

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

M E M O R A N D U M

TO: Mr. R. E. Jones Jr., New Wales Chemicals, Inc.
Mr. William Hennessey, Southwest District

FROM: *Summa W. Hanks*
Steve Smallwood, Bureau of Air Quality Management

DATE: March 20, 1981

SUBJ: New Wales Chemicals, Inc. Applications for Permits
to Construct Two Sulfuric Acid Plants.

Attached is one copy of the applications, Technical Evaluation and Preliminary Determination, BACT determination and proposed permits to construct two sulfuric acid plants to be located at the New Wales Chemicals facility on Highway 640 and County Line Road in Polk County.

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

SS:dav

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Sand Field to

sent to SW Dist.

Prelim. Det.

sent to EPA @ appl.

APR 16 1981

CHP S

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Public Notice

The Department intends to issue permits to New Wales Chemicals, Inc. for the construction of two sulfuric acid plants at their chemical complex in Polk County near the intersection of highway 640 and the Polk/Hillsborough County line. The permits will include conditions to assure compliance with Chapter 17-2 Florida Administrative Code (F.A.C.).

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

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

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

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

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

Technical Evaluation
and
Preliminary Determination

New Wales Chemical, Inc.
Polk County, Florida

Application Numbers:

AC 53-37829
AC 53-37830

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting
March 20, 1981

I. PROJECT DESCRIPTION

A. Applicant

New Wales Chemicals, Inc.
P. O. Box 1035
Mulberry, Florida 33860

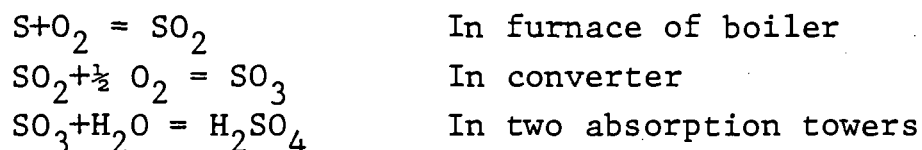
B. Project and Location

The applicant proposes to construct two sulfuric acid plants of the double absorption type. Each plant will have a maximum production rate of 2750 tons of 100% sulfuric acid per day.

The plant site is in western Polk County, Florida, at Highway 640 and County Line Road. UTM coordinates are 396.6 km East and 3078.9 km North.

C. Process and Controls

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



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

II. RULE APPLICABILITY

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

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

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

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

III. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS

A. Emission Limitations

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

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

Pollutant	Emission Limiting Standard (lb/ton of 100% H ₂ SO ₄ produced)	Emissions Per Plant (lb/hr)
Sulfur Dioxide	4	458
Acid Mist	0.15	17.2
Visible Emission	10% opacity	

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

B. Air Quality Analysis

An air quality analysis has been performed to evaluate the impact of the proposed project on ambient concentrations of SO₂. Through the use of dispersion modeling, the analysis considered the impacts of all SO₂ emitting sources within the New Wales complex along with those sources at other facilities surrounding the site which may add to the impact from New Wales. Two additional facilities which were omitted by the consultant but were added to the analysis and modeling by the Department were Conserv and Mobil, both in Nichols, Polk County.

Results of the analysis provide reasonable assurance that the project, as described in the permit and subject to the conditions therein, will not lead to any violation of Florida ambient air quality standards or PSD increments. Details of the analysis are discussed in the Technical Appendix B (attached).

IV. CONCLUSIONS

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

The permitted emissions from the plants, while each plant is at its maximum production rate of 2,750 TPD sulfuric acid, will not cause or contribute to any violation of ambient air quality standards or PSD increments.

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

TECHNICAL APPENDIX A

BACT Analysis

A determination of BACT for the two sulfuric acid plants was made by the Department on August 20, 1979, and revised on February 16, 1981, to reflect a greater production rate projected by the applicant. A copy of the February 16, 1981, BACT determination follows.

Best Available Control Technology (BACT) Determination

New Wales Chemicals, Inc.

Polk County, Florida

This BACT Determination is a revision of a previous Determination dated August 20, 1979. The applicant had proposed the construction of two identical double absorption sulfuric acid plants with a combined process input rate of 1320 tons per day of sulfur. The applicant has submitted applications to increase the combined process input rate to 1848 tons per day of sulfur. This determination incorporates the increase in process throughput.

