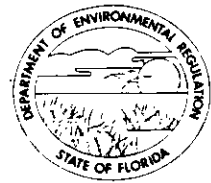


State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION



# Interoffice Memorandum

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: _____	LOCTN: _____
To: _____	LOCTN: _____
To: _____	LOCTN: _____
FROM: _____	DATE: _____

TO: Victoria J. Tschinkel

FROM: *JF* Clair Fancy *BT*

DATE: August 2, 1985

SUBJ: AMAX Chemical Corporation

Attached is the Final Determination and Permit to Construct No. AC 29-091316 which approves the construction of a phosphoric acid defluorination plant at AMAX Chemical Corporation's Plant City, Hillsborough County, Florida facility. Public Notice of the department's intent to issue the permit was published in The Tampa Tribune on June 25, 1985. No comments were submitted on the proposed permit.

The bureau recommended your approval and signature of the construction permit and BACT. Day 90, after which the permit would be issued by default, is October 5, 1985.

CHF/WH/s

**RECEIVED**  
AUG 2 1985

Office of the Secretary

BAQM

AUG 06 1985

DER

P 085 152 631

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL

(See Reverse)

PS Form 3811, July 1983  
\* U.S.G.P.O. 1984-446-014

Sent to <b>Mr. George Townsend</b>	
Street and No.	
P.O., State and ZIP Code	
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	8/7/85

PS Form 3800, Feb. 1982

PS Form 3811, July 1983

**SENDER: Complete items 1, 2, 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 boxes for service(s) requested.

1.  Show to whom, date and address of delivery  
2.  Restricted Delivery.

3. Article Addressed to:  
**Mr. George Townsend  
AMAX Chemical Corp.  
P. O. Drawer 790  
Plant City, FL 33566**

4. Type of Service:  Registered  Insured  
 Certified  COD  
 Express Mail

Article Number  
**P 085 152 631**

Always obtain signature of addressee or agent and  
**DATE DELIVERED.**

5. Signature - Addressee  
**X Donald D. Lloyd**

6. Signature - Agent  
**X**

7. Date of Delivery  
**8/12/85**

8. Addressee's Address (ONLY if requested and fee paid)  
**1594**

**DEF**  
**AUG 14 1985**  
**BAQM**

**PLANT CITY, FL 33566**  
**AUG 12 1985**  
**U.S. POST OFFICE**

DOMESTIC RETURN RECEIPT

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
NOTICE OF PERMIT

Mr. George Townsend  
Environmental Supervisor  
AMAX Chemical Corporation  
P. O. Drawer 790  
Plant City, Florida 33566

August 6, 1985

Enclosed is Permit Number AC 29-091316 to AMAX Chemical Corporation for the construction of a phosphoric acid defluorination plant, 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 32301; 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.

Sincerely,

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

Enclosure

cc: Steve Gyorog  
Bill Thomas

CERTIFICATION

This is to certify that the foregoing Notice of Permit and all copies requested were mailed before the close of business on August 7, 1985.



C. H. Fancy, P.E.  
Deputy Chief  
Bureau of Air Quality  
Management  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Final Determination

AMAX Chemical Corporation  
Plant City, Florida  
Hillsborough County

Phosphoric Acid Defluorination Plant

Permit Number:  
AC 29-091316

Florida Department of Environmental Regulation  
Bureau of Air Quality Management  
Central Air Permitting

August 2, 1985

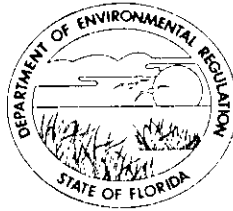
Final Determination  
AMAX Chemical Corporation  
AC 29-091316

The Technical Evaluation and Preliminary Determination for the proposed phosphoric acid defluorination plant was distributed on June 6, 1985. Copies of the evaluation were available for public inspection at the county and district office in Tampa and the Bureau of Air Quality Management in Tallahassee. The Notice of Proposed Agency Action on the permit application was published in The Tampa Tribune on June 25, 1985.

