER in March, 1989. Total particulate concentrations in the STI vent gases were measured using DER Method 5. Concentrations of PM-10 were based on the measured total particulate concentrations and particle size distribution measurements (performed by microscopic analysis of filter samples, described in reference (1)) indicating PM-10 to be 88.18% of total particulate.

The above vent flow and pollutant concentration measurements made at the STI and Pennzoil Tampa facilities are applicable to the SATCO facility. The vent configuration of the SATCO storage tanks consists of a center vent (similar to the Pennzoil tanks) and multiple perimeter vents (similar to the STI tanks). The sulfur stored at the SATCO terminal is the same as that stored at the STI facility, which suggests that the equilibrium pollutant concentrations measured at the STI facility will apply to the SATCO facility for elemental sulfur storage.

There were no pollutant emission measurement data for H_2SO_4 storage at the SATCO facility upon which to base emission calculations. In this case engineering judgement involving theoretical calculations of upper limit pollutant emissions was applied.

The emission estimates for this facility are based on a maximum expected annual throughput and worst-case operating conditions, leading to upper limit estimates of maximum hourly and annual emissions.

TABLE 1-1: FACILITY INFORMATION ON MOLTEN SULFUR AND SULFURIC ACID STORAGE AND HANDLING AT THE SATCO TAMPA FACILITY

Annual Throughput (LT)	No. of Storage Tanks	Storage Capacity Per Tank (LT)	No./Type of Vents Per Tank	Vent Diameter (ft)
2.0×10^6 (molten sulfur or sulfuric acid)	3	20,000	6 perimeter 1 center	0.5 0.5

Note to Table 1-1:

Either molten sulfur or sulfuric acid may be stored at the SATCO facility. For storage of sulfur, some or all of the vents remain open (all emission calculations for sulfur storage presented in this report are based on all vents being open, i.e., worst-case operating condition). For sulfur acid storage, only the center vent remains open.

2. EMISSION CALCULATIONS FOR THE SULFURIC ACID TRADING COMPANY (SATCO), TAMPA FACILITY

This facility will be used for either the storage of molten sulfur or the storage of sulfuric acid (H_2SO_4). Emissions of sulfur particulate (SP), PM-10, and total particulate (TP) will occur from the storage and handling of molten sulfur at this facility. The storage of H_2SO_4 will result in the emissions of H_2SO_4. There are three major types of emission sources:

1) Emissions from three storage tanks during filling and non-filling periods
2) Emissions from the ship during storage tank filling
3) Emissions due to truck filling from the storage tanks

2.1 BACKGROUND INFORMATION

2.1.1 Annual Throughput of Molten Sulfur/H_2SO_4

2×10^6 LT/yr, maximum permitted throughput for facility of either molten sulfur or H_2SO_4 (6.667×10^5 LT/yr per storage tank)

2.1.2 Sulfur/H_2SO_4 Transfer Rates

2.1.2.1 Ship to Storage Tank

600.0 LT/hr per storage tank, based on average ship discharge rates presented in reference (1).

2.1.2.2 Storage Tanks to Trucks

Maximum of 264 LT/hr, based on the filling of 6 trucks/hr at each of 2 truck-filling stations, each truck having a 22.0 LT capacity.

2.1.3 Storage Tank Ventilation Rate

For the storage of molten sulfur (all vents open), estimated at 214 acfm, based on storage tank ventilation rate measurements at the STI and Pennzoil facilities in Tampa:

a) Outflow from the six peripheral SATCO vents based on perimeter vent outflow measurements at the STI facility and linear scaling to account for the slightly increased vent area on the SATCO tanks compared to the STI tanks, i.e., (164 acfm) (1.178/1.091) = 177 acfm.

b) Outflow from the center SATCO vent based on center vent outflow measurements at the Pennzoil facility, 37 acfm.

c) Total ventilation rate for the SATCO tanks = 177 + 37 = 214 acfm.

For the storage of H_2SO_4 (center vent open, perimeter vents closed), 37 acfm.

2.1.4 Ship Tank Ventilation Rate

51.8 acfm for each of 5 ship tanks, based on estimates described in reference (1).

2.1.5 Concentrations of Pollutants in Vapor Space Above Molten Sulfur and H_2SO_4

Based on particulate concentration measurements at the STI Tampa facility, SP, PM-10, and TP are assumed to be in equilibrium with molten sulfur (i.e., independent of tank ventilation rate) at the following concentrations:

Pollutant	Concentration (lb/ft^3)
SP	1.757×10^{-5}
PM-10	3.750×10^{-5}
TP	4.250×10^{-5}

For the storage of 97% H_2SO_4 at ambient temperature ($25^{o}C$), theory predicts a saturation vapor pressure of H_2SO_4 of 4.4×10^{-4} mm Hg, which is equivalent to a vapor space concentration of 1.449×10^{-7} lb/ft^3.

2.2 EMISSION CALCULATIONS

2.2.1 Emissions from Storage Tanks During Filling

Period of filling per tank:

$(6.667 \times 10^5$ LT/yr)/(600.0 LT/hr) = 1,111 hr/yr

Rate of vapor displacement due to tank filling:

(600.0 LT/hr) (2240 lb/LT)/(112 lb S/ft^3) = 12,000 ft^3/hr

Total effective tank ventilation rate during molten sulfur filling:

12,000 + (214) (60 min/hr) = 24,840 ft^3/hr

Total effective tank ventilation rate during sulfuric acid filling:

12,000 + (37) (60 min/hr) = 14,220 ft^3/hr

Maximum hourly emission rates per tank during filling are computed as the total effective ventilation rate (ft^3/hr) times the pollutant concentration (lb/ft^3). For molten sulfur storage:

(24,840) (1.757×10^{-5}) = 0.44 lb/hr SP
(24,840) (3.750×10^{-5}) = 0.93 lb/hr PM-10
(24,840) (4.250×10^{-5}) = 1.06 lb/hr TP

For H_2SO_4 storage:

(14,220) (1.449×10^{-7}) = 0.002 lb/hr H_2SO_4

These are the maximum hourly emissions expected from the storage tank at any time.

Annual emissions from tank filling are computed as the hourly emissions times the period of filling per tank. For molten sulfur storage:

0.44 (1111) = 489 lb/yr = 0.24 ton/yr SP
0.93 (1111) =1033 lb/yr = 0.52 ton/yr PM-10
1.06 (1111) =1178 lb/yr = 0.59 ton/yr TP

For H_2SO_4 storage:

0.002 (1111) = 2 lb/yr = 0.001 ton/yr H_2SO_4

2.2.2 Emissions from Storage Tanks During Non-Filling

Period of non-filling per tank = 8760 - 1111 = 7649 hr/yr.

Annual emissions per tank are calculated as the tank ventilation rate during non-filling periods, i.e., (214 acfm) (60 min/hr) (7649 hr/yr) = 9.821×10^7 ft^3/yr for sulfur storage and (37 acfm) (60 min/hr) (7649 hr/yr) = 1.698×10^7 ft^3/yr for sulfuric acid storage, times the pollutant concentration. For molten sulfur storage:

(9.821×10^7) (1.757×10^{-5}) = 1,726 lb/yr = 0.86 ton/yr SP
(9.821×10^7) (3.750×10^{-5}) = 3,683 lb/yr = 1.84 ton/yr PM-10
(9.821×10^7) (4.250×10^{-5}) = 4,174 lb/yr = 2.09 ton/yr TP

For H_2SO_4 storage:

$(1.698 \times 10^{7})\ (1.449 \times 10^{-7}) = 2$ lb/yr = 0.001 ton/yr H_2SO_4

2.2.3 Total Annual Emissions from Storage Tanks

Total annual emissions per tank are computed as the sum of emissions during filling and emissions during non-filling. For molten sulfur storage:

0.24 + 0.86 = 1.10 ton/yr SP
0.52 + 1.84 = 2.36 ton/yr PM-10
0.59 + 2.09 = 2.68 ton/yr TP

For H_2SO_4 storage:

0.001 + 0.001 = 0.002 ton/yr H_2SO_4

2.2.4 Emissions from the Ship During Storage Tank Filling

Maximum hourly emissions are computed as the total ship tank ventilation rate, i.e., (51.8 acfm/tank) (5 tanks) (60 min/hr) = 15,540 ft^3/hr, times the pollutant concentrations. For molten sulfur storage:

15,540 (1.757×10^{-5}) = 0.27 lb/hr SP
15,540 (3.750×10^{-5}) = 0.58 lb/hr PM-10
15,540 (4.250×10^{-5}) = 0.66 lb/hr TP

For H_2SO_4 storage:

15,540 (1.449×10^{-7}) = 0.002 lb/hr H_2SO_4

Annual emissions are computed as the hourly emission rate times the number of hours per year of tank filling. The number of hours of filling is equal to:

(1111 hr/yr/tank) (3 tanks)/(on average, 1.5 tanks filled at once) = 2222 hr/yr. For molten sulfur storage:

2222 (0.27) = 600 lb/yr = 0.30 ton/yr SP
2222 (0.58) = 1,289 lb/yr = 0.64 ton/yr PM-10
2222 (0.66) = 1,467 lb/yr = 0.73 ton/yr TP

For H_2SO_4 storage:

2222 (0.002) = 4 lb/yr = 0.002 ton/hr H_2SO_4

2.2.5 Emissions from Truck Filling

Maximum hourly emissions are computed as the sulfur transfer rate from storage tanks to trucks, i.e., 264 LT/hr = 5,280 ft^3/hr, times the pollutant concentrations. For molten sulfur storage:

5,280 (1.757×10^{-5}) = 0.09 lb/hr SP
5,280 (3.750×10^{-5}) = 0.20 lb/hr PM-10
5,280 (4.250×10^{-5}) = 0.22 lb/hr TP

For H_2SO_4 storage:

5,280 (1.449×10^{-7}) = 0.001 lb/hr H_2SO_4

Annual emissions are computed as the annual facility-wide vapor displacement rate times the pollutant concentrations. The facility-wide vapor displacement rate is:

$(2 \times 10^6$ LT/yr) (2240 lb/LT)/(112 lb/ft^3) = 4×10^7 ft^3/yr

For the storage of molten sulfur:

(4×10^7) (1.757×10^{-5}) = 703 lb/yr = 0.35 ton/yr SP
(4×10^7) (3.750×10^{-5}) = 1,500 lb/yr = 0.75 ton/yr PM-10
(4×10^7) (4.250×10^{-5}) = 1,700 lb/yr = 0.85 ton/yr TP

For H_2SO_4 storage:

(4×10^7) (1.449×10^{-7}) = 6 lb/yr = 0.003 ton/yr H_2SO_4

2.3 SUMMARY

Maximum hourly and annual emissions of SP, PM-10, and TP (for molten sulfur storage) and H_2SO_4 (for H_2SO_4 storage) are summarized below:

	Source Type					
	Single Storage Tank		Ship		Truck Filling	
Contaminant	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr	Max lb/hr	Actual T/yr
Molten S						
SP	0.44	1.10	0.27	0.30	0.09	0.35
PM-10	0.93	2.36	0.58	0.64	0.20	0.75
TP	1.06	2.68	0.66	0.73	0.22	0.85
H_2SO_4						
H_2SO_4	0.002	0.002	0.002	0.002	0.001	0.003

The above table indicates that, for molten sulfur storage, the SP and PM-10 emissions are roughly 41% and 88% of the TP emissions, respectively. The large (i.e., factor of 2.5) difference between TP and SP emissions is due to emissions of condensible oils. These condensible oils affect TP measurements with DER Method 5 but are excluded from SP measurements using the sulfur-specific sampling procedure.

