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. J. M. Williams
US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, Florida 33841

4. Article Number
P 938 762 855

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

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X William Cook

7. Date of Delivery
3-29

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

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

P 938 762 855

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

Sent to Mr. J. M. Williams, US Agri-Chemicals	
Street and No. 3225 SR 630 West	
P.O. State and ZIP Code Ft. Meade, FL 33841	
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: 3-27-90 Permit: AC 53-169795	

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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

Mr. J. M. Williams
US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, Florida 33841

March 27, 1990

Enclosed is construction permit No. AC 53-169795 to US Agri-Chemicals for the existing molten sulfur system in Polk County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

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

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copy furnished to:

B. Thomas, SW District
J. Carroll, P.E.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 3-27-90.

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.

Lynn Dohn — Clerk

3-27-90 — Date

Final Determination

US Agri-Chemicals Corp.
Ft. Meade, Polk County
Florida

Molten Sulfur Storage and Handling System

Permit Number: AC 53-169795

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

March 22, 1990

Final Determination

US Agri-Chemicals Corp.'s application for the permitting of their existing molten sulfur system in Ft. Meade, Polk County, Florida, has been reviewed by the Bureau of Air Regulation.

Public Notice of the Department's Intent to Issue the permit was published in The Polk County Democrat on February 26, 1990.

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

No comments were received during the public notice period. The final action of the Department is to issue the permit as proposed in the 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:
US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, Florida 33841

Permit Number: AC 53-169795
Expiration Date: Jan. 1, 1991
County: Polk
Latitude/Longitude: 27°44'33"N
81°50'57"W
Project: 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 the permitting of the molten sulfur storage and handling system consisting of a rail and truck unloading system; one 4210 short ton (ST) molten sulfur storage tank; one 229 ST pit; and the associated transfer pumps and piping. The molten sulfur system is located at the US Agri-Chemical Corp.'s (USAC) facility in Ft. Meade, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 416.3 km East and 3068.8 km North.

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

Attachments are listed below:

1. USAC's application received September 1, 1989.
2. DER's letter dated September 29, 1989.
3. USAC's response received November 16, 1989.
4. DER's Preliminary Determination dated January 8, 1990.

PERMITTEE:
US Agri-Chemicals Corp.

Permit Number: AC 53-169795
Expiration Date: Jan. 1, 1991

GENERAL CONDITIONS:

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

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

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

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

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

2. The maximum molten sulfur throughput rate shall neither exceed 1450 tons per day (TPD), nor 530,000 tons per year (TPY), based on the combined sulfuric acid production capacity of the two plants of about 4400 TPD 100% sulfuric acid.

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

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

SPECIFIC CONDITIONS:

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

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

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

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

Source		Expected Emissions				
		PM/PM_{10}	SP	SO_2	TRS/H_2S	VOC
Tank	lb/hr	3.9	1.6	0.5	1.6	4.8
	TPY	16.5	6.8	2.1	7.1	20.2
Pit	lb/hr	1.8	0.7	0.2	1.6	2.2
	TPY	7.7	3.2	0.1	6.9	9.5

Note: PM is particulate matter, PM10 is particulates smaller than 10 microns in diameter, SP is sulfur particulate, SO_2 is sulfur dioxide, TRS is total reduced sulfur compounds, H_2S is hydrogen sulfide, and VOC is volatile organic compounds.

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

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

PERMITTEE:
US Agri-Chemicals Corp.

Permit Number: AC 53-169795
Expiration Date: Jan. 1, 1991

SPECIFIC CONDITIONS:

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

Issued this 26th day
of March, 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Steve Smallwood

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

Attachments Available Upon Request

Check Sheet

Company Name: US Agrichemicals Corporation
Permit Number: AC 53-169795
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [ ] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:
- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [x] BACT or LAER Determination
- [x] Unsigned Permit

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

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [x] BACT or LAER Determination
  - [ ] Other

Post Permit Correspondence:

- [ ] Extensions/Amendments/Modifications
- [ ] Other

US
Agri-Chemicals
A Sinochem Company

RECEIVED
MAR 9 1990
DER - BAQM

U.S. Agri-Chemicals Corporation
3225 State Road 630 West
Fort Meade, FL 33841-9799
813 285 8121

March 6, 1990

Mr. C. H. Fancy, P. E.
Chief, Bureau of Air Regulation
FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: AC53-169795, Molten Sulfur Storage

Enclosed is the required public notice to issue a construction permit for the above referenced source.

Very truly yours,

James H. Carroll, P. E.
Manager, Environmental Eng.

JHC:bab

Enclosure

cc: P. Raval
B. Thomas, SW Dist.

AFFIDAVIT OF PUBLICATION

The Polk County Democrat

Published Semi-Weekly
Bartow, Polk County, Florida

Case No._____

STATE OF FLORIDA
COUNTY OF POLK

Before the undersigned authority personally appeared _____

S. L. Frisbie, IV, who on oath says that (s)he is

Publisher of The Polk County Democrat, a newspaper published at Bartow, in Polk County, Florida; that the attached copy of advertisement, being

a Notice of Intent to Issue in the

matter of US Agri-Chemicals Corp.

in the _____ Court, was published in said newspaper in the issues

of Feb. 26, 1990

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

Signed _____

Sworn to and subscribed before me this 27th day of

February, 1990.

Mary M Carmichael

Notary Public

My Commission Expires:

Notary Public, State of Florida at Large
My Commission Expires Nov. 18, 1992

NOTARY PUBLIC STATE OF FLORIDA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to US Agri-Chemicals Corp., 3225 SR 630 West, Ft. Meade, Florida 33841, for the existing molten sulfur storage and handling system located in Ft. Meade, Polk County, Florida. A determination of the Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time 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 normal business hours, 8:00 a. m. to 5:00 p. m. Monday through Friday, except legal holidays, at: Department of Environmental Regulation, Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 or Department of Environmental Regulation, Southwest District Office, 4520 Oak Fair Boulevard, Tampa, Florida 33610-7347.

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

Feb. 26, 1990—557

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:
J. M. Williams
U.S. Agri-Chemicals Corp.
325 S.R. 630 West
Ft. Meade, FL 33841-9799

4. Article Number
P 938 762 802

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

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X Lynne Washington

6. Signature — Agent
X

7. Date of Delivery
1-12-90

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

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

P 938 762 802

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

Sent to J. M. Williams
U.S. Agri-Chemicals Corp.
Street and No. 325 S.R. 630 West
P.O., State and ZIP Code Ft. Meade, FL 33841-9799

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: 1/8/90 AC 53-169795

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

January 8, 1990

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. J. M. Williams
US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, Florida 33841

Dear Mr. Williams:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit for US Agri-Chemicals' molten sulfur storage and handling system in Ft. Meade, Polk County, Florida.

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

Sincerely,

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

CHF/pr

Attachments

cc: B. Thomas, SW District
J. Carroll, P.E.

Reading File
Pradeep Raval } 1-9-90 RAM

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, FL. 33841

DER File No. AC 53-169795

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, US Agri-Chemicals Corp., applied on September 1, 1989, to the Department of Environmental Regulation for a construction permit for the existing molten sulfur storage and handling system located at US Agri-Chemicals Corp.'s facility in Ft. Meade, Polk County, Florida.

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

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

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

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

The Petition shall contain the following information;

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

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

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

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

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

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

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

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

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

Executed in Tallahassee, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copies furnished to:

B. Thomas, SW District
J. Carroll, 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 1-8-90.

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.

Kim Olsen
Clerk

1-8-90
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 a permit to US Agri-Chemicals Corp., 3225 SR 630 West, Ft. Meade, Florida 33841, for the existing molten sulfur storage and handling system located in Ft. Meade, Polk County, Florida. A determination of the Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

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

The Petition shall contain the following information;

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

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

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

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

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

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

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

Technical Evaluation
and
Preliminary Determination

US Agri-Chemicals Corp.
Ft. Meade, Polk County
Florida

Molten Sulfur Storage and Handling System

Permit Number: AC 53-169795

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

January 8, 1990

I. Application

A. Applicant

US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, Florida 33841

B. Project and Location

The applicant proposes to permit the existing molten sulfur storage and handling system at US Agri-Chemicals Corp.'s (US Agrichem) phosphate processing facility in Ft. Meade, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 416.3 km East and 3068.8 km North.