No comments on the department's intent to issue the permit were received. The final action of the department will be to issue the permit to construct as proposed in the Technical Evaluation and Preliminary Determination.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

**PERMITTEE:**  
AMAX Chemical Corporation  
P.O. Box 790  
Plant City, Florida 34289

Permit Number: AC29-091316  
Expiration Date: December 31, 1985  
County: Hillsborough  
Latitude/Longitude: 27° 59' 21" N/  
82° 04' 48" W  
Project: Phosphoric Acid  
Defluorination Plant

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 construction of a 172 TPD P<sub>2</sub>O<sub>5</sub> batch phosphoric acid defluorination plant consisting of one Kennite slurry mixer, two 12 foot diameter (12,000 gallon) acid reaction tanks, and a 3,000 ACFM Model 4837 Rigidome upflow, counter-current scrubber equipped with a Beco pad demister that uses well water to reduce particulate matter and fluoride emissions.

The UTM coordinates of the site are Zone 17, 393.8 Km East and 3096.3 Km North.

Construction shall be in accordance with the application for permit to construct a Phosphoric Acid Defluorinating Plant with Upflow, Counter-Current Scrubber that was signed by Mr. J.J. Lewis on December 27, 1984, and the additional information submitted by the applicant in the letters dated December 18, 1984, and March 7, 1985, except for the changes listed as specific conditions in this permit.

**Attachments are as follows:**

1. Application.
2. DER's letter, dated 9/7/84.
3. Applicant's letter, dated 12/18/84.
4. DER's letter, dated 1/28/85.
5. Applicant's letter, dated 3/7/85.
6. Applicant's letter, dated 4/5/85.

PERMITTEE:  
AMAX Chemical Corporation

Permit Number: AC29-091316  
Expiration Date: December 31, 1985

**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 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, unless specifically authorized by an order from the department.



PERMITTEE:  
AMAX Chemical Corporation

Permit Number: AC29-091316  
Expiration Date: December 31, 1985

**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 noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

PERMITTEE:  
AMAX Chemical Corporation

Permit Number: AC29-091316  
Expiration Date: December 31, 1985

**GENERAL CONDITIONS:**

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case 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. This permit also constitutes:

- (X) Determination of Best Available Control Technology (BACT)
- ( ) Determination of Prevention of Significant Deterioration (PSD).
- ( ) Compliance with New Source Performance Standards.

14. 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.

PERMITTEE:  
AMAX Chemical Corporation

Permit Number: AC29-091316  
Expiration Date: December 31, 1985

**GENERAL CONDITIONS:**

- 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.
- 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.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware 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. Not more than 48,000 gallons of phosphoric acid will be treated in one day without prior approval of the Southwest District.
2. Production shall be limited to 8 hr/day, 5 day/wk, and 52 wk/yr, unless prior approval is obtained from the Southwest District.

PERMITTEE:  
AMAX Chemical Corporation

Permit Number: AC29-091316  
Expiration Date: December 31, 1985

SPECIFIC CONDITIONS:

3. Total fluoride emissions shall not exceed 0.44 lb/hr and the quantity determined by the following formula:

$$\text{Allowable fluoride emissions (lb/hr)} = \frac{0.02 (\text{Actual tons of } P_2O_5 \text{ per batch})}{(\text{time in hours per batch})}$$

Compliance tests will be conducted during the first three hours of a batch (24,000 gallons) by Method 13B (Appendix A of 40 CFR 60) as described in the BACT determination.

4. Scrubber parameters (gas pressure drop, scrubber water pressure, and flow) shall be monitored during the compliance tests and a summary of the parameters shall be included in the test report.

5. Particulate matter emissions shall not exceed 0.015 grains per DSCF as determined by Method 5 (Appendix A of 40 CFR 60). After the initial compliance tests, the Southwest District may waive periodic compliance tests for particulate matter if the visible emissions from the scrubber, as determined by Method 9 which is described in Appendix A of 40 CFR 60, are less than 5 percent opacity.

6. The applicant shall submit a complete application for a permit to operate the phosphoric acid defluorination plant, which will include an emissions test report, to the Hillsborough County Environmental Protection Commission at least 90 days prior to the expiration date of this construction permit. The company may continue to operate this plant if the emissions are in compliance with the permit conditions.

7. Upon obtaining a permit to operate, the company will be required to submit annual operation reports to the Hillsborough County Environmental Protection Commission.

FILING AND ACKNOWLEDGEMENT

FILED, on this date, pursuant to S120.52 (9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Sharon J. Clark      8/5/85  
Clerk                                      Date

Issued this 2 day of August,  
1985.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

Victoria J. Tschinkel  
VICTORIA J. TSCHINKEL, Secretary

\_\_\_\_\_ pages attached.