REFERENCES

(1) Enviroplan, Inc., Air Quality Impact of Existing Liquid Sulfur Storage and Handling Facilities in the Tampa Area, Ref. No. 2116-418, December 26, 1984.

(2) Enviroplan, Inc., Sulfur Particulate Emission Measurement Project at the Pennzoil Terminals in Tampa, Florida, Ref. Nos. 4025-617, 4025-620, October, 1986.

(3) Enviroplan, Inc., Technical Report Supporting Application to the Florida DER for an Alternate Sulfur Particulate Emissions Sampling Procedure, Ref. No. 51-2116-748, October 30, 1987.

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:	4. Article Number
Mr. B. O. Knoess, Jr. Sulphuric Acid Trading Company P. O. Box 61520 New Orleans, LA 70160	P 938 762 723
	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	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery OCT 30 1989	

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

P 938 762 723

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

Sent to Mr. B. O. Knoess, Jr. SATCO	
Street and No. P. O. Box 61520	
P.O. State and ZIP Code New Orleans, LA 70160	
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: 10-26-89 Permit: AC 29-168895	

PS Form 3800, June 1985

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

October 26, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. B. O. Knoess, Jr.
Sulphuric Acid Trading Company
P.O. Box 61520
New Orleans, LA 70160

Dear Mr. Knoess:

Re: SATCO - Tampa Sulfur Facility Permitting, AC 29-168895

The Department has received your response dated September 25, 1989. Please complete Section 1.B., P.E. certification, for DER to be able to process your application.

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

Sincerely,

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

CHF/PR

cc: B. Thomas, SW District
I. Choronenko, HCEPC
J. Kavanaugh; Peeples, Earl and Blank

PEEPLES, EARL & BLANK
PROFESSIONAL ASSOCIATION
ATTORNEYS AT LAW
1800 2ND STREET
SUITE 888
SARASOTA, FLORIDA 34236
TELEPHONE (813) 366-1180
TELEFAX (813) 366-1183

MIAMI OFFICE
ONE BISCAYNE TOWER, SUITE 3636
TWO SOUTH BISCAYNE BOULEVARD
MIAMI, FLORIDA 33131
(305) 358-3000
FAX (305) 358-5079

JUDITH S. KAVANAUGH

REPLY TO: Sarasota

September 25, 1989

Claire H. Fancy, Deputy Chief
Air Resource Management
FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
2600 Blair Stone Road
Tallahassee, Florida 34399-2400

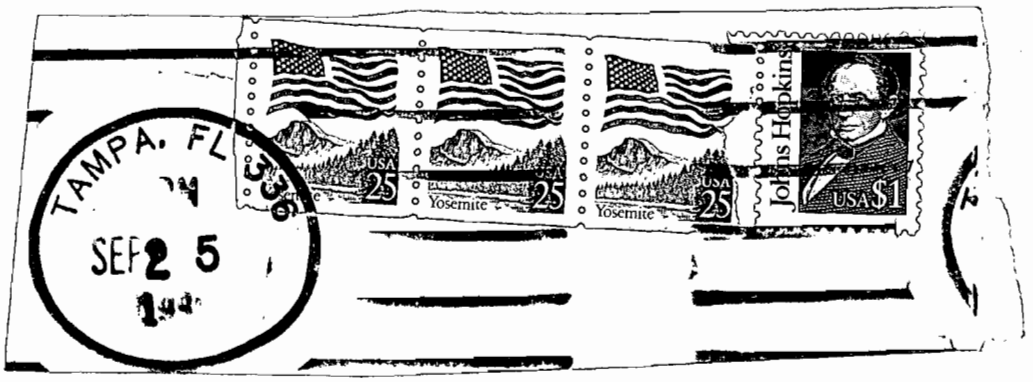
Re: Sulphuric Acid Trading Company ("SATCO") - Tampa Sulphur Facility Permitting, # AC29-168895

Dear Mr. Fancy:

This letter is written on behalf of Sulphuric Acid Trading Company ("SATCO"), a client of this office, to respond to your letter of August 31, 1989, requesting additional information to assist the Department in the processing of the air permit for SATCO's Tampa bulk liquid tank terminal facility. In response to your request for additional information SATCO submits the following:

DER Request 1: Please submit to the Hillsborough County Environmental Protection Commission ("HCEPC") the appropriate permit fee of $365.00

Attachment "A", copy of the transmittal letter, reflects that the permit fee, as well as copies of this additional information have been provided to HCEPC.



PEEPLES, EARL & BLANK
ATTORNEYS AT LAW
1800 2ND STREET
SUITE 888
SARASOTA, FLORIDA 34236

TO

Claire H. Fancy, Deputy Chief
Air Resource Management
Florida Dept. of Environmental Reg..
2600 Blair Stone Road
Tallahassee, Florida 34399-2400

DER Request 2: What has been the maximum (permitted or actual) sulphur throughput at this facility? What is the typical capacity of the sulfur delivery vehicle(s)? What is the typical delivery frequency?

Historical data reflects the optimum throughput at this facility to have been .65MM tons of sulphur. These are estimates based on operational experience and available records and are believed by SATCO to be representative of a typical year of optimum operation. As the Department is aware, these facilities were not permitted in the past because no permits were required until the adoption of the recent Sulphur Rule. This information is submitted as part of bringing these existing facilities within the regulatory framework established under that rule.

For sulphur delivery vehicle capacity, please refer to Section 2.2.4 of the Enviroplan Report attached hereto as Attachment "B"

DER Request 3: Please submit air emission estimates for any other source/equipment/process within (or associated with) the sulphur facility which has not yet been permitted by DER. Submit air emission estimates for all the air pollutants emitted by the sources in the sulphur facility. Please confirm the sulphur particulate emission estimates submitted in the application package.

Additional emissions estimates are set out in the Enviroplan Report attached hereto as Attachment "B". The information reflects the upper limit of emissions, estimated assuming the terminal is handling either of the materials it stores.

DER Request 4: Please complete Section 1B, P.E. Requirement for the application you have submitted.

As DER is aware, this facility is already constructed and uses no pollution control equipment. Thus the P.E. certification as to pollution control equipment or facilities is not applicable. SATCO is in the process of obtaining certification by a Florida P.E. certifying that the facility is constructed as represented in the permit application, and will provide that as soon as possible for purposes of emissions estimates.

If you of your staff have any questions or any further information as required, please do not hesitate to contact me and I remain,

Sincerely,
PEEPLES, EARL & BLANK, P.A.

Judith S. Kavanaugh
For the Firm

JSK/jcs
cc: Mr. Pradeep Raval
Mr. William Thomas
Mr. Iwan Choronenko
Sulphur Acid Trading Company

PEEPLES, EARL & BLANK
PROFESSIONAL ASSOCIATION
ATTORNEYS AT LAW
1800 2ND STREET
SUITE 888
SARASOTA, FLORIDA 34236
TELEPHONE (813) 366-1180
TELEFAX (813) 366-1183

MIAMI OFFICE
ONE BISCAYNE TOWER, SUITE 3636
TWO SOUTH BISCAYNE BOULEVARD
MIAMI, FLORIDA 33131
(305) 358-3000
FAX (305) 358-5079

JUDITH S. KAVANAUGH

REPLY TO:
Sarasota

September 25, 1989

Iwan Choronenko, Deputy Director
Air Department
HILLSBOROUGH COUNTY ENVIRONMENTAL PROTECTION COMMISSION
1900 Ninth Avenue
Tampa, Florida 33605

Re: Sulphuric Acid Trading Company ("SATCO") - Tampa Sulphur Facility Permitting, #AC29-168895

Dear Mr. Choronenko:

Enclosed please find the permit processing fee in the amount of three hundred and sixty-five dollars ($365.00) for the County's review of the above-described facility. Also enclosed is a copy of the additional information provided to the Florida Department of Environmental Regulation with regard to this permit application.

I you or your staff have any questions about the permit application or require any further information, please do not hesitate to call me. I thank you for your assitance in this regard and I remain,

Sincerely,
PEEPLES, EARL & BLANK, P.A.

Judith S Kavanaugh

Judith S. Kavanaugh
For the Firm

JSK/jcs
cc: Mr. C.H. Fancy
Mr. William Thomas

— ATTACHMENT "A" —

Pollutant Emission Estimates For The Sulfuric Acid Trading Company Tampa Bulk Liquid Sulfur and Sulfuric Acid Storage Facility

Submitted on behalf of:

SULPHUR TERMINALS COMPANY, INC.

May 23, 1989

Ref. No. 51-2116-471

ENVIROPLAN

ATTACHMENT "B"

ENVIROPLAN

POLLUTANT EMISSION ESTIMATES FOR THE SULFURIC ACID TRADING COMPANY TAMPA BULK LIQUID SULFUR AND SULFURIC ACID STORAGE FACILITY

Submitted on behalf of:

SULPHUR TERMINALS COMPANY, INC.

May 23, 1989
Ref. No. 51-2116-471

1. INTRODUCTION

On February 27, 1985, the Florida Environmental Regulation Commission adopted amendments to Chapter 17-2, Florida Administrative Code which regulates the storage and handling of elemental sulfur in the State of Florida. These amendments, known as the Sulfur Storage and Handling Rule (or "sulfur rule"), established new standards for liquid (molten) sulfur storage facilities. The Florida Department of Environmental Regulation (DER) is now in the process of implementing the sulfur rule through permitting of the existing liquid sulfur storage facilities.

This report summarizes the emission calculations in support of permit applications for the Sulfuric Acid Trading Company (SATCO) facility in Tampa. This facility stores and handles molten elemental sulfur and sulfuric acid (H_2SO_4). Pertinent information on elemental sulfur and H_2SO_4 annual throughputs for this facility, as well as information on storage tank capacities and vent configurations, is contained in Table 1-1.

Emission calculations for elemental sulfur storage were primarily based on a series of monitoring studies carried out over the past four and one-half years at the STI and Pennzoil Tampa molten sulfur facilities[1], [2], [3]. The test results have been submitted to DER. In these studies storage tank ventilation rates and pollutant emission rates were measured over a range of meteorological conditions; storage tank capacities, liquid levels, and vent configurations; and sulfur product characteristics. This work included the development and testing of a sulfur-specific sampling procedure for accurate measurement of sulfur particulate emission rates[3]. This alternate sampling method was necessary

because of the unique conditions and tank design at the STI facility which interfered with accurate measurements using standard reference methods. The sulfur-specific method was approved by DER in March, 1989.

Other pollutants emitted form molten sulfur storage measured in these sampling programs included total particulate, PM-10, VOC, SO_2, and H_2S. Total particulate concentrations in the STI vent gases were measured using DER Method 5. Concentrations of PM-10 were based on the measured total particulate concentrations and particle size distribution measurements (performed by microscopic analysis of filter samples, described in reference (1)) indicating PM-10 to be 88.18% of total particulate. U.S. EPA reference methods 18, 25, and 6 were applied for concentration measurements of H_2S, VOC, and SO_2, respectively.

The above vent flow and pollutant concentration measuremnts made at the STI and Pennzoil Tampa facilities are applicable to the SATCO facility. The vent configuration of the SATCO storage tanks is similar to that tested at the STI facility. The sulfur stored at the SATCO terminal is the same as that stored at the STI facility, which suggests that the equilibrium pollutant concentrations measured at the STI facility will apply to the SATCO facility for elemental sulfur storage.

