

Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Permit Evaluation and Statement of Basis for MAJOR FACILITY REVIEW PERMIT

for
Rhodia, Inc.
Facility #B1661

Facility Address:
100 Mococo Road
Martinez, CA 94553

Mailing Address:
100 Mococo Road
Martinez, CA 94553

TABLE OF CONTENTS

A.	Background.....	3
B.	Facility Description.....	3
C.	Permit Content	3
I.	Standard Conditions.....	3
II.	Equipment.....	4
III.	Generally Applicable Requirements.....	5
IV.	Source-Specific Applicable Requirements.....	5
V.	Schedule of Compliance.....	6
VI.	Permit Conditions.....	6
VII.	Applicable Limits and Compliance Monitoring Requirements.....	8
VIII.	Test Methods.....	18
IX.	Permit Shield:.....	18
D.	Alternate Operating Scenario:	22
E.	Compliance Status:.....	22
F.	Differences Between the Application and the Proposed Permit:.....	22

Title V Statement of Basis

Site Number: B1661

Site Name: Rhodia, Inc.

Site Address: 100 Mococo Road, Martinez, CA 94553

A. Background

This facility is subject to the Major Facility Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations, and BAAQMD Regulation 2, Rule 6, Major Facility Review, because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the potential to emit, as defined by BAAQMD Regulation 2-6-218, more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70. The permits must contain all applicable requirements (as defined in 40 CFR § 70.2), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility number that consists of a letter and a 4-digit number. This facility number is also considered to be the identifier for the permit.

B. Facility Description

The facility produces sulfuric acid and oleum from elemental sulfur, spent sulfuric acid, lube spent acid, and other process materials by burning these materials to produce sulfur dioxide (SO₂), using a catalyst to convert the sulfur dioxide to sulfur trioxide (SO₃), then absorbing the sulfur trioxide in water to produce sulfuric acid (H₂SO₄). Ammonium bisulfite fertilizer is a commercial byproduct. Zinc sulfate fertilizer is commercially produced by processing sludge from the groundwater treatment system. The specific equipment at this facility is listed in Section II, Equipment, of the permit.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental

release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, and BAAQMD Regulation 26-409 that dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Condition I.J has been added to ensure that facilities do not exceed their capacity limits.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit more than 2 tons per year of a "regulated air pollutant" as defined in BAAQMD Rule 2-6-222, or 400 pounds per year of a "hazardous air pollutant" as defined in BAAQMD Rule 2-6-210.

All abatement devices that control permitted or significant sources are listed. Each abatement device is identified by an A and a number (e.g., A24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will have an "S" number.

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Following are explanations of the differences in the source list between the time that the facility originally applied for a Title V permit and the permit proposal date:

S-12 through S-15 are no longer permitted sources. All were determined to qualify for permit exemption per District Regulation 2-1-103.

S-19 and S-20, Alky Tanks, were not included in the Title V permit application. However, the sources are currently permitted at the facility. Therefore, these two sources have been added to this Title V permit.

S-29 and S-34 have been demolished and removed from the plant (and thus the Title V permit).

S-36, S-37, and S-57, ammonium sulfate/sulfite storage tanks, are exempt per District Regulation 2-1-103.

S-38, sulfur dioxide transload system (railcar to truck loading), S-48, PEP Conveying and Sizing Subsystem, and S-49 PEP Fluidized Bed Dryer Subsystem (natural gas), S-54, alky sulfuric acid and lubricant spent acid process tank, T-360 and S-55, LSA truck receiving facility, were all permitted after the original 1995 Title V permit application and have been added to this Title V permit.

A-13 and A-14 are no longer used at this facility and have been removed from the Title V permit.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Section VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered a significant source pursuant to the definition in BAAQMD Rule 2-6-239.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) listed following the corresponding District Rules. SIP rules are District rules that have been approved by EPA into the California State Implementation Plan. SIP rules are “federally enforceable” and a “Y” (yes) indication will appear in the “Federally Enforceable” column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the “Federally Enforceable” column will have a “Y” for “yes”. If the SIP rule is not the current District rule, the SIP rule or the necessary portions of the SIP rule are cited separately after the District rule.

The SIP portions will be federally enforceable; the non-SIP versions will not be federally enforceable, unless they have been approved by EPA through another program.

- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations that are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit.

This permit did not require any complex applicability determinations.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.”