Best Available Control Technology (BACT) Determination  
AMAX Chemical Corporation  
Hillsborough County

The applicant plans to construct a phosphoric acid defluorination plant at their facility located near Plant City, Florida. The process involves reacting phosphoric acid with a diatomaceous earth slurry and a caustic solution followed by sparging with compressed air and steam. The mechanics of the reaction produce fluoride compounds as a wasted gaseous overhead effluent and a precipitated by-product. The defluorination plant will have two primary reactors, each with an approximate processing time of four hours. The defluorination plant is scheduled to operate on an eight hour day, five day per week basis.

Fluoride compounds emitted to the atmosphere from the proposed defluorination plant are regulated air pollutants, Table 500-2, Rule 17-2.500. The maximum amount of fluoride compounds allowed to discharge to the atmosphere is to be determined by a BACT review as set forth in the Florida Administrative Code Rule 17-2.600(3)(a)9. - Emission Limiting and Performance Standards.

BACT Requested by the Applicant:

Fluoride emissions will not exceed 0.04 lb/ton of P<sub>2</sub>O<sub>5</sub> input.

Date of Receipt of a BACT Application:

December 13, 1984

Date of Publication in the Florida Administrative Weekly:

February 1, 1985

Review Group Members:

The determination was based upon comments received from the Stationary Source Control Section, the Southwest District Office, and the Hillsborough County Environmental Protection Commission.

BACT Determined by DER:

Fluorides (water soluble or gaseous atomic weight 19) shall not exceed 0.02 pounds per ton of P<sub>2</sub>O<sub>5</sub> input averaged over the first 3 hours of one normal defluorination plant operation.

Compliance with the fluoride standard will be determined using test Method 13B as specified in 40 CFR Part 60, Appendix A. One normal defluorination plant operation is defined to mean that period beginning when the first reaction vessel sparging cycle is

started followed immediately by the preparation and addition of the diatomaceous earth slurry to the second reaction vessel and subsequent sparging. The maximum time delay between the start of the two sparging cycles shall not exceed 1.5 hours.

BACT Determination Rationale:

The proposed defluorination plant will consist of two primary reaction vessels and one diatomaceous earth slurry tank. The typical reaction vessel charge is 12,000 gallons of phosphoric acid or 43 tons of P<sub>2</sub>O<sub>5</sub>. A specific quantity of diatomaceous earth slurry is prepared and added to one of the reaction vessels containing the phosphoric acid. The charged vessel is then sparged with air and steam until the defluorination process is complete. A second batch of diatomaceous earth slurry is quickly prepared and added to the second reaction vessel and the sparging process activated. There is approximately a 1-2 hour interval when only one vessel is in the sparging mode. The completion of two charges is defined as a batch.

The rate of fluoride emissions will peak shortly after start of the second reaction vessel sparging cycle. Compliance testing must be done when both reaction vessels are in different processing stages of defluorination. The performance test must be the average of three runs, the first run to start when the first reaction vessel sparge cycle begins. The second run must include the preparation and addition of the diatomaceous earth slurry to the second reaction vessel and the sparge cycle activated. The third run is to start when the sparging cycle of the second reaction vessel is activated. Each test run must be completed during that respective portion of the batch, as described, to be valid. Each sample run may be on a separate batch of acid.

The applicant's data indicates that the maximum hourly fluoride loading in the defluorination plant gaseous effluent will be 0.37 pounds per ton of P<sub>2</sub>O<sub>5</sub> charged. The fluoride emission limit judged to be BACT is 0.02 pounds per ton of P<sub>2</sub>O<sub>5</sub> charged. An emission control system that will remove 94.6 percent of the fluorides from the gaseous effluent will be required.

$$\frac{0.37 - 0.02}{0.37} = 0.946 \times 100 = 94.6\%$$

The proposed fluoride emission control device, according to the applicant's data, will remove 99 percent of the fluoride vapors produced by the defluorination process. The fluoride emission limit determined as BACT is judged to be reasonable and will allow for variations in the P<sub>2</sub>O<sub>5</sub> content of the phosphoric acid feed stock.

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:

*MR Shows*

*for* H. Fancy, Deputy Bureau Chief

Date: 8/2/85

Approved by:

*Victoria J. Tschinkel*

Victoria J. Tschinkel, Secretary

Date: 8/2/85