There were no pollutant emission measurement data for H_2SO_4 storage at the SATCO facility upon which to base emission calculations. In this case engineering judgement involving theoretical calculations of upper limit pollutant emissions was applied.

The emission estimates for this facility are based on a maximum expected annual throughput and worst-case operating

conditions, leading to upper limit estimates of maximum hourly and annual emissions.

TABLE 1-1: FACILITY INFORMATION ON MOLTEN SULFUR AND SULFURIC ACID STORAGE AND HANDLING AT THE SATCO TAMPA FACILITY

Annual Throughput (LT)	No. of Storage Tanks	Storage Capacity Per Tank (LT)	No./Type of Vents Per Tank	Vent Diameter (ft)
2.0×10^6 (molten sulfur or sulfuric acid)	3	20,000	7 perimeter	0.5

Note to Table 1-1:

Either molten sulfur or sulfuric acid may be stored at the SATCO facility.

2. EMISSION CALCULATIONS FOR THE SULFURIC ACID TRADING COMPANY (SATCO), TAMPA FACILITY

This facility will be used for either the storage of molten sulfur or the storage of sulfuric acid (H_2SO_4). Emissions of sulfur particulate (SP), PM-10, total particulate (TP), VOC, H_2S, and SO_2 will occur from the storage and handling of molten sulfur at this facility. The storage of H_2SO_4 will result in the emissions of H_2SO_4 and SO_2. There are three major types of emission sources:

1) Emissions from three storage tanks during filling and non-filling periods
2) Emissions from the ship during storage tank filling
3) Emissions due to truck filling from the storage tanks

2.1 BACKGROUND INFORMATION

2.1.1 Annual Throughput of Molten Sulfur/H_2SO_4

2×10^6 LT/yr, maximum permitted throughput for facility of either molten sulfur or H_2SO_4 (6.667×10^5 LT/yr per storage tank)

2.1.2 Sulfur/H_2SO_4 Transfer Rates

2.1.2.1 Ship to Storage Tank

600.0 LT/hr per storage tank, based on average ship discharge rates presented in reference (1).

2.1.2.2 Storage Tanks to Trucks

Maximum of 264 LT/hr, based on the filling of 6 trucks/hr at each of 2 truck-filling stations, each truck having a 22.0 LT capacity.

2.1.3 Storage Tank Ventilation Rate

Estimated at 207 acfm, based on 35 measurements at the STI Tampa facility in September, 1987 and linear scaling to account for the increased vent area on the SATCO tanks compared to the STI tanks.

2.1.4 Ship Tank Ventilation Rate

51.8 acfm for each of 5 ship tanks, based on estimates described in reference (1).

2.1.5 Concentrations of Pollutants in Vapor Space Above Molten Sulfur and H_2SO_4

Based on pollutant concentration measurements at the STI Tampa facility, the following pollutants are assumed to be at equilibrium with molten sulfur (i.e., independent of tank ventilation rate):

Pollutant	Concentration (lb/ft^3)
SP	1.757×10^{-5}
PM-10	3.750×10^{-5}
TP	4.250×10^{-5}
VOC	5.224×10^{-5}
SO_2	5.472×10^{-6}

Measurements have shown the H_2S concentration in the vapor space inside a molten sulfur storage tank to be a function of tank ventilation rate, V (acfm), i.e.,

$$H_2S \ (lb/ft^3) = 1.719 \times 10^{-2} \ V^{-0.938}$$

At a normal storage tank ventilation rate of 207 acfm, the H_2S concentration is 1.156×10^{-4} lb/ft^3.

For the storage of 97% H_2SO_4 at ambient temperature (25^oC), theory predicts a saturation vapor pressure of H_2SO_4 of 4.4×10^{-4} mm Hg, which is equivalent to a vapor space concentration of 1.449×10^{-7} lb/ft^3. Measurements of SO_2 dissolved in liquid H_2SO_4 stored at a similar facility revealed concentrations below the analytical detection limit, 40 ppm. As a worst-case scenario, assuming dissolved SO_2 to be at 40 ppm, the concentration of SO_2 in the vapor space above liquid H_2SO_4 would be approximately 1000 ppm, or 1.634×10^{-4} lb/ft^3. This is clearly an upper limit SO_2 vapor space concentration and will result in worst-case SO_2 emission estimates.

2.2 EMISSION CALCULATIONS

2.2.1 Emissions from Storage Tanks During Filling

Period of filling per tank:

$(6.667 \times 10^5$ LT/yr)/(600.0 LT/hr) = 1,111 hr/yr

Rate of vapor displacement due to tank filling:

(600.0 LT/hr) (2240 lb/LT)/(112 lb S/ft^3) = 12,000 ft^3/hr

Total effective tank ventilation rate during filling:

12,000 + (207) (60 min/hr) = 24,420 ft^3/hr

Maximum hourly emission rates per tank during filling are computed as the total effective ventilation rate (ft^3/hr) times the pollutant concentration (lb/ft^3). For molten sulfur storage:

(24,420) (1.757×10^{-5}) = 0.45 lb/hr SP
(24,420) (3.750×10^{-5}) = 0.92 lb/hr PM-10
(24,420) (4.250×10^{-5}) = 1.04 lb/hr TP
(24,420) (5.224×10^{-5}) = 1.28 lb/hr VOC
(24,420) (5.472×10^{-6}) = 0.13 lb/hr SO_2
(24,420) (1.156×10^{-4}) = 2.82 lb/hr H_2S

For H_2SO_4 storage:

(24,420) (1.449×10^{-7}) = 0.004 lb/hr H_2SO_4
(24,420) (1.634×10^{-4}) = 3.99 lb/hr SO_2

These are the maximum hourly emissions expected from the storage tank at any time.

Annual emissions from tank filling are computed as the hourly emissions times the period of filling per tank. For molten sulfur storage:

0.43 (1111) = 477 lb/yr = 0.24 ton/yr SP
0.92 (1111) =1022 lb/yr = 0.51 ton/yr PM-10
1.04 (1111) =1155 lb/yr = 0.58 ton/yr TP
1.28 (1111) =1422 lb/yr = 0.71 ton/yr VOC
0.13 (1111) = 144 lb/yr = 0.07 ton/yr SO_2
2.82 (1111) =3133 lb/yr = 1.57 ton/yr H_2S

For H_2SO_4 storage:

0.004 (1111) = 4 lb/yr = 0.002 ton/yr H_2SO_4
3.99 (1111) = 4433 lb/yr = 2.22 ton/yr SO_2

2.2.2 Emissions from Storage Tanks During Non-Filling

Period of non-filling per tank = 8760 - 1111 = 7649 hr/yr.

Annual emissions per tank are calculated as the tank ventilation rate during non-filling periods, i.e., (207 acfm) (60 min/hr) (7649 hr/yr) = 9.500×10^7 ft^3/yr, times the pollutant concentration. For molten sulfur storage:

(9.500×10^7) (1.757×10^{-5}) = 1,669 lb/yr = 0.83 ton/yr SP
(9.500×10^7) (3.750×10^{-5}) = 3,563 lb/yr = 1.78 ton/yr PM-10
(9.500×10^7) (4.250×10^{-5}) = 4,038 lb/yr = 2.02 ton/yr TP
(9.500×10^7) (5.224×10^{-5}) = 4,963 lb/yr = 2.48 ton/yr VOC
(9.500×10^7) (5.472×10^{-6}) = 520 lb/yr = 0.26 ton/yr SO_2
(9.500×10^7) (1.156×10^{-4}) =10,982 lb/yr = 5.49 ton/yr H_2S

For H_2SO_4 storage:

(9.500×10^7) (1.449×10^{-7}) = 14 lb/yr = 0.007 ton/yr H_2SO_4
(9.500×10^7) (1.634×10^{-4}) = 15,523 lb/yr = 7.76 ton/yr SO_2

2.2.3 Total Annual Emissions from Storage Tanks

Total annual emissions per tank are computed as the sum of emissions during filling and emissions during non-filling. For molten sulfur storage:

0.24 + 0.83 = 1.07 ton/yr SP
0.51 + 1.78 = 2.29 ton/yr PM-10
0.58 + 2.02 = 2.60 ton/yr TP
0.71 + 2.48 = 3.19 ton/yr VOC
0.07 + 0.26 = 0.33 ton/yr SO_2
1.57 + 5.49 = 7.06 ton/yr H_2S

For H_2SO_4 storage:

0.002 + 0.007 = 0.009 ton/yr H_2SO_4
2.22 + 7.76 = 9.98 ton/yr SO_2

2.2.4 Emissions from the Ship During Storage Tank Filling

Maximum hourly emissions are computed as the total ship tank ventilation rate, i.e., (51.8 acfm/tank) (5 tanks) (60 min/hr) = 15,540 ft^3/hr, times the pollutant concentrations. For molten sulfur storage:

15,540 (1.757×10^{-5}) = 0.27 lb/hr SP
15,540 (3.750×10^{-5}) = 0.58 lb/hr PM-10

$15,540\ (4.250 \times 10^{-5}) = 0.66$ lb/hr TP
$15,540\ (5.224 \times 10^{-5}) = 0.81$ lb/hr VOC
$15,540\ (5.472 \times 10^{-6}) = 0.09$ lb/hr SO_2
$15,540\ (4.239 \times 10^{-4}) = 6.59$ lb/hr H_2S

(Note: the H_2S concentration applies to a ventilation rate of 51.8 acfm)

For H_2SO_4 storage:

$15,540\ (1.449 \times 10^{-7}) = 0.002$ lb/hr H_2SO_4
$15,540\ (1.634 \times 10^{-4}) = 2.54$ lb/hr SO_2

Annual emissions are computed as the hourly emission rate times the number of hours per year of tank filling. The number of hours of filling is equal to:

(1111 hr/yr/tank) (3 tanks)/(on average, 1.5 tanks filled at once) = 2222 hr/yr. For molten sulfur storage:

2222 (0.27) = 600 lb/yr = 0.30 ton/yr SP
2222 (0.58) = 1,289 lb/yr = 0.64 ton/yr PM-10
2222 (0.66) = 1,467 lb/yr = 0.73 ton/yr TP
2222 (0.81) = 1,800 lb/yr = 0.90 ton/yr VOC
2222 (0.09) = 200 lb/yr = 0.10 ton/yr SO_2
2222 (6.59) = 14,643 lb/yr = 7.32 ton/yr H_2S

For H_2SO_4 storage:

2222 (0.002) = 4 lb/yr = 0.002 ton/hr H_2SO_4
2222 (2.54) = 5,644 lb/yr = 2.82 ton/yr SO_2

2.2.5 Emissions from Truck Filling

Maximum hourly emissions are computed as the sulfur transfer rate from storage tanks to trucks, i.e., 264 LT/hr = 5,280 ft^3/hr, times the pollutant concentrations. For molten sulfur storage:

$$5{,}280\ (1.757 \times 10^{-5}) = 0.09\ \text{lb/hr SP}$$
$$5{,}280\ (3.750 \times 10^{-5}) = 0.20\ \text{lb/hr PM-10}$$
$$5{,}280\ (4.250 \times 10^{-5}) = 0.22\ \text{lb/hr TP}$$
$$5{,}280\ (5.224 \times 10^{-5}) = 0.28\ \text{lb/hr VOC}$$
$$5{,}280\ (5.472 \times 10^{-6}) = 0.03\ \text{lb/hr } SO_2$$
$$5{,}280\ (4.940 \times 10^{-4}) = 2.61\ \text{lb/hr } H_2S$$

(Note: the H_2S concentration applies to a ventilation rate of 44.0 acfm, which is the vapor displacement rate inside a truck tank of 22.0 LT capacity being filled in 10 min.)

