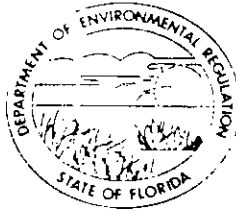


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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY

June 1, 1987

Mr. Wayne Aronson
Chief
Program Support Section
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Aronson:

RE: PSD Application
Technical Evaluation & Preliminary Determination
Gardinier, Inc.: PSD-FL-118

Enclosed for your review and comment is a copy of the Technical Evaluation and Preliminary Determination for Gardinier, Inc., for modifications to the No. 8 sulfuric acid plant at their existing Tampa phosphate fertilizer chemical complex located in Hillsborough County, Florida. If you have any comments or questions, please contact Bob Daugherty at (904)488-1344 or write to me at the above address.

Sincerely,

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

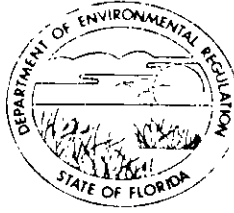
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enclosure

File (copy)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY

June 1, 1987

Mr. Miguel Flores
Chief, Permit Review and Technical
Support Branch
National Park Service - Air
Post Office Box 25287
Denver, Colorado 80225

Dear Mr. Flores:

RE: PSD Application
Technical Evaluation & Preliminary Determination
Gardinier, Inc.: PSD-FL-118

Enclosed for your review and comment is a copy of the Technical Evaluation and Preliminary Determination for Gardinier, Inc., for modifications to the No. 8 sulfuric acid plant at their existing Tampa phosphate fertilizer chemical complex located in Hillsborough County, Florida. If you have any comments or questions, please contact Bob Daugherty at (904)488-1344 or write to me at the above address.

Sincerely,

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

/bm

enclosure

cc: Russ Galipeau, SE Regional Office, NPS (w/o enclosure)
Glen A. Carowan, Jr., Chassahowitzka-National Wildlife Refuge
U.S. Fish & Wildlife Service (w/o enclosure)

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

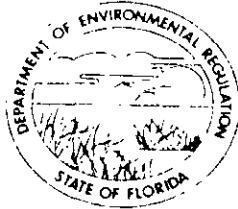
Gardinier, Inc.
P. O. Box 3269

DER File No. AC 29-130371

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

File Case 01

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY

May 29, 1987

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Rudy J. Cabina, Vice President
Gardinier, Inc.
P. O. Box 3269
Tampa, Florida 33601

Dear Mr. Cabina:

Attached is one copy of the Technical Evaluation and Preliminary Determination for the proposed modifications to the No. 8 sulfuric acid plant at your existing Tampa phosphate fertilizer chemical complex.

Please submit, in writing, any comments which you wish to have considered concerning the Department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

A handwritten signature in cursive script, appearing to read "C. H. Fancy".

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

CHF/ks

Attachments

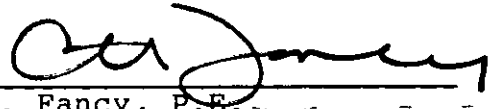
cc: B. Thomas, SW District
E. Morris, Gardinier, Inc.
R. Nettles, P.E., Gardinier, Inc.
J. Campbell, HCEPC
D. Buff, KBN
W. Aronson, EPA
M. Flores, NPS

the notice. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, Florida Statutes. A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. Petitions must comply with the requirement of Florida Administrative Code Rules 17-103.155 and 28-5.201 (copies enclosed) and be filed with (received by) the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant must be filed within fourteen (14) days of receipt of this intent. Petitions filed by other persons must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this intent, whichever first occurs. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes, concerning the subject permit application. Petitions which are not filed in accordance with the above provisions will be dismissed.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION


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

Copies furnished to:

B. Thomas, SW District
E. Morris, Gardinier, Inc.
R. Nettles, P.E., Gardinier, Inc.
J. Campbell, HCEPC
D. Buff, KBN
W. Aronson, EPA
M. Flores, NPS

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on June 1, 1987.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to
§120.52(9), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.

R. Bruce Mitchell
Clerk

6/1/87
Date

State of Florida
Department of Environmental Regulation
Notice of Proposed Agency Action
on Permit Application

The Department of Environmental Regulation gives notice of its intent to issue a permit to modify Gardinier, Inc.'s No. 8 sulfuric acid plant located south of Tampa in Hillsborough County at the intersection of U.S. Highway 41 and Riverview Drive. A determination of best available control technology (BACT) was required.

