

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

TO: Mr. R.E. Graf, Vice President General Manager, Conserv
Mr. William Hennessey, Southwest District

JS FROM: Steve Smallwood, Chief, Bureau of Air Quality Management

DATE: June 2, 1981 *Att Jany*

SUBJ: Conserv, Application for Permit to Construct a Sulfuric
Acid Plant.

Attached is one copy of the application, Technical Evaluation and Preliminary Determination, BACT Determination and proposed permit to construct a sulfuric acid plant to be located at the Conserv facility in Polk County, Florida.

Please submit any comments which you wish to have considered concerning this action, in writing, to Willard Hanks of the Bureau of Air Quality Management.

SS:dav

Public Notice

The Department intends to issue a permit to Conserv for the construction of a sulfuric acid plant at their chemical complex in Polk County. The permit will include conditions to assure compliance with Chapter 17-2 Florida Administrative Code (F.A.C.).

Any person wishing to file comments on this proposed action may do so by submitting such comments in writing to:

Mr. Willard Hanks
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Any comments received within thirty days after publication of this notice will be considered and noted in the Department's final determination.

Any person whose substantial interest would be affected by the Department's intended action on this permit may request an administrative hearing by filing a petition as set forth in Section 28-5.15 F.A.C. within 14 days of the date of this notice with:

Ms. Mary Clark
Office of General Counsel
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Technical Evaluation
and
Preliminary Determination

Conserv, Inc.
Polk County, Florida

Sulfuric Acid Plant
Application Number:
AC 53-42397

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting
June 2, 1981

I. PROJECT DESCRIPTION

A. Applicant

Conserv, Inc.
P. O. Box 314
Nichols, Florida 33863

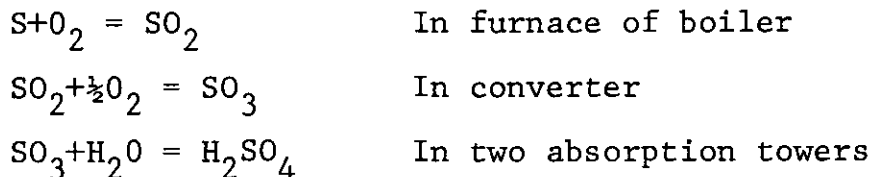
B. Project and Location

The applicant proposes to replace two existing sulfuric acid plants with a new double absorption unit equipped with a mist eliminator. The plant will have a maximum production rate of 2,000 tons of 100% sulfuric acid per day.

The plant site is two miles SW of Mulberry, Polk County, Florida. UTM Coordinates are 398.41 km East and 3084.2 km North.

C. Process and Controls

The principal steps in the process consist of burning sulfur (S) in air to form sulfur dioxide (SO₂), combining the sulfur dioxide with oxygen (O₂) to form sulfur trioxide (SO₃), and combining the sulfur trioxide with water (H₂O) to form a solution containing sulfuric acid (H₂SO₄). The chemical reactions are:



The dual absorption process selected by the applicant is the best demonstrated control technology for SO₂ emissions from sulfuric acid plants. The high efficiency acid mist eliminator is the best demonstrated control technology for acid mist emissions. These controls will reduce the total emissions from the proposed sources to a level that it is in compliance with New Source Performance Standards (NSPS) requirements (40 CFR 60, Subpart H) and State regulations.

II. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code.

The proposed project location is in the area of influence of the Hillsborough County particulate matter nonattainment area; however, the proposed plant will not emit particulate matter, and is therefore exempt from the provisions of Section 17-2.17, New Source Review for Nonattainment Areas. The proposed location is in an area designated "unclassifiable" for the criteria pollutant particulate matter and attainment for the remaining criteria pollutants including sulfur dioxide.

The source is a major emitting facility for sulfur dioxide, nitrogen oxides, and sulfuric acid mist as defined in Chapter 17-2, because the potential emissions are greater than 100 tons per year (TPY). The project is subject to the provisions of Subsection 17-2.05(6) Table II, Emission Limiting Standards, and Subsection 17-2.04(6) Prevention of Significant Deterioration PSD Review which requires the use of Best Available Control Technology (BACT).

The source is also subject to the provisions of the federal New Source Performance Standard (NSPS) for sulfuric acid plants, 40 CFR 60, Subpart H. This NSPS has been adopted by reference in Section 17-2.21.

III. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS:

A. Emission Limitations

The regulated pollutant emissions from the sulfuric acid plant are sulfur dioxide, acid mist and opacity. Organic compounds, nitrogen oxides, nitrosyl sulfuric acid and water vapor may also be present in the emissions from the plant.