For H_2SO_4 storage:

$$5{,}280\ (1.449 \times 10^{-7}) = 0.001\ \text{lb/hr } H_2SO_4$$
$$5{,}280\ (1.634 \times 10^{-4}) = 0.86\ \text{lb/hr } SO_2$$

Annual emissions are computed as the annual facility-wide vapor displacement rate times the pollutant concentrations. The facility-wide vapor displacement rate is:

$$(2 \times 10^6\ \text{LT/yr})\ (2240\ \text{lb/LT})/(112\ \text{lb/ft}^3) = 4 \times 10^7\ \text{ft}^3\text{/yr}$$

For the storage of molten sulfur:

$$(4 \times 10^7)\ (1.757 \times 10^{-5}) = 703\ \text{lb/yr} = 0.35\ \text{ton/yr SP}$$
$$(4 \times 10^7)\ (3.750 \times 10^{-5}) = 1{,}500\ \text{lb/yr} = 0.75\ \text{ton/yr PM-10}$$

(4×10^{7}) (4.250×10^{-5}) = 1,700 lb/yr = 0.85 ton/yr TP
(4×10^{7}) (5.224×10^{-5}) = 2,090 lb/yr = 1.05 ton/yr VOC
(4×10^{7}) (5.472×10^{-6}) = 219 lb/yr = 0.11 ton/yr SO_2
(4×10^{7}) (2.646×10^{-4}) = 10,584 lb/yr = 5.29 ton/yr H_2S

For H_2SO_4 storage:

(4×10^{7}) (1.449×10^{-7}) = 6 lb/yr = 0.003 ton/yr H_2SO_4
(4×10^{7}) (1.634×10^{-4}) = 6,536 lb/yr = 3.27 ton/yr SO_2

2.3 SUMMARY

Maximum hourly and annual emissions of SP, PM-10, TP, VOC, SO_2, and H_2S (for molten sulfur storage) and H_2SO_4 and SO_2 (for H_2SO_4 storage) are summarized below:

	Source Type					
	Single Storage Tank		Ship		Truck Filling	
	Max	Actual	Max	Actual	Max	Actual
Contaminant	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Molten S						
SP	0.43	1.07	0.27	0.30	0.09	0.35
PM-10	0.92	2.29	0.58	0.64	0.20	0.75
TP	1.04	2.60	0.66	0.73	0.22	0.85
VOC	1.28	3.19	0.81	0.90	0.28	1.05
SO_2	0.13	0.33	0.09	0.10	0.03	0.11
H_2S	2.82	7.06	6.59	7.32	2.61	5.29
H_2SO_4						
H_2SO_4	0.004	0.01	0.002	0.002	0.001	0.003
SO_2	3.99	9.98	2.54	2.82	0.86	3.27

The above table indicates that, for molten sulfur storage, the SP and PM-10 emissions are roughly 41% and 88% of the TP emissions, respectively. The large (i.e., factor of 2.5) difference between TP and SP emissions is due to emissions of condensible oils. These condensible oils affect TP measurements with DER Method 5 but are excluded from SP measurements using the sulfur-specific sampling procedure.

REFERENCES

(1) Enviroplan, Inc., Air Quality Impact of Existing Liquid Sulfur Storage and Handling Facilities in the Tampa Area, Ref. No. 2116-418, December 26, 1984.

(2) Enviroplan, Inc., Sulfur Particulate Emission Measurement Project at the Pennzoil Terminals in Tampa, Florida, Ref. Nos. 4025-617, 4025-620, October, 1986.

(3) Enviroplan, Inc., Technical Report Supporting Application to the Florida DER for an Alternate Sulfur Particulate Emissions Sampling Procedure, Ref. No. 51-2116-748, October 30, 1987.

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:	4. Article Number
Mr. B. O. Knoess, Jr. Sulphuric Acid Trading Company P.O. Box 61520 New Orleans, Louisiana 70160	P 938 762 669
	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	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery SEP 07 1989	

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

P 938 762 669

RECEIPT FOR CERTIFIED MAIL

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

Sent to Mr. B. O. Knoess, Jr.	
Street and No. Sulphuric Acid Trading Co. P. O. Box 61520	
P.O., State and ZIP Code New Orleans, LA 70160	
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: 9/1/89 AC 29-168895	

PS Form 3800, June 1985

File Copy

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 31, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. B. O. Knoess, Jr.
Sulphuric Acid Trading Company
P.O. Box 61520
New Orleans, LA 70160

Dear Mr. Knoess:

Re: SATCO - Tampa Sulfur Facility Permitting; AC 29-168895

The Department has received your application dated August 16, 1989, and deemed it incomplete. Please submit the following information including all assumptions, calculations and reference material:

1. Please submit to the Hillsborough County Environmental Protection Commission (HCEPC) the appropriate permit fee of $365.00.

2. What has been the maximum (permitted or actual) sulfur throughput at this facility? What is the typical capacity of the sulfur delivery vehicle(s)? What is the typical delivery frequency?

3. 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. Submit air emission estimates for all the air pollutants emitted by the sources in the sulfur facility. Please confirm the sulfur particulate emission estimates submitted in the application package.

4. Complete Section 1.B., P.E. requirement, for the application you have sumitted.

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

Sincerely,

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

CHF/PR

cc: B. Thomas, SW District
I. Choronenko, HCEPC
J. Kavanaugh; Peeples, Earl and Blank
Reading File } 9-1-89
Pradeep Raval }

PEEPLES, EARL & BLANK

PROFESSIONAL ASSOCIATION
ATTORNEYS AT LAW
1800 2ND STREET
SUITE 888
SARASOTA, FLORIDA 34236
TELEPHONE (813) 366-1180
TELEFAX (813) 366-1183

MIAMI OFFICE
ONE BISCAYNE TOWER, SUITE 3636
TWO SOUTH BISCAYNE BOULEVARD
MIAMI, FLORIDA 33131
(305) 358-3000
FAX (305) 358-5079

JUDITH S. KAVANAUGH

REPLY TO:

August 16, 1989

Sarasota

BY FEDERAL EXPRESS

Pradeep Raval
Air Resource Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: SATCO Air Construction Permit Application

Dear Mr. Raval:

Enclosed please find an original and three (3) copies of a permit application package for the above-described facility. The permit application is submitted on behalf of Sulphuric Acid Trading Company, Inc. (SATCO), as requested by the Department of Environmental Regulation. A check in the amount of two hundred dollars ($200.00) is also enclosed for the permit application fee as required by Chapter 17-4.05, Florida Administrative Code.

If there are any questions, or any additional information is needed, please contact me. SATCO appreciates the Department's efforts and cooperation in accomplishing the permitting of its facilities pursuant to the Sulphur Rule.

Sincerely,

PEEPLES, EARL & BLANK, P.A.

Judith S. Kavanaugh
For the Firm

1031

JSK/jad
Enclosures
cc: Harry Kerns, SW Dist.
Ed Suec, HCEPC

BEST AVAILABLE COPY

FEDERAL EXPRESS

AIRBILL

USE THIS AIRBILL FOR DOMESTIC SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

PACKAGE TRACKING NUMBER 4003651[illegible]

4003651935

RECIPIENT'S COPY

Date 8/16

From (Your Name) Please Print — 1 Judith S. Kavanaugh
Your Phone Number (Very Important) ( )
Company: PEEPLES EARL & BLANK
Department/Floor No.
Street Address: 800 SECOND ST STE 888
City: SARASOTA State: FL ZIP Required: 3 4 2 3 6

To (Recipient's Name) Please Print — 2 Pradeep Raval
Recipient's Phone Number (Very Important) ( )
Company: F.D.E.R., Division of Resource Manag.
Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. # Zip Codes.): 2600 Blair Stone Road
City: Tallahassee, Florida State: Florida ZIP Required: 32399-240

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.) — 3 340

IF HOLD FOR PICK-UP, Print FEDEX Address Here — H
Street Address
City State ZIP Required

PAYMENT ☒ Bill Sender ☐ Bill Recipient's FedEx Acct. No. ☐ Bill 3rd Party FedEx Acct. No. ☐ Bill Credit Card ☐ Cash

4 SERVICES	DELIVERY AND SPECIAL HANDLING	PACKAGES	WEIGHT IN POUNDS ONLY	YOUR DECLARED VALUE	OVER SIZE
1 ☐ PRIORITY 1 Overnight Delivery	1 ☐ HOLD FOR PICK-UP (Fill in Box H)	1			
2 ☐ COURIER-PAK OVERNIGHT ENVELOPE*	2 ☒ DELIVER WEEKDAY				
3 ☐ OVERNIGHT BOX	3 DELIVER SATURDAY (Extra charge) ☐				
4 ☐ OVERNIGHT TUBE	4 ☐ DANGEROUS GOODS (Extra charge)				
5 ☐ STANDARD AIR Delivery not later than second business day	5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge) (Release Signature Not Applicable)				
6 ☐ OVERNIGHT LETTER*	6 ☐ DRY ICE ____ Lbs.				
7 ☐	7 ☐ OTHER SPECIAL SERVICE				
8 ☐	8 ☐				
9 ☐	9 ☐ SATURDAY PICK-UP (Extra charge)				
10 ☐	10 ☐				
	11 ☐				
	12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)				
		Total	Total	Total	

*Declared Value Limit $100.

Received At: 1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station
FEDEX Corp. Employee No.
Date/Time for FEDEX Use

Emp. No. Date
☐ Cash Received
☐ Return Shipment ☐ Third Party ☐ Chg. To Det. ☐ Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

5 Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.
Release Signature:

Federal Express Use
Base Charges
Declared Value Charges
Other 1
Other 2
Total Charges

PART #111800 REVISION DATE 10/88 PRINTED IN U.S.A. FXEM
009 PR00.5/89
© 1988 F.E.C.

PEEPLES, EARL & BLANK, P.A.
OPERATING ACCOUNT
1800 - 2ND ST., SUITE 888 PH. 366-1180
SARASOTA, FL 34236

1081

63-27 / 631 339

8/16 19 89

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

Two Hundred Dollars and No/100's---------- DOLLARS

NCNB National Bank of Florida
Sarasota, Florida

FOR Freeport - #340 SATCO Application

[redacted]

$200 pd.
8-17-89
Recpt. #117649

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED

AUG 17 1989

DER - BAQM

AC29-168895

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610-9544

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

RICHARD D. GARRITY, PH.D.
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Liquid Sulphur/Sulphuric Acic Storage and Handling Facility [ ] New[1] [X] Existing[1]

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

COMPANY NAME: Sulphuric Acid Trading Company (SATCO) COUNTY: Hillsborough

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) Storage Tanks, Ship Unloading, Truck Loading

SOURCE LOCATION: ~~xxxxxx~~ Port of Tampa City Tampa

UTM: East 17 -349.0 North 3081.5

Latitude ___ ___ ___ Longitude ___ ___ ___

APPLICANT NAME AND TITLE: Bernard O. Knoess, Jr., Director

APPLICANT ADDRESS: P.O. Box 61520, New Orleans, LA 70160

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Sulfuric Acid Trading Co.

I certify that the statements made in this application for a Storage Terminal 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: Bernard O. Knoess Jr.