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit only contains elements 2-6-409.10.1 and 2-6-409.10.2.

The BAAQMD Enforcement and Compliance Division has conducted a review of compliance over the past year and has no records of compliance problems at this facility. The compliance report is contained in Appendix A of this permit evaluation and statement of basis.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

Where necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all ‘strikeout’ language will be deleted; all “underline” language will be retained.

The existing permit conditions are generally derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). It is also possible for permit conditions to be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff.

Proposed New Permit Conditions

For sources without existing throughput limits (i.e., limits on usage of materials or fuels), emissions have been calculated based on the capacity of the equipment. In order to ensure that emissions will not increase as a result of a replacement or modification that increases the capacity of a permitted source without a proper preconstruction permit review, conditions have been added to limit the daily and annual throughput of each source of the Title V permit.

Conditions that are obsolete or that have no regulatory basis have been deleted from this permit. The regulatory basis has been referenced following each condition. The regulatory basis may be a rule or regulation. The District is also using the following codes for regulatory basis:

- BACT: This code is used for a condition imposed by the APCO to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This code is used for a condition imposed by the APCO that limits a source’s operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This code is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This code is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit pursuant to Regulation 2, Rule 2.
- TRMP: This code is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District’s Toxic Risk Management Policy.

Abatement device operating parameter monitoring has been added for each abatement device. Additional monitoring has been added, where appropriate, to ensure compliance with the applicable requirements.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements that apply to each source.

Under Title V, the District has the authority to impose additional monitoring where: (1) the existing applicable requirement does not require monitoring AND (2) monitoring is necessary to assure compliance with such applicable requirement.

The tables below show the limits, prior to incorporation in the Title V permit, for which there are no applicable monitoring requirements. Additional monitoring, if any, imposed pursuant to Title V is shown in the last column. The basis for the monitoring decision is present in the discussion following each table. Applicable limits not shown in the following tables have adequate monitoring, and so no additional monitoring is being proposed in the Title V permit.

NOx and CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
AUXILIARY BOILER: S2	BAAQMD 9-7-301.1	NOx emissions shall not exceed 30 ppmv @ 3% O2	Source test every five years
	BAAQMD 9-7-301.2	CO emissions shall not exceed 400 ppmv @ 3% O2	Source test every five years
PEP FLUIDIZED BED DRYER SUBSYSTEM: S49	BAAQMD Condition #2756, Part 3b	1.1 lb/hour as NO2	Source test every five years

NOx and CO Discussion:

S-2 Auxiliary Boiler, 21 MMBTU/hour

A new part (#30) has been added to Condition #17734 requiring source testing every five years to demonstrate compliance with the NOx and CO emissions limits of BAAQMD Regulations 9-7-301.1 and 9-7-301.2.

For S-2, boiler, the potential to emit NOx and CO is based on a Regulation 9, Rule 7 compliance emission source test conducted on S-2 on May 29, 1996. S-2 is equipped with low-NO burners and flue gas recirculation to comply with Regulation 9, Rule 7. On May 29, 1996, S-2's NOx emissions were measured to be 29.2 ppmv @ 3% O2 and S-2's CO emissions were measured to be 33.8 ppmv @ 3% O2. Regulation 9, Rule 7 limits the boiler to below 30 ppmv NOx and 400 ppmv CO. Based on the measured emission concentrations and the measured flowrates, the source test summary shows

average mass emissions of 0.67 lb/hour NOx and 0.47 lb/hour CO. If S-2 were used 24 hours/day, the potential to emit would be: 16.1 lb/day NOx and 11.2 lb/day CO.

S-2, boiler, is only used to generate steam when the acid plant is down for maintenance. Since this boiler's NOx and CO emissions are small and the boiler is only used during acid plant maintenance, this frequency of source testing is appropriate to assure compliance.

S-49 PEP FLUIDIZED DRYER SUBSYSTEM, 9.5 MMBTU/HOUR

A new part (#21) has been added to Condition #2756 requiring source testing every five years to demonstrate compliance with the 1.1 lb/hour NOx (as NO2) emission limit of BAAQMD Condition #2756, Part 3b.

For S-49, dryer, the potential to emit NOx is based on a compliance emission source test conducted on S-49 on July 2, 1993. On that date, S-49's NOx emissions were measured to be 2.6 ppmv @ 19.5% O2. Based on the measured emission concentrations and the measured flowrates, the source test summary shows average mass emissions of 0.38 lb/hour NOx. If S-49 were used 24 hours/day, the potential to emit would be: 9.1 lb/day NOx.