C. Facility Category

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

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

US Agrichem applied for a construction permit on September 1, 1989, and the application was deemed complete on November 16, 1989.

II. Project Description

US Agrichem's molten sulfur storage and handling system consists of a rail and truck unloading system; one 4210 short ton (ST) molten sulfur storage tank; one 229 ST pit; and the associated transfer pumps and piping. All the molten sulfur received is used in the manufacture of sulfuric acid.

The venting configuration of the tank consists of one vent at the center of the tank, and six rim vents. The pit has seven vents.

The molten sulfur is delivered by 96 ton capacity railcars, and 23 ton capacity trucks. Sulfur from the railcars and the trucks is gravity fed to the pit. The tank receives molten sulfur from the pit. The molten sulfur is supplied to the sulfuric acid plant from the storage tanks via the pit. The pit and the storage tank are steam heated to keep the sulfur molten. Currently, the combined production rate of the two sulfuric acid plants is about 4400 tons per day (TPD). The corresponding molten sulfur requirement would be about 1450 TPD, and 530,000 tons per year (TPY).

The 4210 ST storage tank is 62 ft in diameter and 25 ft in height. The tank has one 30" vent in the center, and six 12" rim vents. The pit is about 70 ft x 6 ft x 10 ft deep and has three 10" x 20" vents, three 10" diameter vents, and one 6" vent. All vents have natural ventilation.

Emissions of particulate matter (PM) and particulates less than 10 microns in size (PM_{10}) from the individual sources are expected to be less than 1 TPY. Small amounts of sulfur dioxide (SO_2), hydrogen sulfide (H_2S), reduced sulfur compounds (TRS), and volatile organic compounds (VOCs), will also be emitted.

III. Rule Applicability

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

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

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

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

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

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

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

IV. Source Impact Analysis

A. Emission Limitations

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

Source		Expected Emissions				
		PM/PM_{10}	SP	SO_2	TRS/H_2S	VOC
Tank	lb/hr	3.9	1.6	0.5	1.6	4.8
	TPY	16.5	6.8	2.1	7.1	20.2
Pit	lb/hr	1.8	0.7	0.2	1.6	2.2
	TPY	7.7	3.2	0.1	6.9	9.5

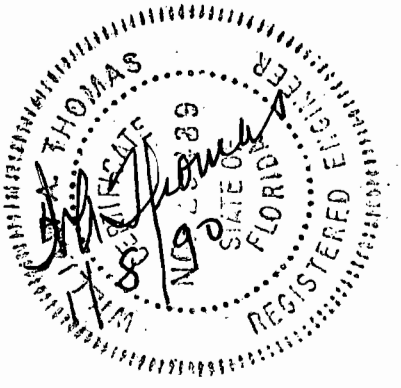
Visible emissions will be limited to 20% opacity.

B. Air Quality Impacts

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

V. Conclusion

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



Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

PERMITTEE:
US Agri-Chemicals Corp.
3225 SR 630 West
Ft. Meade, Florida 33841

Permit Number: AC 53-169795
Expiration Date: Jan. 1, 1991
County: Polk
Latitude/Longitude: 27°44'33"N
81°50'57"W
Project: Molten Sulfur Storage and Handling System

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

For the permitting of the molten sulfur storage and handling system consisting of a rail and truck unloading system; one 4210 short ton (ST) molten sulfur storage tank; one 229 ST pit; and the associated transfer pumps and piping. The molten sulfur system is located at the US Agri-Chemical Corp.'s (USAC) facility in Ft. Meade, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 416.3 km East and 3068.8 km North.

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

Attachments are listed below:

1. USAC's application received September 1, 1989.
2. DER's letter dated September 29, 1989.
3. USAC's response received November 16, 1989.
4. DER's Preliminary Determination dated January 8, 1990.

PERMITTEE:
US Agri-Chemicals Corp.

Permit Number: AC 53-169795
Expiration Date: Jan. 1, 1991

GENERAL CONDITIONS:

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

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

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

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

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

2. The maximum molten sulfur throughput rate shall neither exceed 1450 tons per day (TPD), nor 530,000 tons per year (TPY), based on the combined sulfuric acid production capacity of the two plants of about 4400 TPD 100% sulfuric acid.

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

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

SPECIFIC CONDITIONS:

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

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

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

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

Source		Expected Emissions				
		PM/PM_{10}	SP	SO_2	TRS/H_2S	VOC
Tank	lb/hr	3.9	1.6	0.5	1.6	4.8
	TPY	16.5	6.8	2.1	7.1	20.2
Pit	lb/hr	1.8	0.7	0.2	1.6	2.2
	TPY	7.7	3.2	0.1	6.9	9.5

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

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

PERMITTEE:
US Agri-Chemicals Corp.

Permit Number: AC 53-169795
Expiration Date: Jan. 1, 1991

SPECIFIC CONDITIONS:

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

Issued this _____ day
of _____, 1990

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

_____
Dale Twachtmann, Secretary

Attachments Available Upon Request

US
Agri-Chemicals
A Sinochem Company

U.S. Agri-Chemicals Corporation
3225 State Road 630 West
Fort Meade, FL 33841-9799
813 285 8121

1989 NOV 16 AM 11:09

1031

November 13, 1989

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

Dear Mr. Fancy:

Re: AC53-16975, Molten Sulfur System

The following information refers to the subjects numbered in your letter of September 29 requesting additional information.

1. The typical capacity of vehicles which deliver sulfur is:

   (a) 23 short tons/truck
   96 short tons/rail car

   (b) The sulfur throughput for
   1988: 465,339 tons
   1987: 455,861 tons

   (c) 99+ percent of shipments was by truck on an around-the-clock 7 days per week schedule. As many as three trucks can be unloaded at one time, usually only one is unloaded at any time.

2. There are no other "source/equipment process" within the plant other than the one sulfur pit and one tank for which the construction permit applies.

3. There is one molten sulfur unloading pit and one molten sulfur storage tank.

4. The method, basis and emission calcuations proposed by Enviroplan is enclosed.

5. An additional $300.00 fee is enclosed; total fee paid is $500.00.

I trust the above information satisfies the need for additional information. Please call me if you have any questions.

Very truly yours,

U. S. AGRI-CHEMICALS CORPORATION

James H. Carroll

James H. Carroll, P. E.
Manager, Environmental Engineering

JHC/bb-Fancy

Enclosures

copied: P. Raval
H. Kerns, SW Dist
CHF/137

BEST AVAILABLE COPY

1989 NOV 16 AM 11:09

1031

RECEIVED
DER-MAIL ROOM
1989 NOV 16 AM 11:09

FORT MEADE CHEMICAL PRODUCTS
3225 STATE ROAD 630 W - FORT MEADE, FL 33841-9799

0658

007070

63-526
631

10/27/89

PAY Sum of Three Hundred Dollars

AMOUNT
$ $300.00

TO THE ORDER OF FLORIDA DEPT OF ENVIRONMENTAL REG
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399-2400

AC53-16675

PAYABLE AT
SUN FIRST NATIONAL BANK OF POLK COUNTY FORT MEADE, FL

[redacted]

CHECK OF $25,000.00 AND OVER MUST BE COUNTERSIGNED
AUTHORIZED REPRESENTATIVE
COUNTERSIGNED

November 13, 1989

anagement
nvironmental Regulation

:400

Sulfur System

ion refers to the subjects numbered in your requesting additional information.

apacity of vehicles which deliver

11-21
CHF
BF F41
PA

t tons/truck
t tons/rail car

fur throughput for
465,339 tons
455,861 tons

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5. An additional $300.00 fee is enclosed; total fee paid is $500.00.