The Company has requested permission to make modifications to increase production of their No. 8 sulfuric acid plant to 2500 TPD. The allowable emissions will be 4.0 lbs sulfur dioxide and 0.15 lb acid mist per ton of acid produced and visible emissions of 5 percent opacity. These emissions will not cause or contribute to an ambient air quality standard violation or violate any federal, state, or county regulation. No increment consumption will result from the changes in emissions at this plant after this modification.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a request for hearing within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this preliminary statement. Therefore, persons who may not object to the proposed agency action may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207 at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee,

Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Hillsborough County Environmental
Protection Commission
1900 9th Avenue
Tampa, Florida 33605

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Florida 33610

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination.

RULES OF THE ADMINISTRATIVE COMMISSION
MODEL RULES OF PROCEDURE
CHAPTER 28-5
DECISIONS DETERMINING SUBSTANTIAL INTERESTS

28-5.15 Requests for Formal and Informal Proceedings

- (1) Requests for proceedings shall be made by petition to the agency involved. Each petition shall be printed, typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double spaced and indented.
- (2) All petitions filed under these rules should contain:
 - (a) The name and address of each agency affected and each agency's file or identification number, if known;
 - (b) The name and address of the petitioner or petitioners;
 - (c) All disputed issues of material fact. If there are none, the petition must so indicate;
 - (d) A concise statement of the ultimate facts alleged, and the rules, regulations and constitutional provisions which entitle the petitioner to relief;
 - (e) A statement summarizing any informal action taken to resolve the issues, and the results of that action;
 - (f) A demand for the relief to which the petitioner deems himself entitled; and
 - (g) Such other information which the petitioner contends is material.

Technical Evaluation
and
Preliminary Determination

Gardinier, Inc.
Hillsborough County
Tampa, Florida 33601

No. 8 Sulfur Acid Plant Modification
Permit Numbers:
State: AC 29-130371
Federal: PSD-FL-118

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

May 29, 1987

I. Applicant

Gardinier, Inc.
Tampa Chemical Plant
P. O. Box 3269
Tampa, Florida 33601

II. Location

The proposed source to be modified is located on the southeast shore of Hillsborough Bay in Hillsborough County at the intersection of U.S. Highway 41 and Riverview Drive. The UTM coordinates are: zone 17, 363.3 km E and 3082.4 km N.

III. Project Description

Gardinier, Inc. proposes to expand the production capacity of the No. 8 sulfuric acid (H_2SO_4) plant at their Tampa phosphate fertilizer complex. This No. 8 sulfuric acid plant is currently permitted (construction permit No. AC 29-089696, expiration date is October 1, 1987) to produce 2200 tons per day (TPD) of H_2SO_4 . It is proposed to increase the H_2SO_4 production capabilities of the No. 8 sulfuric acid plant to 2500 TPD. The proposed project will also involve the installation of (32 megawatt) electric cogeneration facilities.

These facilities will utilize steam from the sulfuric acid plants (Nos. 7, 8, and 9) to produce electric power for use in the Gardinier plant and for sale to the electric power grid.

Gardiner, Inc. states that expansion of the allowable production of the No. 8 sulfuric acid plant to 2500 TPD will allow for the improved efficiency of steam production to support electrical cogeneration facilities. However, total annual production of sulfuric acid at the facility, is not expected to increase.

Gardiner's sulfuric acid demand is mainly dependent on their need to produce phosphoric acid. Phosphoric acid production is limited by the two existing phosphoric acid plants. Gardinier reports they presently have no plans, nor does the market demand, additional phosphoric acid production.

IV. Rule Applicability

The proposed project, modification to No. 8 sulfuric acid plant to increase production, is subject to preconstruction review under the provisions of Chapter 403, FS, and Chapter 17-2, FAC.

The sulfuric acid plant is in an area designated nonattainment for particulate matter and ozone (17-2.420).

The proposed modification is not subject to New Source Review for nonattainment area (17-2.510) because the sulfuric acid plants are not a source of particulate matter or volatile organic compounds.