Since this dryer's NOx emissions are small, this frequency of source testing is appropriate to assure compliance.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
SULFURIC ACID PLANT: S1	BAAQMD Regulation 9-1-301	SO2 emissions shall not result in ground level SO2 concentrations exceeding state or federal ambient air quality standards	Not recommended
AUXILIARY BOILER (NATURAL GAS): S2	BAAQMD Regulation 9-1-301	SO2 emissions shall not result in ground level SO2 concentrations exceeding state or federal ambient air quality standards	Not recommended
	BAAQMD Regulation 9-1-302	300 ppm (dry)	Not recommended
NATURAL GAS PREHEATER FURNACE (NATURAL GAS): S3	BAAQMD Regulation 9-1-301	SO2 emissions shall not result in ground level SO2 concentrations exceeding state or federal ambient air quality standards	Not recommended

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
	BAAQMD Regulation 9-1-302	300 ppm (dry)	Not recommended
SULFUR DIOXIDE TRANSLOAD SYSTEM (RAILCAR TO TRUCK LOADING): S38	BAAQMD Regulation 9-1-301	SO2 emissions shall not result in ground level SO2 concentrations exceeding state or federal ambient air quality standards	Not recommended
	BAAQMD Regulation 9-1-302	300 ppm (dry)	Not recommended
PEP FLUIDIZED BED DRYER SUBSYSTEM (NATURAL GAS): S49	BAAQMD Regulation 9-1-301	SO2 emissions shall not result in ground level SO2 concentrations exceeding state or federal ambient air quality standards	Not recommended
	BAAQMD Regulation 9-1-302	300 ppm (dry)	Not recommended
OLEUM STORAGE TANK, T-19: S51	BAAQMD Condition #13337, part 7	SO2 emission limit of 0.416 lb/hr	Source Test every five years
OLEUM TRUCK LOADING FACILITY: S52	BAAQMD Condition #13337, part 8	SO2 emission limit of 4.0 lb/hr	Source Test every five years

SO2 Discussion:

BAAQMD Regulation 9-1-301 and Regulation 9-1-302

Area monitoring to demonstrate compliance with the ground level SO2 concentration requirements of Regulation 9-1-301 is at the discretion of the APCO. Currently, there are no ground level monitors at this facility.

S-1, Sulfuric Acid Plant, is the main source of SO2 emissions at this facility. There is a federally enforceable permit condition requiring that an SO2 continuous emission monitor (CEM) monitor the stack of S-1. The APCO has determined that compliance with the 300 ppm SO2 stack concentration limit in Regulation 9-1-309 assures compliance with the 9-1-301 limit. Ground level monitoring is not necessary.

In order to demonstrate proper abatement device function, federally enforceable permit conditions have been proposed, requiring the facility to periodically assess the performance of the abatement devices through monitoring abatement device operating parameters.

Other SO2 emission sources at this plant are S-2 auxiliary boiler, S-3 natural gas preheater furnace, S-38, sulfur dioxide transload system, and S-49 PEP fluidized bed dryer subsystem. Each generates small

concentrations of SO₂ emissions due to small quantities of sulfur compounds in the natural gas burned. Since there is a federally enforceable permit condition requiring the use of natural gas at these sources, monitoring for Regulation 9-1-301 limits is not necessary.

All facility combustion sources are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with the CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no monitoring is proposed for this requirement.

Continuous SO₂ monitoring of S-51 and S-52 is not needed because the emissions have been demonstrated by a 8/20/99 District source test to be low (0.035 lb/hour) which is far below the permit conditioned limit of 0.416 lb/hour. SO₂ emissions source testing every five years of S-51 and S-52 has been proposed to ensure continued compliance with the limits specified in the permit conditions. Permit Condition #13337, Part 16 has been added to this facility permit specifying this source test every five-year requirement.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
SULFURIC ACID PLANT: S1	BAAQMD Regulation 6-301	Ringelmann 1.0	pH monitoring (at A-11)
	BAAQMD Regulation 6-310	0.15 gr/dscf	pH monitoring (at A-11)
AUXILIARY BOILER: S2	BAAQMD Regulation 6-301	Ringelmann 1.0	Not recommended
	BAAQMD Regulation 6-310.3	0.15 gr/dscf at 6% O ₂	Not recommended
NATURAL GAS PREHEATER FURNACE: S3	BAAQMD Regulation 6-301	Ringelmann 1.0	Not recommended
	BAAQMD Regulation 6-310	0.15 gr/dscf	Not recommended
	BAAQMD Regulation 6-311	Hourly Mass Emission Limit based on material throughput	Not recommended
PEP CONVEYING AND SIZING SUBSYSTEM: S-48	BAAQMD Regulation 6-301	Ringelmann 1.0	Pressure drop monitoring (at A-7)
	BAAQMD Regulation 6-310	0.15 gr/dscf	Pressure drop monitoring (at A-7)