BACT Determination Requested by the Applicant:

Pollutant

SO₂ 4 lbs/ton 100% H₂SO₄ acid produced

Sulfuric Acid Mist 0.15 lbs/ton 100% H₂SO₄ acid produced

Date of Receipt of a Complete BACT Application:

January 26, 1981

Date of Publication in the Florida Administrative Weekly:

August 6, 1979

Study Group Members:

There have been no significant technological improvements since the original BACT was prepared. The same emission limitations apply so a study group was not required.

BACT Determination by the Florida Department of Environmental Regulation:

SO₂ Emission not to exceed 4.0 #/ton of 100% H₂SO₄/attainable with a double absorption system.

Sulfuric Acid Mist Emissions not to exceed 0.15 #/ton 100% H₂SO₄/attainable with a high efficiency demister.

Opacity Not greater than 10 percent.

Test Method As prescribed in EPA NSPS, 40 CFR, Part 60, Subpart H.

Jacob D. Varn
February 13, 1981
Page Two

Justification of DER Determination:

The NSPS for this type of source has not changed since the original BACT. The emissions related to the revised process throughput will not violate any ambient air quality standards.

Details of the Analysis May be Obtained by Contacting:

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

The Bureau recommends approval and signature of this BACT Determination as amended.

By:

Steve Smallwood
Steve Smallwood, Chief, BAQM

Date:

February 13, 1981

Approved by:

Jacob D. Varn
Jacob D. Varn, Secretary

Date:

February 16, 1981

TECHNICAL APPENDIX B

Air Quality Impact Analysis

The air quality impact analysis for the proposed sulfuric acid plants was conducted in accordance with air quality modeling guidelines established by the U.S. Environmental Protection Agency. The long-term impact analysis was conducted with the AQDM and the short-term analysis with the CRSTER and PTMTPW models. Meteorological data from Orlando for the period 1974-1978 were used in the modeling.

The following tables summarize the results of the air quality impact analysis for sulfur dioxide and acid mist.

Pollutant	Max. New Source Impact (ug/m ³)	Max. Impact of all Sources (ug/m ³)
SO ₂		
Annual	6.5	26
24-Hour	59.0	233
3-Hour	347.0	924

Pollutant	Max. New Source Impact (ug/m ³)	Max. Impact of all Sources (ug/m ³)
Acid Mist		
Annual	0.13	1
24-Hour	2.2	5.3 ⁽¹⁾
3-Hour	13.1	32.2 ⁽¹⁾

(1) Max. impact of New Wales sources only.

The air quality analysis indicates that the two sulfuric acid plants can be constructed and operated at a production rate of 2750 tons per day each with no threat to SO₂ ambient air quality standards or PSD increments. The impact of sulfuric acid mist resulting from the proposed plants is not considered to be significant.

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STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: New Wales Chemicals, Inc.
P. O. Box 1035
Mulberry, Florida 33860

PERMIT/CERTIFICATION
NO. AC 53-37829

COUNTY: Polk

PROJECT: Sulfuric Acid
Plant No. 4

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

For the construction of a 2750 TPD double absorption type Sulfuric Acid Plant to be located at Highway 640 & County Line Road, in Polk County, Florida. The UTM Coordinates of the proposed plant are 396.6 km E and 3078.9 km N.

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

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-1.122(16)
2. New Wales Chemicals letter of January 22, 1981, (Responses to technical discrepancies).

PERMIT NO.: AC 53-37829
APPLICANT: New Wales Chemicals, Inc.

GENERAL CONDITIONS:

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

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

3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.

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

7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.

9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.

10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.

11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.

12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

13. This permit also constitutes:

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

PERMIT NO.: AC 53-37829
APPLICANT: New Wales Chemical, Inc.