ENVIROPLAN

POLLUTANT EMISSION ESTIMATES FOR THE U.S. AGRI-CHEMICALS FORT MEADE BULK LIQUID SULFUR FACILITY

November 8, 1989
Ref. No. 51-9088-749

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

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 U.S. Agri-Chemicals facility in Fort Meade. This facility receives and stores molten elemental sulfur. Pertinent information on sulfur annual throughputs for this facility, as well as information on storage tank capacities and vent configurations, is contained in Table 1-1.

These emission calculations were primarily based on a series of monitoring studies carried out over the past four and one-half years at the Sulfur Terminals Company, Inc. (STI) and Pennzoil Tampa 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 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 measurements made at the STI and Pennzoil Tampa facilities are generally applicable to the U.S. Agri-Chemicals Fort Meade storage tank and sulfur pit. The existing vent configuration of the U.S. Agri-Chemicals storage tank and sulfur pit are similar to that found at the STI and Pennzoil Tampa facilities. The sulfur received and stored at the U.S. Agri-Chemicals facility is similar to that stored at the STI Tampa facility, which suggests that the equilibrium pollutant concentrations measured at the STI Tampa terminal will apply to the U.S. Agri-Chemicals storage tank and sulfur pit.

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.

ENVIROPLAN

TABLE 1-1: FACILITY INFORMATION ON MOLTEN SULFUR STORAGE AND HANDLING AT THE U.S. AGRI-CHEMICALS FORT MEADE FACILITY

	Annual Throughput (Tons)	Average Inventory (Tons)	Storage Capacity (Tons)	No./Type of Vents	Vent Dimensions (ft)
:orage Tank	521,180	3858	4210	6 perimeter 1 center	1.0 (diameter) 2.5 (diameter)
ılfur Pit	521,180	123	229	3 3 1	0.82 x 1.67 0.83 (diameter) 0.5 (diameter)

2. EMISSION CALCULATIONS FOR THE U.S. AGRI-CHEMICALS FORT MEADE FACILITY

Emissions of sulfur particulate (SP), PM-10, total particulate (TP), VOC, H_2S, and SO_2 occur from the receiving and storage of molten sulfur at this facility. There are two major types of emission sources:

1) Emissions from one storage tank during filling and non-filling periods
2) Emissions from the sulfur pit

2.1 BACKGROUND INFORMATION

2.1.1 Annual Throughput of Molten Sulfur

521,180 tons per year

2.1.2 Sulfur Transfer Rates

2.1.2.1 Sulfur Pit to Storage Tank

Rate = 450 gallons/minute

(450 gal/min)(60 min/hr)(0.1337 ft^3/gal)(112 lb S/ft^3)
(ton/2000 lb) = 202 tons/hr

2.1.2.2 Trucks to Sulfur Pit

Rate = (25 tons/14 min)(60 min/hr) = 107 tons/hr

2.1.3 Ventilation Rates

2.1.3.1 Storage Tank - Perimeter Vents

534 acfm, based on average measured vent flow at the STI Tampa storage tanks with eight 10" diameter perimeter vents at an average wind speed of 6 mph, i.e., 498 acfm, with adjustment to account for a) a climatological average wind speed of 6.9 mph for the Fort Meade area using an empirically-determined flow/wind speed relationship of 10.4 acfm/mph, i.e. 498 + (6.9-6.0)(10.4) = 507 acfm, b) elimination of 13 acfm due to air purging of the STI tanks, i.e., 507 - 13 = 494 acfm, and c) the factor of 1.08 increased vent area on the U.S. Agri-Chemicals tank compared to the STI tanks, i.e., 1.08 (494) = 534 acfm.

2.1.3.2 Storage Tank - Center Vent

925 acfm, based on average measured vent flow at the Pennzoil Tampa storage tanks with a 6" diameter center vent, 37 acfm, and adjustment to account for the factor of 25 increased vent area on the U.S. Agri-Chemicals tank compared to the Pennzoil tanks, i.e., 25 (37) = 925 acfm.

2.1.3.3 Storage Tank - Total

1459 acfm, the sum of ventilation rates for the perimeter vents and center vent.

2.1.3.4 Sulfur Pit

670 acfm, based on STI Tampa storage tank vent flow measurements, with the same adjustments for wind speed and air purging used for the storage tank perimeter vents, and a 1.356

factor adjustment to account for the increased vent area on the U.S. Agri-Chemicals sulfur pit relative to the STI tanks, i.e., 1.356 (494) = 670 acfm.

2.1.4 Concentrations of Pollutants in Vapor Space Above Molten Sulfur

Based on measurements at the STI Tampa facility, the following pollutants are assumed to be at equilibrium (i.e., independent of tank ventilation rate) at the ventilation rates (up to several hundred acfm) and tank vapor residence times (typically 500-1000 min.) under which the measurements were conducted:

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.,

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

This relationship was applied to estimate the vapor space H_2S concentrations for the U.S. Agri-Chemicals storage tank and sulfur pit.

2.2 EMISSION CALCULATIONS

2.2.1 Emissions from Storage Tank During Filling from Sulfur Pit

Period of filling:
(521,180 tons/yr)/(202 tons/hr) = 2,580 hr/yr

Rate of vapor displacement due to tank filling:
(202 tons/hr)(2000 lb/ton)/(112 lb S/ft^3) = 3,607 ft^3/hr

Total effective tank ventilation rate during filling:
3,607 + (1459) (60 min/hr) = 91,147 ft^3/hr

Maximum hourly emission rates during filling are computed as the total effective ventilation rate (ft^3/hr) times the pollutant concentration (lb/ft^3), i.e.,

(91,147) (1.757×10^{-5}) = 1.60 lb/hr SP
(91,147) (3.750×10^{-5}) = 3.42 lb/hr PM-10
(91,147) (4.250×10^{-5}) = 3.87 lb/hr TP
(91,147) (5.224×10^{-5}) = 4.76 lb/hr VOC
(91,147) (5.472×10^{-6}) = 0.50 lb/hr SO_2
(91,147) (1.782×10^{-5}) = 1.62 lb/hr H_2S

(Note: the H_2S concentration applies to a storage tank ventilation rate during filling of 1519 acfm).

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

Annual emissions from storage tank filling from the sulfur pit are computed as the hourly emissions times the period of filling per tank, i.e.,

1.60 (2,580) = 4,128 lb/yr = 2.06 ton/yr SP
3.42 (2,580) = 8,824 lb/yr = 4.41 ton/yr PM-10
3.87 (2,580) = 9,985 lb/yr = 4.99 ton/yr TP
4.76 (2,580) = 12,281 lb/yr = 6.14 ton/yr VOC
0.50 (2,580) = 1,290 lb/yr = 0.65 ton/yr SO_2
1.62 (2,580) = 4,180 lb/yr = 2.09 ton/yr H_2S

2.2.2 Emissions from Storage Tank During Non-Filling

Period of non-filling per tank = 8760 - (2,580) = 6180 hr/yr.

Annual emissions are calculated as the tank ventilation rate during non-filling periods, i.e., (1,459 acfm) (60 min/hr) (6180 hr/yr) = 5.410×10^8 ft^3/yr, times the pollutant concentration, i.e.,

(5.410×10^8) (1.757×10^{-5}) = 9,505 lb/yr = 4.75 ton/yr SP
(5.410×10^8) (3.750×10^{-5}) = 20,287 lb/yr = 10.14 ton/yr PM-10
(5.410×10^8) (4.250×10^{-5}) = 22,992 lb/yr = 11.50 ton/yr TP
(5.410×10^8) (5.224×10^{-5}) = 28,262 lb/yr = 14.13 ton/yr VOC
(5.410×10^8) (5.472×10^{-6}) = 2,960 lb/yr = 1.48 ton/yr SO_2
(5.410×10^8) (1.851×10^{-5}) = 10,014 lb/yr = 5.01 ton/yr H_2S

(Note: the H_2S concentration applies to a storage tank ventilation rate during non-filling of 1459 acfm.)