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
	BAAQMD Regulation 6-311	Hourly Mass Emission Limit based on material throughput	Pressure drop monitoring (at A-7)
	BAAQMD Condition #2756, part 1	Ringelmann 0.5	Pressure drop monitoring (at A-7)
PEP FLUIDIZED BED DRYER SUBSYSTEM: S49	BAAQMD Regulation 6-301	Ringelmann 1.0	Pressure drop monitoring (at A-7)
PEP FLUIDIZED BED DRYER SUBSYSTEM: S49	BAAQMD Regulation 6-310	0.15 gr/dscf	Pressure drop monitoring (at A-7)
	BAAQMD Regulation 6-311	Hourly Mass Emission Limit based on material throughput	Pressure drop monitoring (at A-7)
	BAAQMD Condition #2756, part 1	Ringelmann 0.5	Pressure drop monitoring (at A-7)
OLEUM STORAGE TANK, T-19: S51	BAAQMD Condition #13337, part 3	Ringelmann 0.5	Annual visible emission check
OLEUM TRUCK LOADING FACILITY: S52	BAAQMD Condition #13337, part 3	Ringelmann 0.5	Annual visible emission check

PM Discussion:

BAAQMD Regulation 6 “Particulate Matter And Visible Emissions”

Visible Emissions

BAAQMD Regulation 6-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Some of the sources are limited to the more restrictive limit of Ringelmann 0.5 by permit condition. Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. S-2, S-3, and S-49 burn exclusively natural gas, therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB entitled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", the EPA does not require the monitoring of PM for the combustion emissions from these sources.

Since S-1 and S-48 are abated by scrubbers, Ringelmann 0.5 should not be exceeded if these abatement devices are working properly. In order to demonstrate proper abatement device

function, additional permit conditions require the owner/operator of the facility to periodically assess the performance of the abatement devices by inspection or by monitoring abatement device operating parameters.

Since S-51 and S-52 are abated by mist eliminators, annual visible emission checks are adequate. No visible PM emissions are expected from these sources because these sources are abated by mist eliminators that are required to be properly operating and in good working condition.

Particulate Weight Limitation

BAAQMD Regulation 6-310 limits filterable particulate emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from “heat transfer operations” to 0.15 gr/dscf @ 6% O₂ .

Per the emission calculations shown below, the PM emissions of S-2 and S-3 are far below the emission limit of 0.15 gr/dscf. Each source was found to be in compliance with the Regulation 6-310 grain-loading limit, which is expected with clean-burning natural gas. Therefore, no PM monitoring for these sources is required.

For S-1, S-48, and S-49, initial source tests, then periodic assessments of proper abatement device function (in accordance with the proposed permit conditions) has been proposed to demonstrate compliance with Regulation 6-310.

Allowable Rate of Emissions Based on Process Weight Rate

BAAQMD Regulation 6-311 limits particulate emissions from general operations based on the process weight throughput. The maximum permitted throughput for each source was assumed, along with accepted emission factors and abatement factors.

Per the emission calculations shown below, the PM emissions of S-2, S-3, and S-49 are all far below the allowable PM emission limits. Each source was found to be in compliance with the Regulation 6-311 PM weight limit, which is expected with clean-burning natural gas. Therefore, no PM monitoring for these sources is required.

