

**Bay Area Air Quality Management District**

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**Permit Evaluation  
and  
Statement of Basis  
for  
RENEWAL  
of the**

**MAJOR FACILITY REVIEW PERMIT**

**for  
Chemtrade West US, LLC  
Facility #A0023**

**Facility Address:**

525 Castro Street  
Richmond, CA 94801

**Mailing Address:**

525 Castro Street  
Richmond, CA 94801

Application Engineer: Jimmy Cheng  
Site Engineer: Jimmy Cheng

November 2017

Application No: 27973

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## **Title V Statement of Basis**

### **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 Title 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.

Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of this Major Facility Review permit and determined that they are still valid and correct. This review included an analysis of all applicability determinations for all sources, including those that have been modified or permitted since the issuance of the initial Major Facility Review Permit. The review also included an assessment of the sufficiency of all monitoring for determination of compliance with applicable requirements. The statement of basis documents for any permit revisions that may have occurred since the initial Major Facility Review permit was issued are hereby incorporated by reference and are available upon request.

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 identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A0023.

This facility received its initial Title V permit on 9/14/98. The Title V permit was revised only one time since its initial issuance on 9/14/98. The revised Title V permit was issued on 11/22/11. This current application is for a permit renewal. Although the current permit expired on 11/21/16, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have changed since 11/22/11. The proposed permit shows all changes to the permit in strikeout/underline format.

This renewal Title V permit also reflects the change of ownership (and name change) from General Chemical West, LLC to Chemtrade West US, LLC.

## **B. Facility Description**

The facility produces high quality and specialty blends of sulfuric acid from spent alkylation acid piped from the neighboring refinery, Chevron U.S.A., and from elemental sulfur. The facility uses the decomposition chamber process where the spent acid and sulfur are burned to form sulfur dioxide, which is then reacted with oxygen to form sulfur trioxide. The sulfur trioxide is then hydrated to produce sulfuric acid. Over one half of the facility's capacity is returned to the refinery via pipeline. The remainder is used by a Chemtrade electronic chemical operation in Bay Point, CA and by detergent, alum, fertilizer, and auto battery manufacturers. The plant is designed to decompose 600 tons per day of spent sulfuric acid while producing 600 tons per day of fresh sulfuric acid.

Since the District issued the last renewal Title V permit to General Chemical on 11/22/11, the facility has submitted four new source review applications, one of which was cancelled. This facility, now known as Chemtrade, has not submitted any applications to revise their Title V permit since the initial permit was issued.

1. Application 25838 was submitted on 11/14/13 for the alterations to the existing process air heater (S-9) and startup air heater (S-15). The existing burners at S-9 and S-15 were replaced with low NOx burners with lower firing rates. The existing NOx limit for S-15 in Permit Condition #7606 was lowered from 66 ppmv to 15 ppmv @ 3% O<sub>2</sub>. There is no increase in emissions associated with this application.
2. Application 26921 was submitted on 2/2/15 for an alteration to the existing sulfuric acid plant (S-1). The existing waste heat recovery boiler at S-1 was replaced with a physically identical unit with the same maximum capacity. There is no increase in emissions associated with this application.
3. Application 27697 was submitted on 1/12/16 for an alteration to the existing sulfuric acid plant (S-1). The bottom section of an existing gas cooling tower at S-1 was replaced with a physical identical section with the same maximum capacity. There is no increase in emissions associated with this application.
4. Application 27816 was submitted on 3/7/16 for a modification of the existing alkylation acid truck unloading station (S-18) and for the alterations to several existing alkylation acid storage tanks (S-3, S-10, S-13, S-16, and S-32). The applicant requested to modify S-18 to allow for the loading of alkylation acid, and requested throughput limits for S-3, S-10, S-13, S-16, and S-32 to ensure that these tanks are not modified. This application was canceled per applicant request.

## **C. Permit Content**

The legal and factual basis for the permit follows. The permit sections are described in the order 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, which 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 clarify that the capacity limits shown in Table II-A are enforceable limits.

### Changes to permit:

The dates of adoption and approval of rules in Standard Condition 1.A have been updated.

SIP Regulation 2, Rule 1 and SIP Regulation 2, Rule 2 have been deleted from Standard Condition 1.A because the current BAAQMD Regulation 2, Rule 1 and BAAQMD Regulation 2, Rule 2 have now been SIP-approved.

