Final Determination

Mobil Chemical Company

Nichols, Florida

Construction Permit

Application Number:

AC 53-24802

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

February 4, 1980

Final Determination for Mobil Chemical Company
Phosphate Rock Dryer No. 4

The construction permit application for Mobil Chemical Company's phosphate rock dryer number 4 has been reviewed by the Bureau of Air Quality Management. Best Available Control Technology (BACT) has also been declared for this source. The Department's Intent to Issue was published in the Tampa Tribune on December 13, 1979. Copies of the preliminary determination and technical review were available for public inspection at the FDER Southwest District Office and the Bureau of Air Quality Management.

During the public comment period, one letter was received by the Bureau. In this letter, Mobil Chemical Company requests that the permit show the output of the dryer averages 250 tons per hour. The output varies from 225 tons per hour drying pebble to 475 tons per hour for drying concentrate. In addition Mobil Chemical requests that the allowable particulate emissions be permitted at 0.06 pounds per ton feed. This emission rate would increase the maximum allowable particulate emissions to 28.5 pounds per hour from 15.4 pounds per hour.

Additional information and modelling were submitted as requested. It was shown that daily output of the dryer would not exceed 8400 tons of phosphate rock. Short term increment modelling was performed based on 504 pounds per day emissions of particulate. Since the annual throughput of the dryer would still average 250 tons per hour, no additional analysis was needed for the long term increment. The modelling demonstrated that the short term increment would not be exceeded based on the daily usage given above.

The changes requested by Mobil Chemical Company did not induce any new permitting requirements. Therefore, the changes are not substantive and the construction permits should be issued with the above mentioned daily operating limitations.

Approved

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

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Mobil Chemical Company
Mineral Division
P. O. Box 311
Nichols, Florida 33863

PERMIT/CERTIFICATION
NO. AC 53-24802

COUNTY: Polk

PROJECT: Phosphate Rock
Dryer Number 4

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 & 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 phosphate rock dryer, associated conveying system and venturi system and venturi scrubber to vent this equipment at the Mobil Chemical Company's Nichols Preparation Plant. Particulate and sulfur dioxide emissions are to be controlled by a Ducon Venturi Scrubber with Ducon SO_2 Scrubber/mist eliminator. The plant is located at Nichols and Anderson Road, Nichols, Florida. The universal transverse mercator and latitude, longitude coordinates are UTM Zone 17, 398.290E., 3084.290N. and 27° 53' 44" N by 82° 01' 59" W. respectively.

Construction shall be in accordance with the attached permit application, attached plans, documents and drawings except as otherwise noted on page 3, "Specific Conditions."

Attachments are as follows:

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

2. Application for Federal Permit to Construct.

3. Anticipated Surge Dryer Emission Performance, January 30, 1980

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

PERMIT NO.:
APPLICANT:

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 penalities 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)

SPECIFIC CONDITIONS:

PERMIT NO.: AC 53-24802
APPLICANT: Mobil Chemical Company
P. O. Box 311
Nichols, Florida 33863

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 penalities 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:

[X] Determination of Best Available Control Technology (BACT)
[X] Determination of Prevention of Significant Deterioration (PSD)
[ ] Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

SPECIFIC CONDITIONS:

PERMIT NO.: AC 53-24802
APPLICANT: Mobil Chemical Company
P. O. Box 311
Nichols, Florida 33863

Specific Conditions:

1. Maximum allowable emissions from the Dryer #4 scrubber shall be 28.5 pounds per hour, 504 pounds per day and 30.8 tons per year for particulate and 19.4 pounds per hour and 38.8 tons per year for sulfur dioxide. Maximum visible emissions shall be 5% opacity from the emissions control point.

2. The hours of operation shall be limited to 4,000 hours per year.

3. The maximum allowable material output shall be 1,000,000 tons per year of dry phosphate rock, 8,400 tons per day of dry phosphate rock and 475 tons per hour of dry phosphate rock.

4. The maximum fuel combustion shall be 625 gallons per hour of number 6 fuel oil with maximum sulfur content of 2.5%.

5. During the construction phase, quarterly reports on construction progress, commencing three months after initiation of construction shall be submitted to the Bureau of Air Quality Management. The operating permit shall require maintenance of records indicating operation hours, material output from dryer amount of fuel consumption, and measurements of scrubber pressure drops and liquid supply pressures less than 90% of the average levels maintained during the most recent performance test in which compliance with the permit conditions was demonstrated and shall be submitted annually to the Department in accordance with 17-4.14.

6. Emissions tests for particulate, sulfur dioxide and visible emissions shall be conducted for the venturi scrubber emission point in accordance with Methods 1 through 6, 40 CFR 60, Appendix A and Method 9, 40 CFR 60, Appendix A, The results shall be submitted to the Bureau of Air Quality Management for determination of compliance with applicable state rules regarding visible and particulate emission and the conditions of this permit.

7. A thirty day notice prior to testing shall be provided by the applicant to the Bureau of Air Quality Management.

Jacob D. Varn
Secretary

Expiration Date: April 30, 1981

Issued this _____ day of _____, 19 _____.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

RECEIVED
DEC 12 1979
Office of the Secretary

TO: Jake Varn

FROM: Steve Smallwood

DATE: December 10, 1979

SUBJ: BACT Determination - Mobil Chemical Company Rock Dryer No. 4, Polk County

Facility: A phosphate rock dryer with a total output rate of 250 tons per hour and yearly potential emissions of 5,400 tons of particulate and 520 tons of sulfur dioxide.

BACT Determination Requested by the Applicant:

Particulate Matter	0.6 lb./ton (attainable with a 99.4% Ducon Venturi Scrubber)
Sulfur Dioxide	92% Removal to be attained with a Ducon SO_2 Scrubber.

BACT Review Engineers:

John Svec, DER, Bureau of Air Quality Management
Bill Thomas, DER, Bureau of Air Quality Management

EPA Proposed New Source Performance Standards for Phosphate Rock Dryers:

Pollutant	Emission Limitations
Particulate	0.04 pounds per ton
Visibible Emissions	0% opacity

The proposed NSPS for Phosphate Rock Plants are currently under review. EPA has stated that the limitations are being reconsidered due to comments that the grain loading to the scrubber which was used to determine the limitations may have been too low. Therefore, these limitations can only be used as a guideline at this time.

Study Group Recommendation:

John Svec	Emission Limitation Particulate 15.4 lb./hour Sulfur Dioxide 19.4 lb./hour Visible Emission 0% opacity

BACT Determination by Florida Department of Environmental Regulation:

Pollutant	Emission Limitation
Particulate	15.4 lb./hour
Visible Emissions	0% opacity
Sulfur Dioxide	19.4 lb./hour
Test Methods	
Particulate	EPA Methods 1-5 40 CFR Part 60 Appendix A
Sulfur Dioxide	EPA Method 6 40 CFR Part 60 Appendix A

Justification for DER Determination:

The emission limitations chosen offer adequate emission control. The venturi scrubber provides particulate control similar to baghouse technology. The proposed sulfur dioxide scrubber would reduce emission below that required by current state regulations. This control system will capture over ninety percent of the particulate and sulfur dioxide emissions with a single unit. Therefore, it has more capability than a baghouse.

Mathematical modeling provided with the application indicates no significant ambient impacts are predicted due to this source. Also PSD increments and ambient standards are not projected to be violated with this additional source. Adequate room is available for the addition of this source.

Discussion with EPA indicated the possibility of changing the limitations in the proposed NSPS. The scrubber inlet loading used in the limitation review has been claimed to be too low. The scrubber inlet loading which was obtained by the testing of identical dryers at the plant was higher than that used by EPA in its study. The possibility of these NSPS emission limitations being too stringent exists. The decision on the final NSPS emission limitations is not expected for several months. In addition, the proposed NSPS limitations would only reduce particulate emissions by 5.4 lb./hour by requiring a control efficiency increase from 99.4% to 99.6%. This additional decrease in particulate emissions would provide an insignificant benefit.

Details of the Analysis May be Obtained by Contacting:

Victoria Martinez, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32310

Recommendation From: Bureau of Air Quality Management:

By: _____
Steve Smallwood

Date: Dec 10, 1979

Approved By: Jacob D. Varn
Jacob D. Varn

Date: 13 December 1979

SS:caa

Check Sheet

Company Name: MOBIL CHEMICAL
Permit Number: AC 53-024802
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [ ] 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 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 Determination
  - [ ] Other

Post Permit Correspondence:

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

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

DR. RICHARD D. GARRITY
DISTRICT MANAGER

July 15, 1985

Mr. K. T. Matthews
Sr. Environmental Engineer
Mobil Chemical Company
Post Office Box 311
Nichols, Florida 33863

Re: Polk County - AP
Mobil Chemical Company
A053-106060

Dear Mr. Matthews:

The Department received your letter of June 25, 1985 with a Certificate of Completion of Construction for No. 4 Rock Dryer on June 25, 1985. In this letter, the Company requested a modification of Specific Conditions No. 5 and 6 of the construction permit AC53-90634.

Regarding the request to modify Specific Condition No. 5 to require sulfur dioxide emission testing only if the No. 4 Rock Dryer operated more than 30 days per year on a fuel other than natural gas, the Department will waive the sulfur dioxide testing requirement if a fuel other than natural gas is burned no more than ten (10) days per year.

Regarding the request to modify Specific Condition No. 9 to allow the dryer to be fired on fuels other than No. 6 fuel oil and natural gas as stipulated in the permit, we have requested and obtained guidance from the Bureau of Air Quality Management. They have recommended that Mobil apply for a modification of the construction permit on the appropriate application forms to the Central Air Permitting Section of the Bureau of Air Quality Management. Included with this submittal should be the supporting data on each fuel proposed (fuel analysis, emission estimates, feed rates, design heat input rates, etc.). Data on the proposed coal handling system should also be included.

We plan to process Mobil's request for an operating permit to burn natural gas and virgin No. 6 fuel oil. A check for $250.00 was received with the Certificate of Completion of Construction. Section 17-4.05(4)(a)b., Florida Administrative Code requires a $500.00 processing fee be submitted. Therefore, a check for an additional $250.00 is required.

If you have any questions concerning this matter, please call Jim Estler at (813) 985-7402.

Sincerely,

W. C. Thomas, P.E.
District Air Engineer

JWE/js

cc: Clair Fancy

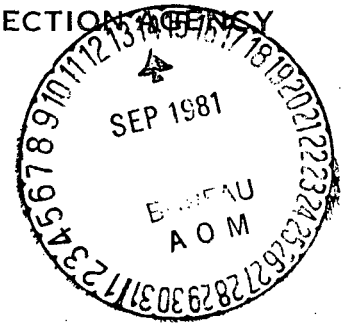
400

file

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365



September 10, 1981

REF: 4SA-EIS

TO: ALL INTERESTED GOVERNMENTAL AGENCIES, PUBLIC GROUPS, AND CONCERNED INDIVIDUALS

The Draft Environmental Impact Statement for the Mobil Chemical Company South Fort Meade Phosphate Mine and Beneficiation Plant is enclosed for your review. This document has been prepared pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) (Public Law 91-190) and applicable EPA regulations at 40 CFR Part 6.9. A Supplemental Information Document has also been prepared which contains the supporting data related to the EIS. While the draft EIS is a complete document, much of the technical detail has been presented in the Supplemental Information Document (SID) to reduce the length of the DEIS, to make the DEIS more analytical than encyclopedic, and to make the DEIS more understandable to the non-technical public. The Draft EIS and the SID may be reviewed at the following locations:

Lakeland Public Library, Lakeland, Florida
Bartow Public Library, Bartow, Florida
Ausley Memorial Library, Wauchula, Florida
Selby Public Library, Sarasota, Florida
Manatee County Library System, Bradenton, Florida
Tampa-Hillsborough County Public Library, Tampa, Florida

A public hearing to discuss this project has been scheduled for October 20, 1981, at 7:30 p.m. in the Bartow County Civic Center, located at 2250 Floral Avenue, Bartow, Florida. Persons may begin to register at 7:00 p.m.

Persons wishing to make comments should attend and speak at the hearing. A verbatim transcript will be made of this public hearing. The hearing chairman may request that lengthy or technically complex statements be summarized and that, to ensure accuracy of the record, such statements be submitted in writing to:

Ms. A. Jean Tolman
EIS Project Officer
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

The hearing record will remain open and additional written comments may be submitted through November 2, 1981. Such additional comments will be considered as if they had been presented at the public hearing.