Best Available Control Technology (BACT) has been determined in accordance with Section 17-2.03 for sulfur dioxide, sulfuric acid mist and visible emissions from the proposed source. The emission limiting standards selected as BACT and made permit conditions are listed below. Justification for the standards selected is included in Technical Appendix A (attached).

Pollutant	Emission Limiting Standards (lb/ton of 100% H ₂ SO ₄ produced)	Emission Rate (lb/hr)
Sulfur Dioxide	4	333.4
Acid Mist	0.15	12.5
Visible Emission	10% opacity	

Table I
Emission Summary
(Tons per year)

<u>Source</u>	<u>SO₂</u>	<u>Acid Mist</u>	<u>NO_x</u>
A. New Construction			
New Sulfuric Acid Plant			
Potential Emission (1)	1460	621	222.5
Allowable Emission (2)	1460	54.8	222.5
B. Existing Sulfuric Acid Plants that will be shut down (3)	529.25	60.48	380.1
C. Emission Decrease from shut down (4)	0	-5.72	-157.6
D. Emission Increase from Proposed Construction	930.75	0	0

(1) Potential emissions (as defined in Chapter 17-2)

(2) Permitted emissions (Permit AC 53-42397)

(3) Permitted emissions (Permit AO 53-5771)

(4) Emissions decrease after the shut down of the existing plants as estimated by the applicant.

Table I summarizes the emissions of all pollutants which are affected by the proposed construction.

The permitted emissions, including those determined as BACT, are in compliance with all applicable requirements of Chapter 17-2 including the adopted New Source Performance Standards (NSPS) requirements of 40 CFR 60, Subpart H.

B. Air Quality Analysis

An air quality analysis has been performed to evaluate the impact of the proposed project on ambient concentrations of SO₂. Through the use of dispersion modeling, the analysis considered the impacts of all SO₂ emitting sources within 50 km of Conserv along with those large sources outside of 50 km (e.g. Florida Power, Bartow Plant).

Results of the analysis provide reasonable assurance that the project, as described in the permit and subject to the conditions therein, will not lead to any violation of Florida ambient air quality standards or PSD increment. Details of the analysis are discussed at length in the Conserv's application to construct a sulfuric acid plant, dated on April 10, 1981 and revised in May, 1981.

IV. CONCLUSIONS

The emission limits requested by the applicant of 4 pounds of sulfur dioxide per ton of acid produced, 0.15 pounds of acid mist per ton of acid produced, and 10 percent opacity have been determined to be BACT and can be achieved by the proposed plant.

The permitted emissions from the plant, while the plant is at its maximum production rate of 2,000 TPD sulfuric acid, will not cause or contribute to any violation of ambient air quality standards or PSD increments.

The General and Specific Conditions listed in the proposed permit (attached) will assure compliance with all applicable requirements of Chapter 17-2.

TECHNICAL APPENDIX A

BACT ANALYSIS

A determination of BACT for the Conserv's sulfuric acid plant was made by the Department on May 20, 1981. A copy of this BACT determination follows.

Best Available Control Technology (BACT) Determination

CONSERV

Polk County, Florida

The applicant proposes to replace two existing sulfuric acid plants with one new 2000 ton per day (TPD) plant at their phosphate processing facility located in Nichols, Florida. The installation will result in a net increase of 500 TPD of sulfuric acid. The applicant purchases this incremental amount of acid to supplement process requirements, therefore product output will remain status quo. The plant will operate 8760 hours per year. Sulfur dioxide emissions will be controlled by use of the dual absorption process and the use of high efficiency acid mist eliminators to control acid mist.

BACT Determination Requested by the Applicant:

<u>Pollutant</u>	<u>Emission Limit</u>
Sulfur Dioxide	4 lb/ton
Acid Mist	0.15 lb/ton

Date of Receipt of the BACT Application:

April 23, 1981

Date of Publication in the Florida Administrative Weekly:

May 22, 1981

Review Group Members:

There have been no changes in the New Source Performance Standards for sulfuric acid plants to justify a formal review group. Comments were obtained from the New Source Review Section and the Air Modeling Section.

BACT Determination by DER:

<u>Pollutant</u>	<u>Emission Limit</u>
Sulfur Dioxide	4.0 lb/ton 100% sulfuric acid
Acid Mist	0.15 lb/ton 100% sulfuric acid
Visible Emissions	Maximum 10% opacity

Page Two

Justification of DER Determination:

The limits agree with NSPS, 40 CFR 60, Subpart H and with previous Department determinations for similar installations.