The following correction was made to Standard Condition I.B.12: "The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless **of** whether it acts through employees, agents, contractors, or subcontractors."

The mailing address in Standard Condition 1.F has been updated and an e-mail address has been added.

The mailing address in Standard Condition 1.G has been updated and an e-mail address has been added.

The following language has been deleted from Standard Condition 1.G because the District no longer generates Compliance Certification forms, and each facility must generate its own forms: "The permit holder may satisfy this requirement through submittal of District-generated Compliance Certification forms."

## **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., S-24).

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 of more than 2 tons of a “regulated air pollutant,” as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a “hazardous air pollutant,” as defined in BAAQMD Rule 2-6-210, per year.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an “S” number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or “A”) device. If the primary function of a device is a non-control function, the device is considered to be a source (or “S”).

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 the permitted sources 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 equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date:

***Devices Removed from Service or Archived since Application was submitted:***

None

***Devices Permitted Since Application was submitted:***

None

***Devices with Changed Permit Status:***

None

***District permit applications not included in this proposed permit***

None

***Corrections to Devices Shown in Application***

None

**Changes to permit:**

The following changes were made to Table II-A:

- Make or Type for S-1 has been changed from “Unknown” to “Custom” per applicant request
- Removed “New” from source description for S-8 since S-8 is no longer a new source
- Capacity of S-9 has been changed from 15 MMBTU/hr to 12 MMBTU/hr under Application 25838
- Capacity of S-15 has been changed from 16.6 MMBTU/hr to 14 MMBTU/hr under Application 25838

The following changes were made to Table II-B:

- Description of A-33 has been corrected (A-33 is an NSCR rather than an SCR)

**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 Sections IV and 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 BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered *significant sources* pursuant to the definition in BAAQMD Rule 2-6-239.

**Changes to permit:**

SIP Regulation 2, Rule 1 has been deleted from Table III because the current BAAQMD Regulation 2, Rule 1 has now been SIP-approved.

Added "Regulation" to "BAAQMD 2-1-429" for clarity.

The regulation titles for "Subpart F, 40 CFR 82.156," "Subpart F, 40 CFR 82.161," "Subpart F, 40 CFR 82.166" have been revised for clarity.

The adoption date of SIP Regulation 9, Rule 1 has been corrected.

The dates of adoption or approval of the rules and their "federal enforceability" status in Table III have also been updated.

#### **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) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in 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 portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it 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, which 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. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.



*Complex Applicability Determinations:*

Applicability of EPA NESHAPs

One of the goals of the federal Clean Air Act is to reduce the emission of Hazardous Air Pollutants (HAPs). The reduction of HAPs is achieved through the promulgation of, and compliance with, emission standards for categories of sources that emit HAPs. The United States Environmental Protection Agency (EPA) identified 30 HAPs that pose the greatest threat to public health in urban areas. The U.S. EPA has identified categories of sources that account for 90 percent of the release of these particular HAPs and is now promulgating standards to reduce their emissions. These federal standards are referred to as the National Emissions Standards for Hazardous Air Pollutants (NESHAP). The four NESHAPs (in 40 CFR, Part 63) pertinent to this facility are:

- Subpart B- Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j)
- Subpart DDDDD- National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters
- Subpart JJJJJ- National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources
- Subpart ZZZZ- National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Subpart B and Subpart DDDDD apply to only major sources of HAPs, Subpart JJJJJ applies to only area sources of HAPs, and Subpart ZZZZ applies to both major and area sources of HAPs. A major source of HAPs is one in which the maximum plantwide potential to emit of all HAPs (including fugitive emissions) is greater than or equal to 10 tons per year of a single HAP or HAP compound category, or is greater than or equal to 25 tons per year of aggregated HAPs or HAP compound categories. An area source of HAPs is one that is not a major source of HAPs (that is, one that is a minor source of HAPs).

As demonstrated in the tables below, Chemtrade is an area source of HAPs. The sources that emit HAPs at this facility are: S-9 Process Air Heater, S-15 Startup Air Heater, S-34 Caustic Pump Diesel Engine, and S-36 Natural Gas-Fired IC Engine. Emission factors for S-9 and S-15 are from the CARB database of "California Air Toxics Emissions Factors" (CATEF) for Natural Gas Heaters. Emission factors for S-34 are from EPA AP-42 Chapter 3.3- Gasoline and Diesel Industrial Engines, Table 3.3-2 (Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines). Emission factors for S-36 are from EPA AP-42 Chapter 3.2- Natural Gas-fired Reciprocating Engines, Table 3.2-2 (Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines).