2.2.3 Total Annual Emissions from Storage Tank

Total annual emissions are computed as the sum of emissions during filling from the sulfur pit and emissions during non-filling, i.e.,

2.06 + 4.75 = 6.81 ton/yr SP
4.41 + 10.14 = 14.55 ton/yr PM-10
4.99 + 11.50 = 16.49 ton/yr TP
6.14 + 14.13 = 20.27 ton/yr VOC
0.65 + 1.48 = 2.13 ton/yr SO_2
2.09 + 5.01 = 7.10 ton/yr H_2S

2.2.4 Emissions from the Sulfur Pit

Rate of vapor displacement due to sulfur pit filling:
(107 tons/hr)(2000 lb/ton)/(112 lb S/ft^3) = 1,911 ft^3/hr

Total effective pit ventilation rate during filling:
1,911 + 670 (60 min/hr) = 42,111 ft^3/hr

Maximum hourly emissions during sulfur pit filling are computed as the total effective pit ventilation rate, i.e., 42,111 ft^3/hr, times the pollutant concentrations, i.e.,

42,111 (1.757×10^{-5}) = 0.74 lb/hr SP
42,111 (3.750×10^{-5}) = 1.58 lb/hr PM-10
42,111 (4.250×10^{-5}) = 1.79 lb/hr TP
42,111 (5.224×10^{-5}) = 2.20 lb/hr VOC
42,111 (5.472×10^{-6}) = 0.23 lb/hr SO_2
42,111 (3.677×10^{-5}) = 1.55 lb/hr H_2S

(Note: the H_2S concentration applies to a ventilation rate of 702 acfm)

Annual emissions from the sulfur pit are computed as the sum of emissions due to: 1) normal atmospheric ventilation, i.e., (670 acfm) (60 min/hr)(8,760 hr/yr) = 3.5215×10^8 ft^3/yr, and 2) vapor displacement due to pit filling, i.e., (521,180 tons/yr)(2000 lb/ton)/(112 lb S/ft^3) = 9.3068×10^6 ft^3/yr. Annual pollutant emissions are equal to this sum, 3.6146×10^8 ft^3/yr, times the pollutant concentrations,

(3.6146×10^8) (1.757×10^{-5}) = 6,351 lb/yr = 3.18 ton/yr SP
(3.6146×10^8) (3.750×10^{-5}) = 13,555 lb/yr = 6.78 ton/yr PM-10
(3.6146×10^8) (4.250×10^{-5}) = 15,362 lb/yr = 7.68 ton/yr TP
(3.6146×10^8) (5.224×10^{-5}) = 18,882 lb/yr = 9.44 ton/yr VOC
(3.6146×10^8) (5.472×10^{-6}) = 1,978 lb/yr = 0.99 ton/yr SO_2
(3.6146×10^8) (3.788×10^{-5}) = 13,692 lb/yr = 6.85 ton/yr H_2S

(Note: the H_2S concentration applies to an annual average effective ventilation rate of 680 acfm)

2.3 SUMMARY

Maximum hourly and annual emissions of SP, PM-10, TP, VOC, SO_2, and H_2S from the U.S. Agri-Chemicals facility are summarized below:

	Source Type			
	Storage Tank		Sulfur Pit	
	Max	Actual	Max	Actual
Contaminant	lb/hr	T/yr	lb/hr	T/yr
SP	1.60	6.81	0.74	3.18
PM-10	3.42	14.55	1.58	6.78
TP	3.87	16.49	1.79	7.68
VOC	4.76	20.27	2.20	9.44
SO_2	0.50	2.13	.23	0.99
H_2S	1.62	7.10	1.55	6.85

The above table indicates that 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:

Mr. J. M. Williams
US Agrichemicals Corp.
3225 SR 630 West
Ft. Meade, FL 33841

4. Article Number

P 938 762 693

Type of Service:

- ☐ Registered
- ☒ Certified
- ☐ Express Mail
- ☐ Insured
- ☐ COD
- ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address

X Joanne Washington

6. Signature — Agent

X

7. Date of Delivery

10-2-89

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

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

P 938 762 693

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. J. M. Williams, US Agri-Chemicals	
Street and No. 3225 SR 630 West	
P.O., State and ZIP Code Ft. Meade, FL 33841	
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: 9-29-89 Permit: AC 53-169795	

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

September 29, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. J. M. Williams
US Agrichemicals Corp.
3225 SR 630 West
Ft. Meade, FL 33841

Dear Mr. Williams:

Re: US Agrichemicals Molten Sulfur System, AC 53-169795

The Department has received your application dated August 30, 1989, and deemed it incomplete. Please submit the following information including all assumptions, calculations and reference material:

1. What is the typical capacity of the sulfur delivery vehicle(s)? What is the typical delivery frequency? What was the molten sulfur throughput during two consecutive representative years in the last five year period at the US Agrichem facility?

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

3. How many tanks and pits are there in the sulfur system?

4. Explain the method and basis of the emission calculations.

5. The appropriate permit application fee is $500 (corresponding to about 30 tons per year VOC emissions). Please submit an additional $300 (since $200 has been already received).

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
Bureau of Air Regulation

CHF/pr

cc: B. Thomas, SW District
J. Carroll, PE

U.S. Agri-Chemicals Corporation
3225 State Road 630 West
Fort Meade, FL 33841-9799
813 285 8121

US Agri-Chemicals

August 30, 1989

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

Dear Mr. Fancy:

Enclosed is a check for $200 and the construction application for the molten sulfur storage facility at the U. S. Agri-Chemicals plant in Fort Meade.

Please let me know if additional information is needed.

Very truly yours,

James H. Carroll, P.E.
Manager, Environmental Engineering

JHC/jrs

enclosures

cc: J. M. Williams
R. E. Knecht
E. E. Helms
P. Raval
W. Kerns, SW Dist.

U.S. Agri-Chemicals Corporation
3225 State Road 630 West
Fort Meade, FL 33841-9799
813 285 8121

US Agri-Chemicals

August 30, 1989

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

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Please let me know if additional information is needed.

Very truly yours,

James H. Carroll, P.E.
Manager, Environmental Engineering

JHC/jrs

enclosures

cc: J. M. Williams
R. E. Knecht
E. E. Helms

1031

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

8-30-89
V# 057480

042 708990-47 $200.00

CHECK# 006418

BKS

FORT MEADE CHEMICAL PRODUCTS 3225 STATE ROAD 630 W - FORT MEADE, FLORIDA 33841-9799 PHONE 813/285-8121

FORT MEADE CHEMICAL PRODUCTS
3225 STATE ROAD 630 W - FORT MEADE, FL 33841-9799

006418

63-526
631

PAY TWO HUNDRED AND 00/00 DOLLARS

AMOUNT
$**200.00**

8-30-89

TO THE ORDER OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE ROAD
TALLAHASSEE, FL. 32399-2400

CHECK OF $25,000.00 AND OVER MUST BE COUNTERSIGNED

AUTHORIZED REPRESENTATIVE

COUNTERSIGNED

PAYABLE AT
SUN FIRST NATIONAL BANK OF POLK COUNTY FORT MEADE, FL

[redacted]

RECEIVED
SEP 1 1989
DER - BAQM

$200 pd. 9-1-89 Recpt. #117654

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610

AC53-169795

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
WILLIAM K. HENNESSEY
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: CONSTRUCTION [ ] New[1] [X] Existing[1]

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

COMPANY NAME: US AGRI-CHEMICALS CORP. COUNTY: POLK

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

SOURCE LOCATION: Street 3325 SR 630 WEST City FT. MEADE

UTM: East 416.26 ZONE 17 North 3068.79

Latitude ____° ____' ____"N Longitude ____° ____' ____"W

APPLICANT NAME AND TITLE: J. M. WILLIAMS, PRESIDENT - CHIEF OPERATING OFFICER

APPLICANT ADDRESS: 3225 SR 630 WEST, FT. MEADE, FL 33841

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of US AGRI-CHEMICALS CORP.