BERNARD O. KNOESS JR, DIRECTOR
Name and Title (Please Type)

Date: 8/15/89 Telephone No. 504 582-4864

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

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

the pollution control facilities, when properly maintained and operated, will discharg 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_____

_____
Name (Please Type)

_____
Company Name (Please Type)

_____
Mailing Address (Please Type)

Florida Registration No._____ Date:_____ Telephone No._____

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.

See Attachment A and B

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

Start of Constructi N/A - Existing Source Completion of Construction N/A - Existing Source

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.)

N/A

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

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) Existing Minor Sources

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. Existing Minor Source. _____

   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:

See Attachments A and B

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1) N/A No Process Involved Bulk Liquid Storage.

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)

See Attachment B

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	

[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).

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels N/A

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*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 _____ Maximum _____

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

_____

_____

_____

_____

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

Stack Height: _____ ft. Stack Diameter: _____ ft.

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

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

N.A.

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: N/A

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

N/A

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

See Attachments

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)]

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.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

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.)

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).

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.

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).

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.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should b made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY N/A

A. Are atandards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propoae as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION N/A

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^{2}* _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attech all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

PROJECT DESCRIPTION

The Sulphuric Acid Trading Company ("SATCO") facility in Tampa is an existing bulk liquid materials storage and handling tank terminal, which has been operating since its construction in January of 1969. The facility handles either bulk storage of liquid elemental sulphur, or sulphuric acid, depending on market conditions. The facility consists of a nine acre terminal tract with three storage tanks with of a capacity of 20,000 long tons each.

The tanks are 129 feet in diameter and 32 feet high. In order to maintain liquid sulphur at 270°, the tanks are insulated with four inches of material on the side and three inches on the top. When the tanks are used to store molten sulphur, the sulphur is maintained at a constant temperature by two Cleavor-Brooks two hundred and fifty HP boilers, which use number six fuel oil, number two diesel oil or LP gas, depending on the existing economic and environmental factors. These boilers are permitted by the Florida Department of Environmental Regulation, air-pollution operation permit number: A029-117965.

The facility has a ship unloading system consisting of two Chicksan hydraulic control flexible arms connecting to a pipeline system running to the storage tanks. Also present on the site are an office building and a truck loading system, also enclosed.

Until 1985, there were no standards applicable to or permits required for these types of storage and handling facilities. In 1985, the Florida Environmental Regulation Commission adopted new standards for liquid sulphur storage and handling facilities. In November of 1988, the DER called for permits from the existing sulphur industry and established a schedule for the permitting of the existing industry. This permit application is filed pursuant to DER's request for applications to demonstrate compliance with the sulphur rule.

SATCO
Sulphuric Acid Trading Company
4041 Maritime Boulevard
Tampa, Florida 33605

Telephone (813) 247-5674
Florida WATS (800) 633-1358
FAX (813) 247-5032

ANY ACID THAT IS COLLECTED IN PLASTIC DRUM AT TRUCK SCALES IS TO BE NOTED ON THIS REPORT AND THEN LOADED INTO ACID TRUCKS:

DATE	AMT. SPILLED	REASON

ANY ACID SPILLED ON SCALES SHALL BE REPORTED TO MANAGEMENT, NOTING AMOUNT REASON FOR SPILL AND ACTION TAKEN.

"A"

SATCO
Sulphuric Acid Trading Company
4041 Maritime Boulevard
Tampa, Florida 33605

Telephone (813) 247-5674
Florida WATS (800) 633-1358
FAX (813) 247-5032

GENERAL PROCEDURES FOR LOADING SULPHURIC ACID TRUCKS

1.- ALL TRUCKS SHOULD COME TO A COMPLETE STOP BEFORE PULLING ON SCALES, THEN PROCEED SLOWLY ON TO SCALES.

2.- CHECK TRUCK POSITION ON SCALES.

3.- DRIVER TO LOWER LOADING PIPE INTO TRUCK, SECURE SAFETY CHAIN, OPEN BUTTERFLY VALVE, ENERGIZE PUMP INTERLOCK SWITCH.

4.- WHEN DRIVER IS CLEAR OF LOADING AREA, ENTER PROPER SCALE AND CUSTOMER INFO INTO THE COMPUTER, THEN START TRANSFER VALVE AND PUMP.

5.- OPERATOR SHOULD OBSERVE TANK FOR ANY SIGN OF ACID LEAKAGE.

6.- WHEN TRUCK IS LOADED TO PROPER WEIGHT, INSTRUCT DRIVER TO REMOVE PIPE.

7.- WEIGH TRUCK AND PRINT PAPERWORK.

SATCO
Sulphuric Acid Trading Company
4041 Maritime Boulevard
Tampa, Florida 33605

Telephone (813) 247-5674
Florida WATS (800) 633-1358
FAX (813) 247-5032

GENERAL PROCEDURE FOR ACID TANK UNLOADING

1.- SPOT TRUCK AT PROPER UNLOADING STATION.

2.- DRIVER HOOKS UP UNLOADING HOSE AND AIR SUPPLY TO TANK.

3.- DRIVER WILL OPEN AIR SUPPLY VALVE ON TANK; ALSO 2" ACID VALVE ON TRUCK.

4.- SATCO OPERATIONS STARTS AIR COMPRESSOR AND 6" PLUG VALVE ON ACID MANIFOLD.

5.- START ACID TRANSFER PUMP.

6.- WHEN ACID FLOW HAS CEASED, DRIVER WILL CLOSE 2" TANK VALVE AND AIR SUPPLY VALVE.

7.- SATCO OPERATIONS WILL CLOSE OFF 6" PLUG VALVE AT MANIFOLD AND STOP TRANSFER PUMP.

8.- DRIVER WILL FREE UNLOADING HOSE OF COMPRESSED AIR AND DISCONNECT SAME; ALSO DISCONNECT AIR HOSE FROM TANK.

9.- SIGN AND RECEIVE PROPER WEIGHBILLS FROM DRIVER.

ENVIROPLAN

PARTICULATE EMISSION ESTIMATES FOR THE SULFURIC ACID TRADING COMPANY TAMPA BULK LIQUID SULFUR AND SULFURIC ACID STORAGE FACILITY

Submitted on behalf of:

SULPHUR TERMINALS COMPANY, INC.

June 12, 1989
Ref. No. 51-2116-471

59 MAIN STREET ■ WEST ORANGE, N.J. 07052 ■ 201-325-1544 ■ FAX: 201-325-8477

Attachment "B"

1. INTRODUCTION

On February 27, 1985, the Florida Environmental Regulation Commission adopted amendments to Chapter 17-2, Florida Administrative Code which regulates the storage and handling of elemental sulfur in the State of Florida. These amendments, known as the Sulfur Storage and Handling Rule (or "sulfur rule"), established new standards for liquid (molten) sulfur storage facilities. The Florida Department of Environmental Regulation (DER) is now in the process of implementing the sulfur rule through permitting of the existing liquid sulfur storage facilities.

This report summarizes the particulate emission calculations in support of permit applications for the Sulfuric Acid Trading Company (SATCO) facility in Tampa. This facility stores and handles molten elemental sulfur and sulfuric acid (H_2SO_4). Pertinent information on elemental sulfur and H_2SO_4 annual throughputs for this facility, as well as information on storage tank capacities and vent configurations, is contained in Table 1-1.

Emission calculations for elemental sulfur storage were primarily based on a series of monitoring studies carried out over the past four and one-half years at the STI and Pennzoil Tampa molten sulfur facilities[1], [2], [3]. The test results have been submitted to DER. In these studies storage tank ventilation rates and particulate emission rates were measured over a range of meteorological conditions; storage tank capacities, liquid levels, and vent configurations; and sulfur product characteristics. This work included the development and testing of a sulfur-specific sampling procedure for accurate measurement of sulfur particulate emission rates[3]. This alternate sampling method was necessary

because of the unique conditions and tank design at the STI facility which interfered with accurate measurements using standard reference methods. The sulfur-specific method was approved by DER in March, 1989. Total particulate concentrations in the STI vent gases were measured using DER Method 5. Concentrations of PM-10 were based on the measured total particulate concentrations and particle size distribution measurements (performed by microscopic analysis of filter samples, described in reference (1)) indicating PM-10 to be 88.18% of total particulate.

The above vent flow and pollutant concentration measurements made at the STI and Pennzoil Tampa facilities are applicable to the SATCO facility. The vent configuration of the SATCO storage tanks is similar to that tested at the STI facility. The sulfur stored at the SATCO terminal is the same as that stored at the STI facility, which suggests that the equilibrium pollutant concentrations measured at the STI facility will apply to the SATCO facility for elemental sulfur storage.

There were no pollutant emission measurement data for H_2SO_4 storage at the SATCO facility upon which to base emission calculations. In this case engineering judgement involving theoretical calculations of upper limit pollutant emissions was applied.

The emission estimates for this facility are based on a maximum expected annual throughput and worst-case operating conditions, leading to upper limit estimates of maximum hourly and annual emissions.

TABLE 1-1: FACILITY INFORMATION ON MOLTEN SULFUR AND SULFURIC ACID STORAGE AND HANDLING AT THE SATCO TAMPA FACILITY

Annual Throughput (LT)	No. of Storage Tanks	Storage Capacity Per Tank (LT)	No./Type of Vents Per Tank	Vent Diameter (ft)
2.0×10^6 (molten sulfur or sulfuric acid)	3	20,000	7 perimeter	0.5

Note to Table 1-1:

Either molten sulfur or sulfuric acid may be stored at the SATCO facility.

2. EMISSION CALCULATIONS FOR THE SULFURIC ACID TRADING COMPANY (SATCO), TAMPA FACILITY

This facility will be used for either the storage of molten sulfur or the storage of sulfuric acid (H_2SO_4). Emissions of sulfur particulate (SP), PM-10, and total particulate (TP) will occur from the storage and handling of molten sulfur at this facility. The storage of H_2SO_4 will result in the emissions of H_2SO_4. There are three major types of emission sources:

1) Emissions from three storage tanks during filling and non-filling periods
2) Emissions from the ship during storage tank filling
3) Emissions due to truck filling from the storage tanks

2.1 BACKGROUND INFORMATION

2.1.1 Annual Throughput of Molten Sulfur/H_2SO_4

2×10^6 LT/yr, maximum permitted throughput for facility of either molten sulfur or H_2SO_4 (6.667×10^5 LT/yr per storage tank)

2.1.2 Sulfur/H_2SO_4 Transfer Rates

2.1.2.1 Ship to Storage Tank

600.0 LT/hr per storage tank, based on average ship discharge rates presented in reference (1).

2.1.2.2 Storage Tanks to Trucks

Maximum of 264 LT/hr, based on the filling of 6 trucks/hr at each of 2 truck-filling stations, each truck having a 22.0 LT capacity.

2.1.3 Storage Tank Ventilation Rate

Estimated at 207 acfm, based on 35 measurements at the STI Tampa facility in September, 1987 and linear scaling to account for the increased vent area on the SATCO tanks compared to the STI tanks.

2.1.4 Ship Tank Ventilation Rate

51.8 acfm for each of 5 ship tanks, based on estimates described in reference (1).

2.1.5 Concentrations of Pollutants in Vapor Space Above Molten Sulfur and H_2SO_4

Based on particulate concentration measurements at the STI Tampa facility, SP, PM-10, and TP are assumed to be in equilibrium with molten sulfur (i.e., independent of tank ventilation rate) at the following concentrations:

Pollutant	Concentration (lb/ft^3)
SP	1.757×10^{-5}
PM-10	3.750×10^{-5}
TP	4.250×10^{-5}

For the storage of 97% H_2SO_4 at ambient temperature

($25^{o}C$), theory predicts a saturation vapor pressure of H_2SO_4 of 4.4×10^{-4} mm Hg, which is equivalent to a vapor space concentration of 1.449×10^{-7} lb/ft^3.