Emission Calculations:

Regulation 6-310 allows 0.15 grains PM/dscf

S-2 Auxiliary Boiler

The potential to emit is estimated using emission factors from AP-42, Table 1.4.2, dated 7/98.

$$(21 \text{ MMBtu/hr}) \times (1.9 \text{ lb PM/MMscf natural gas}) \times (7000 \text{ grains/lb}) \times (1 \text{ cf natural gas}/1050 \text{ Btu}) = 266 \text{ grains/hour} = 0.038 \text{ lb/hour}$$

The volume of combustion gases is calculated using the F factor method in EPA's Method 19, "Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates" in Appendix A of 40 CFR Part 60. The factor is 8600 dscf/MMBtu of natural gas burned.

$$(21 \text{ MMBtu/hr}) \times (8600 \text{ dscf exhaust gases/MMBtu}) = 180,600 \text{ dscf exhaust gases/hr}$$

The grain loading is calculated by dividing the grains per hour by the volume of exhaust gases per hour:

$$\text{Grain Loading, grains/dscf} = (1,092 \text{ grains/hour}) / (180,600 \text{ dscf exhaust gases/hr}) = 0.0015 \text{ grains PM/dscf}$$

S-3 Natural Gas Preheater Furnace, Emission factor from AP-42, Table 1.4.2, dated 7/98.

The potential to emit is estimated using emission factors from AP-42, Table 1.4.2, dated 7/98.

$$(97.5 \text{ MMBtu/hr}) \times (1.9 \text{ lb PM/MMcf natural gas}) \times (7000 \text{ grains/lb}) \times (1 \text{ cf natural gas}/1050 \text{ Btu}) = 1,235 \text{ grains/hour} = 0.176 \text{ lb/hour}$$

The volume of combustion gases is calculated using the F factor method as shown above:

$$(97.5 \text{ MMBtu gas/hr}) \times (8600 \text{ dscf exhaust gases/MMBtu gas}) = 838,500 \text{ dscf exhaust gases/hr}$$

The grain loading is calculated by dividing the grains per hour by the volume of exhaust gases per hour:

$$\text{Grain Loading, grains/dscf} = (5,070 \text{ grains/hour}) / (838,500 \text{ dscf exhaust gases/hr}) = 0.0015 \text{ grains/dscf}$$

All PM emissions are assumed to be PM10.

Regulation 6-311 General Operations

As shown above, potential to emit for S-3 is below the minimum emission rate limitation of 1.8 lb/hour. Therefore, PM emissions are not calculated to determine compliance with Regulation 6-311.

For Source 1:

Using the facility's material balance, the PM emission factor for Source 1 is 0.00572 lb PM/ton H₂SO₄ produced.

The capacity of Source 1 is 76.4 tons per hour

From Rule 6-311, the particulate emissions may not exceed 40 lb/hour PM.

The potential to emit from Source 1 is calculated as:

$$(76.4 \text{ tons/hour}) \times (0.00572 \text{ lb PM/ton}) = 0.437 \text{ lb PM/hour}$$

The emissions are far below the emission rate allowed by this regulation.

POC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
ALKY TANK, T-1: S19	BAAQMD Regulation 8-5-117	0.5 psia true vapor pressure	Not recommended
ALKY TANK, T-3: S20	BAAQMD Regulation 8-5-117	0.5 psia true vapor pressure	Not recommended
GASOLINE DISPENSING ISLAND (G5980): S30	BAAQMD Regulation 8-7-301.2	95% recovery of gasoline vapors	Not recommended

POC Discussion:

The true vapor pressure of the material stored in S-19 and S-20, alky tanks, is expected to be less than 0.5 psia because the spent acid stored in these tanks is 15% organics or less and has a very low vapor pressure. Determination of the vapor pressure is not feasible due to the sulfuric acid content of the liquid (85% or more). Moreover, any emissions from these sources are controlled by S-1, Sulfuric Acid plant, or A-2, Flare, when S-1 is not operating. Since the emissions are minor and controlled, no additional monitoring of the vapor pressure is required for these sources.

Source 30, Gasoline Dispensing Facility:

The standard District POC emission factor for aboveground tanks is 1.52 lb/1000 gallon pumped. Based on this emission factor, the maximum estimated POC emissions from this source are:

$$(400,000 \text{ gallon/year}) \times (1.52 \text{ lb/1000 gallon}) = 608 \text{ lb POC/year} = 0.3 \text{ ton POC/yr}$$

The POC emissions are low, therefore, additional monitoring of this source is not recommended. Regulation 8, Rule 7, Gasoline Dispensing Facilities does require records of throughput. The new permit condition for this source will require 5 year of records retention.