SPECIFIC CONDITIONS:

1. This permit replaces permit No. AC 53-19049.
2. Maximum operation time will be 8,400 hours per year.
3. Maximum production rate will be 2750 tons per day and 114.6 tons per hour of 100% sulfuric acid.
4. The maximum amount of sulfur dioxide emitted will be 4 lb SO₂/ton 100% H₂SO₄ and 458 lb SO₂/hr.
5. The maximum amount of H₂SO₄ mist emitted will be 0.15 lb acid mist/ton 100% H₂SO₄ and 17.2 lb acid mist/hr.
6. Visible emissions shall not exceed 10% opacity.
7. Sulfur dioxide emission of the new sulfuric acid plant shall be continuously monitored in accordance with the provisions of Paragraph 60.84 of 40 CFR 60, Subpart H - Standards of Performance for Sulfuric Acid Plants. The applicant shall also comply with all other applicable requirements of 40 CFR 60, Subpart H. Quarterly reports of excess emissions from this plant will be submitted to the Department's Southwest District Office.
8. While construction is underway and before operating this plant, a minimum stack extension of 85 feet shall be added to the standby boiler on operating permit AO 53-5962 to prevent any violation of the ambient air standards for SO₂.
9. Reasonable precautions to prevent fugitive particulate emissions during construction, such as coating or spraying roads and construction sites used by contractors, will be taken by the applicant.
10. Construction shall reasonably conform to the plans submitted in the application.
11. The applicant shall report any delays in construction and completion of this plant to the Department's Southwest District Office.
12. Before this construction permit expires, the sulfuric acid plant will be tested for visible emissions, sulfur dioxide and sulfuric acid mist. Test procedures will be EPA reference methods 1,2,3,8, and 9 as published in 40CFR 60, Appendix A, dated July 1, 1978 or by any other State-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart H. The Department will be notified 30 days in advance of the compliance test. The test will be conducted at permitted production capacity +10%.

PERMIT NO.: AC 53-37829
APPLICANT: New Wales Chemicals, Inc.

Specific Conditions (Con't)

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

Victoria J. Tschinkel,
Secretary

Expiration Date: March 1, 1982

Issued this _____ day of _____, 19_____

_____ Pages Attached.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Signature

PAGE 4 OF 4

TWIN TOWERS OFFICE BUILDING
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TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR
JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: New Wales Chemicals, Inc.
P. O. Box 1035
Mulberry, Florida 33860

PERMIT/CERTIFICATION
NO.AC 53-37830

COUNTY: Polk

PROJECT: Sulfuric Acid
Plant No. 5

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

For the construction of a 2750 TPD double absorption type Sulfuric Acid Plant to be located at Highway 640 & County Line Road, in Polk County, Florida. The UTM Coordinates of the proposed plant are 396.6 km E and 3078.9 km N.

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

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-1.122(16)
2. New Wales Chemicals letter of January 22, 1981, (Responses to technical discrepancies).

PERMIT NO.: AC 53-37830
APPLICANT: New Wales Chemicals, Inc.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions", and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.
3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.
4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.
6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.
7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.
8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.
9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.
10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.
11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.
12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
13. This permit also constitutes:
 - Determination of Best Available Control Technology (BACT)
 - Determination of Prevention of Significant Deterioration (PSD)
 - Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 53-37830
APPLICANT: New Wales Chemical, Inc.

SPECIFIC CONDITIONS:

1. This permit replaces permit No. AC 53-19050.
2. Maximum operation time will be 8,400 hours per year.
3. Maximum production rate will be 2750 tons per day and 114.6 tons per hour of 100% sulfuric acid.
4. The maximum amount of sulfur dioxide emitted will be 4 lb SO₂/ton 100% H₂SO₄ and 458 lb SO₂/hr.
5. The maximum amount of H₂SO₄ mist emitted will be 0.15 lb acid mist/ton 100% H₂SO₄ and 17.2 lb acid mist/hr.
6. Visible emissions shall not exceed 10% opacity.
7. Sulfur dioxide emission of the new sulfuric acid plant shall be continuously monitored in accordance with the provisions of Paragraph 60.84 of 40 CFR 60, Subpart H - Standards of Performance for Sulfuric Acid Plants. The applicant shall also comply with all other applicable requirements of 40 CFR 60, Subpart H. Quarterly reports of excess emissions from this plant will be submitted to the Department's Southwest District Office.
8. While construction is underway and before operating this plant, a minimum stack extension of 85 feet shall be added to the standby boiler on operating permit AO 53-5962 to prevent any violation of the ambient air standards for SO₂.
9. Reasonable precautions to prevent fugitive particulate emissions during construction, such as coating or spraying roads and construction sites used by contractors, will be taken by the applicant.
10. Construction shall reasonably conform to the plans submitted in the application.
11. The applicant shall report any delays in construction and completion of this plant to the Department's Southwest District Office.
12. Before this construction permit expires, the sulfuric acid plant will be tested for visible emissions, sulfur dioxide and sulfuric acid mist. Test procedures will be EPA reference methods 1,2,3,8, and 9 as published in 40CFR 60, Appendix A, dated July 1, 1978 or by any other State-approved method. Minimum sample volume and time per run will be as defined in 40 CFR 60, Subpart H. The Department will be notified 30 days in advance of the compliance test. The test will be conducted at permitted production capacity +10%.