2.2 EMISSION CALCULATIONS

2.2.1 Emissions from Storage Tanks During Filling

Period of filling per tank:

$(6.667 \times 10^5$ LT/yr)/(600.0 LT/hr) = 1,111 hr/yr

Rate of vapor displacement due to tank filling:

(600.0 LT/hr) (2240 lb/LT)/(112 lb S/ft^3) = 12,000 ft^3/hr

Total effective tank ventilation rate during filling:

12,000 + (207) (60 min/hr) = 24,420 ft^3/hr

Maximum hourly emission rates per tank during filling are computed as the total effective ventilation rate (ft^3/hr) times the pollutant concentration (lb/ft^3). For molten sulfur storage:

(24,420) (1.757×10^{-5}) = 0.45 lb/hr SP
(24,420) (3.750×10^{-5}) = 0.92 lb/hr PM-10
(24,420) (4.250×10^{-5}) = 1.04 lb/hr TP

For H_2SO_4 storage:

(24,420) (1.449×10^{-7}) = 0.004 lb/hr H_2SO_4

These are the maximum hourly emissions expected from the storage tank at any time.

Annual emissions from tank filling are computed as the hourly emissions times the period of filling per tank. For molten sulfur storage:

0.43 (1111) = 477 lb/yr = 0.24 ton/yr SP
0.92 (1111) =1022 lb/yr = 0.51 ton/yr PM-10
1.04 (1111) =1155 lb/yr = 0.58 ton/yr TP

For H_2SO_4 storage:

0.004 (1111) = 4 lb/yr = 0.002 ton/yr H_2SO_4

2.2.2 Emissions from Storage Tanks During Non-Filling

Period of non-filling per tank = 8760 - 1111 = 7649 hr/yr.

Annual emissions per tank are calculated as the tank ventilation rate during non-filling periods, i.e., (207 acfm) (60 min/hr) (7649 hr/yr) = 9.500×10^7 ft^3/yr, times the pollutant concentration. For molten sulfur storage:

(9.500×10^7) (1.757×10^{-5}) = 1,669 lb/yr = 0.83 ton/yr SP
(9.500×10^7) (3.750×10^{-5}) = 3,563 lb/yr = 1.78 ton/yr PM-10
(9.500×10^7) (4.250×10^{-5}) = 4,038 lb/yr = 2.02 ton/yr TP

For H_2SO_4 storage:

(9.500×10^7) (1.449×10^{-7}) = 14 lb/yr = 0.007 ton/yr H_2SO_4

2.2.3 Total Annual Emissions from Storage Tanks

Total annual emissions per tank are computed as the sum of emissions during filling and emissions during non-filling. For molten sulfur storage:

0.24 + 0.83 = 1.07 ton/yr SP
0.51 + 1.78 = 2.29 ton/yr PM-10
0.58 + 2.02 = 2.60 ton/yr TP

For H_2SO_4 storage:

0.002 + 0.007 = 0.009 ton/yr H_2SO_4

2.2.4 Emissions from the Ship During Storage Tank Filling

Maximum hourly emissions are computed as the total ship tank ventilation rate, i.e., (51.8 acfm/tank) (5 tanks) (60 min/hr) = 15,540 ft^3/hr, times the pollutant concentrations. For molten sulfur storage:

15,540 (1.757×10^{-5}) = 0.27 lb/hr SP
15,540 (3.750×10^{-5}) = 0.58 lb/hr PM-10
15,540 (4.250×10^{-5}) = 0.66 lb/hr TP

For H_2SO_4 storage:

15,540 (1.449×10^{-7}) = 0.002 lb/hr H_2SO_4

Annual emissions are computed as the hourly emission rate times the number of hours per year of tank filling. The number of hours of filling is equal to:

(1111 hr/yr/tank) (3 tanks)/(on average, 1.5 tanks filled at once) = 2222 hr/yr. For molten sulfur storage:

2222 (0.27) = 600 lb/yr = 0.30 ton/yr SP
2222 (0.58) = 1,289 lb/yr = 0.64 ton/yr PM-10
2222 (0.66) = 1,467 lb/yr = 0.73 ton/yr TP

For H_2SO_4 storage:

$$2222\ (0.002) = \quad 4\ lb/yr = 0.002\ ton/hr\ H_2SO_4$$

2.2.5 Emissions from Truck Filling

Maximum hourly emissions are computed as the sulfur transfer rate from storage tanks to trucks, i.e., 264 LT/hr = 5,280 ft^3/hr, times the pollutant concentrations. For molten sulfur storage:

$$5{,}280\ (1.757 \times 10^{-5}) = 0.09\ lb/hr\ SP$$
$$5{,}280\ (3.750 \times 10^{-5}) = 0.20\ lb/hr\ PM\text{-}10$$
$$5{,}280\ (4.250 \times 10^{-5}) = 0.22\ lb/hr\ TP$$

For H_2SO_4 storage:

$$5{,}280\ (1.449 \times 10^{-7}) = 0.001\ lb/hr\ H_2SO_4$$

Annual emissions are computed as the annual facility-wide vapor displacement rate times the pollutant concentrations. The facility-wide vapor displacement rate is:

$$(2 \times 10^6\ LT/yr)\ (2240\ lb/LT)/(112\ lb/ft^3) = 4 \times 10^7\ ft^3/yr$$

For the storage of molten sulfur:

$$(4 \times 10^7)\ (1.757 \times 10^{-5}) = \quad 703\ lb/yr = \quad 0.35\ ton/yr\ SP$$
$$(4 \times 10^7)\ (3.750 \times 10^{-5}) = 1{,}500\ lb/yr = \quad 0.75\ ton/yr\ PM\text{-}10$$
$$(4 \times 10^7)\ (4.250 \times 10^{-5}) = 1{,}700\ lb/yr = \quad 0.85\ ton/yr\ TP$$

For H_2SO_4 storage:

$$(4 \times 10^7)\ (1.449 \times 10^{-7}) = \quad 6\ lb/yr = 0.003\ ton/yr\ H_2SO_4$$

2.3 SUMMARY

Maximum hourly and annual emissions of SP, PM-10, and TP (for molten sulfur storage) and H_2SO_4 (for H_2SO_4 storage) are summarized below:

	Source Type					
	Single Storage Tank		Ship		Truck Filling	
	Max	Actual	Max	Actual	Max	Actual
Contaminant	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Molten S						
SP	0.43	1.07	0.27	0.30	0.09	0.35
PM-10	0.92	2.29	0.58	0.64	0.20	0.75
TP	1.04	2.60	0.66	0.73	0.22	0.85
H_2SO_4						
H_2SO_4	0.004	0.01	0.002	0.002	0.001	0.003

The above table indicates that, for molten sulfur storage, the SP and PM-10 emissions are roughly 41% and 88% of the TP emissions, respectively. The large (i.e., factor of 2.5) difference between TP and SP emissions is due to emissions of condensible oils. These condensible oils affect TP measurements with DER Method 5 but are excluded from SP measurements using the sulfur-specific sampling procedure.

REFERENCES

(1) Enviroplan, Inc., Air Quality Impact of Existing Liquid Sulfur Storage and Handling Facilities in the Tampa Area, Ref. No. 2116-418, December 26, 1984.

(2) Enviroplan, Inc., Sulfur Particulate Emission Measurement Project at the Pennzoil Terminals in Tampa, Florida, Ref. Nos. 4025-617, 4025-620, October, 1986.

(3) Enviroplan, Inc., Technical Report Supporting Application to the Florida DER for an Alternate Sulfur Particulate Emissions Sampling Procedure, Ref. No. 51-2116-748, October 30, 1987.

WORK PRACTICES

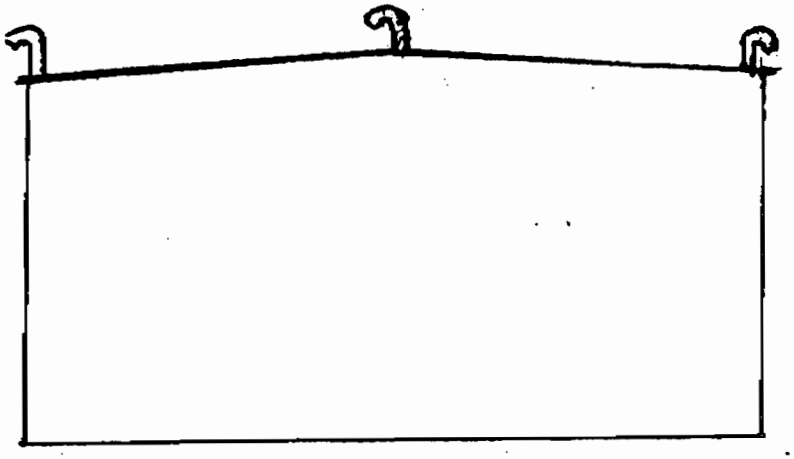
EMISSION LIMITING AND PERFORMANCE STANDARDS

A rubber bucket is positioned on the end of the loading pipe for secondary containment of acid. This also would be done if sulphur was loaded on these scales. Any acid collected in the drip pan on the dock at the hose connection would be transferred to the acid tanks and/or acid trucks. This also would be done if sulphur was delivered to this terminal. A copy of the report used to note any acid that is collected in the plastic drum at the truck scales and then loaded into the acid trucks is attached hereto.

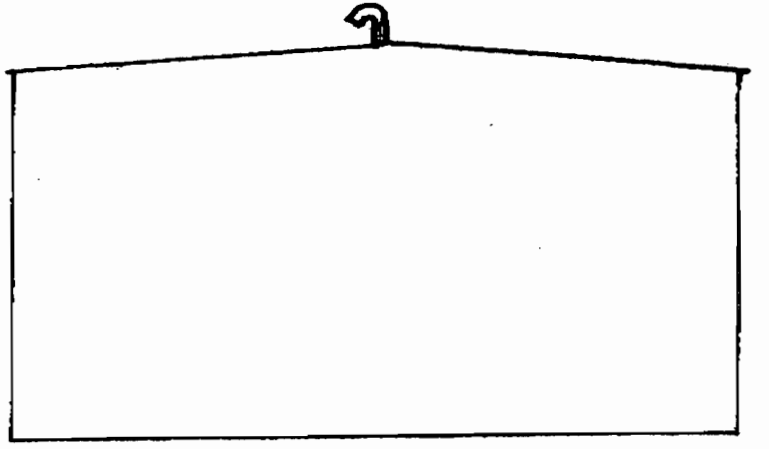
The procedures followed for acid tank unloading and truck loading are more particularly set forth in the documents also attached hereto.