The facility is a major source of sulfur dioxide (17-2.100) because total emissions exceed 100 TPY. The modification will cause significant net emission increases of sulfur dioxide and acid mist. Therefore, the modification is subject to the Prevention of Significant Deterioration regulations (17-2.500(2)(d)(4.)) and the preconstruction review requirements outlined in 17-2.500(5). Emission standards for the modified plant will be established by a Best Available Control Technology determination (17-2.500(5)(c)). In addition, the modified plant will have to comply with the applicable standards of Performance for New Stationary Sources (17-2.660).

The plant must also comply with the regulations of the Hillsborough County Environmental Protection Commission.

V. Technical Evaluation

Gardinier, Inc. received a construction permit (AC 29-089696) from the Department in February 1985, to increase the production capacity of the No. 8 sulfuric acid plant from 1770 TPD to 2200 TPD. That construction permit limited SO₂ emissions from the source to NSPS-4 lbs sulfur dioxide per ton of H₂SO₄ produced (366.7 lbs/hr SO₂) and limited H₂SO₄ mist emissions to 0.15 lb/ton of H₂SO₄ produced (13.75 lbs/hr). Gardinier reports that No. 8 sulfuric acid plant is currently operating under these specified conditions and will continue to comply with them.

In order to achieve these emission requirements, Gardinier installed the necessary gas ducting to permit parallel gas flows through the last two catalyst masses in the main converter. This allows increased production by reducing the pressure drop throughout the system. They installed larger diameter export steam piping to handle additional steam production from the plant and replaced the cast iron cooling coils with new stainless steel heat exchangers for acid cooling.

To achieve these same emission requirements at the proposed 2500 TPD, Gardinier will install a superheater in parallel with No. 1 boiler and a new super heater/economizer in the exit of the 3A pass in parallel with the existing one. Additional catalyst will be installed in the main converter. If the plant is unable to meet the new production and emission limits, then more extensive replacement of the steam system, boiler, blower, and turbine will be required.

The applicant's technical and economical feasibility evaluations of electrical cogeneration facilities with the

production of sulfuric acid at Gardinier have indicated that major changes and modifications are needed at the No. 8 sulfuric acid plant. The feasibility of the project is dependent on the increase in production of No. 8 plant for the increase in efficiency of steam production for electrical cogeneration.

VI. Ambient Air Quality Analysis

An ambient air quality analysis is required for the pollutants sulfur dioxide (SO₂) and sulfuric acid (H₂SO₄) mist. The annual emissions for both of these pollutants will significantly increase. The analysis required consists of:

- ° An analysis of existing air quality;
- ° A PSD increment analysis;
- ° An ambient air quality standards (AAQS) analysis;
- ° An analysis of impacts on soils, vegetation, and visibility, and of growth-related air quality impact; and
- ° A good engineering practice (GEP) stack height evaluation.

The analysis of existing air quality relies on preconstruction ambient air monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analysis depend on air quality modeling carried out in accordance with EPA and department guidelines.

Based on these required analysis, the Department has reasonable assurance that the proposed production increase of the No. 8 H₂SO₄ plant, as described in this permit and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard.

Modeling Methodology

The Industrial Source Complex Short-Term (ISCST) atmospheric dispersion model was used to complete the modeling requirements. It is an EPA-approved Gaussian plume model designed to calculate ground-level pollutant concentrations along flat or gently rolling terrain. The model provides for plume rise, transport by the mean wind, horizontal and vertical diffusion, and pollutant deposition and transformation. The model also allows, among other features, the capability of simulating point, volume, and area type sources separated in space; the capability of evaluating building wake downwash; and the use of either a polar or cartesian coordinate system for locating receptors. The model requires sequential hourly meteorological data and can calculate

one-hour to annual average ambient ground-level concentrations. The surface and upper-air meteorological data used in the model were National Weather Service data collected at Tampa, Florida for the years 1974, 1975, 1978, 1979, and 1981.

The general modeling protocol used by the applicant was to first determine the critical days of meteorology from the five-year data set and then further refine the modeling for those days. The initial five-year runs placed 180 receptors around the Gardinier facility at distances of 0.2, 0.5, 0.8, 1.1, and 1.6 kilometers with receptor locations 10 degrees apart at each distance. All of the major interacting sources surrounding the Gardinier facility were included in these runs. To save computing time, some of the sources at each facility modeled were combined as single sources. From these runs, the highest and second-highest concentrations determined the locations and days to complete refined modeling. The refined runs did not combine individual sources and used a receptor grid resolution of 100 meters in range and 2 degrees in the azimuth. All significant sources of SO₂ within 50 kilometers of the Gardinier facility were modeled. Table I lists the source and emission characteristics for the Gardinier facility as used in the modeling. The source and emission data of the other sources used in the modeling can be found in the applicant's air quality report.