SO3 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
SULFURIC ACID PLANT: S1	BAAQMD Regulation 6-320	0.04 grains/dscf	Annual Source Test
OLEUM STORAGE TANK, T-19: S51	BAAQMD Condition #13337, part 7	SO3 emission limit of 0.5 lb/hr	Source Test Every 5 Years
OLEUM TRUCK LOADING FACILITY: S52	BAAQMD Condition #13337, part 8	SO3 emission limit of 0.5 lb/hr	Source Test Every 5 Years

H2SO4 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
SULFURIC ACID PLANT: S1	BAAQMD Regulation 6-320	0.04 grains/dscf	Annual Source Test
	BAAQMD Regulation 12-6-301	0.30 lb/ton sulfuric acid produced	Annual Source Test
	40 CFR 60.31d	0.25 grams sulfuric acid mist per kilogram of sulfuric acid produced, the production being expressed as 100% sulfuric acid	Annual Source Test
OLEUM STORAGE TANK, T-19: S51	BAAQMD Condition #13337, part 7	H2SO4 emission limit of 0.558 lb/hr	Source Test Every 5 Years
OLEUM TRUCK LOADING FACILITY: S52	BAAQMD Condition #13337, part 8	H2SO4 emission limit of 0.746 lb/hr	Source Test Every 5 Years

Discussion of Other Pollutants:

BAAQMD Regulation 6-320, SO3 and H2SO4

District Regulation 6-320 limits emissions from sulfuric acid manufacturing plants to 0.04 grains/dscf of SO3 or H2SO4, or both, expressed as 100% H2SO4.

A recent 8/19/99 District source test of S-1 abated by A-11 measured H₂SO₄ emissions of 0.001 grains/dscf. This is below the limit of 0.04 grains/dscf contained in this rule. Although the source is expected to be in compliance with the H₂SO₄ and SO₃ requirement, an annual source test is proposed for this source due to its size.

BAAQMD Regulation 12-6-301, Acid Mist from Sulfuric Acid Plants

A recent 8/19/99 District source test of S-1 abated by A-11 measured emissions of 0.020 lb/ton sulfuric acid (H₂SO₄) produced. This is far below the limit of 0.300 lb/ton sulfuric acid produced contained in this rule. Although the source is expected to be in compliance with the H₂SO₄ requirement, an annual source test is proposed for this requirement due to the source's size and because the test can be performed at the same time as the test for BAAQMD Regulation 6-320.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will appear in Section VI of the permit.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit that identifies and justifies specific federally enforceable regulations and standards which the APCO has confirmed are not applicable to a source or group of sources, (2) A provision in a major facility review permit that identifies and justifies specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting which are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has the first type of permit shield.

This permit has no streamlining.

Following is the detail of the permit shields that were requested by the applicant in their original Title V Permit application in 1995.

The following permit shields are allowed:

**Table VII-A
S-1 Sulfuric Acid Plant**

Citation	Title or Description (Reason not applicable)
BAAQMD 9-1-302	General Emission Limitation (Source is subject to Section 9-1-309)
BAAQMD 6-302	Opacity Limitation (SIP regulations do not require opacity monitoring for this source)
40 CFR 60, Subpart Cb	Standards of Performance for Sulfuric Acid Plants (Source constructed prior to rule adoption in 1991 and has not been modified)
40 CFR 60.82	Standards of Performance for Sulfuric Acid Plants (Source constructed prior to 8/17/71 and not modified as defined by 40 CFR 60.14 since 8/17/71)
40 CFR 60.83	Standards of Performance for Sulfuric Acid Plants (Source constructed prior to 8/17/71 and not modified as defined by 40 CFR 60.14 since 8/17/71)

**Table VII-B
S-2 Auxiliary Boiler**

Citation	Title or Description (Reason not applicable)
40 CFR 60, Subpart Dc	Standards of Performance for Boilers (Source constructed prior to 8/17/84 and has not been modified)

**Table VII-C
S-3 Natural Gas Preheater Furnace**

Citation	Title or Description (Reason not applicable)
BAAQMD Regulation 9, Rule 7	Inorganic Gaseous Pollutants - Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (9/15/93) (This rule does not apply to this unit because it is not a boiler, steam generator, or process heater. The unit does not transfer heat to water or process streams. It is used only after a prolonged plant shutdown to heat the catalytic converter. After initial start-up, the temperature in the converter is maintained by recirculating process heat within a closed system)

Table VII-D
S-12 Sulfuric Acid Tank, T-9
S-13 Sulfuric Acid Tank, T-4
S-14 Sulfuric Acid Tank, T-5
S-15 Sulfuric Acid Tank, T-6

Citation	Title or Description (Reason not applicable)
BAAQMD Regulation 8, Rule 5	BAAQMD Regulation 8, Rule 5, Section 117 (The provisions of this rule do not apply to tanks storing organic liquids with a true vapor pressure less than or equal to 0.5 psia).
SIP Regulation 8, Rule 18	SIP Regulation 8, Rule 18, Section 111 (The provisions of this rule do not apply to these sources because they do not contain organic liquids.)