Attachment "C"

Attachment "D"

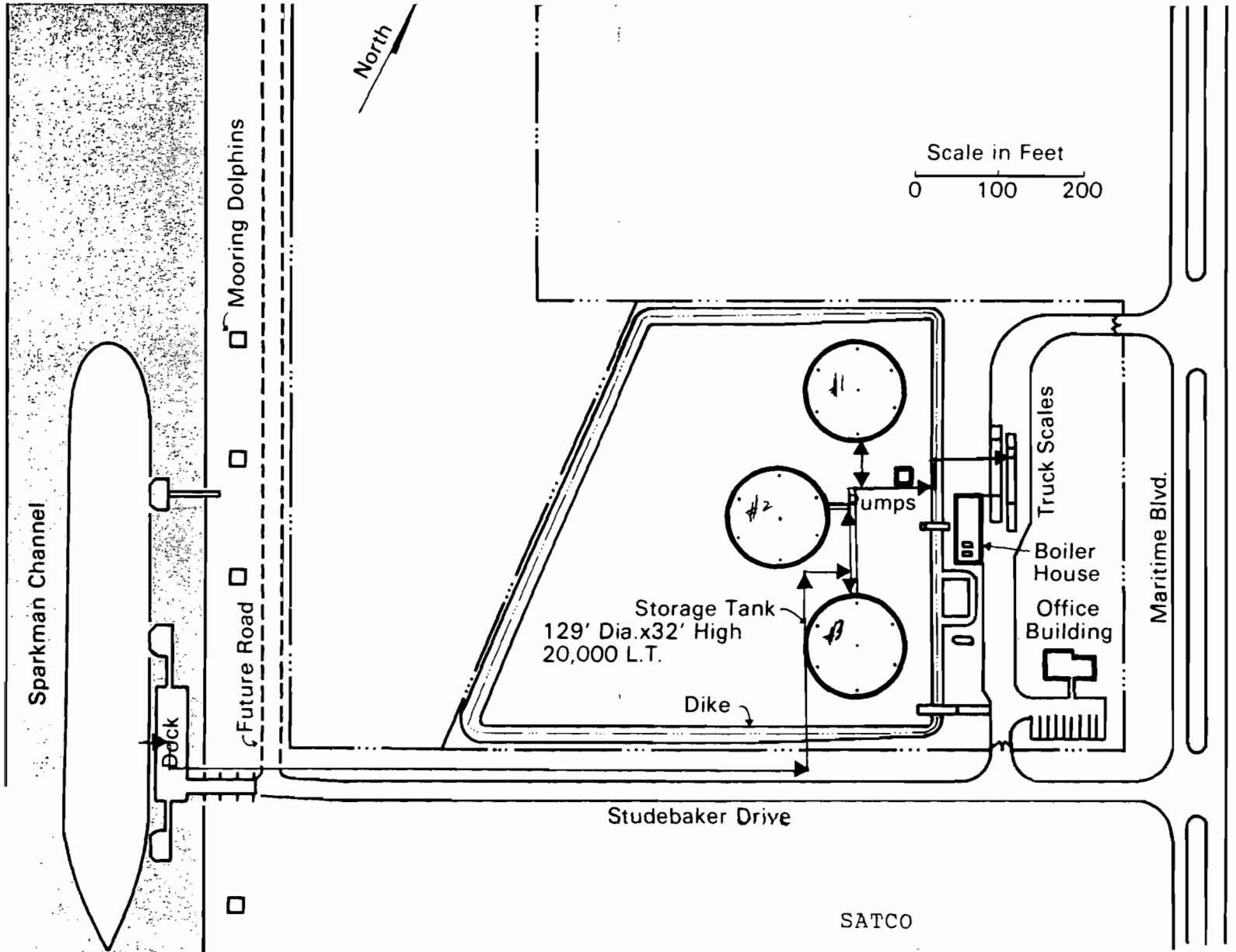


SULFUR TANK



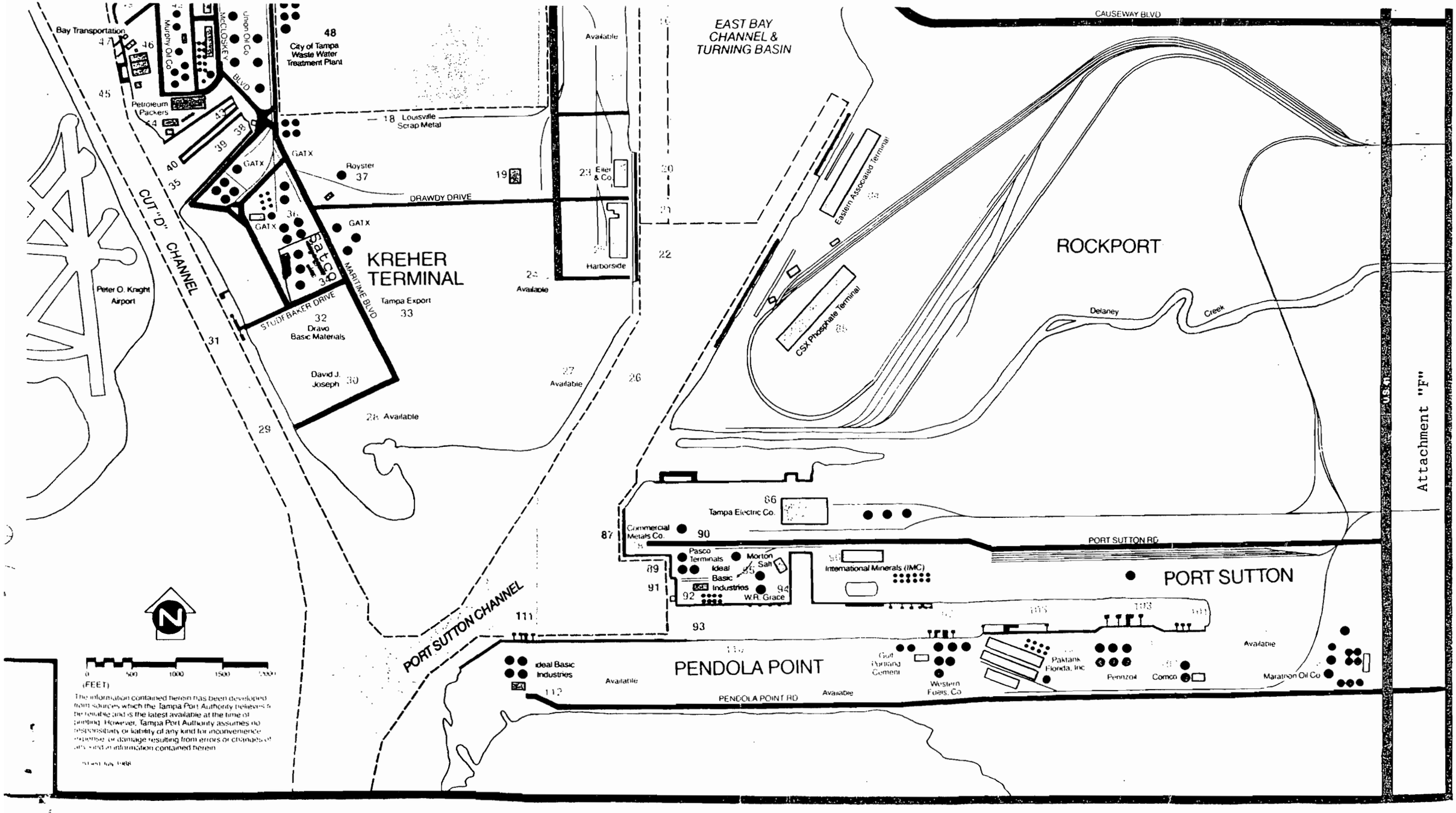
SULFURIC ACID TANK

Each tank has six peripheral and one center vent location. When being used for sulfuric acid, all peripheral vents are closed and only the center vent is left open. When being used for sulphur, some or all of the seven vents may be used.



SATCO Terminal
Tampa, Florida

Attachment "E"



The practical engineer's guide to optimum ventilation parameters

A new ventilation standard from ASHRAE gives the latest on indoor air pollution and causes controversy over formaldehyde

By VICTOR M. CASSIDY
Senior Editor

☐ Optimum means the best. To the engineer, it designates something desirable yet achievable within reasonable cost limits. Optimum ventilation parameters are, therefore, not theoretical notions but the results that a good designer can get with state-of-the-art technology on an average budget.

A major function of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) is to promulgate national voluntary consensus standards relating to the work of its membership. Based on authoritative research and assembled with great care, ASHRAE standards are accepted throughout the industry and usually become the basis for state and local building codes.

At regular intervals, the standards are reviewed and updated to reflect the latest advances in technology. If some party objects to a standard, an appeals process exists.

"Ventilation for Indoor Air Quality" (ASHRAE 62-1981) was revised last year to reflect changes in related ASHRAE standards that had been made in response to rising energy costs. The latest state-of-the-art also was incorporated into the standard. ASHRAE 62-1981 lists the indoor air quality and minimum ventilation rates considered necessary "to provide healthful and comfortable indoor environments by using materials and methods that optimize efficiency of energy utilization." ASHRAE's definitions of terms are listed in the box. The accompanying figure shows the parts of a typical ventilation system.

Acceptable air quality

Acceptable indoor air is described in negative rather than positive terms. For example, air should not contain certain contaminants (e.g., gases, vapors, microorganisms, smoke, and other particulates) in concentrations that can affect health or cause discomfort. Undesirable conditions include toxicity; radioactivity; potential for causing irritation, allergic reaction, or infection; extremes of heat or cold: and disagreeable odors. Contaminants may be present in the makeup air or may enter the indoor atmosphere as a result of human activity (cigarette smoking, industrial grinding) or from furnishings, building materials, surface coatings, or air handling equipment.

Two procedures are available to obtain acceptable indoor air quality, according to the ASHRAE standard. The designer can provide ventilation of proper quality and quantity to the space (ventilation rate procedure) or can achieve acceptable air quality in the space with respect to identified contaminants (indoor air quality procedure).

Ventilation rate procedure—In this method, ventilation air is delivered to a space at a specified minimum rate (measured in cubic feet per minute) and conditioned. Recommended ventilation rates are derived from physiological considerations, subjective evaluations, and professional judgments.

Allowing smoking raises outdoor air requirements for proper ventilation

ASHRAE provides extensive data on outdoor air requirements for ventilation. These data are classified generally according to the type of facility (commercial, institutional, industrial and residential) and specifically by the kind of space (e.g., retail store showrooms, photographic darkrooms, classrooms, hospital delivery rooms). For each type of space, average occupancy is estimated in persons per 1,000 cu ft and outdoor air requirements are listed for smoking-permitted and smoking-prohibited conditions.

Estimated occupancy ranges widely from a low of one person per 1,000 sq ft in greenhouses to a high of 150 in spectator areas of sports facilities, theater lobbies, and transportation waiting rooms. Outdoor air requirements range from 0.02 cfm/sq ft of floor in public corridors and utility rooms to 75 cfm/stall in public restrooms.

Special needs affect design

Many spaces present special problems. Meat processing rooms in slaughterhouses must be both chilled and ventilated. The engineer must make special provisions for exhausting undesirable contaminants from duplicating and printing rooms, and scientific laboratories. Great care must be taken in designing hospital ventilation systems to prevent the spread of airborne disease bacteria from one area to another. State occupational safety laws regulate industrial process ventilation requirements.

Outdoor air that enters the space must be of acceptable ventilation quality itself. The Environmental Protection Agency (EPA), an agency of the federal government, has promulgated national ambient air quality standards (see Table 1). ASHRAE provides additional ambient air quality guidelines (see Table 2) in 62-1981, basing these on research reports and standards that already exist in some states and foreign countries.

According to the standard, contaminants in outdoor air must not exceed the concentrations in Tables 1 and 2. If the air is contaminated, it must be cleaned or treated before being used as makeup. In some cases, the engineer can use exhaust air from one space as supply air to another where different contaminants are generated (e.g., corridors and office spaces exhausted through toilet rooms).