Recipients of this document should be aware that EPA will not reprint the material contained in the DEIS for the Final EIS. The Final EIS will consist of the Agency's statement of findings, any pertinent additional information or evaluations developed since publication of the Draft EIS, comments on the project and the Agency responses, and the transcript of the public hearing.

Please bring this notice to the attention of all persons who may be interested in this matter.

Sincerely yours,

John A. Little, Deputy

for Charles R. Jeter
Regional Administrator

Enclosure: DEIS

Mobil Chemical Company

PHOSPHORUS DIVISION

P.O. BOX 311
NICHOLS, FLORIDA 33863
TELEPHONE (813) 425-3011

February 4, 1980

Mr. John Svec
Florida Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32201

Dear Mr. Svec:

Mobil Chemical Company-Construction Permit
Application #AC 24802

Enclosed is the follow up report from the consultant, Frank Cross, who performed the modeling submitted to you in our meeting of January 31, 1980.

Also enclosed is a waiver request to extend the processing period for the above referenced construction request to March 10, 1980, to allow the placing and consideration of public comment.

We look forward to the receipt of the construction permit.

Sincerely,

Jerry W. McAdams
Environmental Coordinator

ck

Attach.

TO: TERRY COLE
X COPY TO: SUZANNE WALKER

39
1/14

P. O. Box 1068
245 South Central Avenue
Bartow, Florida 33830
(813) 533-1151

LAW OFFICES
HOLLAND & KNIGHT

P. O. Box 1669
406 Thirteenth Street West
Bradenton, Florida 33506
(813) 748-7107

P. O. Drawer B W
92 Lake Wire Drive
Lakeland, Florida 33802
(813) 682-1161

P. O. Box 3076
1100 Tamiami Trail
Sarasota, Florida 33578
(813) 365-3321

P. O. Drawer 810
Barnett Bank Bldg.
Tallahassee, Florida 32302
(904) 224-7000

P. O. Box 1288
Exchange National Bank Bldg.
Tampa, Florida 33601
(813) 223-1681

Please reply to: Lakeland, Florida

Cable Address
HND Knight
Telex 5-2630

January 11, 1980

Jacob D. Varn, Secretary
Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: Mobil Chemical Company - Construction
Permit Application No. AC24802

Dear Jake:

As attorney for Mobil Chemical Company (Mobil), we are authorized to state that Mobil hereby waives the 90-day approval or denial provision set forth in Section 120.60(2), Florida Statutes, as it applies to the above-referenced permit. This waiver is voluntarily granted by Mobil in order to provide an opportunity for the Department to evaluate additional information to be provided by Mobil. This waiver is limited to a 30-day period, and it is Mobil's understanding that the above-referenced permit application will be approved or denied by no later than February 15, 1980.

Sincerely,

HOLLAND & KNIGHT

Robert L. Rhodes, Jr.

RLRJr/rm

cc: Mr. John Svec
Mr. G. O. Gudmandsen
Mr. J. W. McAdams
Mr. Samuel M. Lane
Mr. Paul F. Cash
Walter R. Lanferman, Esquire

Mobil Chemical Company

PHOSPHORUS DIVISION

P.O. BOX 311
NICHOLS, FLORIDA 33863
TELEPHONE (813) 425-3011

January 30, 1980

Mr. John Svec
Florida Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32201

Dear Mr. Svec:

Mobil Chemical Co. - Construction
Permit Application #AC 24802

Per our recent telephone conversations on the above referenced matter, the following comments are submitted for your consideration regarding the 250 ton per hour maximum production rate, the maximum emission rate of 15.4 pounds per hour, and the 0% opacity limit as contained in the draft construction permit.

Regarding the original application, a request was made for an average production rate of 250 tons per hour (with a range of 225-475 tons per hour), and an emission rate (based on the average) of 15.4 pounds per hour. Recently performed modeling, using the maximum production rate and the maximum emission rate, shows that the 24 hour maximum concentration of particulate will be 3.63 microgram per cubic meter (see attached). Results clearly show that the significance criteria of 5 micrograms per cubic meter maximum 24 hour concentration will not be exceeded.

As regards the question of increment consumption, we anticipate that the particulate emissions from the proposed dryer will be no greater than 504 pounds per day or 30 tons per year. Therefore, we request that the emission limitation for this dryer be 0.06 pounds per ton of rock feed, not to exceed 504 pounds during any day nor to exceed 30 tons per year.

An analysis recently performed of the opacity of the existing dryer scrubber plumes which employ venturi scrubbers shows that opacity observations consistently ranged between 0 and 5%. The limit of accuracy of opacity observation is 5%. Based on this information, we request that the opacity limit for the proposed dryer be 5%.

I hope these data are sufficient to answer your questions and remove your concerns. If you require any additional information, please call on me.

Sincerely,

Jerry W. McAdams
Environmental Coordinator

JWM/jm

Attach.

ANTICIPATED SURGE DRYER EMISSION PERFORMANCE

By: Jerry W. McAdams

1/30/80

Mobil Chemical Company

P. O. Box 311

Nichols, FL 33863

This is an evaluation of the expected emission performance of the proposed new dryer. This evaluation was made using production and emission data from our existing #1 dryer as a base, since the proposed dryer is expected to be identical to the #1 dryer.

The conclusions reached from this evaluation are:

(a) the 24 hour significance criteria for particulate matter will not be exceeded, and

(b) the maximum emissions to occur in any day is expected to be 504 pounds.

Production rates for the new dryer will vary from 225 to 475 tons per hour, with an average of 250 tons per hour. A statistical analysis of production data of the #1 dryer for the year 1979 produced the following data:

1. Average production rate = 257.5 tons/hour

2. 95% confidence interval for production rate = 183 to 332 tons/hour

3. Minimum rate observed = 109 tons/hour

4. Maximum rate observed = 344 tons/hour

It is important to note that the existing dryer's peak design production rate is 475 tons per hour, but the maximum production rate for any day was 8256 tons translating to an hourly rate of 344 tons per hour. Based on this information, the maximum production rate expected to be sustained by the proposed dryer through 24 hours should not exceed 350 tons per hour.

Using the expected maximum sustained 24 hour production rate of 350 tons per hour and the expected emission limit of 0.06 pounds per ton of rock throughput, the maximum emission rate of particulate for the proposed dryer is expected to be 21.0 pounds per hour or 504 pounds during any day. This rate was employed in a CRSTR model run dated January 28, 1980, per the original modeling performed for the application using the same meteorological data and stack conditions (see attached). The results of the run show that the maximum increase in the concentration of particulate matter in the ambient air for any 24 hour period is expected to be 3.63 micrograms per cubic meter. This result is well below the significance criteria of 5.0 micrograms per cubic meter.

The proposed scrubber should produce a low opacity plume. Opacity observations of existing dryer scrubbers by Mobil's certified personnel have consistently been in the 0 - 5% range. These observations are taken after dissipation of the water vapor plume. However, the proposed limit in the proposed construction permit for this project would impose 0% opacity. Such a limit does not appear practical based on the experience cited above. The problem arises from an absolute requirement of zero opacity. Because opacity measurements are accurate just within 5%, the new scrubber performance is projected to be 5% opacity (maximum) with a range of 0 - 5%.

EM-15

BEST AVAILABLE COPY

LOCATION No. 1 Red Cross

COUNTY STATE

TIME OF OBSERVATION YEAR 1975

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Remarks
1	293	262	222	242	192	270	289	156	233	242	230	238	HIGH: 344
2	221	246	266	175	303	236	296	169	242	248	328	269	LOW: 109
3	265	250	273	169	287	258	291	230	198	311	281	255	
4	268	290	281	227	289	253	295	295	199	236	292	237	
5	237	198	315	315	251	266	292	261	227	292	248	236	
6	236	190	304	304	237	249	307	226	230	301	279	242	
7	269	211	260	260	242	245	266	208	231	312	266	218	68% Confidence interval
8	290	295	263	264	224	256	275	252	243	326	290	217	=220 to 295
9	280	261	245	245	261	269	283	248	279	316	284	228	95% confidence interval
10	296	219	271	271	286	289	189	251	274	286	321	235	=183 to 332
11	245	195	221	221	276	264	266	261	260	235	298	265	
12	258	196	298	298	270	270	X	240	220	309	263	256	
13	293	209	322	322	301	241	X	235	216	294	302	227	
14	258	220	294	294	270	277	155	279	215	261	309	237	
15	268	276	290	290	243	299	240	285	197	276	330	254	
16	235	277	240	240	288	329	250	265	309	284	309	228	
17	251	280	289	289	262	228	237	222	250	342	109	298	MEAN
18	0	302	280	280	230	235	212	288	270	294	294	252	257.49
19	0	244	279	279	242	234	204	241	247	304	281	344	STD. DEV.
20	0	228	272	272	229	237	242	220	254	276	285	0	37.39
21	118	262	269	269	237	229	245	262	232	230	298	114	
22	228	331	295	295	261	261	230	233	246	231	283	276	
23	230	287	286	286	183	205	216	245	252	247	244	291	
24	209	311	253	253	224	197	278	209	238	245	291	278	
25	209	294	272	272	218	280	290	244	220	264	312	271	
26	245	317	261	261	277	291	271	259	254	240	293	285	
27	241	256	289	289	224	272	312	265	229	232	268	284	
28	272	233	267	226	268	293	132	245	259	218	304	244	
29	258		267	267	247	272	148	237	273	221	299	239	
	205		285	285	227	322	110	280	242	230	279	279	
31	277		270		248		242	257		306		231	
Total													

20 YR. AVG. 6957 14057 22556 30516 38313 46140 53207 60779 68018 76427 84897 92,439 / 359 = 257 TOT

PHONE (305) 857-0926

FRANK CROSS, P.E., P.A.
2713 TIMBERLAKE DR.
ORLANDO, FLA. 32806

environmental
engineering - planning - communications

January 29, 1980

Mr. J. W. McAdams
Environmental/Process Engineer
Mobil Chemical Company
Phosphorous Division
P. O. Box 311
Nichols, FL 33863

Dear Jerry:

It is our understanding that FDER has requested additional information concerning the recent PSD application that was submitted for your dryer.

As per your request, we have made another dispersion model run to reflect the maximum production rate at which the dryer may operate. Our original modeling was conducted at an average rate of 250 tons/day whereas the unit has been run as high as 344 tons/day (the maximum throughput of the dryer is limited by the available storage capacity).

Our latest ground level concentration estimates have been using a production rate of 350 tons/day.

The 24 hour concentrations that we have estimated for particulates are:

Time Averaging Period	GLC (ug/m^3)
24 hour maximum	3.63

The input data that we used in this model run for the dryer is as follows:

Parameter	English Units	Metric Units
Emission	21 lbs/hr	2.65 gm/sec
Temperature	150° F	338° K
Stack Height	85'	25.9 m

Continued tabulation

Parameter	English Units	Metric Units
Stack Velocity	50'/sec	15.65 m/s
Stack Diameter	7.5'	2.3m

We have used the CRSTER model and Tampa meteorological data to make our estimates.

This is the same model and meteorological data as documented in the original report prepared for this project.

The printouts for this latest computer run were delivered separately.

If we may be of further assistance on this project, please let us know.

Sincerely,

Frank L. Cross, Jr., P.E.
President

FLC:kim

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

JAN 8 1980

REF: 4AH-AF

Mr. Steve Smallwood, Chief
Bureau of Air Quality Management
Division of Environmental Programs
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Smallwood:

Enclosed for your review and comment are the Public Notice and Preliminary PSD Determination for the Mobil Chemical Company's proposed new rock dryer in Nichols, Florida. The public notice will appear in a local newspaper, The Ledger, in the near future.

Please let my office know if you have comments or questions regarding this determination. You may contact William Rhea of my staff at 404/881-4552 or Jeffrey L. Shumaker of TRW Inc. at 919/541-9100. TRW Inc. is under contract to EPA, and TRW personnel are acting as authorized representatives of the Agency in providing aid to the Region IV PSD review program.

Sincerely yours,

K Williams acting

Tommie A. Gibbs, Chief
Air Facilities Branch

TAB:JLS:jt

Enclosure

Mobil Chemical Company

PHOSPHORUS DIVISION

P.O. BOX 311
NICHOLS, FLORIDA 33863
TELEPHONE (813) 425-3011

January 7, 1980

Mr. John Svec
Florida Dept. of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32201

Dear Mr. Svec:

This is Mobil Chemical Company's response to your solicitation of comments on the proposed construction permit numbered AC 24802.

In the sections entitled "Synopsis of the Application," "Findings," and "Specific Conditions" attached to the draft permit, a maximum production rate of 250 tons per hour is stipulated. Actually, 250 tons per hour will be the average production rate of this dryer.