PERMIT NO.: AC 53-37830
APPLICANT: New Wales Chemicals, Inc.

Specific Conditions (Con't)

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

Victoria J. Tschinkel,
Secretary

Expiration Date: June 1, 1982

Issued this _____ day of _____, 19____

_____ Pages Attached

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Signature

PAGE 4 OF 4

Technical Evaluation
and
Preliminary Determination

New Wales Chemicals, Inc.
Polk County, Florida

Federal Permit Number
PSD-FL-072

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting
April 22, 1981

Public Notice

PSD-FL-072

The New Wales Chemicals Company proposes to modify two double absorption type sulfuric acid plants, currently under construction at their chemical complex in western Polk County, to increase the production rate of each plant from 2,000 tons per day (TPD) to 2,750 TPD of 100% sulfuric acid.

Total emissions of air pollutants, in tons per year, resulting from the modification alone will be:

SO ₂	Acid Mist	CO	NO _x
1050	39.4	3.0	36.8

By authority of the U.S. Environmental Protection Agency, the Florida Department of Environmental Regulation (FDER) has reviewed the proposed modification under federal prevention of significant deterioration (PSD) regulations (40 CFR 52.21). The FDER has made a preliminary determination that the modification can be approved provided certain conditions are met. A summary of the basis for this determination and the application for a permit submitted by New Wales Chemicals, Inc. are available for public review in the Bartow Public Library, Bartow, Florida, and the following FDER offices:

Southwest District
7601 Highway 301 North
Tampa, Florida 33601

Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

The maximum percentage of allowable PSD increment consumed by the proposed modification is as follows:

Class II Increment

	<u>Annual</u>	<u>24-Hour</u>	<u>3-Hour</u>
SO ₂	4	14	18

Any person may submit written comments to FDER regarding the proposed modification. All comments postmarked not later than 30 days from the date of this notice will be considered by FDER in making a final determination regarding approval of this modification. These comments will be made available for public review at the above locations. 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. Bill Thomas, P.E.
New Source Review Section
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

I. PROJECT DESCRIPTION

A. Applicant

New Wales Chemicals, Inc.
P. O. Box 1035
Mulberry, Florida 33860

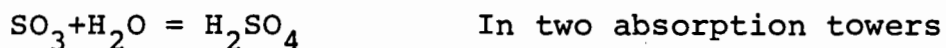
B. Project and Location

The applicant proposes to modify two double absorption type sulfuric acid plants, currently under construction, by increasing the production rate of each plant from 2,000 tons per day (TPD) to 2,750 TPD of 100% sulfuric acid. No physical change to the new plants is required to achieve the higher production rates. The affected plants are designated No. 4 and No. 5 by the applicant.

The plant site is in western Polk County, Florida, at Highway 640 and County Line Road. UTM coordinates are 396.6 km East and 3078.9 km North.