Analysis of Existing Air Quality

The current state of ambient air quality in the area surrounding a new or modified facility is usually determined by measuring pollutant concentrations with monitors. Preconstruction monitoring of all pollutants for which there is a significant increase in annual emissions is generally required. An exemption to this requirement may be obtained if the maximum air quality impact of the net emissions increase is less than a specified de minimus value. These impacts are determined through modeling. For SO₂ the de minimus level is 13 ug/m³, 24-hour average; for H₂SO₄ mist there is no defined level.

Modeling performed by the applicants showed that the maximum 24-hour concentration due to the net emission increase is less than the de minimus level for SO₂. The applicant elected to use existing monitoring data to establish the current air quality. Table II summarizes all of the SO₂ monitoring data within 10 kilometers of the Gardinier facility. Ambient concentrations of SO₂ are well below ambient air quality standards.

PSD Increment Analysis

The Gardinier facility is located in an area where the Class II PSD increments for SO₂ apply. The nearest Class I area is the Chassahowitzka National Wilderness Area located 85 kilometers to the north.

Currently, three H₂SO₄ plants are operated at Gardinier, units No. 7, 8, and 9. All three commenced construction prior to January 6, 1975, thus, the actual emissions as of the baseline date are considered baseline emissions and are not counted against the increment. Both units No. 7 and 8 have expanded production since January 6, 1975. The associated increase in emissions, therefore, consume PSD increment. Three other H₂SO₄ plants, No. 4, 5, and 6 operated in the past. These were baseline sources which were shut down after January 6, 1975. As such, the increment is expanded by the amount that the emissions from these sources contributed to ambient concentrations of SO₂. The amount of actual emissions reduced from these sources greatly exceeds the emission increases from the No. 7 and 8 H₂SO₄ plants production increases. Therefore, on net, no PSD increment will be consumed as a result of any of the recent production increases, including the proposed increase of the No. 8 H₂SO₄ plant. Table III summarize the PSD emissions change for SO₂ at Gardinier.

Ambient Air Quality Standards Analysis

An AAQS analysis is required for SO₂. A background concentration is used to account for sources not explicitly included in the modeling. In this case a background concentration of 0 ug/m³ is used because virtually all sources of SO₂ in the area are included in the modeling.

Table IV summarizes the result of the AAQS analysis. For each of the averaging periods the maximum predicted concentrations are below the Florida standards. The contribution due to Gardinier and the net emissions increase are also listed.

No ambient air quality standard is defined for H₂SO₄ mist. This pollutant is regulated through the BACT portion of the PSD regulation.

Analysis of Impacts on Soils, Vegetation, Visibility and Growth-Related Air Quality Impacts

The maximum ground-level concentrations predicted to occur near Gardinier, including the contribution due to the proposed emissions increase, are below the Florida AAQS. These concentrations are also less than the National secondary standard designed for the three-hour averaging period. The secondary standard is designed to protect public welfare-related values. As such, no adverse impact on soils and vegetation is anticipated. The applicant has reviewed the types of vegetation and soils in the vicinity of Gardinier and has summarized some of the dose-response relationships. These results can be found in the applicant's report.

A Level-I visibility screening analysis was conducted following the EPA-approved procedures outlined in the "Workbook for Estimating Visibility Impairment." The results indicate that the proposed production increase will not contribute to any visibility reduction in the Class I area located 85 kilometers to the north.

No growth-related air quality impacts are expected due to the proposed production increase.

VII. Conclusion

Based on the information submitted by Gardinier, Inc. the Department has concluded that the No. 8 sulfuric acid plant can be modified to produce 2500 TPD of sulfuric acid and be operated in compliance with all applicable air pollution control regulations. The Department proposes to issue a construction permit to authorize modification to No. 8 sulfuric acid plant. The General and Specific Conditions listed in the proposed permit will assure compliance of the source with the air pollution control regulations.