The production rates of this dryer will vary according to the type of rock feed as well as customer requirements. As stated in the application, pebble rock has a lower feed rate than concentrate rock. Some of the company's customers want only pebble, some want only concentrate, but most want a blend of the two. Therefore, the dryer output will vary from 225 tons per hour drying pebble to 475 tons per hour drying concentrate with an average output of 250 tons per hour.

Because of this necessary variability of the dryer output, the emission rate of particulate could be stated in terms of a process weight rate for this dryer. Using 15.4 pounds per hour particulate emissions (design emission rate per the application) and 250 tons per hour average production rate, the process weight rate would be 0.06 pounds per ton of rock feed. Therefore, we request that the emission limitation for particulate for this dryer be 0.06 pounds per ton of rock feed. This limit will be achieved by the scrubber proposed for the dryer.

I hope these comments are helpful in your deliberations.

Sincerely,

R. E. Schulz

R. E. Schulz
Manager, Florida Operations

ec
attachment

Mobil Chem

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

	TO: (NAME, OFFICE, LOCATION)	INITIAL	DATE
1	Judy Rogers		
2	OSCAR MARTINEZ (PURCHASING)		
3	FINANCE AND ACCOUNTING		
4.			

REMARKS:

A. Sign All Copies of Invoice.

B. Include Fund Name_____
RCC #_____
Prog. Module #_____

C. Return everything to us for payment.

JAN 1980 RECEIVED BUREAU AQM

Note: If you need a copy of the proof of advertisement, please keep one (1) original and return a xerox copy for our records.

PH #8-0870

FROM: Oscar Martinez

DATE

PHONE

INFORMATION
- REVIEW & RETURN
- REVIEW & FILE
- INITIAL & FORWARD

DISPOSITION
- REVIEW & RESPOND
- PREPARE RESPONSE
- FOR MY SIGNATURE
- FOR YOUR SIGNATURE
- LET'S DISCUSS
- SET UP MEETING
- INVESTIGATE & REPT
- INITIAL & FORWARD
- DISTRIBUTE
- CONCURRENCE
- FOR PROCESSING
- INITIAL & RETURN

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE		TIMES	RATE	REF. CODE	CHARGES	CREDITS	INVOICE BALANCE
12-13			M	46,00	N	1	,8900	LG	40,94		40,9
									DER		

INSERTION CODES: S - SUNDAY; E - EVENING; SE - SUNDAY & EVE.; M - MORNING; ES - EVE. & SUNDAY; ME - MORN. & EVE.; EM - EVE. & MORN.; SME - SUNDAY, MORN & EVE.

REFERENCE CODES: C - COLOR; AO - ADDITIONAL CHARGE; AR - ART CHARGE; BC - BOX CHARGE; CD - CLASSIFIED DISPLAY AD; CL - CLASSIFIED AD; CH - CREDIT MEMO; CS - CASH; CT - CUT CHARGE; DH - DEAD HEAD; FD - FINE STAR DISPLAY AD; FN - FUNERAL NOTICE; GA - GENERAL DISPLAY AD; JE - JOURNAL ENTRY; LG - LEGAL AD; MG - MAKE GOOD; MS - MISCELLANEOUS; PD - POLK DISPLAY AD; PH - PHOTO; RE - REAL DISPLAY AD; SC - SPACE CHARGE; SP - SPLIT CHARGE; SW - SWITCH CHARGE; TR - TRANSFER

JAN 1980

SPACE CODES: IN - INCHES; LN - LINES; WO - WORDS

BETTER BUSINESS FORMS, INC., TAMPA BAY, 33606

THE TRIBUNE CO.
P. O. BOX 191
TAMPA, FLORIDA 33601
TEL. 272-7709 272-7708

PURCHASING

ACCOUNT NO. [redacted]

SALESMAN NO. 10

DATE 12-14-79

DEPT OF ENVIRONMENTAL REG
2600 BLAIR STONE RD
FINANCE & ACCOUNTS SECT
TALLAHASSEE FL 32301

[redacted]

TERMS NET-INVOICE

REGULAR RETAIL ADVERTISING

MR 0441 2115 2920 Judy Rogers

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE		TIMES	RATE	REF. CODE	CHARGES	CREDITS	INVOICE BALANCE
12-13		AFFIDAVIT	M			1		MS	2,00		2,0

INSERTION CODES: S - SUNDAY; E - EVENING; SE - SUNDAY & EVE.; M - MORNING; ES - EVE. & SUNDAY; ME - MORN. & EVE.; EM - EVE. & MORN.; SME - SUNDAY, MORN & EVE.

REFERENCE CODES: C - COLOR; AO - ADDITIONAL CHARGE; AR - ART CHARGE; BC - BOX CHARGE; CD - CLASSIFIED DISPLAY AD; CL - CLASSIFIED AD; CH - CREDIT MEMO; CS - CASH; CT - CUT CHARGE; DH - DEAD HEAD; FD - FINE STAR DISPLAY AD; FN - FUNERAL NOTICE; GA - GENERAL DISPLAY AD; JE - JOURNAL ENTRY; LG - LEGAL AD; MG - MAKE GOOD; MS - MISCELLANEOUS; PD - POLK DISPLAY AD; PH - PHOTO; RE - REAL DISPLAY AD; SC - SPACE CHARGE; SP - SPLIT CHARGE; SW - SWITCH CHARGE; TR - TRANSFER

SPACE CODES: IN - INCHES; LN - LINES; WO - WORDS

BETTER BUSINESS FORMS, INC., TAMPA BAY, 33606

THE TRIBUNE CO.
P. O. BOX 191
TAMPA, FLORIDA 33601
TEL. 272-7709 272-7708

ACCOUNT NO. [redacted]

SALESMAN NO. 10

DATE 12-14-79

DEPT OF ENVIRONMENTAL REG
2600 BLAIR STONE RD
FINANCE & ACCOUNTS SECT
TALLAHASSEE FL 32301

MR 0441 2115 2920 Judy Rogers

[redacted]

TERMS NET-INVOICE

BEST AVAILABLE COPY

THE T...PA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

State of Florida
County of Hillsborough } ss.

Before the undersigned authority personally appeared R. F. Pittman, who on oath says that he is Publisher of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a .... LEGAL NOTICE ....

in the matter of .. Notice that the Dept. of Environmental Reg. has received an application from and intends to issue to the Mobil Chemical Co. a construction permit for a new Phosphate Rock Dryer.

was published in said newspaper in the issues of ..... December 13, 1979 ...

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

R. F. Pittman

Sworn to and subscribed before me, this ... 21st .. *day of* ...... December .... *A.D. 19* 79

(SEAL)

Notary Public State of Florida at Large
My Commission Expires Aug. 7, 1983.

ER 0441 2110 2920 Judy Rogers

Construction Permit

The Florida Department of Environmental Regulation (DER) has received an application from and intends to issue a construction permit to the Mobil Chemical Company for the construction of a new Phosphate Rock Dryer to be used at Nichols and Anderson Rd., Nichols, Polk County. Determination of Best Available Control Technology (BACT) was required. Copies of the application, Technical Analysis, BACT Determination and proposed Construction Permit are available for inspection at the following DER offices.

S.W. District
7601 Hwy 301 N., Tampa
Bureau of Air Quality Mgt.
2600 Blair Stone Rd.
Tallahassee, Fl 32301

Persons wishing to comment on this action shall submit comments to Mr. John Svec of the Tallahassee office within 30 days of this notice.

M3528 Dec. 13, 1979

file copy

3

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

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

MEMORANDUM

TO: Mr. R. E. Schulz
Mr. Jerry W. McAdams

FROM: Steve Smallwood
Bureau of Air Quality Management

DATE: December 12, 1979

SUBJ: Proposed Department Action on Mobil Chemical Company's Application to Construct a Phosphate Rock Dryer, with Scrubber, at their existing plant site in Nichols, Polk County, Florida.

Attached please find one copy of the application, proposed Construction Permit, Technical Evaluation and Statement of Department Intent regarding the application to construct as cited above.

Comments are to be submitted, in writing, to Mr. John Svec, Bureau of Air Quality Management.

SS:caa

ATTACHMENTS

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

Routing To District Offices
And/Or To Other Than The Addressee

To: _____ Loctn.: _____

To: _____ Loctn.: _____

To: _____ Loctn.: _____

From: _____ Date: _____

2

TO: Mr. Dave Puchaty, Manager
Southwest District

FROM: Steve Smallwood
Bureau of Air Quality Management

DATE: December 12, 1979

SUBJ: Proposed Department Action on Plymouth Citrus Products Cooperatives Application to Construct a Natural Gas Fired Johnston Boiler at their Existing Facility in Plymouth, Orange County, Florida.

Attached please find one copy of the application, proposed Construction Permit, Technical Evaluation and Statement of Department Intent regarding the Application to Construct as cited above.

Pursuant to 17-2.091 and 40 CFR 51.18 this information is to be maintained on file for public review for 30 days.

Comments are to be submitted, in writing, to Mr. John Svec, Bureau of Air Quality Management.

SS:caa

cc: Jim Estler (w/o attachments)

ATTACHMENTS

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

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

Tampa Tribune
P. O. Box 191
Tampa, Fl. 33601

12/7/79

Dear Sir:

Re: Legal Advertisement (4
Classified Advertisement ( )

We are forwarding to you a legal advertisement to be published on the following date (s):

Dec 13, 1979
one time only

Subject Construction Permit

To ensure prompt payment, please send an invoice and one proof of publication, when applicable, to the address below:

Department of Environmental Regulation
PURCHASING OFFICE
2600 Blair Stone Road
Tallahassee, Florida 32301

If you have question, please contact us at 904/488-0870.

Sincerely,

for Oscar A. Martinez, Director
Purchasing Office

Enclosure: (1)

Construction Permit

The Florida Department of Environmental Regulation (DER) has received an application from and intends to issue a construction permit to the Mobil Chemical Company for the construction of a new Phosphate Rock Dryer to be used at Nichols and Anderson Rd., Nichols, Polk County. Determination of Best Available Control Technology (BACT) was required. Copies of the application, Technical Analysis, BACT Determination and proposed Construction Permit are available for inspection at the following DER offices.

S.W. District
7601 Hwy 301 N., Tampa

Bureau of Air Quality Mgt.
2600 Blair Stone Rd.
Tallahassee, Fl 32301

Persons wishing to comment on this action shall submit comments to Mr. John Svec of the Tallahassee office within 30 days of this notice.

PUBLIC NOTICE

A new air pollution source is proposed for construction by the Mobil Chemical Company near the town of Nichols in Polk County, Florida. The source is a new phosphate rock dryer of 250 tons per hour capacity.

The proposed construction has been reviewed by the U. S. Environmental Protection Agency (EPA) under Federal Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21), and EPA has made a Preliminary Determination that the construction can be approved provided certain conditions are met. A summary of the basis for this determination and the application for a permit submitted by Mobil are available for public review in the office of the Clerk of Circuit Courts in the Polk County Courthouse located in Bartow, Florida.

The allowable emissions of particulate and sulfur dioxide are less than 50 tons per year, 1000 pounds per day and 100 pounds per hour (31 and 39 tons per year respectively), and potential emissions of no other pollutants exceed 100 tons per year. Therefore, air impact analyses are not required, and the increment consumed by the source was not determined. Dispersion modeling which was performed by Mobil Chemical showed "insignificant" impacts as defined in the Federal PSD Regulations.

Any person may submit written comments to EPA regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered by EPA in making a Final Determination regarding approval for construction of this source. These comments will be made available for public review at the above location. Furthermore, a public hearing can be requested by any person. Such requests should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. Tommie A. Gibbs, Chief
Air Facilities Branch
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30308

PSD-FL-042

Preliminary Determination Summary

I. Applicant

Mobil Chemical Company
Minerals Group
P. O. Box 311
Nichols, Florida 33863

II. Location

The proposed modification is to Mobil's phosphate processing plant located near Nichols, Florida. The proposed modification will be located at a latitude of 27^{o} 53' 44" north and 82^{o} 01' 55" west; the UTM coordinates are east 17-398290 and north 17-3084290.

III. Source Description

Mobil Chemical plans to modify the Nichols phosphate rock processing plant by adding a phosphate rock dryer with a design nominal throughput of 250 tons per hour of phosphate rock. The new dryer will be limited to 4000 hours of operation per year, and will be fired with number 6 fuel oil (2.5% sulfur) or natural gas at a maximum rate of 94 million BTUs per hour. Emissions of particulate (TSP) and sulfur dioxide (SO_2) will be controlled with the use of a venturi scrubber and a caustic scrubber operating in series.