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

*Attach letter of authorization

Signed: J. M. Williams

J.M. WILLIAMS, PRESIDENT - CHIEF OPERATING OFFICER
Name and Title (Please Type)

Date: 8/30/89 Telephone No. 813/285-8121

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

Signed James H Carroll

JAMES H. CARROLL, P.E.
Name (Please Type)

US AGRI-CHEMICALS CORP.
Company Name (Please Type)

325 SR 630 WEST, FT. MEADE, FL 33841-9799
Mailing Address (Please Type)

Florida Regiatration No. 19407 Date: Aug 23, 1989 Telephone No. 813/285-8121

SECTION II: GENERAL PROJECT INFORMATION

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

This is for an existing molten sulfur unloading, transfer and storage system. This system is part of the sulfuric acid facility built in 1981 and commissioned during the first quarter of 1982. The facility was permitted under PSD FL064, April 1, 1981.

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

Start of Construction 1981 Completion of Construction 1982

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

None

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

None

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

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

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO

   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. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

   a. If yes, for what pollutants?_____

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

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

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

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

Description	Contaminants		Utilization Rate tons in 1988	Relate to Flow Diagram
	Type	% Wt		
SULFUR	REFER TO		REFER TO	REFER TO FLOW DIAGRAM
	TYPICAL ANALYSIS OF		1988 YEAR-END	321-120 AND YEAR-END
	BULK MOLTEN SULFUR		SULFUR	DEC. 31, 1988
			CONSUMPTION	INVENTORY REPORT
			REPORT	

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

1. Total Process Input Rate (lbs/hr): 120,266 SULFUR, PERMITTED RATE

2. Product Weight (lbs/hr): SAME

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

REFER TO TEXT OF PROCESS DESCRIPTION AND TABLE I

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	
			NA	NA			

[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) NONE

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 NOT APPLICABLE

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.

NO WASTE OR SCRAP SULFUR IS DISPOSED

REFER TO DRAWINGS: 321-106 FOR SULFUR PIT CHARACTERISTICS AND DIMENSIONS
511-113 FOR SULFUR TANK DIMENSIONS

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

NOT APPLICABLE

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

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

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   SEE DRAWING 321-120 STREAM #51
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.
   REFER TO TABLE I, FACTORS DEVELOPED BY ENVIROPLAN FROM TEST RESULTS.
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.) NO DEVICE INSTALLED
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency). NOT APPLICABLE
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. SEE DRAWINGS 321-111, 321-120
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).
   SEE PLOT PLAN DWG 301-101
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.
   SEE DRAWINGS 321-106, 321-115, 321-120, 301-101

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be 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. NOT APPLICABLE

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY - NOT APPLICABLE

A. Are standards 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 propose 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

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 _____

Attach 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.

U. S. AGRI-CHEMICALS CORPORATION

FORT MEADE CHEMICAL COMPLEX

CONSTRUCTION PERMIT APPLICATION FOR MOLTEN SULFUR FACILITIES

Process Description

Molten Frasch process sulfur is received in either railcars or trucks. This material is emptied by gravity drop into a trough located beneath the railcar and flows directly into a pit. Likewise, the truck load is emptied by gravity into the same pit through openings in the pit covers. The sulfur is kept in the molten state by steam heaters in the pit. Sulfur is then pumped to a larger above ground insulated storage tank which is also steam heated.

Molten sulfur is then withdrawn from storage and pumped to the burner to make sulfur dioxide. Sulfur dioxide is oxidized in subsequent operations to make sulfuric acid.

In 1988, 99+ per cent of the sulfur was received by truck and the balance was received by railcar. Delivery and transfer of sulfur continues around-the-clock on a daily basis.

The location of the sulfur unloading stations are shown in the attached Plot Plan Drawing #301-101.

The sulfur flow, including the tank car unloading, sulfur pit and sulfur storage tank is shown in Drawing #321-111.

The sulfur material flow rate is 915 lbs/minute to each of two sulfuric acid plants. The combined flow is therefore 1830 lbs/minute on average. This is shown on attached Material Flow Diagram Drawing #321-120.

The permitted rate is 10 per cent greater than the flow sheet quantity. In effect, the combined daily output of both sulfuric acid plants is 4400 tons 100% equivalent sulfuric acid. This corresponds to a sulfur rate of 2004 lbs/minute. Refer to Operating Permits A053 132413 and 132414 for further details on the acid plant operations.

The block diagram for the system is shown on attached Drawing #321-120 and #321-121.

Energy needed to keep sulfur in the molten state, in the range of 260 degrees to 270 degrees Fahrenheit, is supplied by steam generated in the sulfur burner/waste heat boiler.

Back-up steam, in the event of shutdown of the sulfur burner waste heat source, can be furnished by a natural gas fired auxiliary boiler. Its use is very infrequent because of the 99+% on-stream operation of the acid plants. The auxiliary boiler was

operated 96 hours in 1988 and 36 hours in 1987. Most of this time was spent to make routine mechanical checks on the auxiliary boiler equipment.

EMISSION RATE CALCULATIONS -- TRS, SO2, VOC*

Air vented from molten sulfur storage tanks and pits is expected to contain small quantities of total reduced sulfur compounds including H_2S , sulfur dioxide and volatile organic compounds. The volatile organic compounds will result from the small amounts of petroleum products contained in Frasch sulfur (approximately 0.25%), and the vaporization of these compounds at the storage temperature of molten sulfur. The reduced sulfur compounds will result from the reduction of elemental sulfur in the presence of carbon supplied by the petroleum products, and the SO2 will result from the oxidation of elemental sulfur. Refer to attached Typical Analysis of Bulk Molten Sulfur. These analyses are typical of the material when emission testing was performed.

The following table is a summary of the emission factors, various compounds and annual mass emissions from the molten sulfur facility at U. S. Agri-Chemical's facility in Ft. Meade.

* TRS - total reduced sulfur
  SO2 - sulfur dioxide
  VOC - volatile organic compounds

TABLE I

EMISSION FACTORS

AND

MASS EMISSIONS

FOR 1988

ENVIROPLAN

US. AGRI-CHEMICALS - EMISSION FACTORS AND MASS EMISSIONS FOR 1988

FOR SULFUR PARTICULATE, PM-10, TOTAL PARTICULATE, VOC, H_2S, SO_2

T = ANNUAL SULFUR THROUGHPUT (LT) ~ 465,339 TONS/1988

TABLE I

STORAGE TANK

CONTAMINANT	MAX. LBS/HR	ACTUAL TONS/YR	MASS EMISSIONS TONS-YR	TOTAL TONS PER YEAR
SULFUR PARTICULATE	1.60	$6.74 + (1.757 \times 10^{-7})T$	6.82	
PM-10 10μ	3.42	$14.38 + (3.750 \times 10^{-7})T$	14.55	
TOTAL PARTICULATE	3.87	$16.30 + (4.250 \times 10^{-7})T$	16.50	
VOC	4.76	$20.03 + (5.224 \times 10^{-7})T$	20.27	
H_2S	1.62	$7.10 + (1.851 \times 10^{-7})T$	7.19	
SO_2	0.50	$2.10 + (0.547 \times 10^{-7})T$	2.15	67.48

SULFUR PIT

CONTAMINANT	MAX. LBS/HR	ACTUAL TONS/YR		
SULFUR PARTICULATE	0.74	$3.09 + (1.757 \times 10^{-7})T$	3.17	
PM-10	1.58	$6.60 + (3.750 \times 10^{-7})T$	6.77	
TOTAL PARTICULATE	1.79	$7.48 + (4.250 \times 10^{-7})T$	7.68	
VOC	2.20	$9.20 + (5.224 \times 10^{-7})T$	9.44	
H_2S	1.55	$6.76 + (1.851 \times 10^{-7})T$	6.85	
SO_2	0.23	$0.96 + (0.547 \times 10^{-7})T$	0.99	34.90
				102.38

TYPICAL ANALYSIS

OF

BULK MOLTEN SULFUR

FORM 204

FREEPORT SULPHUR COMPANY

CHEMICAL LABORATORY ANALYSIS

TAMPA TERMINAL — Mine

Analysis of SULFUR — Date MAY 9, 1989

SAMPLE MARK		% Ash	% Carbon	% Sulfur
Tampa, 04-18-89, Received 04-28-89				
	Tank No. 2	0.0015	0.22	99.74
	3	0.0016	0.23	99.73
Weekly Sample, Agrico 04-12-89	7	0.0010		
Tampa, L/S/ 04-19-89	7	0.0018	0.23	99.73