Table VII-D
S-19 Sulfuric Acid Tank, T-1
S-20 Sulfuric Acid Tank, T-3

Citation	Title or Description (Reason not applicable)
BAAQMD Regulation 8, Rule 5	BAAQMD Regulation 8, Rule 5, Section 117 (The provisions of this rule do not apply to tanks storing organic liquids with a true vapor pressure less than or equal to 0.5 psia).
SIP Regulation 8, Rule 18	SIP Regulation 8, Rule 18, Section 111 (The provisions of this rule do not apply to facilities that have less than 100 valves or less than 10 pumps and compressors. Such facilities are subject to Regulation 8, Rule 22 instead.)

Table VII-E
S-16 Sulfur Storage Tank, T-2
S-17 Sulfur Storage Tank, T-14
S-18 Sulfur Storage Tank, T-12
S-50 Sulfur Storage Tank, T-16

Citation	Title or Description (Reason not applicable)
BAAQMD Regulation 9, Rule 2, Section 301	BAAQMD Regulation 9, Rule 2, Section 110 (This rule does not apply on the facility owner's property. It only applies beyond the property fenceline.)

Table VII-F
S-36 Ammonium Sulfate/Bisulfite Tank, T-453A
S-37 Ammonium Sulfate/Bisulfite Tank, T-453B

S-57 Ammonium Sulfate/Bisulfite Tank, T-453C

Citation	Title or Description (Reason not applicable)
40 CFR 60, Subpart PP	These sources are not the type of source or process subject to this rule.

Table VII-G
S-40 Cinder Water Collection Tank, T-500
S-41 Neutralizers, T-501, T-502
S-43 Sulfide Solution and Sulfide
S-44 Aeration & Check Tank, T-506
S-45 Sludge Tank, T-507 & Sludge Presses, F-521 A&B
S-47 PEP Iron Separation Subsystem

Citation	Title or Description (Reason not applicable)
40 CFR 60, Subpart QQQ	These sources in the wastewater treatment system are not subject to this rule, because the facility does not meet the definition of a petroleum refinery.

Table VII-H
S-53 No. 6 Fuel Oil Storage Tank

Citation	Title or Description (Reason not applicable)
40 CFR 60, Subpart K	No. 6 fuel oil is not defined as a petroleum liquid. Therefore, none of these subparts apply to this source.
40 CFR 60, Subpart Ka	The tank is less than 420,000 gallon capacity, thus it is exempt from Ka because of size. This tank is 45,000 gallons.
40 CFR 60, Subpart Kb	The tank was installed in 1978 and has not been modified, therefore, Subparts Ka and Kb do not apply because of age.
BAAQMD Regulation 8, Rule 5	BAAQMD Regulation 8, Rule 5, Section 117. (The provisions of this rule do not apply to tanks storing organic liquids with a true vapor pressure less than or equal to 0.5 psia).

**Table VII-I
S-54 LSA Storage Tank, T-360**

Citation	Title or Description (Reason not applicable)
40 CFR 60, Subpart K	This tank is not subject to Subpart K because of size (less than 40,000 gallons) and age (built after May 19, 1978 and not modified)
40 CFR 60, Subpart Ka	This source is not subject to Subpart Ka because of size (less than 40,000 gallons) and age (built after May 18, 1978 and not modified)
40 CFR 60, Subpart Kb	This source is not subject to Subpart Kb because it is a pressure vessel designed to operate at 75 psig at 200 degrees F, without emissions to the atmosphere. This is in excess of 204.9 kPa pressure exemption.