The dryer is being added soley to handle high, short term, dryer demand and the overall capacity of the mining/rock processing complex will not change. This statement is based on the fact that plant capacity is limited by mining operations and not by rock drying capacity. Because total yearly production will not increase, total yearly emissions of fugitive (TSP) and other pollutants from plant equipment other than the dryer will not increase. Hourly emissions from some facilities may increase due to increased short term dryer capacity; however, these increases will not exceed the limits of current state operating permits. Thus, no facilities other than the new rock dryer are involved in this modification.

IV. Source Impact Analysis

The proposed modification has the potential to emit greater than 100 tons per year of TSP and sulfur dioxide (SO_2) as can be seen in Table I, and the modification will impact areas currently achieving National Ambient Air Quality Standards (NAAQS). Therefore, the proposed modification must undergo preconstruction review under the federal Prevention of Significant Deterioration (PSD)

TABLE I

EMISSIONS SUMMARY

	TSP	SO_2	NO_x	CO	HC	F
Potential Emissions[a] (tons/year)	5400	520	76	0.2	4	Negligible
Allowable Emissions[a] Tons Per Year	31	39	b	b	b	b
Pounds Per Day	370	466	b	b	b	b
Pounds Per Hour	15.4[c]	19.4	b	b	b	b

a. All emissions are calculated at maximum hourly capacity and assuming a maximum of 4000 hours of operation per year as required in this permit.

b. Potential emissions of this pollutant do not exceed 100 tons per year so that PSD review for these pollutants does not apply.

c. No hourly increment level has been established for TSP; thus, the hourly emission rate does not affect PSD applicability.

of Air Quality regulations (40 CFR 52.21). Full PSD review includes an analysis of the following points:

a) Best Available Control Technology (BACT);
b) Increment Impact;
c) National Ambient Air Quality Standards (NAAQS) Impact;
d) Class I Area Impact;
e) Growth Impact; and
f) Soils, Vegetation and Visibility Impacts.

However, allowable emissions of TSP and SO_2 do not exceed 50 tons per year, 1000 pounds per day or 100 pounds per hour as appropriate, and because of this, the proposed modification is exempt from most of these analyses and from any ambient air monitoring requirements. PSD review for this source is limited to insuring that no Class I area or area where the increment is known to be violated is impacted and determining that the new facilities meet all emission limitations and standards of performance under the State Implementation Plan and Code of Federal Regulations Title 40 Parts 60 and 61.

It should also be noted that the proposed modification is about 30 kilometers from a TSP non-attainment area in Hillsborough County. If the proposed modification impacted this area, it would be subject to offset and LAER requirements; however, as is shown in the subsequent air impact analysis section, this non-attainment area is not impacted and LAER and offset requirements are not required.

Class I Area Impact

The Class I area closest to the proposed modification is the Chassahowitzka National Wildlife Refuge which is located at a distance of about 130 kilometers from the Nichol's plant site. In most cases, air dispersion modeling is not necessary to estimate impacts on Class I areas at a distance greater than 100 kilometers. However, in this case, an analysis was performed for the dual purpose of demonstrating no Class I area impacts and no impact on the TSP non-attainment area located about 30 kilometers east of the plant.

The modeling analysis used EPA approved models: CRSTER for 3-hour and 24-hour averages and AQDM for the annual averages. Meteorological parameters used in the analysis were 1973 data from the Tampa area.

The results of this analysis are shown in Table II. Review of the results shows the source to have maximum ground level concentrations which are lower than the significance levels outlined in the Preamble to the PSD Regulations (40 CFR 52.21). These maximum concentrations occur at receptors located in the vicinity of the plant. The minor or "insignificant" maximum impacts from this source can be expected to be diluted further at a distance of 30 kilometers and almost non-existent at a distance of over 100 kilometers. On the basis of these results, the proposed modification is determined not to significantly impact the non-attainment area in Hillsborough County or any Class I area.

State and Federal Emission Standards

The proposed modification is required to comply with all applicable emission and performance standards of the SIP and Federal Requlations 40 CFR 60 and 61. There are no specific emission limitations applicable to this modification in the SIP. The particulate emission limits proposed in the application will comply with the Florida process weight table emission limit requirements. Further, the applicant is in the process of obtaining a state permit for construction of this new source. When this is obtained the proposed modification will be in compliance with all SIP requirements.

As for federal emission standards applicable to this phosphate rock dryer, no such standards exist at this time. There is, however, a new source performance standard under development for phosphate rock processing plants which was proposed in the Federal Register on September 21, 1978, and which will likely affect this dryer. Since the standard is not yet promulgated, it cannot be considered in this Preliminary Determination. However, if the NSPS is promulgated prior to permit issuance, it will be considered in the final determination. Finally, if the promulgated standard affects sources commencing construction since the time of proposal, the dryer will be required to meet the NSPS in addition to the requirements of the Final Determination regardless of whether or not promulgation follows permit issuance.

V. Conclusions

EPA proposes a Preliminary Determination of approval with conditions for the construction of the rock dryer proposed in Mobil Chemical Company's application received by EPA on September 26, 1979. The basis for this determination is information contained in the application. The conditions set forth in the permit are as follow:

TABLE II

	Maximum Impact (ug/m^3)	Defined Significance Levels (ug/m^3)
Annual Geometric Mean Concentration	TSP - 0.2 SO_2 - 0.2	1 1
24-Hour Average Concentration	TSP - 2.7 SO_2 - 3.7	5 5
3-Hour Average Concentration	TSP - N/A SO_2 - 12.2	N/A 25

1. Construction of the dryer will be in accordance with the specifications, capacities, etc. contained in the application.

2. The dryer will not operate more than 4000 hours in any 365 day period (one year). Records of the operating hours will be maintained and available for inspection for a period of at least two years. Such records shall include a log indicating yearly cumulative hours of operation and a statement signed by the unit operator of the time and date of each unit start-up and each unit shutdown. Log entries of unit startups shall be made not later than the time combustion commences in the dryer firebox, and log entries of unit shutdowns shall not be made prior to the time combustion in the dryer firebox ceases. Also, these times, by definition, determine the operating hours of the unit.

3. The dryer stack will not emit greater than the following emission limits (as stated in the application):

   TSP - 0.06 pounds per ton of phosphate rock fed to the dryer and 15.4 pounds per hour
   SO_2 - 19.4 pounds per hour.

4. Compliance with the emission limits stated in condition number 3 will be determined by performance tests performed within 180 days of unit startup, and results of these tests will be reported to EPA Region IV within 45 days of test completion. The dryer will be operated within 10 percent of the maximum rated capacity during performance tests. Performance tests will be conducted in accordance with standard EPA methods, the applicable provisions of 40 CFR 60.8 and the following minimum sampling times and volumes:

Pollutants	Test Method	Sample Period	Sample Volume
TSP	Method 5	60 minutes (1 sample/run)	30 DSCF
SO_2	Method 6	20 minutes (2 samples/run)	0.71 DSCF

5. Performance tests consistent with Condition 4 will be performed each time fuel conversion from natural gas to fuel oil occurs.
6. During fuel oil firing of the dryer, the pH of the liquor exiting the caustic scrubber will be monitored and maintained at a level greater than or equal to the pH level determined during performance testing to achieve the allowable SO_2 emission limit. Further, during fuel oil firing the SO_2 content of the dryer flue gases will be measured with a continuous SO_2 monitor/recorder. This instrument and its operation will comply with the applicable provisions of 40 CFR 60.13. Records will be maintained and available for inspection for a period of at least two years.

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: 12.17.31 Loctn.:

To: Loctn.:

To: Loctn.:

From: Date:

TO: Victoria Martinez

FROM: John Svec JS

DATE: December 7, 1979

SUBJ: BACT Determination for Mobil Chemical Rock Dryer No. 4

The BACT application for Mobil Chemical Company's phosphate rock dryer No. 4 has been reviewed. In this application, the venturi type scrubber to remove both particulate and sulfur dioxide emissions is the only control technology described by the applicant. It is agreed that this control system has the capability to remove both particulate and sulfur dioxide emissions. Other control technologies do not appear to offer the flexibility provided as economically; even though this is not brough out in the application.

The Ducon Venturi Scrubber described in the application offers adequate design features to obtain 99.4% control efficiency of particulate emissions. The design of this scrubber provides a venturi scrubbing section followed by four lamilar scrubbing sections. The first lamilar section is scrubbed with water. The remaining three are scrubbed with caustic soda solution. This three stage caustic soda solution scrubbing also allows reaction with the sulfur dioxide emissions to remove this pollutant. The fifth stage, the lamilar mist eliminator, should prevent significant mist from being emitted into the atmosphere. This system should be capable of providing at least the control efficiencies of 99.4% for particulate emissions and 92% for sulfur dioxide emissions as stated in the application and guaranteed by the manufacturer.

The emission control limitations contained in the proposed New Source Performance Standards (NSPS) for phosphate rock plants are uncertain at this time. EPA is investigating if the particulate inlet loading used in its determination was too low. There is a possibility the NSPS emission limitations will not be recommended. The BACT emission limitation proposed by the applicant offers control comparable to baghouse technology. The requirement of the proposed NSPS emission limitations would reduce hourly emissions by an additional 5.4 pounds per hour with an increase in control efficiency from 99.4% to 99.6%. Substantial benefit is not possible if the uncertain NSPS emission limitations are required. It is my opinion that the proposed BACT emission limitations offer adequate control.

In summary, the emission limitations and control equipment recommended for the Mobil Chemical Company phosphate rock dryer No. 4 are:

equipment - Ducon Venturi Scrubber with SO_2 Scrubber
control efficiency - 99.4% for particulate
92% for Sulfur dioxide
maximum emissions - 15.4 pounds per hour for particulate
19.4 pounds per hour for sulfur dioxide
visible emissions - 0% opacity

JS:caa

Technical Evaluation

and

Preliminary Determination

Mobil Chemical Company

Nichols, Florida

Construction Permit

Application Number:

AC 24802

Florida Department of Environmental Regulation

Bureau of Air Quality Management

Central Air Permitting

December 13, 1979

I. PROPOSED DEPARTMENT ACTION:

The Department intends to issue the requested construction permit to Mobil Chemical Company to construct a new phosphate rock dryer at the plant located at Nichols and Anderson Road, Nichols, Florida, subject to public comment received as a result of this notice.

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

Mr. John Svec
Florida Department of Environmental Regulation
Twin Towers Office Building
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 interests would be affected by the issuance or denial of this permit may request an administrative hearing by filing a petition for hearing as set forth in Section 28-5.15 (copy attached). Such petition must be filed within 14 days of the date of this notice. Such petition is to be filed with:

Mary Clark
Office of General Counsel
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

II. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS:

a. The proposed location, Nichols, is in Polk County which is classified as "unclassifiable" for the criteria pollutant particulate. This location is an "attainment" area for the remaining criteria pollutants. However, it is in the "area of influence" for the Hillsborough County Particulate Nonattainment Area.

b. The significant source of particulate for this application is phosphate rock dust from the #4 dryer (estimated particulate emissions of 30.8 tons per year). The significant source of sulfur dioxide emissions is from the fuel combustion of dryer #4 (estimated sulfur dioxide emissions of 38.8 tons per year).