***S-9 and S-15 HAP/TAC Emissions***

S-9 Annual Limit on Natural Gas Usage (from Permit Condition #7934): 61.3 MMcf/yr

S-15 Annual Limit on Natural Gas Usage (from Permit Condition #7606): 5.0 MMcf/yr

| Combustion<br>Pollutant    | CATEF<br>(Mean)<br>Emission<br>Factor<br>(lb/MMcf, NG) | TAC Emissions (lb/yr) |          |
|----------------------------|--|-----------------------|----------|
|                            |  | S-9                   | S-15     |
| Acenaphthene               | 1.39E-06   | 8.52E-05              | 6.95E-06 |
| Acenaphthylene             | 1.21E-05   | 7.42E-04              | 6.05E-05 |
| Acetaldehyde               | 1.40E-02   | 8.58E-01              | 7.00E-02 |
| Acrolein                   | 4.84E-03   | 2.97E-01              | 2.42E-02 |
| Anthracene                 | 1.61E-06   | 9.87E-05              | 8.05E-06 |
| Benzene                    | 1.12E-02   | 6.87E-01              | 5.60E-02 |
| Benzo(a)anthracene         | 1.96E-06   | 1.20E-04              | 9.80E-06 |
| Benzo(a)pyrene             | 9.80E-07   | 6.01E-05              | 4.90E-06 |
| Benzo(b)fluoranthene       | 1.14E-06   | 6.99E-05              | 5.70E-06 |
| Benzo(g,h,i)perylene       | 1.25E-06   | 7.66E-05              | 6.25E-06 |
| Benzo(k)fluoranthene       | 9.90E-07   | 6.07E-05              | 4.95E-06 |
| Chrysene                   | 1.39E-06   | 8.52E-05              | 6.95E-06 |
| Dibenz(a,h)anthracene      | 9.17E-07   | 5.62E-05              | 4.59E-06 |
| Ethylbenzene               | 2.25E-03   | 1.38E-01              | 1.13E-02 |
| Fluoranthene               | 1.19E-05   | 7.29E-04              | 5.95E-05 |
| Fluorene                   | 4.59E-06   | 2.81E-04              | 2.30E-05 |
| Formaldehyde               | 7.40E-02   | 4.54E+00              | 3.70E-01 |
| Indeno(1,2,3-<br>cd)pyrene | 1.17E-06   | 7.17E-05              | 5.85E-06 |
| Naphthalene                | 1.12E-03   | 6.87E-02              | 5.60E-03 |
| Phenanthrene               | 3.37E-05   | 2.07E-03              | 1.69E-04 |
| Propylene                  | 2.35E-01   | 1.44E+01              | 1.18E+00 |
| Pyrene                     | 5.60E-06   | 3.43E-04              | 2.80E-05 |
| Toluene                    | 2.95E-02   | 1.81E+00              | 1.48E-01 |
| Xylene (Total)             | 1.43E-02   | 8.77E-01              | 7.15E-02 |

**S-34 HAP/TAC Emissions**

**Engine Specifications:**

| Max Fuel Rate(gal/hr) | Annual Usage (hr/yr) | Heat Content (BTU/Gal) | MM Btu/hr |
|-----------------------|----------------------|------------------------|-----------|
| 4.200                 | 8760                 | 140000                 | 0.588     |

