



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

DEC 24 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

RE: Occidental Chemical Complex
PSD-FL-067

Dear Mr. Smallwood:

Enclosed for your review and comment are the Public Notice and Preliminary PSD Determination for the Occidental Chemical Company's proposed modifications to their Suwanne River Chemical Complex which produces phosphoric acid, etc., located north of White Springs, Florida. The Public Notice will appear in a local newspaper, Lake City Reporter, in the near future.

Please let my office know if you have comments or questions regarding this determination. You may contact Mr. Kent Williams, Chief, New Source Review, at 404/881-4552 or Mr. Jeffrey 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

for Tommie A. Gibbs, Chief
Air Facilities Branch

TAG:JLS:clu

Enclosure



PUBLIC NOTICE
(PSD-FL-067)

A modification to an existing air pollution source is proposed for construction by the Occidental Chemical Company near the town of White Springs in Hamilton County, Florida. The source is a phosphate chemical complex and the proposed modification is the construction of an acid defluorinization unit. Expected emissions increases including increases during the last 5 years are as follows:

	<u>Proposed Modification</u>	<u>Previous Increases</u>	<u>Total</u>
Fluorides (tons per year)	3.1	25.9	29

Allowable increments have not been established for fluoride emissions, therefore, no increment analysis has been performed.

The proposed construction has been reviewed by the U.S. Environmental Protection Agency (EPA) under Federal Prevention of Significant Deterioration Regulations (40 CFR 52.21, promulgated August 7, 1980), 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 Occidental Chemical Company are available for public review in the office of the Clerk of Courts, Hamilton County Courthouse, 207 NE First Street, Jasper, Florida 32052.

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

Preliminary Determination
Occidental Chemical Company
PSD-FL-067

I. Applicant

Occidental Chemical Company
P. O. Box 300
White Springs, Florida 32096

II. Source Location

The applicant proposes to modify their Suwannee River Chemical Complex (SRCC), located east of State Road 137, off Highway US-41, north of the town of White Springs in Hamilton County, Florida. The UTM coordinates of the existing source are 328.320 east and 3,368.810 north.

III. Project Description

The proposed construction is a modification to the existing phosphate chemical processing plant. Plans are to construct an acid defluorination unit with a 420 ton per day phosphoric acid (P_2O_5) processing capacity. The defluorination unit will receive P_2O_5 from the phosphoric acid plant, mix it with diatomaceous earth, heat the mixture and sparge with air. In this process, fluorides react with silicon compounds in the diatomaceous earth to form silicon fluoride (SiF_4) gas which is removed through sparging and scrubbed in a cross-flow packed scrubber. Scrubber water is sent to the existing cooling pond.

The defluorination unit reduces the fluoride content of the P_2O_5 from about 1.65 percent to 0.15 percent. The defluorinated acid is used as a component to an animal feed supplement product. Fluorides in the sparge air stream not removed in the scrubber will be emitted to the atmosphere. Gypsum pond fugitive fluoride emissions are not expected to increase as the bulk of fluorides removed from the P_2O_5 processed in the new defluorination unit would have otherwise been removed during processing of the P_2O_5 in the existing phosphate fertilizer processes in the plant.

IV. Source Impact Analysis

The existing chemical plant clearly has the potential to emit greater than 100 tons per year of sulfur dioxide (SO_2) and other pollutants regulated under the Clean Air Act (Act) as amended on August 7, 1977. The source, therefore, is classified as a major stationary source as defined in Federal

Prevention of Significant Deterioration (PSD) regulations developed pursuant to this statute (40 CFR 52.21 as amended August 7, 1980). The proposed acid defluorination unit will increase emissions of fluorides by 3.1 tons per year as shown in Table 1. This emissions increase exceeds the significance level set in the PSD regulation. The proposed construction, therefore, constitutes a major modification subject to PSD review.

In addition to the proposed construction, several other contemporaneous emissions increases should be noted. The applicant proposes to increase production at several existing process units which correspondingly will increase fluoride emissions. The production increases, however, utilize excess capacity originally designed into the units and will not be due to a physical change or change in the method of operation. The capacities of these units, although permitted by the Florida State Department of Environmental Regulation (FDER), are not restricted by federally enforceable permit conditions. For these reasons, the existing unit capacity increases are not considered part of the proposed modification for the purposes of PSD review. However, the contemporaneous actual emissions increases due to the increased capacity utilization are accounted for in the Source Impact Analyses. Table 2 summarizes the pertinent unit capacity data and the associated contemporaneous fluoride emissions.