D. Alternate Operating Scenario:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A September 20, 2001 office memorandum from Jim Guthrie, Director of Enforcement, to Bill deBoisblanc, Director, Permit Services, presents a review of the compliance record of Rhodia, Inc. (Site #: B1661). The Enforcement Division staff has reviewed the records for Rhodia, Inc. for the period between 9/1/00 through 9/1/01. This review was initiated as part of the District evaluation of an application by Rhodia for a Title V permit. During the period subject to review, Rhodia activities known to the District include:

- There were no Notices of Violation issued during this review period.
- The District did not receive any alleged complaints.
- Rhodia is not operating under a Variance or an Order of Abatement from the District Board.
- There were no monitor excesses or equipment breakdowns reported or documented by District staff.

The Director of Enforcement concluded that on-going compliance can be reasonably assured for this facility.

The owner certified that all equipment was operating in compliance on October 24, 1995 and confirmed this during a BAAQMD site visit in November 2000. No non-compliance issues have been identified to date.

F. Differences Between the Application and the Proposed Permit:

The Title V permit application was originally submitted on October 24, 1995. This version is the basis for the proposed Title V permit. Revisions were made to the application in November 2000 as a result

of changes at the facility that were made pursuant to Permit Application #25842. Differences between the application and the proposed permit include the following:

S-2, Boiler, only burns natural gas, so the District's computer databank source codes for diesel and other fuels has been deleted for S-2.

S-3, formerly a propane preheater furnace, has been modified to burn only natural gas, as of 1999 and has been renamed as natural gas preheater furnace.

S-12 through S-15 are no longer permitted sources. All were determined to qualify for permit exemption per District Regulation 2-1-103.

S-19 and S-20, Alky Tanks, were not included in the Title V permit application. However, the sources are currently permitted at the facility. Therefore, these two sources have been added to this Title V permit.

S-29 and S-34 have been demolished and are removed from the plant (and the Title V permit).

S-36 and S-37, ammonium sulfate/sulfite storage tanks, are exempt per District Regulation 2-1-103.

S-38, sulfur dioxide transload system (railcar to truck loading), S-47, PEP Iron Separation Subsystem, S-48, PEP Conveying and Sizing Subsystem, and S-49 PEP Fluidized Bed Dryer Subsystem (natural gas), S-54, alky sulfuric acid and lubricant spent acid process tank, T-360 and S-55, LSA truck receiving facility, were all permitted after the original 1995 Title V permit application and have been added to this Title V permit.

A-13 and A-14 are no longer used at this facility and have not been included in the Title V permit.

Throughput limits (identified by a basis of Regulation 2-1-234.3) have been added to all sources with no existing throughput or emission limits.

To assist in compliance monitoring, abatement device operating parameter conditions have been added for all of the abatement equipment at this plant, except for A-6, A-16, and A-17. A-6 is arranged in series with A-7, which has operating parameter conditions (pressure drop) on it. The SO₂ continuous emissions monitor on A-11, ammonia scrubber, continuously monitors the operating parameter of SO₂ emissions, to demonstrate compliance with the SO₂ limit of 300 ppm SO₂. A-11 also has pH monitoring. The operating parameter used for A-16 and A-17 is an annual visible emission check.

Periodic source testing has been added for all sources for which emission limits cannot be verified without the testing. Source testing of the NO_x and CO emissions from S-2 and S-49 is required every five years because the emissions from these natural gas-fired sources are low.

APPENDIX A
BAAQMD COMPLIANCE REPORT

APPENDIX B
GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer: Head of Bay Area Air Quality Management District

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority that allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

CEQA

California Environmental Quality Act

CFR

The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO

Carbon Monoxide

Cumulative Increase

The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

District

The Bay Area Air Quality Management District

dscf

Dry Standard Cubic Feet

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

Federally Enforceable, FE

All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP

Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

HAP

Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

Major Facility

A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MFR

Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MOP

The District's Manual of Procedures.

NAAQS

National Ambient Air Quality Standards

NESHAPS

National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC

Non-methane Hydrocarbons (Same as NMOC)

NMOC

Non-methane Organic Compounds (Same as NMHC)

NO_x

Oxides of nitrogen.

NSPS

Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement

A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility

A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC

Precursor Organic Compounds

PM

Particulate Matter

PM10

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

SIP

State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2

Sulfur dioxide

THC

Total Hydrocarbons (NMHC + Methane)

Title V

Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC

Total Organic Compounds (NMOC + Methane, Same as THC)

TPH

Total Petroleum Hydrocarbons

TRMP

Toxic Risk Management Plan

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m ²	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
yr	=	year