III. SYNOPSIS OF APPLICATION

a. Name and Address of Applicant:

Mobil Chemical Company
Minerals Division
P. O. Box 311
Nichols, Florida 33863

b. Description of Project and Controls:

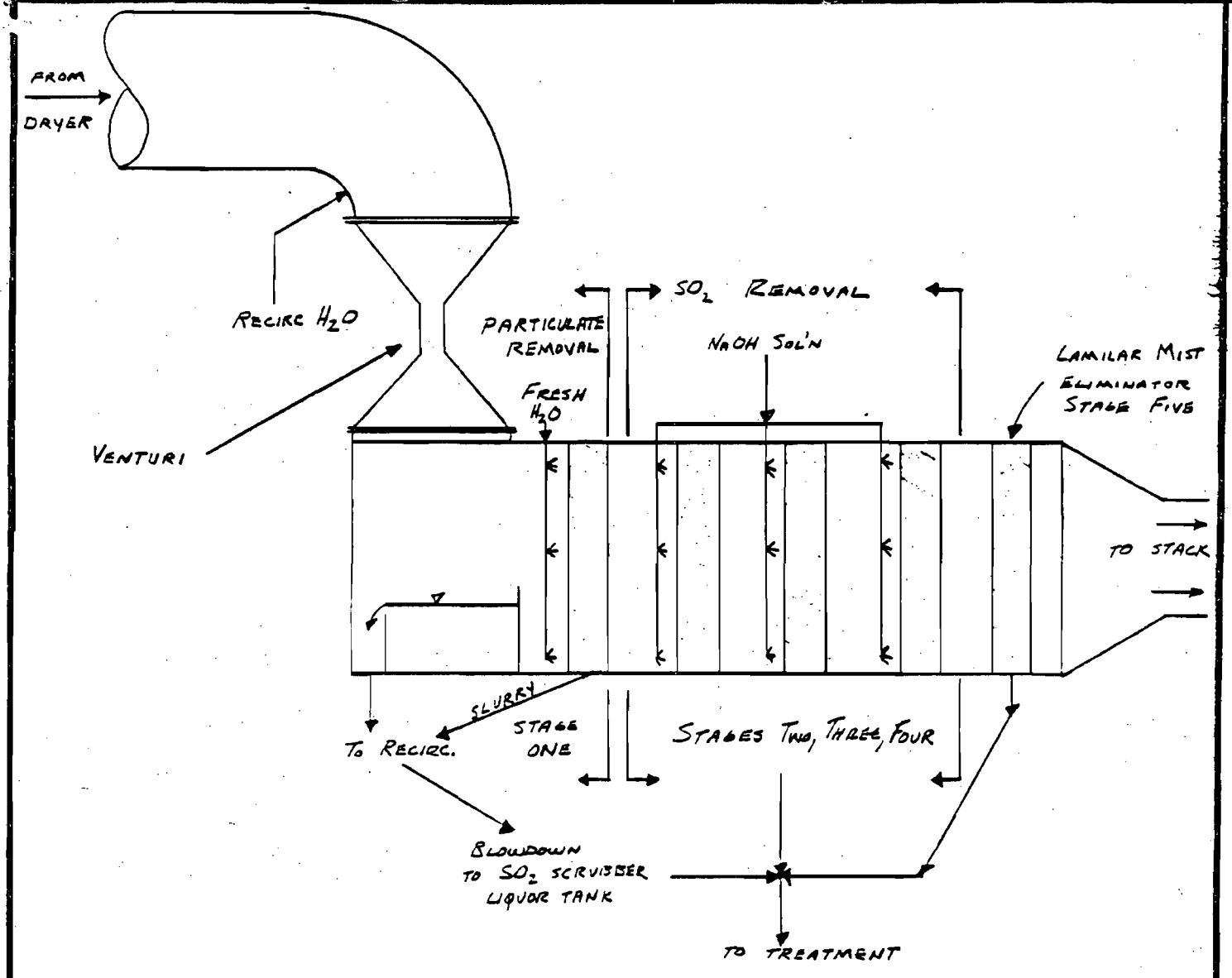
This project is the proposed construction of a new phosphate rock dryer and associated conveying equipment at the Mobil Chemical Company plant in Nichols. This operation will dry wet phosphate rock, pebble and concentrate, to a desired moisture content by the combustion of No. 6 fuel oil. The pebble and concentrate phosphate rock are blended to customer's specifications. Emissions from the rotary dryer will be vented to a venturi scrubber with a SO_2 scrubber and lamellar mist eliminator (figure 1). The scrubber is expected to remove 99.4% of the particulate emissions and 92% of the sulfur dioxide emissions.

c. Description of Process, Proposed Process Rates and Emissions Rates:

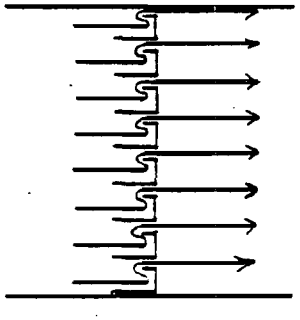
Wet phosphate pebble and concentrate rock is transferred to the rotary dryer. Heat input of the dryer is constant while product feed is varied to provide the final desired moisture content. Heat is obtained from the combustion of number 6 fuel oil, maximum sulfur content of 2.5%. Usage rate is projected to be 625 gallons per hour. Maximum operating time is scheduled to be 4,000 hours per year. Maximum output of the dryer is 250 tons per hour of dry phosphate rock.

A vent will collect particulate and combustion pollutants from the rotary drier and convey them to the venturi scrubber. Uncontrolled particulate emissions of 3.5 grains per dry standard cubic foot enter the scrubber. This estimate is based upon stack test results from the existing 250 tons per hour dryers at the plant. Actual emissions are based upon control equipment data and emission factors in AP-42. Potential and actual emissions are listed below:

	Potential Emissions		Actual Emissions	
Pollutant	lbs./hr	tons/yr.	max. lbs./hr	tons/yr
Particulate	2700	5400	15.4	30.8
Sulfur Dioxide	260	520	19.4	38.8
Nitrogen Oxides	38	76	38	76
Carbon Monoxide	.1	.2	.1	.2
Hydrocarbons	2	4	2	4



AIR FLOW IN LAMILAR SECTIONS



NO SCALE

Figure 1

MOBIL CHEMICAL COMPANY Phosphorus Division, Minerals Group Florida Operations Nichols, Fla.	Date 9/12/79 D E C A	SURGE DRYER SCRUBBER SYSTEM SCHEMATIC	XNM FWR AFE	

ENG 008

IV. RULE APPLICABILITY

The proposed project is located in the area of influence for the Hillsborough County Particulate Nonattainment Area. Mathematical modeling for both the annual and maximum twenty-four hour averages was performed. Results show the significance levels for TSP are not exceeded. Therefore, this application is not subject to the nonattainment provisions of 17-2.17 FAC.

The proposed source is a major emitting facility for particulate and sulfur dioxide emissions as defined in 17-2.02(70) FAC. Therefore, the application is subject to the requirements of 17-2.04 Prevention of Significant Deterioration and 17-2.03 Best Available Control Technology.

V. FINDINGS

1. Best Available Control Technology has been determined as required according to 17-2.03 FAC. Emission limitations are 15.4 pounds per hour of particulate and 19.4 pounds per hour of sulfur dioxide. These emissions are based upon the installation of a Ducon Venturi Scrubber with a sulfur dioxide scrubber/mist eliminator with caustic soda solution injection and pH control system.

2. Actual and potential emissions are projected to be:

	Potential Emissions		Actual Emissions	
Pollutant	lbs./hr	tons/yr.	lbs./hr	tons/yr.
Particulate	2700	5400	15.4	30.8
Sulfur Dioxide	260	520	19.4	38.8
Nitrogen Oxides	38	76	38	76
Carbon Monoxide	.1	.2	.1	.2
Hydrocarbons	2	4	2	4

Therefore, this source is a major emitting facility for particulate and sulfur dioxide emissions.

3. Maximum operating schedule will be 4000 hours per year.

4. Maximum raw material output will be 250 tons per hour of phosphate rock.

5. Maximum fuel consumption will be 625 gallons per hour of No. 6 fuel oil with maximum sulfur content of 2.5%.

6. On the basis of air quality modeling performed in accordance with applicable Departmental guidance, sulfur dioxide and particulate matter emissions from the proposed dryer are not expected to contribute to ground-level concentrations in excess of any ambient air quality standard or PSD Class II increment. Neither are such emissions expected to impact any SO_2 or particulate matter nonattainment area or PSD Class I area. Maximum concentrations of both sulfur dioxide and particulate matter are projected to be less than the levels of significant impact established for each; namely, 1 ug/m^3 annual arithmetic average, 5 mg/m^3 24-hour maximum, and 25 ug/m^3 3-hour maximum (SO_2 only). Thus, the application is exempt from the requirements of 17-2.17 and 17-2.04(8).

7. Fugitive emissions from ancillary equipment (i.e., conveyor belt transfer points, etc.) will be controlled by properly engineered dust collection equipment. Fugitive dust will be removed by the proposed dryer emission control equipment.

8. Construction should commence and be completed within a reasonable time based on the projections included in the application.

9. Construction should reasonably conform to the plans submitted.

10. The applicant should submit periodic reports on construction progress.

11. The actual particulate and sulfur dioxide emissions from the scrubber emission point should be verified by tests using standard test methods prior to issuance of an operating permit. As part of the operating permit, periodic tests on the scrubber outlet should be required.

12. The applicant should monitor the pressure drop across the scrubber and the scrubbing fluid supply pressure to the scrubber. The applicant should submit reports to the Department for all measurements of scrubber pressure drops and liquid supply pressure less than 90% of the average levels maintained during the most recent performance test in which compliance with the permit conditions was demonstrated.

13. Upon obtaining an operating permit, the applicant should submit periodic reports on the actual operation of the facility.

VI. PROPOSED ALLOWABLE EMISSIONS AND PERMIT CONDITIONS

See Draft Permit

Attachment: Rule 28-5 December 13, 1979

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

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Mobil Chemical Company
Mineral Division
P. O. Box 311
Nichols, Florida 33863

PERMIT/CERTIFICATION
NO. AC 24802

COUNTY: Polk

PROJECT: Phosphate Rock
Dryer Number 4

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 & 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 phosphate rock dryer, associated conveying system and venturi system and venturi scrubber to vent this equipment at the Mobil Chemical Company's Nichols Preparation Plant. Particulate and sulfur dioxide emissions are to be controlled by a Ducon Venturi Scrubber with Ducon SO_2 Scrubber/mist eliminator. The plant is located at Nichols and Anderson Road, Nichols, Florida. The universal transverse mercator and latitude, longitude coordinates are UTM Zone 17, 398.290E., 3084.290N. and 27° 53' 44" N by 82° 01' 59" W. respectively.

Construction shall be in accordance with the attached permit application, attached plans, documents and drawings except as otherwise noted on page 3, "Specific Conditions."

Attachments are as follows:

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

2. Application for Federal Permit to Construct.

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

PERMIT NO.:
APPLICANT:

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 penalities 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)

SPECIFIC CONDITIONS:

PERMIT NO.: AC 24802
APPLICANT: Mobil Chemical Company
P. O. Box 311
Nichols, Florida 33863

Specific Conditions:

1. Maximum allowable emissions from the Dryer #4 scrubber shall be 15.4 pounds per hour and 30.8 tons per year for particulate and 19.4 pounds per hour and 38.8 tons per year for sulfur dioxide.

2. The hours of operation shall be limited to 4,000 hours per year.

3. The maximum allowable material output shall be 250 tons per hour of dry phosphate rock.

4. The maximum fuel combustion shall be 625 gallons per hour of number 6 fuel oil with maximum sulfur content of 2.5%.

5. During the construction phase, quarterly reports on construction progress, commencing three months after initiation of construction shall be submitted to the Bureau of Air Quality Management. The operating permit shall require maintenance of records indicating operation hours, material output from dryer amount of fuel consumption, and measurements of scrubber pressure drops and liquid supply pressures less than 90% of the average levels maintained during the most recent performance test in which compliance with the permit conditions was demonstrated and shall be submitted annually to the Department in accordance with 17-4.14.

6. Emissions tests for particulate, sulfur dioxide and visible emissions shall be conducted for the venturi scrubber emission point in accordance with Methods 1 through 6, 40 CFR 60, Appendix A and Method 9, 40 CFR 60, Appendix A. The results shall be submitted to the Bureau of Air Quality Management for determination of compliance with applicable state rules regarding visible and particulate emission and the conditions of this permit.

7. A thirty day notice prior to testing shall be provided by the applicant to the Bureau of Air Quality Management.

_____
Jacob D. Varn
Secretary

Expiration Date: April 30, 1981

Issued this _____ day of _____, 19____.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Rt Mobil file

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

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

October 26, 1979

Mr. R.E. Schulz, Manager of Operations
Mobil Chemical Company
P. O. Box 311
Nichols, Florida 33863

Dear Mr. Schulz:

This is to acknowledge receipt and transaction of your "Application to Construct an Air Pollution Source" fee check(s).

The permit number(s) assigned are as follows:

AC 24802 - (Phospahte rock dryer #4 with scrubber)

If we may be of further assistance please call me at (904) 488-1344.

Sincerely,

M. Hodges

M. G. Hodges
FDER/BAQM

Mobil Chemical Company

MINERALS DIVISION

P.O. BOX 311
NICHOLS, FLORIDA 33863
TELEPHONE (813) 425-3011

October 18, 1979

Mr. Dan Williams
Florida Dept. of Environmental Regulation
7601 Highway 301 North
Tampa, FL 33610

Dear Mr. Williams:

As you requested, I am enclosing a check for $20.00 for the application fee of the phosphate rock dryer permit.

Also enclosed is a completed, signed, and dated first page of the application for above mentioned permit. The date, thru error, was left off the first page submitted October 12.

You asked that I send you 2 additional complete sets of this information - these are attached.