Table I
Gardiner SO₂ Emission Sources

Source	UTM-Coordinates		SO ₂ Emissions (g/s)	Stack Height (m)	Stack Gas Temp. (K)	Exit Gas Vel. (m/s)	Stack Diameter (m)
	Easting (km)	Northing (km)					
H ₂ SO ₄ 7	363.20	3082.30	46.2	45.6	340	14.0	2.29
H ₂ SO ₄ 8	363.30	3082.40	52.5(1)	45.6	339	10.6	2.44
H ₂ SO ₄ 9	363.20	3082.45	54.6	45.6	350	11.9	2.74
GTSP	362.60	3082.45	14.3	38.4	327	11.0	2.44
CIMD 3	362.65	3082.60	4.84	20.7	316	10.7	1.07
CIMD 4	362.65	3082.60	4.84	20.7	316	12.2	1.07
Rm 5	362.65	3082.60	0.01	20.1	336	14.9	0.61
Dm 1-2	362.60	3082.40	0.19	27.4	336	16.8	1.22
Dm 3-4	362.60	3082.30	0.19	27.4	336	20.4	1.07
Dm 5	362.60	3082.25	3.05	40.4	314	16.0	2.13
SSF	362.75	3082.45	0.069	12.2	322	9.1	0.51

(1) The net emissions increase due to the production rate increase accounts for 6.3 g/s of the 52.5 g/s total.

Table II
Gardinier Existing Air Quality

Site No.	Distance from Gardinier (km)	Year	No. of Observations	SO ₂ Concentration (1)		
				3-hr (ug/m ³)	24-hr (ug/m ³)	Annual (ug/m ³)
1800-021	8.2	1983	8506	729	114	14
		1984	8638	437	82	13
		1985	8657	637	134	15
1800-095	7.0	1983	8404	396	80	18
		1984	8392	456	103	15
		1985	7731	376	83	21
4360-035	9.8	1983	8241	291	77	21
		1984	8673	393	82	19
		1985	8146	287	67	14
4360-053	9.5	1983	8062	222	68	15
		1984	8684	383	69	16
		1985	8121	265	69	15

(1) Second-highest concentrations for 3 and 24 hour values.

Table III

Gardiner SO₂ Emission Changes Affecting PSD Increment

Source	Date	Change	Actual SO ₂ Emissions Change (ton/yr)
No. 7 H ₂ SO ₄	9/7/79	Capacity increase 1380 TPD to 1750 TPD	+270 (1)
	2/8/85	Capacity increase 1750 TPD to 2200 TPD	+329 (1)
No. 8 H ₂ SO ₄	2/8/85	Capacity increase 1770 TPD to 2200 TPD	+314 (1)
	Proposed	Capacity increase 2200 TPD to 2500 TPD	+219 (1)
No. 4 H ₂ SO ₄	1976	Unit shut down	-892 (2)
No. 5 H ₂ SO ₄	1976	Unit shut down	-1773 (2)
No. 6 H ₂ SO ₄	1976	Unit shut down	-2469 (2)

(1) Based on 4 lb/ton SO₂ emission factor.

(2) Actual emissions averaged over two year period prior to shutdown.

Table IV
Gardinier Ambient Air Quality Standards Analysis

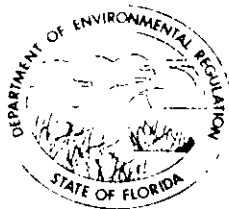
Pollutant and Averaging Time	Net Emissions Increase (ug/m ³)	Gardinier Facility (ug/m ³)	Total All (2) Sources (ug/m ³)	Florida AAQS (ug/m ³)
SO ₂				
3-hour (1)	29	533	1031	1300
24-hour (1)	9	176	235	260
Annual	1	25	45	60

(1) Highest, second-highest predicted concentrations. The concentrations listed at each averaging time for the net emissions increase, the Gardinier facility, and the total do not occur at the same location and time.

(2) A background concentration of 0 ug/m³ is assumed since all significant sources are modeled.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

PERMITTEE:
Gardinier, Inc.
P. O. Box 3269
Tampa, Florida 33601

Permit Number: AC 29-130371
Expiration Date: June 30, 1989
County: Hillsborough
Latitude/Longitude: 27° 51' 28" N
82° 23' 15" W
Project: No. 8 Sulfuric Acid
Plant Modification

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4 and 40 CFR 52.21. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Modifications to the No. 8 sulfuric acid plant that will increase production from 2200 to 2500 TPD. The modifications involve installing a superheater in parallel with No. 1 boiler and a new superheater/economizer in the exit of the 3A pass in parallel with the existing one. Then install additional catalyst in the main converter and other major modifications that have prior approval of the Department and the Hillsborough County Environmental Protection Commission.