C. Process and Controls

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



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

II. RULE APPLICABILITY

The proposed project (production rate increase) is subject to preconstruction review under federal prevention of significant deterioration (PSD) regulations, Section 52.21 of Title 40 of the Code of Federal Regulations (40 CFR 52.21) as amended in the Federal Register of August 7, 1980 (45 FR 52676). Specifically, the New Wales Chemicals plant is a major stationary source (40 CFR 52.21)(b)(1)) located in an area designated in 40 CFR 81.310 as unclassifiable for the criteria pollutant particulate matter and attainment for the remaining criteria pollutants including SO₂. New Wales was granted authority to construct two 2000 TPD sulfuric acid plants on May 23, 1980 (federal PSD permit number PSD-FL-034). The proposed production rate increase (from 2000 TPD to 2750 TPD per plant) would result in a significant net emissions increase of SO₂ and sulfuric acid mist, thereby rendering it a major modification (40 CFR 52.21(b)(2)) subject to PSD review (40 CFR 52.21(i)).

Full PSD review is required for each pollutant for which a significant net emissions increase would occur, in this case SO₂ and sulfuric acid mist. The review consists of a determination of best available control technology (BACT) and an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the impact on soils, vegetation, visibility and air quality impacts resulting from associated commercial, residential, and industrial growth.

The proposed project is also subject to the provisions of the federal New Source Performance Standard (NSPS) for sulfuric acid plants, 40 CFR 60, Subpart H.

III. SUMMARY OF EMISSIONS AND AIR QUALITY ANALYSIS

A. Emission Limitations

Table I summarizes the emissions of all pollutants regulated under the Act which are affected by the proposed modification. As the table shows, the proposed emissions increases of SO₂ and sulfuric acid mist exceed the significance levels set in the PSD regulations. The net emissions increases of carbon monoxide (CO) and nitrogen oxides (NO_x) are not significant; therefore, these pollutants are not subject to PSD review.

Best available control technology (BACT) has been determined for SO₂ and sulfuric acid mist emissions from the proposed sources. The emission limiting standards selected as BACT and made a condition of this permit are listed in Table II. Justification for the standards selected is included in Technical Appendix A.

The permitted emissions, including those subject to BACT, are in compliance with the federal New Source Performance Standards (NSPS) requirements of 40 CFR 60, Subpart H.

Table I
Emissions Summary

<u>Source</u>	Pollutant Emissions in Tons per Year			
	<u>SO₂</u>	<u>Acid Mist</u>	<u>NO_x</u>	<u>CO</u>
A. New Construction (1)				
No. 4 H ₂ SO ₄ Plant	1400	52.5	49.6	< 1
No. 5 H ₂ SO ₄ Plant	1400	52.5	49.6	< 1
B. After Modification (2)				
No. 4 H ₂ SO ₄ Plant	1925	72.2	68.0	< 1
No. 5 H ₂ SO ₄ Plant	1925	72.2	68.0	< 1
C. Increase from Modification (3)				
No. 4 H ₂ SO ₄ Plant	525	19.7	18.4	0.1
No. 5 H ₂ SO ₄ Plant	525	19.7	18.4	0.1
Fugitive Emissions (4)	0	0	0.2	2.8
D. Total Net Increase	1050	39.4	37.0	3.0
E. Significant Net Increase (5)	40	7.0	40.0	100

(1) Permitted allowable emissions (PSD-FL-034) at design rate of 2000 tons per day of 100% H₂SO₄ for 8400 hours per year

(2) Permitted allowable emissions (PSD-FL-072) at design rate of 2750 tons per day of 100% H₂SO₄ for 8400 hours per year

(3) Additional emissions which will result from increasing the production capacity of the No. 4 and No. 5 sulfuric acid plants from 2000 TPD to 2750 TPD each.

(4) Vehicle Traffic

(5) 40 CFR 52.21 (b) (23)

Table II

Allowable Emission Limits

Each Modified Sulfuric Acid Plant

<u>Pollutant</u>	<u>Maximum Emission- Pounds Per Hour</u>	<u>Emission Limiting Standard</u>	<u>Basis</u>
SO ₂	458.3	4 ^(a)	NSPS, BACT
Acid Mist	17.2	0.15 ^(a)	NSPS, BACT
Visible Emission		10% opacity	NSPS, BACT
NO _x	16.2	2.1 x 10 ⁻⁶ lb/dscf	PSD-FL-034

(a) Pounds per ton of 100% H₂SO₄ produced

B. Air Quality Impacts

An air quality impacts analysis has been performed to evaluate the impact of the proposed project on ambient concentrations of SO₂ and sulfuric acid mist. Through the use of dispersion modeling, the analysis considered the impacts of all SO₂ emitting sources within the New Wales complex along with those sources at other facilities surrounding the site which may add to the impact from New Wales.