| Emission Calculation:    | AP-42 Table 3-3.2 | Total Annual Emissions |
|--------------------------|-------------------|------------------------|
| POLLUTANT                | (lb/MMBtu)        | (lb/yr) Note 1         |
| Benzene                  | 9.33E-04          | 4.81E+00               |
| 1,3-Butadiene <          | 3.91E-05          | 1.01E-01               |
| Acenaphthene <           | 1.42E-06          | 3.66E-03               |
| Acenaphthylene <         | 5.06E-06          | 1.30E-02               |
| Acetaldehyde             | 7.67E-04          | 3.95E+00               |
| Acrolein <               | 9.25E-05          | 2.38E-01               |
| Anthracene               | 1.87E-06          | 9.63E-03               |
| Benzo(a)anthracene       | 1.66E-06          | 8.65E-03               |
| Benzo(a)pyrene <         | 1.88E-07          | 4.84E-04               |
| Benzo(b)fluoranthene <   | 9.91E-08          | 2.55E-04               |
| Benzo(g,h,i)perylene <   | 4.89E-07          | 1.26E-03               |
| Benzo(k)fluoranthene <   | 1.55E-07          | 3.99E-04               |
| Chrysene                 | 3.53E-07          | 1.82E-03               |
| Dibenz(a,h)anthracene <  | 5.83E-07          | 1.50E-03               |
| Fluoranthene             | 7.61E-06          | 3.92E-02               |
| Fluorene                 | 2.92E-05          | 1.50E-01               |
| Formaldehyde             | 1.18E-03          | 6.08E+00               |
| Indeno(1,2,3-cd)pyrene < | 3.75E-07          | 9.66E-04               |
| Naphthalene              | 8.48E-05          | 4.37E-01               |
| Phenanthrene             | 2.94E-05          | 1.51E-01               |
| Propylene                | 2.58E-03          | 1.33E+01               |
| Pyrene                   | 4.78E-06          | 2.46E-02               |
| Toluene                  | 4.09E-04          | 2.11E+00               |
| Xylenes                  | 2.85E-04          | 1.47E+00               |

Note 1: Compounds whose factor is shown as less than (<) in AP-42 is taken as half the calculated value.

**S-36 HAP/TAC Emissions**

Maximum Engine Heat Input Rating: 13.7 MMBTU/hr

Maximum Annual Operation Hours: 8760 hr/yr

Maximum Annual Heat Input: 116, 639 MMBTU/yr

| TAC                       | Emission Factor<br>lb/MM BTU | Emission Rate<br>lb/yr |
|---------------------------|------------------------------|------------------------|
| Acenaphthylene            | 5.53E-06                     | 0.45                   |
| Acetaldehyde              | 8.36E-03                     | 683.74                 |
| Acrolein                  | 5.14E-03                     | 420.39                 |
| Benzene                   | 4.40E-04                     | 35.99                  |
| Benzo(b)fluoranthene      | 1.66E-07                     | 0.01                   |
| Benzo(c)pyrene            | 4.15E-07                     | 0.03                   |
| Benzo(g,h,i)perylene      | 4.14E-07                     | 0.03                   |
| Biphenyl                  | 2.12E-04                     | 17.34                  |
| Butyr/Isobutyraldehyde    | 1.01E-04                     | 8.26                   |
| Carbon Tetrachloride      | 3.67E-05                     | 3.00                   |
| Chlorobenzene             | 3.04E-05                     | 2.49                   |
| Chloroethane              | 1.87E-06                     | 0.15                   |
| Chloroform                | 2.85E-05                     | 2.33                   |
| Chrysene                  | 6.93E-07                     | 0.06                   |
| Cyclopentane              | 2.27E-04                     | 18.57                  |
| Ethylbenzene              | 3.97E-05                     | 3.25                   |
| Ethylene Dibromide        | 4.43E-05                     | 3.62                   |
| Fluoranthene              | 1.11E-06                     | 0.09                   |
| Fluorene                  | 5.67E-06                     | 0.46                   |
| Formaldehyde              | 5.28E-02                     | 4,318.37               |
| Methanol                  | 2.50E-03                     | 204.47                 |
| Methylcyclohexane         | 1.23E-03                     | 100.60                 |
| Methylene Chloride        | 2.00E-05                     | 1.64                   |
| n-Hexane                  | 1.11E-03                     | 90.78                  |
| n-Nonane                  | 1.10E-04                     | 9.00                   |
| n-Octane                  | 3.51E-04                     | 28.71                  |
| n-Pentane                 | 2.60E-03                     | 212.65                 |
| Naphthalene               | 7.44E-05                     | 6.08                   |
| PAH                       | 2.69E-05                     | 2.20                   |
| Phenanthrene              | 1.04E-05                     | 0.85                   |
| Phenol                    | 2.40E-05                     | 1.96                   |
| Pyrene                    | 1.36E-06                     | 0.11                   |
| Styrene                   | 2.36E-05                     | 1.93                   |
| Tetrachloroethane         | 2.48E-06                     | 0.20                   |
| Toluene                   | 4.08E-04                     | 33.37                  |
| Vinyl Chloride            | 1.49E-05                     | 1.22                   |
| Xylene                    | 1.84E-04                     | 15.05                  |
| 1,1,2,2-Tetrachloroethane | 4.00E-05                     | 3.27                   |
| 1,1,2-Trichloroethane     | 3.18E-05                     | 2.60                   |
| 1,1-Dichloroethane        | 2.36E-05                     | 1.93                   |
| 1,2,3-Trimethylbenzene    | 2.30E-05                     | 1.88                   |
| 1,2,4-Trimethylbenzene    | 1.43E-05                     | 1.17                   |
| 1,2-Dichloroethane        | 2.36E-05                     | 1.93                   |
| 1,2-Dichloropropane       | 2.69E-05                     | 2.20                   |
| 1,3,5-Trimethylbenzene    | 3.38E-05                     | 2.76                   |
| 1,3-Butadiene             | 2.67E-04                     | 21.84                  |
| 1,3-Dichloropropene       | 2.64E-05                     | 2.16                   |
| 2-Methylnaphthalene       | 3.32E-05                     | 2.72                   |
| 2,2,4-Trimethylpentane    | 2.50E-04                     | 20.45                  |
| Acenaphthene              | 1.25E-06                     | 0.10                   |