The standard permits the designer to use recirculated air in the building but says that outdoor air supplied must never be less than five cfm per person. The system used to reclaim recirculated air must be designed to remove enough particulate and gaseous contaminants to replicate the quality of 100 percent outside air at the appropriate rate. The air cleaning equipment may be located in the recirculated air stream or in the plenum that mixes the outdoor and return air.

If the space is occupied on a transient or variable basis, outdoor air quantity may be adjusted with dampers, by starting or stopping the system, or by other means. This maintains contaminant concentrations at acceptable levels. This adjustment precedes or follows occupancy depending

404-636-8400
Atlanta

upon the source of contaminants and the variation in occupancy.

Adjustment may follow occupancy if the occupants themselves produce contaminants. If the contaminants are produced independently of occupancy, adjustment must precede occupancy by enough hours to ensure that the space will be safe and comfortable when the occupants arrive. The ASHRAE standard provides nomographs showing maximum permissible lead and lag times. These are related to the required air capacity per person in cu ft, and the required ventilation rate in cfm per person.

Indoor air quality procedure—The ventilation rate procedure is only an indirect approach to the problem of air contamination. A direct solution would lower contaminant concentrations to specified acceptable levels. Tables 1 and 2 list levels for outside air; the same standards apply indoors and for the same exposure times.

Certain substances in the building itself and its contents generate contaminants whether or not the space is occupied. Some of these such as asbestos, benzene, and vinyl chloride are known human carcinogens and must be controlled with the best available technology.

Other well-known contaminants of this type include radon gas and the vapors of formaldehyde and mercury. In some cases, ASHRAE provides guidelines for limiting these contaminants. According to the standard, carbon dioxide should be limited to 4.5 g/cu meter, formaldehyde to 120 micrograms/cu meter, and ozone to 100 micrograms/cu meter.

In addition to these substances, others can damage health or cause irritation. Tobacco smoke, infectious or allergenic biologic aerosols, and certain emanations from human bodies can have these effects and are not entirely understood by scientists. Other unidentified (and perhaps unidentifiable) materials may enter the indoor atmosphere, causing occupant discomfort. To cope with such elusive contaminants, the engineer can rely only upon the best available technology and common sense.

TABLE 1—NATIONAL AMBIENT AIR QUALITY STANDARDS

	Long term		Short term	
Contaminant	*Level*	*Time*	*Level*	*Time*
Carbon monoxide			40 mg/m³	1 hr
			10 mg/m³	8 hr
Lead	1.5 µg/m³	3 months		
Nitrogen dioxide	100 µg/m³	year		
Oxidants (ozone)			235 µg/m³	1 hr
Particulants	75 µg/m³	year	260 µg/m³	24 hr
Sulfur dioxide	80 µg/m³	year	365 µg/m³	24 hr

Source: ASHRAE Standard 62-1981

TABLE 2—ADDITIONAL AMBIENT AIR QUALITY GUIDELINES

Contaminant	*Level**	*Time*	*Level*	*Time*
Acetone—O**	7 mg/m³	24 hr	24 mg/m³	30 min
Acrolein—O			25 µg/m³	C***
Ammonia—O	0.5 mg/m³	year	7 mg/m³	C
Beryllium	0.01 µg/m³	30 days		
Cadmium	2.0 µg/m³	24 hr		
Calcium oxide (lime)			20-30 µg/m³	C
Carbon disulfide—O	0.15 mg/m³	24 hr	0.45 mg/m³	30 min
Chlorine—O	0.1 mg/m³	24 hr	0.3 mg/m³	30 min
Chromium	1.5 µg/m³	24 hr		
Cresol—O	0.1 mg/m³	24 hr		
Dichloroethane—O	2.0 mg/m³	24 hr	6.0 mg/m³	30 min
Ethyl acetate—O	14 mg/m³	24 hr	42 mg/m³	30 min
Formaldehyde—O			120 µg/m³	C
Hydrochloric acid—O	0.4 mg/m³	24 hr	3 mg/m³	30 min
Hydrogen sulfide—O	40-50 µg/m³	24 hr	42 µg/m³	1 hr
Mercaptans—O			20 µg/m³	1 hr
Mercury	2 µg.m³	24 hr		
Methyl alcohol—O	1.5 mg/m³	24 hr	4.5 mg/m³	30 min
Methylene	20 mg/m³	year	150 mg/m³	30 min
Chloride—O	50 mg/m³	24 hr		
Nickel	2 µg/m³	24 hr		
Nitrogen monoxide	0.5 mg/m³	24 hr	1 mg/m³	30 min
Phenol—O	0.1 mg/m³	24 hr		
Sulfates	4 µg/m³	year		
	12 µg/m³	24 hr		
Sulfuric acid—O	50 µg/m³	year	200 µg/m³	30 min
	100 µg/m³	24 hr		
Trichlorethylene—O	2 mg/m³	year	16 mg/m³	30 min
	5 mg/m³	24 hr		
Vanadium	2 µg/m³	24 hr		
Zinc	50 µg/m³	year		
	100 µg/m³	24 hr		

** Unless otherwise specified, all air quality measurements should be corrected to standard conditions of 25 C (77 F) temperature and 760 mm (29.92 in.) of mercury pressure, (101.3 kPa).*

***These materials marked "O" have odors at concentrations sometimes found in outdoor air. The tabulated concentration levels do not necessarily result in odorless conditions.*

****Ceiling, or maximum allowable concentrations.*

Source: ASHRAE Standard 62-1981

The formaldehyde problem

Formaldehyde, a colorless, strong-smelling gas, is used in the manufacture of synthetic resins and dyes and as a preservative and disinfectant. Carpeting and panelboard in newly constructed or renovated buildings may give off small quantities of formaldehyde gas over many years.

At full strength, formaldehyde gas is lethal. In buildings it can reach concentrations that may cause irritation or discomfort in the short run and more severe effects over long periods of time. For this reason, ASHRAE 62-1981 recommends a concentration of 120 micrograms/cu meter, basing this figure on West German and Dutch guidelines.

In the summer of 1981, when the standard was published, the Formaldehyde Institute, an industry association, appealed this limit. The ASHRAE Appeals Board heard testimony and delivered its decision in November.

In its appearance before the Appeals Board, the Formaldehyde Institute argued for withdrawal of the standard, declaring that the limit was unreasonably low. Institute witnesses testified at length about the formaldehyde problem; the record of the hearing fills more than 200 pages. They approached the subject from several perspectives, concluding that ASHRAE's limitation was unnecessary, impractical, and economically burdensome.

One of the speakers reviewed current knowledge of formaldehyde toxicity as based on animal studies. Animals exposed to small quantities had irritated nasal passages while considerably larger amounts over longer periods of time caused cancer. The effects on animals began at concentrations that far exceed the ASHRAE limitation of one-tenth part per million (0.1 ppm), an amount that the speaker called unreasonably small.

Another Institute witness addressed formaldehyde's effect on humans as established through experiments and studies. According to this speaker, no proven link exists between long-term exposure to formaldehyde and the development of cancerous tumors in humans. Embalmers

Optimum ventilation

and mortuary workers are heavily exposed and, said the witness, they do not have higher rates of cancer than the general population. On this basis, the witness concluded that ASHRAE's standard is unnecessary and possibly unenforceable. It is very difficult to measure formaldehyde at the 0.1 ppm level.

One Institute witness made three major points. He said that ASHRAE's recommended level was not realistic, that current technology does not permit the control of formaldehyde at the 0.1 ppm level, and that attempts to comply with the standard would inflate industry product costs. The matter has been studied and, if it is even possible to reach the ASHRAE limit, the cost of doing so would be astronomical. Formaldehyde-free substitute building materials probably would contain other pollutants anyway.

Fresh panelboard and carpeting are sources of indoor formaldehyde

Several witnesses then spoke for ASHRAE, denying the assertions of the Formaldehyde Institute. They declared that the standard was realistic, achievable, and not absurdly costly to meet. Question and answer periods for both sides were followed by summations. That ended the hearing.

On November 23, 1981, the ASHRAE Appeals Board announced that it unanimously had decided not to withdraw the standard. Because of the rapid development of new technical information, it did, however, recommend an early review.

In conclusion . . .

The formaldehyde controversy is closed —for the moment. But it is obvious that the parties in this matter, which presented such sharply conflicting testimony, will clash again in the future. And little doubt exists that problems and questions will arise with respect to other indoor air contaminants, some of which may be completely unknown and unidentified at present.

So where does this leave the engineer who must go to work tomorrow and design a ventilation system that makes the best possible use of current technology? It leaves him vigilant. He should keep abreast of his field and make his best effort to comply with standards whether he finds them reasonable or not. Codes of course, have the force of law and simply must be met. Perhaps the best hedge against future uncertainties is a flexible system design. This allows the engineer to better his work as technology advances. □

ASHRAE definitions

Acceptable air quality—Air in which known contaminants exist at harmful concentrations and with which a substantial majority (usually 80 percent) of the people exposed do not express dissatisfaction.

Air cleaner—A device used to remove airborne impurities such as dusts, gases, vapors, fumes, and smoke.

Air conditioning—The process of treating air to meet the requirements of a conditioned space by controlling its temperature, humidity, cleanliness, and distribution.

Air, ambient—The air surrounding an object.

Air, exhaust—Air removed from a space and not reused therein.

Air, makeup—Outdoor air supplied to replace exhaust air and exfiltration.

Air, outdoor—Air taken from the external atmosphere and, therefore, not previously circulated through the system.

Air, recirculated—Air removed from the conditioned space and intended for reuse as supply air.

Air, return—Air removed from a space then to be recirculated or exhausted.

Air, supply—That air delivered to the conditioned space and used for ventilation, heating, cooling, humidification or dehumidification.

Air, ventilation—That portion of supply air which is outdoor air plus any recirculated air that has been treated for the purpose of maintaining acceptable indoor air quality.

Concentration—The quantity of one constituent dispersed in a defined amount of another.

Contaminant—An unwanted airborne constituent that may reduce acceptability of the air.

Dust—An air suspension (aerosol) of particles of any solid material, usually with particle size less than 100 micrometers (μm).

Exfiltration—Air leakage outward through cracks and interstices and through ceilings, floors and walls of a space or building.

Fumes—Airborne solid particles usually less than one micrometer (μm) in size formed by condensation of vapors, sublimation, distillation, calcination, or chemical reaction.

Infiltration—Air leakage inward through cracks and interstices, and through ceilings, floors and walls of a space or building.

Gas—A state of matter in which substances exist in the form of nonaggregated molecules, and which, within acceptable limits of accuracy, satisfies the ideal gas laws; usually a highly superheated vapor.

Natural ventilation—The movement of air into and out of a space through intentionally provided openings, such as windows and doors, or through nonpowered ventilators or by infiltration.

Occupied zone—The region within an occupied space between planes 3 and 72 in. (75 and 1,800 mm) above the floor and more than two ft (600 mm) from the walls or fixed air conditioning equipment.

Particulate—A state of matter in which solid or liquid substances exist in the form of aggregated molecules or particles. Airborne particulate matter is typically in the size range of 0.01 to 100 micrometers.

Total suspended particulate—The weight of particulates suspended in a unit of volume of air when collected by a high volume air sampler.

Vapor—A substance in gas form, particularly one near equilibrium with its condensed phase and which does not follow the ideal gas laws; in general, any gas below its critical temperature.

Ventilation—The process of supplying and removing air by natural or mechanical means to and from any space. Such air may or may not be conditioned.

Source: ASHRAE Standard 62-1981