The UTM coordinates of the site are 17-363.3 km E and 3082.4 km N.

Construction shall be accordance with the application for a permit to construct/modify the No. 8 sulfuric acid plant that was signed by Mr. Rudy Cabina on February 4, 1987, and the additional information supplied in Gardinier, Inc.'s March 20, 1987 letter except for changes mentioned in the Technical Evaluation and Preliminary Determination and listed as Specific Conditions in the permit to construct.

Attachments:

1. Application signed February 4, 1987.
2. DER letter dated February 27, 1987.
3. Gardinier, Inc.'s letter dated March 20, 1987.

PERMITTEE:
Gardinier, Inc.

Permit Number: AC 29-130371
Expiration Date: June 30, 1989

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

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

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

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Gardinier, Inc.

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Expiration Date: June 30, 1989

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

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Gardinier, Inc.

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

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

14. The permittee shall comply with the following monitoring and record keeping requirements:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

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- b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Sulfuric acid production measured as 100% H₂SO₄, shall not exceed 2500 TPD or 104.17 TPH.
2. Sulfur dioxide emissions shall not exceed 4.0 lbs/ton of acid produced and 10,000 lbs/day or 416.67 lbs/hr average per 3 hour period.
3. Acid mist emissions shall not exceed 0.15 lb/ton acid of produced and 375 lbs/day or 15.63 lbs/hr average per 3 hour period.
4. Visible emissions shall not exceed 5% opacity, average for any consecutive 6 minute period.

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5. Compliance tests will continue and shall be conducted while the plant is operating within 5% of its permitted capacity of 104.17 TPH acid. If the compliance tests are conducted at an operating rate of less than 95% of permitted capacity, then any permit to operate issued for the plant shall restrict its maximum production to not more than 5% above the production rate that existed during the compliance test. The test methods and procedures described in 40 CFR 60.85 shall be used to determine the status of the source with the sulfur dioxide and acid mist standards. Method 9, as described in 40 CFR 60, Appendix A, shall be used to determine the compliance status of the source with the visible emissions standard. Hillsborough County Environmental Protection Commission (HCEPC) shall be notified in writing 15 days prior to any compliance tests.

6. A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained and operated on this plant as specified in 40 CFR 60.84. Excess emissions shall be reported to the HCEPC.

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

8. The plant may operate continuously, 8760 hours per year.

9. This construction permit replaces the current construction permit (AC 29-089696) for this sulfuric acid plant. During the modifications of this plant, the emissions shall not exceed 4 lbs SO₂ per ton of acid produced and 0.15 lb acid mist per ton of acid produced while the plant is operating commercially.

10. Construction shall reasonably conform to the plans and schedule in the application. Bi-annual reports describing the status of the modifications shall be submitted to the state and county regulatory agencies. Gardinier, Inc. shall obtain prior approval from the Department and HCEPC before proceeding with any construction referred to as "third modification" in the October 15, 1984 letter.

11. Gardinier, Inc. shall take precautionary measures to prevent emissions from leaks at the plant. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provisions in FAC Rule 17-2.610(3). These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or industrial related

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SPECIFIC CONDITIONS:

activities such as loading, unloading, storing and handling of materials.

12. Gardinier, Inc. shall submit a complete application for a permit to operate the sulfuric acid plant, which includes an emissions test report, to the Hillsborough County Environmental Protection Commission at least 90 days prior to the expiration date of this construction permit. Gardinier, Inc. may continue to operate this sulfuric acid plant, if the source is in compliance with the conditions in this permit, until the expiration date of this construction permit or until the expiration date of any permit to operate that is issued for this source.

13. Upon obtaining a permit to operate, the applicant will be required to submit annual operation reports which shall include, as a minimum, the annual production of the plant and a recent emissions test report.

Issued this _____ day of _____, 19____

**STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION**

Dale Twachtman, Secretary

_____ pages attached.

BACT Determinied by DER:

Sulfuric Acid Plant No. 8:

Pollutant	Emission Limit
Sulfur Dioxide (SO ₂)	Not to exceed 4 pounds per ton of 100% acid produced
Acid Mist ⁽¹⁾	Not to exceed 0.15 pounds per ton of 100% acid produced
Visible Emissions	5% opacity maximum

(1) Acid mist means sulfuric acid mist, as measured by EPA Method 8, 40 CFR 60, Appendix A.