Sincerely,

R. E. Schulz

R. E. Schulz
Manager, Operations

ec
Enclosures

(16)

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT
AIR POLLUTION SOURCES

SOURCE TYPE: Phosphate Rock Dryer (X) New[1] ( ) Existing[1]

APPLICATION TYPE: (X) Construction ( ) Operation ( ) Modification

COMPANY NAME: Mobil Chemical Company COUNTY: Polk

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

SOURCE LOCATION: Street Nichols & Anderson Rd. City Nichols

UTM: East 17-898290 North 17-3084920

Latitude 27° 53' 14"N Longitude 82° 01' 59"W

APPLICANT NAME AND TITLE R. E. Schulz, Manager of Florida Operations

APPLICANT ADDRESS P.O. Box 311, Nichols, FL 33863

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of

I certify that the statements made in this application for a 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.

Signed: R. E. Schulz

R. E. Schulz, Manager of Operations
Name and Title (Please Type)

*Attach letter of authorization Date: 10/12/79 Telephone No. 813/425-3011

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 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: Jerry W. McAdams

Jerry W. McAdams
Name (Please Type)

(Affix Seal)

Mobil Chemical Company
Company Name (Please Type)

P.O. Box 311, Nichols, FL 33863
Mailing Address (Please Type)

Florida Registration No. 27366 Date: _____ Telephone No. 425-3011

[1] See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

SECTION II: GENERAL PROJECT INFORMATION

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

This project is the installation of a phosphate rock dryer to facilitate surge demand in shipments. The dryer will be equipped with a venturi type scrubber to remove both particulate and sulfur dioxide emissions. Full compliance with all Florida and Federal Rules are expected for this installation.

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

Start of Construction January, 1980 Completion of Construction January, 1981

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.)

(1) Major Equipment	= $470,000	(4) Piping and Electrical	= $163,000
(2) Structural	= 162,000	(5) Engineering & Contingency	= 280,000
(3) Labor	= 325,000	TOTAL	= $1,400,000

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk N/A ; wks/yr N/A ; if power plant, hrs/yr N/A ; if seasonal, describe:

Dryer will operate on demand. Total operating time will be no more than 4,000 hours per year.

G. 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. YES
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI & VII. YES
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

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

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G. 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?
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Start of Construction January, 1980 Completion of Construction January, 1981

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.)

(1) Major Equipment	= $470,000	(4) Piping and Electrical	= $163,000
(2) Structural	= 162,000	(5) Engineering & Contingency	= 280,000
(3) Labor	= 325,000	TOTAL	= $1,400,000

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk N/A ; wks/yr N/A ; if power plant, hrs/yr N/A ; if seasonal, describe:

Dryer will operate on demand. Total operating time will be no more than 4,000 hours per year.

G. 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. YES
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI & VII. YES
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

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

SECTION II: GENERAL PROJECT INFORMATION

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

This project is the installation of a phosphate rock dryer to facilitate surge demand in shipments. The dryer will be equipped with a venturi type scrubber to remove both particulate and sulfur dioxide emissions. Full compliance with all Florida and Federal Rules are expected for this installation.

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

Start of Construction January, 1980 Completion of Construction January, 1981

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.)

(1) Major Equipment	= $470,000	(4) Piping and Electrical	= $163,000
(2) Structural	= 162,000	(5) Engineering & Contingency	= 280,000
(3) Labor	= 325,000	TOTAL	= $1,400,000

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk N/A ; wks/yr N/A ; if power plant, hrs/yr N/A ; if seasonal, describe:

Dryer will operate on demand. Total operating time will be no more than 4,000 hours per year.

G. 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. YES
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI & VII. YES
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

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

OCT 16 1979

NOTICE OF INTENT

TO ALL CITIZENS, PUBLIC GROUPS, AND GOVERNMENTAL AGENCIES:

The Environmental Protection Agency, Region IV, Atlanta, Georgia, has determined that an EIS is required prior to taking action on an application for National Pollutant Discharge Elimination System (NPDES) permit for Mobil Chemical Co. proposed South Fort Meade, Florida, phosphate mine.

Description of Proposed Action

Mobil Chemical Company is proposing to develop and operate a phosphate mine, and benefication plant in Polk County, Florida to be known as the South Fort Meade Mine. The proposed facility is to be located on a 16,000 acre site lying on the Polk-Hardee County line immediately east of Peace River. At full development, the South Fort Meade mine would produce approximately 3.4 million tons per year of phosphate rock. The new facility will replace production from the existing Fort Meade mine which will be phased out over the next decade. Existing facilities at Nichols, Florida, will continue to be used for rock drying and processing.

Authority & Procedures

The Environmental Protection Agency (EPA) has determined that the proposed facility would require a National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the Clean Water Act, and that the facility qualifies as a New Source under Section 306 of that Act. The proposed action has also been determined to be subject to a permit from U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. The issuance of these permits would be major Federal actions significantly affecting the quality of the human environment; therefore, an Environmental Impact Statement (EIS) will be prepared. The EPA has accepted lead agency responsibility for the preparation of the EIS.

Mobil has requested EPA to use the Third Party procedure whereby Mobil retains a consultant to prepare the EIS under direct management of EPA. EPA has selected Engineering-Science, Inc. to prepare the EIS. A Memorandum of Understanding (MOU) between EPA, Mobil and Corps of Engineers has been written to establish the procedure for preparation of the EIS.

Alternatives

An assessment of alternatives related to the project and its environmental impacts must be included in the EIS. Major alternatives to be addressed include location of benefication facility, routing, treatment and disposal of waste and wastewater streams mining and reclamation techniques, air and water pollution controls and no action. Major emphasis will be placed on impacts to surface

water and groundwater quality, wetlands preservation and restoration.

In the development of alternatives, every reasonable effort will be made to comply with the recommendations of the "Final Environmental Impact Statement - Central Florida Phosphate Industry" EPA 904/9-78-0262 dated November 1978. Key elements of those recommendations applicable to the Mobil project include: elimination of rock dryers; elimination of above ground slime ponds; maximize water reuse/recycling to minimize demand on groundwater; minimize impact on wildlife habitat and historical/archeological sites or mitigate unavoidable damage; develop reclamation plan to minimize radionuclide impacts.

Public Participation and Scoping

A draft Plan of Study (POS) has been developed by Engineering-Science, Inc., and is presently under review by EPA and Corps of Engineers. The draft Plan of Study is available for inspection at:

Mobil Chemical Co., Nichols, Florida
U.S. Army Corps of Engineers, 400 West Bay St., Jacksonville, FL
U.S. EPA, 345 Courtland Street, Atlanta, GA

A limited number of copies are available from EPA at the address shown below to persons with direct interest in the project and on a first come first served basis.

A Scoping meeting will be held at 10:00 a.m. on Wednesday, November 14, 1979, at Tampa Electric Company Conference Room, 101 Second Street, N.W., Mulberry, Florida. The purpose of this meeting is to develop and provide to the consultant instructions for any necessary modifications/additions to the draft Plan of Study. Any persons wishing to participate in this Plan of Study/Scoping meeting are invited to attend and submit comments to EPA. Written comments or concerns may be submitted by November 23, 1979, to:

John E. Hagan III, Chief
EIS Branch
U.S.E.P.A.
345 Courtland Street, N.E.
Atlanta, GA 30308

John C. White
Regional Administrator

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
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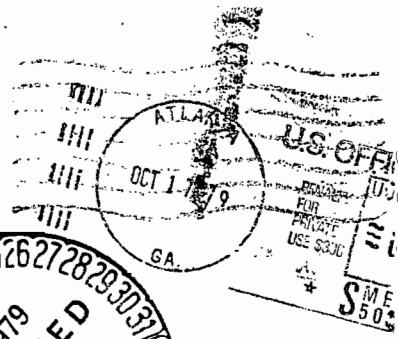


EISG0064

MR. J. P. SUBRAMANI, CHIEF
AIR QUALITY MANAGEMENT BUR.
FL. DEPT. OF ENVIRONMENTAL REG.
2600 BLAIRSTONE RD.
TALLAHASSEE FL 32301

Mobil Chemical Company

PHOSPHORUS DIVISION

P.O. BOX 311
NICHOLS, FLORIDA 33863
TELEPHONE (813) 425-3011

October 12, 1979

Mr. Dan Williams
Florida Dept. of Environmental Regulation
7601 Highway 301 North
Tampa, FL 33610

Dear Mr. Williams:

Enclosed is an application to construct a new phosphate rock dryer at the Nichols Preparation Plant of Mobil Chemical Company. Also enclosed, for your information, is a copy of the cover letter and Federal Application to construct this facility.

Mathematical modeling of the proposed dryer was performed in accordance with the requirements of the Florida Department of Environmental Regulation. Results of the modeling effort (see consultant's report attached to the application) show that this dryer's emissions will not result in a significant impact on the ambient air, as defined by Chapter 17-2, F.A.C.

All rules of the Environmental Protection Agency will be met by this facility.

The technical contact for Mobil Chemical Company is J. W. McAdams who can be reached at the above address. Your rapid handling of this matter is greatly appreciated.

Yours truly,

R. E. Schulz

R. E. Schulz
Manager, Operations (Florida)

jm

Attach.

CC: Tommy Gibbs
EPA, Region IV
Atlanta, GA

Jeff Shumaker
TRW, Inc.
Durham, NC

APPLICATION FOR FEDERAL PERMIT TO CONSTRUCT

Prepared for:

THE ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 Courtland Street
Atlanta, GA 30308

APPLICANT:

R. E. Schulz, Manager of Florida Operations
R. E. Schulz

Mobil Chemical Company
P.O. Box 311
Nichols, FL 33863

Submitted to:

Tommy Gibbs
EPA, Region IV
Atlanta, GA

CC: Jeff Shumaker
TRW, Inc.
Durham, NC

Prepared by:

Jerry W. McAdams
Environmental Coordinator
Mobil Chemical Company
Florida Operations
P.O. Box 311
Nichols, FL 33863

PROCESS DESCRIPTION

The Florida Operations of Mobil Chemical Company's Minerals Group produces phosphate rock. Wet rock is shipped by rail to the company's Nichols Preparation Plant where the rock can be dried, dried and ground, or calcined.

There are three rock dryers at the Prep Plant:

(a) two dryers with a nominal capacity of 250 tons per hour and,

(b) one dryer with a 50 ton per hour nominal capacity.

Two types of rock are produced from the mines: Pebble and Concentrate. Pebble rock is coarser material that results from simple screening. As a result, its surface contains some residual clay and other fine material. Concentrate, on the other hand, has different surface properties from pebble and therefore has a lower content of surficial clay. As a result, the dust content of the pebble is greater than concentrate. Phosphate rock sold to customers is usually a blend of the pebble and concentrate which is then dried. Because pebble has lower phosphate values than concentrate, a blend is usually produced to meet customer specifications. As a result, the dust content varies according to the combination of concentrate and pebble rock in the mixture.

THE PROPOSED PROJECT

Mobil intends to construct another dryer, identical to the two existing 250 ton per hour dryers. This additional dryer is needed to overcome shipping problems which have and are occurring. These problems are the result of ship scheduling and congestion at the Port of Tampa, Florida. The result is that ships taking on Mobil rock are sometimes backed up at the port. Due to limited storage capacity, both at the port and at Nichols, Mobil has been unable to meet customer demand, has paid demurrage and has lost revenues as a result. This new dryer will provide a surge capacity that will enable Mobil to overcome these shipping problems, minimize demurrage payments, and avoid additional loss of revenue.

This new dryer will give Mobil more flexibility with respect to shipping schedules, than would additional storage. Additional storage was rejected as an alternative to this dryer because the cost of storing shipload quantities of rock was unfavorable compared to the cost of surge drying capacity.

Mobil's two mines have an upper limit of mining capacity which is not expected to change over the next five years.

INFORMATION REQUIRED FOR PRE-CONSTRUCTION REVIEW

Presented below are facts and figures required to complete the pre-construction review:

1. With the exception of the installation of air pollution equipment, no other additions or other construction have taken place at the Nichols Preparation Plant since August 7, 1977.

2. An elemental phosphorus furnace plant built before 1940 was shut down on August 17, 1978.

3. This dryer, as well as the existing ones and the calciner use No. 6 fuel oil as fuel. The fuel has the following known characteristics:

    a. Sulfur content = 2.5% max.

    b. Density = 8.33 lb/gallon

    c. Heat content = 150,000 BTU/gallon

    d. Usage rate = 625 gallons/hr.

4. Anticipated annual operating schedule is 4,000 hours per year, at random times through the year. The dryer would operate 24 hrs./day, 7 days per week during operation.