Details of the Analysis May Be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended By:

CTA Jolley
for Steve Smallwood, Chief, BAQM

Date:

5/18/81

Approved:

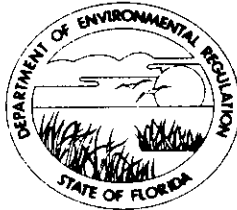
Victoria J. Tschinkel
Victoria J. Tschinkel, Secretary

Date:

May 20, 1981

SS:dav

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BOB GRAHAM
GOVERNOR
JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Conserv
P. O. Box 314
Nichols, Florida 33863

PERMIT/CERTIFICATION
NO. 53-42397

COUNTY: Polk

PROJECT: Sulfuric Acid
Plant

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

For the construction of a 2,000 TPD double absorption type sulfuric acid plant to be located 2 miles SW of Mulberry, in Polk County, Florida. UTM Coordinates of the proposed plant are 398.41 km east and 3084.2 km north.

Construction shall be in accordance with the attached permit application and plans, documents, and drawings except as otherwise noted in pages 3 and 4 -Specific Conditions.

Attachment:

1. Application to Construct Air Pollution Sources, DER form 17-1.122(16).

PERMIT NO.: AC 53-42397
APPLICANT: Conserv

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 Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court 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 indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.
3. 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 non-compliance, 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.
4. As provided in subsection 403.087(6), 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.
5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.
6. 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 Section 403.111, F.S.
7. In the case of an operation permit, 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.
8. 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 therefore 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, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.
9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.
10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.
11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.
12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation 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.
13. This permit also constitutes:
 - Determination of Best Available Control Technology (BACT)
 - Determination of Prevention of Significant Deterioration (PSD)
 - Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 53-42397
APPLICANT: Conserv

SPECIFIC CONDITIONS:

1. Maximum operation time will be 8,736 hours per year.
2. Maximum production rate will be 2,000 tons per day and 85.1 tons per hour of 100% sulfuric acid.
3. The maximum amount of sulfur dioxide emitted will be 4 lb SO₂/ton 100% H₂SO₄ and 333.4 lb SO₂/hr.
4. The maximum amount of H₂SO₄ mist emitted will be 0.15 lb acid mist/ton 100% H₂SO₄ and 12.5 lb acid mist/hr.
5. Visible emissions shall not exceed 10% opacity.
6. Sulfur dioxide emission of the new sulfuric acid plant shall be continuously monitored in accordance with the provisions of Paragraph 60.84 of 40 CFR 60, Subpart H - Standards of Performance for Sulfuric Acid Plants. The applicant shall also comply with all other applicable requirements of 40 CFR 60, Subpart H. Quarterly reports of excess emissions from this plant will be submitted to the Department's Southwest District Office.
7. Existing sulfuric acid plants permit No. A0 53-5771 will be shut down and any permits for these sources returned to the Department within 3 months after written notification from DER that the compliance test in the new sulfuric acid plant is acceptable.
8. Reasonable precautions to prevent fugitive particulate emissions during construction by spraying roads and construction sites used by contractors, will be taken by the applicant.
9. Construction shall reasonably conform to the plans submitted in the application.
10. The applicant shall report any delays in construction and completion of this plant to the Department's Southwest District Office.
11. Before this construction permit expires, the sulfuric acid plant will be tested for visible emissions, sulfur dioxide and sulfuric acid mist. Test procedures will be EPA reference methods 1,2,3,8, and 9 as published in 40 CFR 60, Appendix A, dated July 1, 1978 or by any other State-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart H. The Department will be notified 30 days in advance of the compliance test. The test will be conducted at permitted production capacity $\pm 10\%$.

PERMIT NO.: AC 53-42397
APPLICANT: Conserv

Specific Conditions (Con't)

12. The applicant will demonstrate compliance with the conditions of this construction permit and submit a complete application for an operating permit to the Department's Southwest District Office prior to 90 days before the expiration date of this permit. The applicant may continue to operate in compliance with all terms of this construction permit until its expiration or until issuance of an operation permit.
13. Upon obtaining an operating permit, the applicant will be required to submit periodic test reports on the actual operation and emissions of the facility.
14. Stack sampling facilities will include the eyebolt and angle described in Chapter 17-2.23, F.A.C.

Victoria J. Tschinkel,
Secretary

Expiration Date: December 3, 1982

Issued this _____ day of _____, 19_____

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

_____ Pages Attached.

Signature