Compliance with the emission limits will be in accordance with the test methods and procedures prescribed in subsection 40 CFR 60.85, Subpart H, New Source Performance Standards.

EPA Method 9, 40 CFR 60, Appendix A, will be used to determine compliance with the visible emission limit.

BACT Determination Rationale:

FAC Rule 17-2.100(117) defines "modification" as any physical change in, or change in the method of operation of, or addition to a stationary facility which increase the actual emissions of any air pollutant, regulated under this Chapter, including any not previously emitted, from any source within such facility.

If the increase in emissions as a result of the major source modification are equal to or greater than the significant emission rates listed in Table 500-2, Regulated Air Pollutants - Significant Emission Rates; a Best Available Control Technology (BACT) determination is required, Rule 17-2.500(5)(c). In no event shall application of BACT result in emissions of any pollutant which would exceed the emissions allowed under 40 CFR part 60 - New Source Performance Standards (NSPS), FAC Rule 17-2.630(1)(a).

Sulfuric acid plants are subject to the provisions of the New Source Performance Standards, 40 CFR 60.80, Subpart H. The standards under Subpart H are; 4.0 pounds of SO₂ per ton of acid produced and 0.15 pound of acid mist per ton of acid produced, expressed as 100 percent sulfuric acid. The visible emissions limit is less than 10 percent opacity.

BACT Determined by DER:

Sulfuric Acid Plant No. 8:

Pollutant	Emission Limit
Sulfur Dioxide (SO ₂)	Not to exceed 4 pounds per ton of 100% acid produced
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Visible Emissions	5% opacity maximum

(1) Acid mist means sulfuric acid mist, as measured by EPA Method 8, 40 CFR 60, Appendix A.

Compliance with the emission limits will be in accordance with the test methods and procedures prescribed in subsection 40 CFR 60.85, Subpart H, New Source Performance Standards.

EPA Method 9, 40 CFR 60, Appendix A, will be used to determine compliance with the visible emission limit.

BACT Determination Rationale:

FAC Rule 17-2.100(117) defines "modification" as any physical change in, or change in the method of operation of, or addition to a stationary facility which increase the actual emissions of any air pollutant, regulated under this Chapter, including any not previously emitted, from any source within such facility.

If the increase in emissions as a result of the major source modification are equal to or greater than the significant emission rates listed in Table 500-2, Regulated Air Pollutants - Significant Emission Rates; a Best Available Control Technology (BACT) determination is required, Rule 17-2.500(5)(c). In no event shall application of BACT result in emissions of any pollutant which would exceed the emissions allowed under 40 CFR part 60 - New Source Performance Standards (NSPS), FAC Rule 17-2.630(1)(a).

Sulfuric acid plants are subject to the provisions of the New Source Performance Standards, 40 CFR 60.80, Subpart H. The standards under Subpart H are; 4.0 pounds of SO₂ per ton of acid produced and 0.15 pound of acid mist per ton of acid produced, expressed as 100 percent sulfuric acid. The visible emissions limit is less than 10 percent opacity.

The NSPS standards, Subpart H, were reviewed by EPA in 1979 and EPA concluded that from the standpoint of technology, and considering costs, and the small quantity of emissions in question, that it did not appear necessary to revise the standards. The Department has reviewed the test results obtained from several different sulfuric acid plants and concurs with EPA's conclusion. The provisions of Subpart H are judged to be BACT.

The visible emissions limitation determined as BACT is equal to Hillsborough County's requirement as per Chapter 1-3.03 Vl.C - visible emissions shall not exceed 5% opacity except for 30 minute periods during plant startups when opacity shall be no greater than 40%.

The air quality impact of the proposed emissions has been analyzed. Atmospheric dispersion modeling has been completed and used in conjunction with an analysis of existing air quality to determine maximum ground-level ambient concentrations of the pollutants subject to BACT. Based on these analyses, the Department has reasonable assurance that the proposed sulfuric acid plant modifications, subject to the these BACT emission limitations, will not cause or contribute to a violation of the PSD increment or ambient air quality standard.

Details of the Analysis may be Obtained by Contacting:

Bob E. Daugherty
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

C. H. Fancy, Deputy Bureau Chief

Date: _____

Approved by: _____

Dale Twachtmann, Secretary

Date: _____