T. P. Fowler
D. T. Harris
A. S. Foley
T. T. Morgan
A. Dow
L. P. Udstad
File

J. W. Guidry — Chemi

FORM 204

FREEPORT SULPHUR COMPANY

CHEMICAL LABORATORY ANALYSIS

PORT SULPHUR — Mine

Analysis of SULFUR — Date MAY 9, 1989

SAMPLE MARK

(133) S.S. LOUISIANA BRIMSTONE PS-1364

Date Sailed 04-22-89
Received B.C. Lab 04-28-89

23,093.13 GROSS TONS LIQUID DARK SULFUR

TO: Freeport Sulphur Company
Tampa, Florida

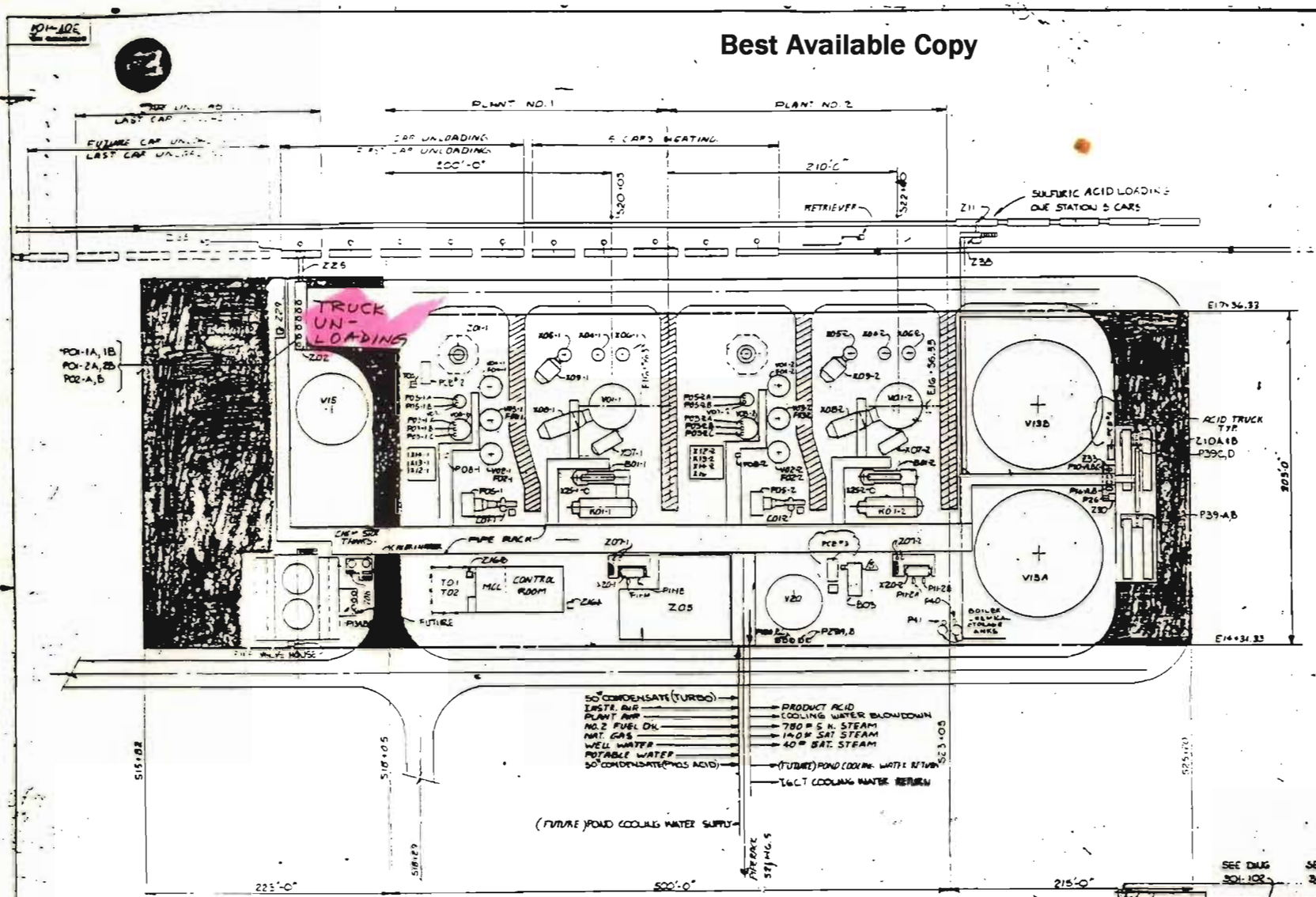
Ash	0.0010%
Acid	<0.01%
Carbon	0.25%
Sulfur	99.70%

Original Signed By
J. W. GUIDRY

J. W. Guidry — Chem

DRAWINGS FOR MOLTEN SULFUR PERMIT APPLICATION

301-101	Plot Plan
321-106	Sulfur Pit and Storage Tank Layout
321-111	Sulfur Flow Diagram
321-120	Material Flow Diagram
321-121	Process Material Flow Diagram
511-113	Platework, Sulfur Storage Tank



DWG 301-101

MOLTEN SULFUR PERMIT APPLICATION
V-15 STORAGE TANK
Z-02 SULFUR PIT
Z-25 CAR UNLOADING TROUGH
REFER TO DWG 321-111 FOR DETAIL

SULFUR PIT INSIDE DIMENSIONS
& COVER VENTS

6 FT WIDE, 70 FT LONG, 9.75 FT. DEEP
AVERAGE INVENTORY 123 TONS
VAPOR SPACE 4.5 FT
VENTS THREE 10" Ø FILL PIPES — 1.6 □ FT
THREE 9.8" x 20" SQ. VENTS — 4.1
ONE 6" DIA VENT PIPE — 0.2
5.9 □ FT

SECTION "A"

DWG 321-106 (3)

REFERENCES		
301-101	PLOT PLAN	
301-102 -	PLANT LAYOUT #1	
CD-00-101	JACOBS ENGINEERING PLOT PLAN	

REVISIONS					
NO.	DATE	DESCRIPTION	BY	APP'D	
1	4-10-81	SHOWER & COOLING TOWER AND THAT PIT LOCATION. ADD ELEV. OF PUMP PIT BOTTOM. SHOWED CONDENSATE AT CONDEN WATER SUMP. CHANGE ELEV. AT INT. LOCATE Z35	RS		
2	4-17-81	NEW FIRE PROTECTION HOUSE & AND VALVE PIT. CHANGE TABLE FROM "SULFUR" TO "SULFUR TRUCK W/S". SHOWED LOADING AREA, NEW CRANE RAILS, TRUCK W/S & NEW FIRE WATER LINE	RS		
3	5-29-81	PCB #2 WAS MCC #2, RELOCATED PCB #2 INCL. STRUCTURAL & ELECTRICAL	RS		

MONSANTO ENVIRO-CHEM SYSTEMS INC

7-17-81 CONSTRUCTION
ISSUE DATE PURPOSE OF ISSUE

Agri-Chemicals
MONSANTO ENVIRO-CHEM SYSTEMS, INC.
ST. LOUIS, MISSOURI

SULFUR PIT AND SULFUR STORAGE TANK LAYOUT

	BY	DATE	APP'D
DRAWN	DLS	10-22-80	
CHECKED	RS	11-24-80	
ISSUE DATE	PURPOSE OF ISSUE	SCALE	1/16" = 1'-0"

REVISIONS 3

MOLTEN SULFUR STORAGE TANK 62'DIA 24'6" HEIGHT VENT 2'6" DIA. REFER TO DWG 321-120 PROCESS STREAM #51 FOR TYPICAL SULFUR RATES

INTERLOCK NOTES

1/C SULFUR PUMP SHUT DOWN AT LOW PRESSURE & HIGH TEMP SEE DWG 321-102 & 321-104

1-P01-1-P5411-5"x4" — TO PLANT #1 SULFUR BURNER SEE DWG. 321-112

2-P01-1-P5411-5"x4" — TO PLANT #2 SULFUR BURNER SEE DWG. 321-112

P02B-1-P5411-6"x8"

V13-1-P5411-6"x8"

V13-2-P5411-6"x8"

P02A-1-P5411-6"x8"

4"Ø PIT VENT

TRUCK UNLOADING (3 REQUIRED)

(BY TRUCK)

TALK CAR

Z25 SULFUR TALK CAR UNLOADING TROUGH

VENT.