PSD review is required for each pollutant for which a significant net emissions increase occurs. For the proposed modification, PSD review is required for fluorides only. PSD review involves an analysis of the following:

- A. Best Available Control Technology (BACT);
- B. National Ambient Air Quality Standards (NAAQS);
- C. Increment Impacts;
- D. Growth Impacts;
- D. Soils, Vegetation, and Visibility Impacts; and
- F. Class I Area Impacts.

A. BACT Analysis

PSD regulations require an analysis of Best Available Control Technology for each emissions unit associated with a proposed major modification at which emissions of an applicable pollutant increase. However, certain special

TABLE 1
EMISSIONS SUMMARY
(tons per year)

	<u>TSP</u> <u>Fluorides</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u> <u>PM</u>	<u>VOC</u>	<u>Other</u>
Proposed Acid Defluorinization Unit	3.1 ^a ✓	0	0	0	0	0
Contemporaneous Actual Emissions Increases	25.9 ^b ✓	0	0	0	0	0
Contemporaneous Actual Emissions Decreases	0 ✓	0	0	0	0	0
Net Increase <i>Change</i>	29 ✓	0	0	0	0	0
PSD Significance Level ^c	3.0 ✓	40	40	25	100	-

^aBased on 0.04 lb fluoride (ton P₂O₅) processed and maximum capacity continuous operation.

^bAs estimated by the applicant (supplemental information, dated December 16, 1980).

^cExtracted from 40 CFR 52.21(b)(23)(i), promulgated August 7, 1980.

TABLE 2
SUMMARY OF ACTIVITIES AT SRCC SINCE DECEMBER, 1975⁽¹⁾
RESULTING IN CHANGES IN ANNUAL FLUORIDE EMISSIONS

OCCIDENTAL CHEMICAL COMPANY
WHITE SPRINGS, FLORIDA

Emissions Unit	Original FDER Permit		Physical Modification Resulting in Rate Increase		Rate Increase With No Physical Modification		Actual Annual Fluoride Emission Increases Occurring Within 5 Years
	Date	Capacity	Date	Capacity	Date	Capacity	
DAP No. 2 (Z Train)	Before 12/75	50 TPH DAP	None		9/16/80 ⁽²⁾ Proposed	60 TPH DAP 80 TPH DAP	3.8
Oxy. Phos. Acid	Before 12/75	386 TPD P ₂ O ₅	None		Proposed	525 TPH P ₂ O ₅	0.6
Prayon Phos. Acid	Before 12/75	785 TPD P ₂ O ₅	1977 (3)	1140 TPD P ₂ O ₅	Proposed	1400 TPD P ₂ O ₅	2.4
Acid Clarifiers	1977	1360 TPD P ₂ O ₅	None		Proposed	1674 TPD P ₂ O ₅	15.4
SPA (Phase I)	1977	1400 TPD P ₂ O ₅	None		Proposed	2000 TPD P ₂ O ₅	3.7
Acid Defluorination	Proposed	420 TPD P ₂ O ₅	N/A		N/A		3.1
TOTAL							29 tons/year

(1) Estimated commence construction date for the proposed modification is January, 1981.

(2) FDER Operating permit issued permitting hourly emission rate increase with no increase in annual emissions.

(3) Prior to 1977 the Prayon and Occidental phosphoric acid plants shared two gypsum filters. This limited the production capacity of the two plants to 386 TPD and 785 TPD respectively. In 1977 a third filter was adopted and dedicated to the Prayon Plant. This resulted in production rates for the Occidental and Prayon phosphoric acid plants of 386 and 1140 TPD, respectively. The modification did not require PSD review under the regulations in force at that time.

provisions are written into the PSD regulations for sources which submitted complete applications prior to August 7, 1980, the date the revised PSD regulations were promulgated (see 40 CFR 52.21(i)(9); promulgated August 7, 1980). A complete application for the proposed modification was received on July 18, 1980. For this reason, the proposed modification is exempt from the more restrictive 1980 BACT requirements (40 CFR 52.21(j); promulgated August 7, 1980, and instead is subject to the 1978 BACT requirements (40 CFR 52.21(j); promulgated June 19, 1978). The 1978 BACT requirements apply only to modifications which result in emissions increases after the application of controls of greater than or equal to 50 tons per year. Since the proposed modification in conjunction with previous increases (accumulated after August 7, 1977) increases fluoride emissions by only 29 tons per year, BACT requirements do not apply.

B. NAAQS Impact

No federal or Florida State NAAQS exists for fluorides. Since the proposed modification affects only emissions of fluorides, no NAAQS analysis is required.

C. Increment Impact

No allowable increment has been established for fluorides. Since the proposed modification affects only emissions of fluorides, no increment analysis was required.