5. Potential (i.e., uncontrolled) emissions from this dryer are:

    a. Particulate (from test data on existing dryers)

        Hourly = 2700 lbs/hr.
        Yearly = 5400 tons/yr.

    b. Sulfur Dioxide (from fuel oil calculation)

        Hourly = 260 lbs/hr.
        Yearly = 520 tons/yr.

    c. Nitrogen Oxides (from AP-42 emission factor)

        Hourly = 38 lbs/hr.
        Yearly = 76 tons/yr.

    d. Carbon Monoxide (from AP-42 emission factor)

        Hourly = 0.1 lbs/hr.
        Yearly = 0.2 tons/yr.

    e. Hydrocarbons (from AP-42 emission factor)

        Hourly = 1.9 lbs/hr.
        Yearly = 3.8 tons/yr.

5. Controlled emissions from this dryer are:

   a. Particulate

      Hourly = 15.4 lb/hr. or 0.06 lb/ton feed
      Yearly = 30.8 tons/yr.

   b. Sulfur Dioxide

      Hourly = 19.4 lb/hr.
      Yearly = 38.8 tons/yr.

6. Mathematical modeling for both annual and maximum twenty-four averages has been performed for both particulate and sulfur dioxide emissions. The results show that for both particulate matter and sulfur dioxide, at no receptor point does the expected increase in the annual average ambient air concentration due to this dryer alone exceed one microgram per cubic meter. And for both particulate matter and sulfur dioxide, at no receptor point does the expected increase in the maximum twenty four hour average ambient air concentration due to this dryer alone exceed five micrograms per cubic meter. As a result, this dryer will have an insignificant impact on the environment, including any Class I area.

7. The nearest Class I area is the Chassahowitzka National Wilderness Area. The distance from the proposed source to this area is over 80 miles (about 130 kilometers).

8. All rules of the Department of Environmental Regulation of the State of Florida will be met by this dryer.

9. The control technology proposed for this dryer is best available control technology, to wit:

   a. Emission rate of particulate matter = 0.06 lb/ton feed.

   b. Emission control of sulfur dioxide = 92% removal.

10. All fugitive emissions from ancillary equipment (i.e., conveyor belt transfer points, etc.) will be controlled by properly engineered dust collection equipment. Such dust will be removed by the proposed dryer emission control equipment.

11. The type of control equipment to be installed is a venturi scrubber followed by a sulfur dioxide scrubber/mist eliminator with caustic soda solution injection and pH control system. See attached sketch. The manufacturer of the unit, Ducon, Inc. guarantees the following performance:

    a. Concentration of particulate = 0.02 gr/dscf

    b. Sulfur dioxide control = 92%

INFORMATION REQUIRED FOR PRE-CONSTRUCTION REVIEW (Con't.)

12. Emission characteristics are:

    a. Flow = 140,000 acfm

    b. Moisture content = 25%

    c. Temperature = 150 F

    d. Stack height = 85 ft. above grade

    e. Stack diameter = 7.5 ft.

    f. Stack velocity = 50 ft/sec.

13. No ambient air monitoring is required because of regulation 40 CFR 52.21 (k)(I)(i) and (ii).

14. The start of construction is scheduled for January 1980 with the completion scheduled for October 1981.

15. The location of this source is as follows:

    a. Latitude: 27°53'44" N

       Longitude: 82°01'59" W

    b. UTM: East 17 - 398290

       North 17 - 3084290

16. No significant emissions of fluoride will take place from this dryer, as noted in the preamble to the proposed regulation 40 CFR 60, Subpart NN (September 21, 1979 issue of the Federal Register, pages 54970, ff.).

PRE-CONSTRUCTION REVIEW REQUIRED

As shown above, this dryer is a "50 ton source" for either particulate or sulfur dioxide. Also, the data presented above show that the potential (uncontrolled) emissions for any other pollutant do not exceed the "100 ton source" threshhold. Modeling data show a minimal, insignificant impact not only in the vicinity of the proposed dryer but also as regards any Class I area.

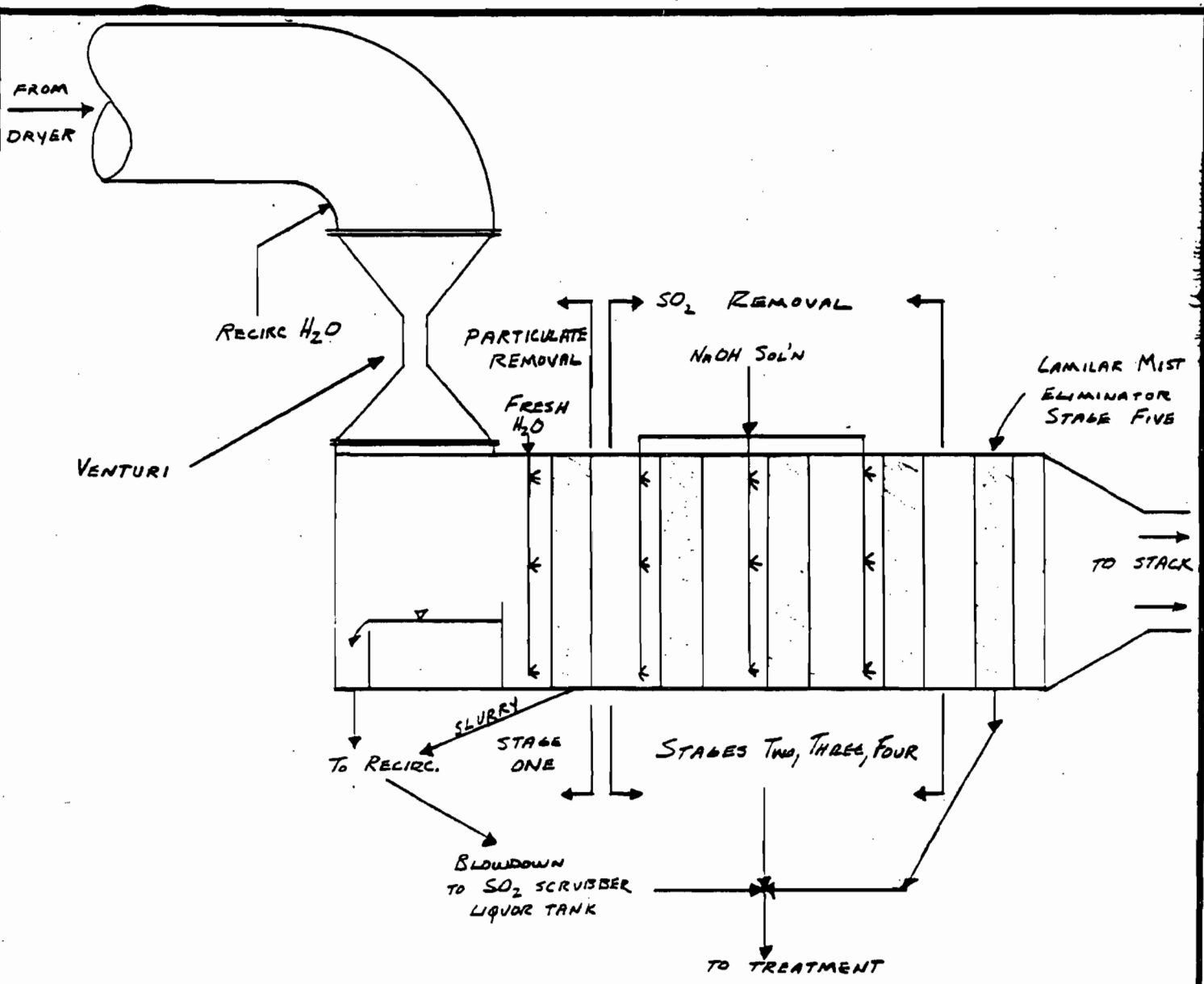
CONCLUSION

This project requires only a Tier I review and such review will prescribe the issuance of a permit forthwith based on the following:

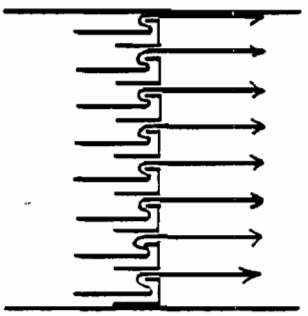
1. Particulate emissions shall not exceed 0.06 pounds per ton of phosphate rock feed.

2. Sulfur dioxide emissions from the burning of 2.5% sulfur fuel oil shall be controlled to the extent of 92% removal.

3. In the event that natural gas (containing no sulfur) becomes available for use as a fuel for this dryer, sulfur dioxide removal is not required. All other conditions will remain in force.



AIR FLOW IN LAMILAR SECTIONS



No Scale

MOBIL CHEMICAL COMPANY Phosphorus Division, Minerals Group Florida Operations Nichols, Fla.	Date 9/12/79 D T C A	SURGE DRYER SCRUBBER SYSTEM SCHEMATIC	XWM EWR AFE	

ENG 008

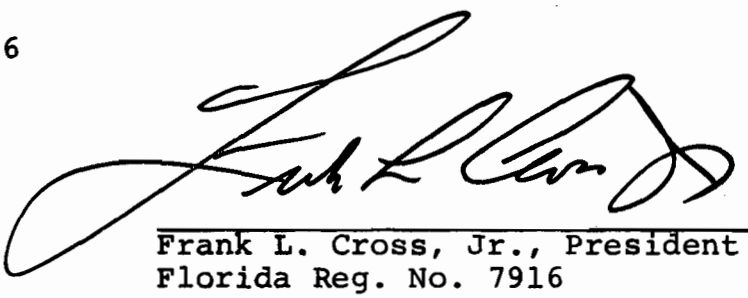
PSD MODELING
PHOSPHATE DRYER

MOBIL CHEMICAL COMPANY
NICHOLS, FLORIDA

October 1979

Air Quality Computer Work: F. Cross
T. Seiders

Frank Cross, P.E., P.A.
2713 Timberlake Drive
Orlando, Florida 32806



Frank L. Cross, Jr., President
Florida Reg. No. 7916

OUTLINE

INTRODUCTION

Frank Cross, P.E., P.A. has been retained by Mobil Chemical Company to evaluate the impact of a new phosphate surge dryer on the air quality in the Nichols area. The dryer is to be equipped with a wet scrubber for both particulate and sulfur dioxide removal.

This analysis has been prepared in support of the PSD portion of the Application for a Florida Department of Environmental Regulation (FDER) Construction Permit.

The criteria that have been established by FDER are impact significance criteria.

Significance Criteria

(Values in $\mu g/m^3$)

POLLUTANT	AVERAGING TIME		
	ANNUAL	24 HOUR	3 HOUR
SO_2	1	5	25
TSP	1	5	--

SUMMARY AND CONCLUSIONS

The air quality impact analysis of the dryer emissions on the environment indicates that all of the values are well under the significance criteria.

Dryer Air Quality Impact Summary

(Values in $\mu g/m^3$)

TIME AVERAGING PERIOD	POLLUTANT					
	PARTICULATES (TSP)			SULFUR DIOXIDE (SO_2)		
	IMPACT	SIGNIF. CRITERIA	% OF CRITERIA	IMPACT	SIGNIF. CRITERIA	% OF CRITERIA
Annual Average	0.17	1.0	17	0.21	1.0	21
24 Hour Max.	2.67	5.0	53.4	3.36	5.0	67.2
3 Hour Max.	--	--	--	12.22	25.0	48.8

EMISSION INVENTORY

The parameters (emissions, stack height, exit gas temperature, etc.) for the dryer used in the dispersion modeling are listed in the following table. The parameters are listed in English and Metric units for ease of review:

PARAMETER	DRYER			
	Particulates		SO_2	
	English Units	Metric Units	English Units	Metric Units
Emission	15.4 lb/hr	1.95 gm/sec	19.4	2.44
Stack Temp.	150°F.	338°K.	150	338
Stack Height	85 feet	30.5 m.	85	30.5
Velocity	50 ft/sec	15.65 m/s	50	15.65
Stack Diameter	7.5 feet	2.3 m.	7.5	2.3

METEOROLOGICAL DATA

The meteorological data used in the model is for Tampa, Florida, which is Sta. No. 12842, as identified by the National Climatological Center (NCC) in Asheville, North Carolina.

This station was chosen because it has both upper and lower atmospheric meteorological data. Some of the other stations considered, such as Orlando, only had lower atmospheric meteorological data available.

The Stability Wind Rose (STAR) package was used in the calculation for the annual averages, and the upper/lower atmospheric packages were used for the short term averages calculated by the Crash Terrain Model (CRSTER).