M.H. WITH GOOSE NECK

HEATER M.H. (20 REQUIRED)

TOP OF TANK TO BE PAINTED PER 3x2-103 (NO INSULATION)

INSULATION

DIPSTICK NOZZLE (1 SIXMAN, 4 QEYED)

M.H.

V15 SULFUR STORAGE TANK

P02A SULFUR TRANSFER PUMPS (P02B-INSTALLED SPARE)

P02E

Z02 SULFUR PIT

P01-2A SULFUR BURNER-FEED PUMPS - PLANT #2 (P01-2B-INSTALLED SPARE)

P01-2B

P01-1A SULFUR BURNER FEED PUMPS - PLANT #1 (P01-1B INSTALLED SPARE)

P01-1B

DWG 321-111 5

USS Agri-Chemicals
Division of United States Steel Corporation

MONSANTO ENVIRO-CHEM SYSTEMS, INC.
ST. LOUIS, MISSOURI

SULFUR FLOW DIAGRAM

BY	DATE	APP'D	DATE	JOB NO.	REVISION
DRAWN DL SOULIS 19-80				2189	5
CHECKED				DRAWING NO. 321-111	

ISSUE DATE — PURPOSE OF ISSUE — SCALE: NONE

THE INFORMATION ON THIS DRAWING IS THE PROPERTY OF MONSANTO ENVIRO-CHEM SYSTEMS INC.

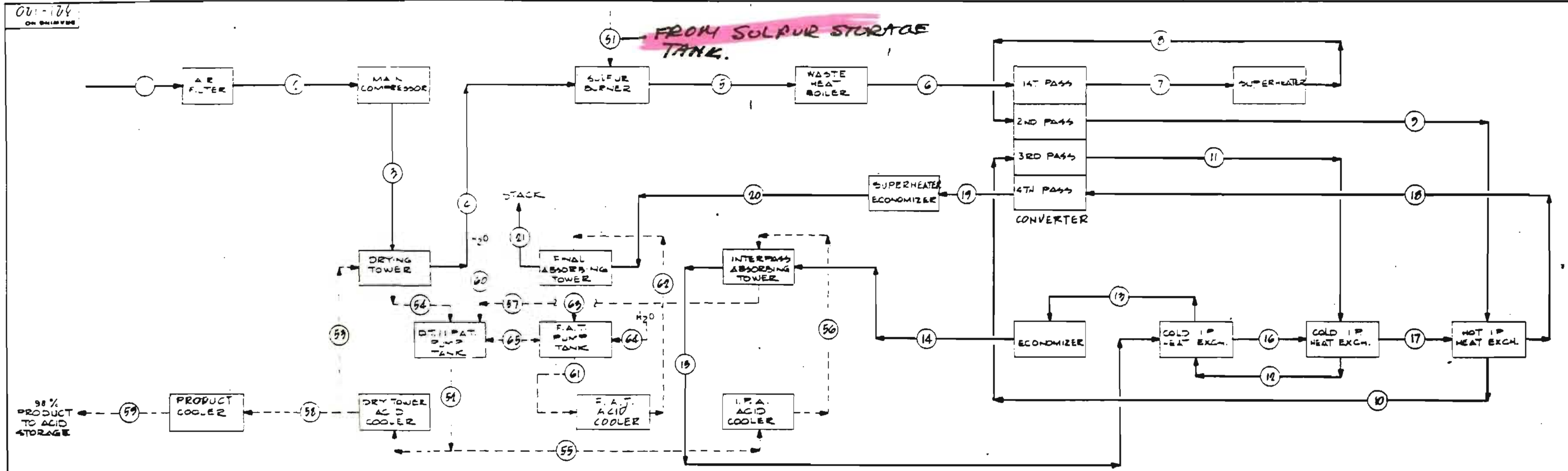
REVISIONS

NO.	DATE	DESCRIPTION	BY
4	4-2-81	ADDED STARTER, MOUNTED START/STOP SWITCHES REVISED PER CLIENTS REQUEST. SNOWEL NORMALLY CLOSED VALVES	
5	4-8-81	RELOCATED 2" VENT ON Z02 LA-55 IS NOW LA-56 ADDED PROBE IN PIT	

REFERENCES

NO.	DATE	DESCRIPTION	BY

Best Available Copy



STREAM / COMPONENT UNIT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
SO_2 SCFM					10196	10196	4037	4037	1192	1192	469	469	469	469	469	469	469	469	31	31	31									
SO_3 SCFM							6158	6158	9003	9003	9727	9727	9727	9727	0	0	0	0	438	438	0									
O_2 SCFM	20294	20294	20294	20294	10098	10098	7019	7019	5597	5235	5235	5235	5235	5235	5235	5235	5235	5235	5016	5016	5016									
N_2 SCFM	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806	76806									
H_2O SCFM	3360	3360	3360																											
TOTAL SCFM	100460	100460	100460	97100	97100	97100	94020	94020	92598	92237	92237	92237	92237	92237	82510	82510	82510	82510	82291	82291	81853									
TOTAL ACFM (CLEAN)	113320	115600	89290	87790	329960	180950	222300	189030	209600	188040	190400	170580	150470	126130	92810	130410	158660	191080	197770	124640	106210									
TOTAL LBS/MIN																														
PRESSURE "W.C. CLEAN	0	-8	184	174	164	147	143	125	120	116	107	99	94	83	60	52	49	42	36	19	1									
PRESSURE W.C. DIRTY	0	-8	221	211	201	184	143	125	120	116	107	99	94	83	60	52	49	42	36	19	1									
TEMPERATURE °F	75	95	175	175	1850	786	[illegible]	[illegible]	[illegible]	826	865	712	588	350	175	417	600	797	827	320	180									

STREAM / COMPONENT UNIT	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
LIQUID	SULFUR	98% A	98% A	98% A	98% A	98% A	98% A	98% A	98% A	WATER	98% A	98% A	98% A	WATER	98% A															
LBS/MIN	915	102150	[illegible]	30565	65900	65920	71890	2535	2535	370	31000	31000	31100	20	180															
GPM	61	7040	2060	2080	4750	4750	4920	190	190	45	2100	2090	2100	2	8															
TEMPERATURE °F	270	235	175	190	235	75	240	75	100	95	215	180	216	95	216															

- - - - LIQUID
——— GAS

PRODUCTION: TOTAL PRODUCTION IS 2000 TPD AS 98% SULFURIC ACID (100% BASIS) PER PLANT.

BASIS: 99.7% CONVERSION OF SO_2 TO SO_3 WITH 10.5% SO_2 TO CONVERTER (4 LBS SO2/TON ACID)
PRESSURES & TEMPERATURES ARE APPROX. BAROMETRIC PRESSURE IS 29.92" Hg (407" W.C.A.)