Results of the analysis provide reasonable assurance that the project, as described in this permit and subject to the conditions herein, will not lead to any violation of National Ambient Air Quality Standards or PSD increments. Details of the analysis are discussed in the Technical Appendix B.

C. Additional Impact Analysis

An additional impacts analysis has been performed to assess (1) the impact of the proposed project on soils, vegetation, and visibility and (2) any air quality impacts resulting from associated commercial, residential, or industrial growth. No adverse impacts are expected; details of the analysis are discussed in Technical Appendix C.

IV. CONCLUSIONS

FDER proposes a preliminary determination of approval with conditions for the modification project (production rate increase) requested by the New Wales Chemicals Company in the PSD permit application submitted in December, 1980 and made complete on January 26, 1981. The determination is based on the information contained in the application and the supplementary information provided by the applicant on January 26, 1981.

The specific conditions of approval are as follows:

1. The new facility shall be constructed in accordance with the capacities and specifications stated in Table I.

2. Emission of sulfur dioxide from each modified sulfuric acid plant shall not exceed 458.3 pounds per hour at the maximum allowable operating rate of 114.5 tons per hour of 100% H_2SO_4 . At lesser operating rates, the emissions shall not exceed 4 pounds per ton of 100% H_2SO_4 produced.

3. Emission of acid mist from each modified sulfuric acid plant shall not exceed 17.2 pounds per hour at the maximum allowable operating rate of 114.5 tons per hour of 100% H_2SO_4 . At lesser operating rates, the emissions shall not exceed 0.15 pounds per ton 100% H_2SO_4 .

4. Visible emissions from each modified sulfuric acid plant shall not exceed 10% opacity.

5. Sulfur dioxide emissions from the modified sulfuric acid plants shall be continuously monitored in accordance with the provisions of Paragraph 60.84 of 40 CFR 60, Subpart H -

Standards of Performance for Sulfuric Acid Plants. The applicant shall also comply with all other applicable requirements of 40 CFR 60, Subpart H.

6. Compliance with all emission limits shall be determined by performance tests scheduled in accordance with the attached General Conditions. Except as provided under 40 CFR 60.8(b), the performance tests shall be conducted in accordance with the provisions of the following reference methods in Appendix A of 40 CFR 60:

- a. Method 1 for sample and velocity traverses;
- b. Method 2 for volumetric flow rate;
- c. Method 3 for gas analysis;
- d. Method 8 for concentration of SO₂ and acid mist; and
- e. Method 9 for visible emissions.

A compliance test shall consist of the average of three consecutive runs. The maximum sample time and volume per run will be as specified in the NSPS (40 CFR 60.85). Each facility shall operate within 10 percent of maximum capacity during sampling. The parameters for the operating rate, control equipment variables and all continuous monitoring results shall be recorded during compliance testing and made a part of the test report.

7. This permit is not valid until the applicant has received permits covering the proposed modification issued under the State of Florida SIP. Any emission limits in these permits which are more stringent than those specified in the conditions above shall become a condition of this permit.

8. Maximum operating time for each plant will be limited to 8400 hours per year.

9. The source shall comply with the 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 compliance 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 permitted 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) anticipate 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 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.

TECHNICAL APPENDIX A

BACT ANALYSIS

The applicant is required, under the provisions of 40 CFR 52.21 as revised August 7, 1980 (45 CFR 52676), to apply BACT to all criteria and noncriteria pollutants for which a significant net emissions increase would occur.

A determination of BACT for the two sulfuric acid plants was made by the Environmental Protection Agency (EPA) in the original PSD permit, PSD-FL-034. This BACT determination is revised as part of this permit, PSD-FL-072, to reflect the greater production rate projected by the applicant.