Meteorological Data

TYPE OF DATA	CRSTER	AQDM
Lower atm data	Tampa (Sta. No. 12842) 1973	--
Upper atm data	Tampa (Sta. No. 12842) 1973	--
Stability Wind Rose (STAR)	--	Tampa (Sta. No. 12842) 1973

DISPERSION MODELS

The CRSTER and AQDM models used in our analysis are described in the Appendices to this report.

Models Used in Analysis

TIME AVERAGING PERIOD	PARTICULATES	SO_2
Annual Average	AQDM	AQDM
24 Hour Maximum	CRSTER	CRSTER
3 Hour Maximum	CRSTER	CRSTER

APPENDICES

MODEL DESCRIPTION

MODEL RUNS

SINGLE SOURCE (CRSTER) MODEL

Reference: Environmental Protection Agency. "User's Manual for Single Source (CRSTER) Model." Publication No. EPA-450/2-77-013 (NTIS PB 271360). Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711, July 1977.

Abstract: CRSTER is a steady state Gaussian plume technique applicable to both rural and urban areas in uneven terrain. The purpose of the technique is: (1) to determine the maximum concentrations, for certain averaging times between 1-hour and 24-hours, over a one year period due to a single point source of up to 19 stacks, (2) to determine the meteorological conditions which cause the maximum concentrations, and (3) to store concentration information useful in calculating frequency distributions for various averaging times. The concentration for each hour of the year is calculated and midnight - to - midnight averages are determined for each 24-hour period.

Equations:

$$\chi = \frac{Q}{2\pi u\, \sigma_y\, \sigma_z}\, g_1\, g_3 \qquad \text{for } \sigma_z \leq 1.6L$$

$$\chi = \frac{Q}{\sqrt{2\pi}\, uL\, \sigma_y}\, g_1 \qquad \text{for } \sigma_z > 1.6L$$

$\chi = 0$ (stability class 7)

L = mixing height (m)

H = (stack height + plume rise)-(difference in elevation between receptor and base of stack) (m)

$$g_1 = \exp\left[-\frac{1}{2}\left(\frac{y}{\sigma_y}\right)^2\right]$$

$$g_3 = \sum_{n=-\infty}^{+\infty} \exp\left\{\left[-\frac{1}{2}\left(\frac{2nL-H}{\sigma_z}\right)^2\right] + \exp\left[-\frac{1}{2}\left(\frac{2nL+H}{\sigma_z}\right)^2\right]\right\}$$

a. Source-Receptor Relationship

Up to 19 point sources, no area sources
All point sources assumed at the same location
Unique stack height for each source
Receptor locations restricted to 36 azimuths (every 10°) and 5 user-specified radial distances
Unique topographic elevation for each receptor; must be below top of stack

b. Emission Rate

Unique average emission rate for each source
Monthly variation in emission rate allowed

c. Chemical Composition

Treats a single inert pollutant

d. Plume Behavior

Briggs[8,9,10] final plume rise formulas
Does not treat fumigation or downwash
If plume height exceeds mixing height, concentrations further downwind assumed equal to zero

e. Horizontal Wind Field

Uses user-supplied hourly wind speeds
Uses user-supplied hourly wind directions (nearest 10°), internally modified by addition of a random integer value between -4° and +5°
Wind speeds corrected for release height based on power law variation, exponents from DeMarrais[6]; different exponents for different stability classes, reference height = 10 meters
Constant, uniform (steady-state) wind assumed within each hour

f. Vertical Wind Speed

Assumed equal to zero

g. Horizontal Dispersion

Semi-empirical/Gaussian plume
7 stability classes used; Turner Class 7: extremely stable, elevated plume assumed not to touch the ground
Dispersion coefficients from Turner; no further adjustments made for variations in surface roughness, transport or averaging time

h. Vertical Dispersion

Semi-empirical/Gaussian plume
7 stability classes
Dispersion coefficients from Turner; no further adjustments made

i. Chemistry/Reaction Mechanism

Not treated

j. Physical Removal

Not treated

k. Background

Not treated

l. Boundary Conditions

Lower boundary: perfect reflection at the same height as the receptor
Upper boundary: perfect reflection
Multiple reflections handled by summation of series until σ_z = 1.6 x mixing height
Uniform vertical distribution thereafter
Mixing height is constant and follows topographic variations:
Taken from base of stack for determining whether plume punches through
Taken from receptor elevation for determining vertical concentration distribution
Mixing height for a given hour is obtained by suitable interpolation using data from soundings taken twice a day. Interpolation technique dependent on mode of operation (urban or rural) and calculated stability class for the hour in question as well as the stability class for the hour just preceding sunrise.

m. Emission and Meteorological Correlation

User supplies hourly values of wind speed, direction, mixing height and other meteorological variables required for determination of stability class and plume rise
Monthly emission variation allows limited emission - meteorology correlation

n. Validation/Calibration

No calibration option provided
Comparison with observations around at least 5 separate power plants have been made

o. Output

Highest and second highest concentrations for the year at each receptor for averaging times of 1, 3, and 24-hours, plus a user-selected averaging time which may be 2, 4, 6, 8, or 12 hours
Annual arithmetic average at each receptor
For each day, the highest 1-hour and 24-hour concentrations over the receptor field
Hourly concentrations for each receptor on magnetic tape

p. Computer Requirements

Digital computer required
Core requirements are moderate

q. Limitations

Not applicable to area and line sources
Use care when applying to low-level sources

AIR QUALITY DISPLAY MODEL (AQDM)

Reference: TRW Systems Group. "Air Quality Display Model." Prepared for National Air Pollution Control Administration, DHEW, U.S. Public Health Service, Washington, D.C., November 1969, (NTIS PB 189194).

Abstract: AQDM is a climatological steady state Gaussian plume model that estimates annual arithmetic average sulfur dioxide and particulate concentrations at ground level in urban areas. A statistical model based on Larsen[1] is used to transform the average concentration data from a limited number of receptors into expected geometric mean and maximum concentration values for several different averaging times.

Equations:

For both point and area sources:

$$x = \sum_{k=1}^{16} \sum_{\ell=1}^{6} \sum_{m=1}^{5} \phi_{k\ell m} \, x_{k\ell m}$$

where:

$$x_{k\ell m} = \frac{16}{2\pi x} \cdot \frac{2Q}{\sqrt{2\pi}\,\sigma_z\,u_\ell} \left(\frac{c-y}{c}\right) \exp\left[-\frac{1}{2}\left(\frac{H}{\sigma_z}\right)^2\right] \quad \text{for } x \leq x_L$$

$$x_{k\ell m} = \frac{16}{2\pi x} \cdot \frac{Q}{u_\ell L} \left(\frac{c-y}{c}\right) \quad \text{for } x \geq 2x_L$$

linear interpolation for $x_L < x < 2x_L$

x_L defined by $\sigma_z(x_L) = 0.47L$

y = crosswind distance between receptor and sector k centerline

c = sector width at receptor location

$\sigma_z(x) = ax^b + c$; a,b,c = functions of stability class
a,b,c for neutral conditions split into
x > 1000m case and x ≤ 1000m case.

Q = emission rate (g/s)

H = plume height (m)

u = wind speed (m/s)

ϕ = relative frequency of occurrence from stability wind rose

σ_z = vertical standard deviation of plume concentrations (m)

x = downwind distance (m)

a. Source-Receptor Relationship

Arbitrary location and stack height for each point source
Arbitrary location and size for each area source
Up to 225 receptors located on uniform rectangular grid
Up to 12 user-specified receptor locations
Unique release height for each point, area source
Unique separation for each source-receptor pair
Receptors at ground level
No terrain differences between source and receptor

b. Emission Rate

Point sources: single rate for each source
Area sources: single rate for each source
Each source treated by effective single point source approximation
No temporal variation allowed

c. Chemical Composition

Treats one or two inert pollutants simultaneously

d. Plume Behavior

Holland[2] formula for point sources, with adjustment for stability
Calculations based on single arbitrary values of stack diameter, stack gas exit velocity and stack gas temperature for each point source
No plume rise calculated for area sources
Does not treat fumigation or downwash
If stack height plus plume rise is greater than mixing height, ground level concentration assumed equal to zero

e. Horizontal Wind Field

Climatological approach
16 wind directions
6 wind speed classes
No variation in wind speed with height
Constant, uniform (steady-state) wind assumed

f. Vertical Wind Speed

Assumed equal to zero

g. Horizontal Dispersion

Climatological approach
Uniform 22.5° wide plume assumed
Frequency of occurrence interpolated between sector centerlines
Averaging times from 1 month to 1 year or longer

h. Vertical Dispersion

Semi-empirical/Gaussian plume
5 stability classes as defined by Turner[3]
Neutral stability split internally into 60% day, 40% night
Dispersion coefficients from Pasquill and Gifford
Neutral dispersion coefficients used for stable class
No provision for variations in surface roughness

i. Chemistry/Reaction Mechanism

No provision for treatment

j. Physical Removal

No provision for treatment

k. Background

Input single constant background value for each pollutant.

l. Boundary Conditions

Lower boundary (ground): perfect reflection
Upper boundary (mixing height): no effect until $\sigma_z \geq 0.47L$ (this occurs at $x = x_L$) For $x_L < x < 2x_L$, σ_z is linearly interpolated between its value at x_L and its value at $2x_L$

m. Emission and Meteorological Correlation

Wind speed, direction, stability correlated via wind rose
Emission rate - not correlated with any other factor
Non-sequential (climatological) limited correlation
Mixing height adjusted according to stability class:
  Class A - 1.5 times the afternoon climatological value
  Classes B, C, and D(day) - equal to the afternoon climatological value
  Class E - 100 meters

n. Validation/Calibration

Calibration option available
Substantial experience but limited documentation

o. Output

1 month to 1 year averaging time simulated (arithmetic mean only)
Arbitrary averaging time by Larsen procedure
  (typically 1 - 24 hours)
  Assumes
  (1) lognormal concentration distribution,
  (2) power law dependence of median and maximum concentrations on averaging time
Up to 225 gridded receptor locations, 12 arbitrary locations
Individual point, area source culpability list for each receptor

p. Computer Requirements

Digital computer required
Core requirements are moderate

q. Limitations

Useable for urban areas only

```
PLANT NAME: MOBIL CHEMICALS SO2       POLLUTANT:          EMISSION UNITS: GM/SEC    AIR QUALITY UNITS: GM/M**3
N S P S DATA - NEW STACK HT. (30.5 M) DRYER
THIS IS A SINGLE SOURCE (CRSTER) MODEL ACTUAL RUN
THIS RUN ILLUSTRATES THE USE OF THE FOLLOWING OPTIONS:
*          SOURCE CONTRIBUTION
*          NO HOURLY OUTPUT TAPE
*          RURAL MIXING HEIGHTS
*          VARIABLE AVERAGING TIME
*         RUN FOR  365 DAYS
*            EVEN RECEPTOR TERRAIN          IPTZ=0
TAMPA FL UPPER AIR 12842
TAMPA FL SURFACE DATA 12842

             MET FILE     REQUESTED
            STN NO. YR   STN NO. YR
 SURFACE     12842  73    12842  73
 UPPER AIR   12842  73    12842  73
PLANT LOCATION: RURAL
NO TAPE OUTPUT
MET DATA WILL NOT BE PRINTED

DAY-- 1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
      1 1 1 1 1 1 1 1 1 1   1 1 1 1 0 0

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          ALL TABLES, INCLUDING SOURCE CONTRIBUTION, THAT CONTAIN "ANNUAL" IN THE HEADING ARE BASED ONLY ON THOSE DAYS

          MARKED BY "1" IN THE ABOVE TABLE
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BEST AVAILABLE COPY

RING DISTANCES(KM)= 1.00 2.00 3.00 4.00 5.00

PLANT ELEVATION (FEET ABOVE SEA LEVEL)-- 0.0 PLANT ELEVATION (METERS ABOVE SEA LEVEL)-- 0.0

RECEPTOR ELEVATIONS (FEET ABOVE SEA LEVEL) RECEPTOR ELEVATIONS (METERS ABOVE SEA LEVEL)

DIRECTION	RING#1	RING#2	RING#3	RING#4	RING#5	RING#1	RING#2	RING#3	RING#4	RING#5
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

STACK # 1--SURGE DRYER

STACK	MONTH	EMISSION RATE (GMS/SEC)	HEIGHT (METERS)	DIAMETER (METERS)	EXIT VELOCITY (M/SEC)	TEMP (DEG.K)	VOLUMETRIC FLOW (M**3/SEC)
1	ALL	2.4400	30.50	2.30	15.65	338.00	65.02