D. Growth Impact

The PSD regulations require an analysis of commercial and industrial growth associated with a proposed new source or modification for use in evaluating impairments to visibility, soils, and vegetation in the area. However, the 1980 regulations exempts from these requirements sources which were in existence on March 1, 1978 incurring net emissions increases for each regulated pollutant of less than 50 tons (see 40 CFR 52.21(i)(7), promulgated August 7, 1980). The proposed modification meets these emissions criteria (29 tons per year fluoride) and the source was in existence prior to March 1, 1978. For these reasons, no growth analysis was required.

E. Soils, Vegetation, and Visibility Impacts

Consistent with the rationale presented in the Section D, no soils, vegetation, and visibility impacts analysis was required.

F. Class I Area Impacts

The SRCC plant is located about 37 kilometers from the Okefenokee Class I area. The total fluoride emissions increase from the modification and contemporaneous changes is 29 tons per year. Total fluoride emissions from the plant following the modification will be 99.5 tons per year.

A conservative screening analysis utilizing the approved CRSTER model and 5 years of meteorological data was performed to predict the maximum impacts on the Class I area at the closest point (37 kilometers) and at the furthest point (82 kilometers). Impacts within a 40 degree sector (30 to 70 degrees) were evaluated. Impacts outside this sector could not affect the Class I area. The modeling results are listed in Table 3. The proposed modification and all contemporaneous increases were considered in the analysis (modeled emissions rate equals 29 tons per year).

No clear guidelines exist to determine the significance of fluorides air impacts on Class I areas. However, the special Class I area significant emissions criteria which triggers PSD review for sources located within 10 kilometers of a Class I area is 1 ug/m^3 impact on a 24-hour average. Inspection of Table 3 shows that the source does not exceed this significance criteria and on this basis no adverse impact on the Class I area is anticipated. The results of this analysis are being forwarded to the Federal Land Manager responsible for this area for comment on the significance of the impact.

V. Conclusions

EPA Region IV proposes a preliminary determination of approval with conditions for the construction project (PSD-FL-067) proposed by the Occidental Chemical Company in the application submitted on May 20, 1980 (application determined complete as of July 17, 1980). The determination is based on the information contained in the application including supplementary information dated July 17, 1980 (revised application), November 16, 1980 (from Lawrence Curtin Esq.), December 16, 1980 and December 22, 1980. The Specific Conditions of approval are as follows:

TABLE 3
CLASS I AREA IMPACTS

	<u>Distance</u> (kilometers)	<u>Impact</u> (ug/m ³)	<u>Direction</u> ^a	<u>Year</u>	<u>Day</u>
Annual Impact	37km	0.008	50 ⁰	1976	---
	82km	0.003	50 ⁰	1976	---
24-hour Average (2nd High)	37km	0.26	50 ⁰	1976	201
	82km	0.11	50 ⁰	1976	354
3-hour Average (2nd High)	37km	1.42	30 ⁰	1974	197
	82km	0.69	30 ⁰	1974	61

^aNorth equals zero degrees.

1. The modification will be constructed in accordance with the capacities and specifications listed in the application including a 420 ton P_2O_5 per day acid defluorinization unit capacity.
2. The allowable emissions limits for the defluorinization unit shall be as follows:

Total Fluorides	0.04 pounds per ton of P_2O_5 processed and 0.7 pounds per hour.
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3. Performance tests to demonstrate compliance with the allowable emissions limits specified in Condition 2 shall be conducted using EPA standard methods and in accordance with the applicable provisions of 40 CFR 60.8, 60.203, 60.204, and the attached General Conditions. Production capacity shall be within 10 percent of maximum capacity during performance tests. All pertinent operating parameters, including process flow rates, scrubber pressure drop, etc., shall be monitored during the tests and documented in the test reports.
4. The pressure drop across the scrubber shall be monitored continuously and maintained within an allowable range determined during performance testing to achieve the allowable emissions limits. The test results and rationale used to establish this range shall be documented and submitted to the Administrator (or his representative) for approval. Operation outside the established allowable range shall constitute non-complying emissions and non-compliance with this specific permit condition.
5. The applicant shall comply with the provisions and requirements of the attached General Conditions.

GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.
2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.
3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.
4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:
 - (a) description of noncomplying emission(s),
 - (b) cause of noncompliance,
 - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
 - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission,and
 - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.
7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.
8. The permittee shall allow representatives of the State environmental control agency and/or representatives of the Environmental Protection Agency, upon the presentation of credentials:
 - (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;
 - (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emission of pollutants;and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to the:

Chief, Air Facilities Branch
Air and Hazardous Materials Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30308
10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.