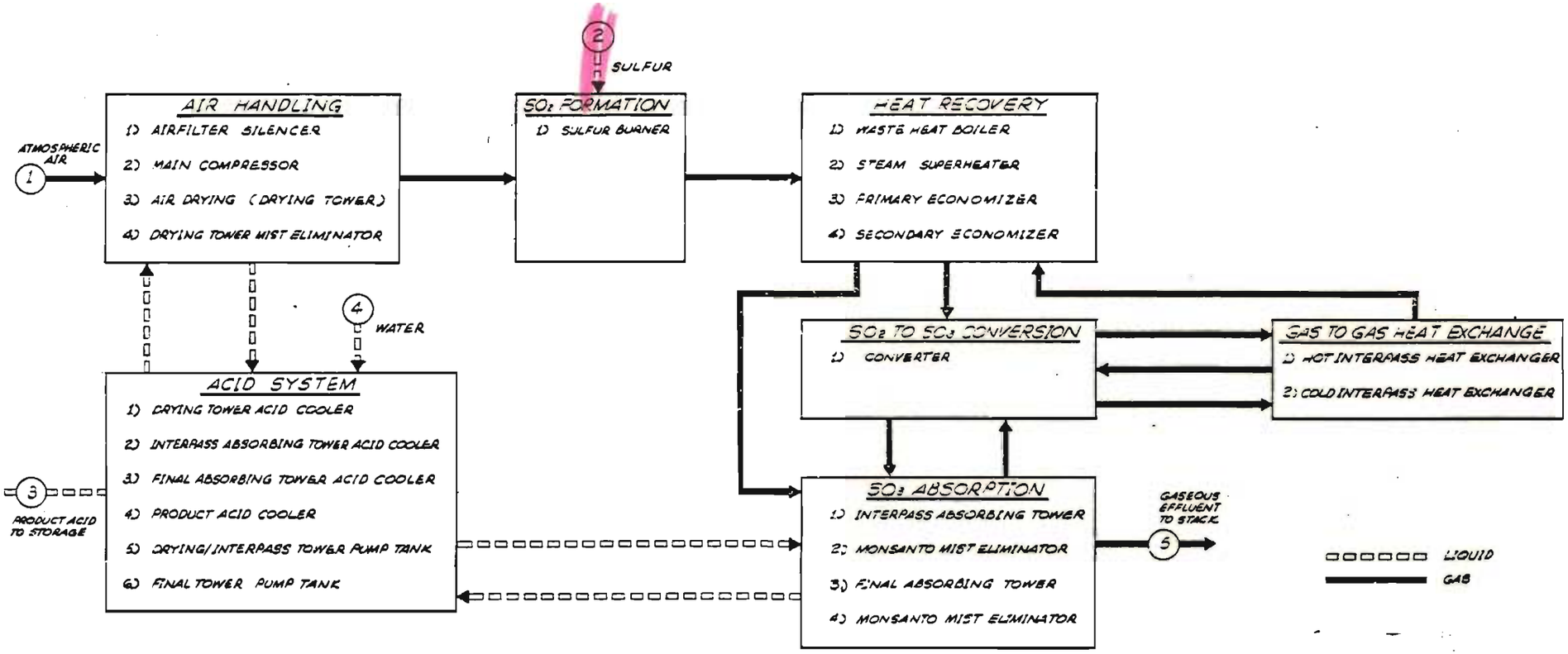
FOR CONSTRUCTION

DWG 321-120 ⟨1⟩

MONSANTO ENVIRO-CHEM SYSTEMS, INC.
ST. LOUIS, MISSOURI

MATERIAL FLOW DIAGRAM

	BY	DATE	APP'D	DATE	JOB NO
DRAWN		8-7-79	HAA		2169
CHECKED			WES		DRAWING NO 321-120
SCALE			DOL	9.1980	



STREAM / COMPONENT	UNIT	1	5
SO2	SCFM		31
SO3	SCFM		0
O2	SCFM	20284	5016
N2	SCFM	74806	74806
H2O	SCFM	3360	
TOTAL	SCFM	100460	81853
TOTAL	ACFM	113328	106475
TEMPERATURE	°F	55	180

STREAM / COMPONENT	UNIT	2	3	4
LIQUID		SULFUR	98%	WATER
	LB/MIN	415	2835	345
	GPM	61	140	47
TEMPERATURE	°F	270	100	95

CLIENT: USS AGRI-CHEM
LOCATION: FORT MEADE, FLORIDA
PRODUCTION: 2000 STPD AS 98% ACID (100% H_2SO_4 BASIS)
NUMBER OF UNITS: TWO PLANTS
CONVERSION: 99.7 CONVERSION OF SO_2 TO SO_3 WITH 10.5% SO_2 TO CONVERTER.
STANDARD CONDITIONS: 0°C AND 760 MM Hg.
EMISSIONS:
SO_2: 4LBS SO_2/TON 100% H_2SO_4 PRODUCED.
ACID MIST: LESS THAN OR EQUIVALENT TO 0.15LBS H_2SO_4/TON 100% H_2SO_4 PRODUCED.

STACK: 175' HIGH, 8'6" I.D..

DWG 321-121 (A)

MONSANTO ENVIRO-CHEM SYSTEMS, INC.
ST. LOUIS, MISSOURI

ENVIRONMENTAL
PROCESS MATERIAL FLOW DIAGRAM
SULFUR BURNING PLANT

DRAWN 4-26-60 JOB NO 2189
CHECKED DRAWING NO 321-121
SCALE

REVISIONS
NO | DATE | DESCRIPTION | BY

REFERENCES
DESCRIPTION

MONSANTO ENVIRO CHEM SYSTEMS INC
ISSUE DATE | PURPOSE OF ISSUE

Best Available Copy

NOZZLE SCHEDULE					
MARK	QTY	SIZE	FLANGE	SERVICE	SLEEVE (REF.)
A	22	2'-6" I.D.	SEE DETAIL	HEATER MANHOLE	
B	6	1'-0" I.D.	SEE DETAIL	VENT INLET	
[illegible]	1	2'-6" I.D.	SEE DETAIL	VENT OUTLET	
D	1	1'-6" I.D.	SEE DETAIL	SULFUR INLET	
E	1	2'-6" I.D.	SEE DETAIL	ROOF MANHOLE	
F	1	2'-0" I.D.	SEE DETAIL	SHELL MANHOLE	
G	1	6" SCH 80	SEE DETAIL	TEMP. INDICATOR	6
H	1	6" SCH 80	SEE DETAIL	SULFUR OUTLET	
J	1	6" SCH 80	SEE DETAIL	SULFUR OUTLET	
K	4	1½" SCH 80	SEE DETAIL	STEAM INLET	
L	2	8" SCH 40	SEE DETAIL	LEVEL INDICATOR	
M	1	6" SCH 80	SEE DETAIL	SULFUR OVERFLOW	

ORIENTATION PLAN

SIX VENT INLET (B)

ONE VENT OUTLET (C)

LEVEL INDICATOR BUBBLER PIPE (L)

SULFUR OUTLET (G)

SULFUR OUTLET (H)
SULFUR OVERFLOW (M)

SULFUR INLET (D)

STEAM INLET (K)

MANHOLE (E)

LIFT RING

SULFUR STORAGE TANK
ONE REQ'D ITEM NO V-12

GENERAL NOTES:

1. PLATEWORK SPEC'S —— 5-12-100
2. VENDOR TO FURNISH ALL MATERIAL SHOWN ON THIS DRAWING EXCEPT AS NOTED.
3. ALL GASKETS ⅛" THK GARLOCK #7705. FURNISHED BY VESSEL VENDOR UNLESS NOTED OTHERWISE ON DRAWING.
4. NO PAINT REQUIRED EXCEPT ON TOP OF RAIL CAPS NOZZLES (B)(G) AND PLATFORM CLIPS (C).
5. PLATEWORK SUBCONTRACTOR TO FURNISH SPIRAL STAIR TO GRADE FROM PLATFORM @ EL. 175'-5½" PER OSHA. INTERMEDIATE LANDING NOT TO EXCEED 12'-0". COORDINATE SPIRAL WITH DWGS. 841-201 AND -202.

DWG 511-113 (5)

Agri-Chemicals

MONSANTO ENVIRO-CHEM SYSTEMS, INC.
ST. LOUIS, MISSOURI

PLATEWORK
SULFUR STORAGE TANK
V-12

	BY	DATE	APP'D	DATE	JOB NO	REVISION
DESIGN	DG	[illegible]			2189	
DRAWN	DKE	[illegible]			DRAWING NO	
DETAIL	NONE				511-113	5

CONSTRUCTION
PURPOSE OF ISSUE

REVISIONS
NO. DATE DESCRIPTION BY

REFERENCES
511-200
ISSUE FOR CONSTRUCTION