The NSPS for sulfuric acid plants (40 CFR 60, Subpart H) specifies SO₂, acid mist and visible emission limitations. These serve as a starting point for defining BACT. A recent review of the NSPS for sulfuric acid plants sponsored by EPA concluded that the current emission limitations should not be made more stringent. Therefore, the applicant proposed the NSPS levels as BACT. FDER agrees with the proposed limits as BACT for these sulfuric acid plants. The limits are summarized in Table II; a discussion of the BACT for each pollutant follows

1. Sulfur Dioxide

The applicant proposed double absorption technology and an emission limit of 4.0 pounds per ton of 100% H₂SO₄ produced as BACT for SO₂ from the sulfuric acid plants, based on the NSPS requirement (40 CFR 60.82). EPA recently reviewed available sulfuric acid plant technology and concluded that double

absorption remains the best technology for SO₂ emissions control. No basis for reducing the NSPS limit was found to exist. Similarly, no justification could be found by FDER to require a lower emission limit for the proposed plants.

2. Acid Mist

The applicant proposed high efficiency mist eliminators and an emission limit of 0.15 pounds of sulfuric acid mist per ton of acid produced as BACT, based on the NSPS requirements (40 CFR 60.83). FDER concurs that the NSPS for acid mist of 0.15 pounds per ton of 100% H₂SO₄ produced and the proposed control equipment constitutes BACT for this case. No justification for more stringent control could be found.

TECHNICAL APPENDIX B

AIR QUALITY ANALYSIS

PSD Increment Analysis

PSD increment analysis pertains only to SO₂ and particulate matter (PM) for which maximum allowable increases (increments) are defined in 40 CFR 52.21(c). These increments provide for future industrial growth while also ensuring that "cleaner" areas of the nation remain relatively clean. In the vicinity of the New Wales plant, the Class II PSD increments apply.

For the proposed modification (production increase) at New Wales, only two pollutants, SO₂ and sulfuric acid mist, are subject to PSD review. Both have emission rate increases above the significance levels defined in 40 CFR 52.21 (b) (23). Only SO₂ is subject to PSD increment analysis.

The Single-Source (CRSTER) model was used initially to determine the maximum area of impact of the proposed modification. This was determined by finding the greatest distance to which the predicted ground-level concentration (g.l.c.) equaled or exceeded the significance level for each averaging time (annual, 24-hour, and 3-hour) for which SO₂ increments are established. The model was run with receptor distance ranges of 3,6,9,12, and 15 kilometers. The distances to the significance levels were interpolated from these runs.

The surface meteorological data used in this analysis and all subsequent analyses were that of the National Weather Service in

Orlando, Florida for the period 1974 to 1978. Upper air data for the same period were derived from soundings taken at Tampa, Florida. The table below shows the maximum areas of impact for the proposed emission increase given as radii of circles equal to the greatest distances as determined above.

<u>Pollutant (Avg. Time)</u>	<u>Significance Level</u>	<u>Impact Area Radius</u>
SO ₂ (Annual)	1 ug/m ³	3.0 km
SO ₂ (24-hour)	5 ug/m ³	10.3 km
SO ₂ (3-hour)	25 ug/m ³	5.6 km

The maximum impact due to increment consuming sources at New Wales and surrounding plants was considered next. To determine the annual impact, the Air Quality Display Model (AQDM) was run using the five years of meteorological data in the STAR format with five stability classes. For the short-term increment analysis the PTMTPW model (a multiple point-source model) was used. This model was run for days of critical meteorology identified in the CRSTER runs, that is, days for which conditions were such that high concentrations were predicted to occur due to the New Wales sources only. Sources upwind of New Wales that consume increment were included for each critical day along with the New Wales increment consuming sources. The receptors for each model run for both the 24-hour and 3-hour averaging times were spaced at 0.1 kilometers. The maximum increment consumption concluded from the PTMTPW and AQDM modeling is summarized below.

<u>Pollutant (Avg. Time)</u>	<u>Maximum Impact of Modification Alone</u>	<u>Maximum Increment Consumed</u>	<u>Class II Allowable Increment</u>
SO ₂ (annual)	0.7 ug/m ³	6.6 ug/m ³	20 ug/m ³
SO ₂ (24-hour)	12.9 ug/m ³ (1)	59.3 ug/m ³ (1)	91 ug/m ³
SO ₂ (3-hour)	90.4 ug/m ³ (1)	347.3 ug/m ³ (1)	512 ug/m ³

(1) Highest second-high ground level concentration over the five year period.

The nearest Class I area to New Wales is the Chassohowitzka National Wilderness Area more than 100 kilometers to the north-west. The impact analysis of the proposed increase showed significant impact out to only 10.3 kilometers. Therefore, no increment consumption or adverse impact is predicted to occur in this Class I area.

National Ambient Air Quality Standards Analysis

The National Ambient Air Quality Standards (NAAQS) are established to protect public health and welfare. PSD regulations require the permit applicant to demonstrate that a proposed emissions increase subject to PSD review will not cause or contribute to any NAAQS violations. For the proposed modification at New Wales, PSD review is required for SO₂ and sulfuric acid mist; other emitted pollutants from the proposed modification, CO and NO_x, fall below the significant emission rates and are exempt from PSD review. NAAQS are established for SO₂; however, for this modification the permit applicant is exempt from the preconstruction monitoring requirements (40 CFR 52.21(m)) due to the maximum impact from the increase in SO₂ emissions being less than 13 ug/m³ on a

24-hour average, (40 CFR 52.21(i)(8)).

The maximum annual average g.l.c. of SO₂, taking into account all sources of SO₂ in the surrounding area of New Wales, was determined using the ADQM model. A background value of zero was assumed since all sources of SO₂ in the area were included in the modeling. A receptor grid spacing of 1.0 kilometer was used. The maximum predicted impact is 34.6 ug/m³.

The 24-hour and 3-hour maximum impacts were determined for selected days of critical meteorology as determined by the CRSTER model run for New Wales alone. PTMTPW was run for these days using all New Wales sources of SO₂ along with all significant sources upwind of the New Wales site. Again, a zero background concentration was assumed. The highest second-high days of critical meteorology were used and the grid spacing of the receptors was set at 0.1 kilometer. The results show maximum g.l.c.'s for 24-hour and 3-hour averages to be 223.4 ug/m³ and 924.0 ug/m³ respectively. The following table summarizes the results.

<u>Pollutant (Avg. Time)</u>	<u>Projected Air Quality</u>	<u>NAAQS</u>
SO ₂ (annual)	34.6 ug/m ³	80 ug/m ³
SO ₂ (24-hour)	223.4 ug/m ³ (1)	365 ug/m ³
SO ₂ (3-hour)	924.0 ug/m ³ (1)	1300 ug/m ³

(1) Highest second-high ground level concentration over the five year period.

The proposed emissions increase in sulfuric acid mist is 39.4 tons per year. This is above the significance level given in 40 CFR 52.21(b)(23) and as such is subject to PSD review. Sulfuric acid mist is a non-criteria pollutant so there are no NAAQS with which to compare. However, dispersion modeling was conducted to determine the maximum g.l.c.'s of sulfuric acid mist for the same averaging times used in the SO₂ analysis. The results are shown in the table below.

<u>Pollutant (Avg. Time)</u>	<u>Maximum Impact of Modification Alone</u>	<u>Maximum Impact of All Sources</u>
Sulfuric Acid Mist (Annual)	0.03 ug/m ³	1.0 ug/m ³
Sulfuric Acid Mist (24-hour)	0.61 ug/m ³	5.3 ug/m ³ (1)
Sulfuric Acid Mist (3-hour)	3.6 ug/m ³	32.2 ug/m ³ (1)

(1) Maximum impact of all sources at New Wales only.

Downwash was considered and found to be not important due to the stack heights being nearly equal to the good engineering practice criterion, or 2.5 times higher than any local structure.

TECHNICAL APPENDIX C

ADDITIONAL IMPACT ANALYSIS

Impact on Soils, Vegetation, and Visibility

The maximum impact of the proposed increase in SO₂ emissions, as demonstrated through the air quality analysis, will be below the national secondary air quality standards established to protect public welfare related values. As such, no adverse effect on soils, vegetation, and visibility is expected. The small increase in sulfuric acid mist concentrations is also not expected to have any significant impact.

Growth Impacts

The proposed production rate increase will result in no new jobs and hence no impact on air quality in the area as a result of population growth. The air quality impact analysis shows the maximum impacts of the modification alone will use less than 18% of the allowable PSD increments for all averaging times. Therefore future industrial growth in the area is not seen to be significantly impeded.