***Facilitywide HAP Emissions Summary***

|                            | <b>Annual Combined HAP Emissions (lb/yr)</b> |
|----------------------------|--|
| S-9                        | 23.68  |
| S-15                       | 1.93   |
| S-34                       | 32.90  |
| S-36                       | 6294.46                                      |
| All other existing sources | 0  |
| <b>TOTAL (lb/yr)</b>       | 6352.97                                      |
| <b>TOTAL (TPY)</b>         | 3.18   |

Therefore, Subparts B and DDDDD do not apply to Chemtrade. Subpart JJJJJ does not apply to Chemtrade because process heaters are not subject to this subpart; S-9 Process Air Heater and S-15 Startup Air Heater are process heaters.

Subpart ZZZZ consists of four standards, or four rules. The standards were developed with the first rule, promulgated in 2004, regulating RICE rated greater than 500 HP at only the major sources of HAPs. In 2008, the second rule incorporated RICE rated less than or equal to 500 HP at major sources, as well as area sources with RICE greater than 500 HP. The last two rules finalizing the Subpart ZZZZ were promulgated in 2010 and expanded those regulated by adding RICE rated less than or equal to 500 HP at area sources. The area source requirements in Subpart ZZZZ apply to the reciprocating internal combustion engines (RICE) at this facility: S-34 Caustic Pump Diesel Engine, and S-36 Natural Gas-Fired IC Engine. Applicable requirements for Subpart ZZZZ and Subpart A (General Provisions) have been included in the proposed Title V permit, including the future effective dates.

### Applicability of 40 CFR, Part 64, Compliance Assurance Monitoring

The Compliance Assurance Monitoring (CAM) regulation in 40 CFR, Part 64 was developed to provide assurance that facilities comply with applicable emissions limitations by adequately monitoring control devices. The CAM rule was effective on November 21, 1997. However, most facilities are not affected by CAM requirements until they submit applications for Title V permit renewal. CAM applies to a source of criteria pollutant or hazardous air pollutant (HAP) emissions if all the following requirements are met:

- The source is located at a major source for which a Title V permit is required; and
- The source is subject to a federally enforceable emission limitation or standard for criteria pollutant or HAP; and
- The source uses a control device to comply with the federally enforceable emission limitation or standard; and
- The source has potential pre-control emissions of the regulated pollutant that are equal to or greater than the major source threshold for the pollutant (in BAAQMD, the major source thresholds are 100 tons per year for each criteria pollutant, 10 tons per year for a single HAP, and 25 tons per year for two or more HAPs); and
- The source is not otherwise exempt from CAM.

The applicability of 40 CFR, Part 64, Compliance Assurance Monitoring, was reviewed for the sources at this facility that use control devices to comply with federally enforceable emission limitations or standards.

#### *A-2 Mist Eliminator*

For S-1, CAM does not apply for sulfuric acid mist because the A-2 Mist Eliminator is inherent process equipment as defined in the CAM regulation since the primary purpose of the mist eliminator is to recover sulfuric acid to minimize corrosion in ductwork and other downstream equipment and to recover sulfuric acid for sale. In addition, operating without the mist eliminator would result in much faster deterioration of downstream ductwork and equipment including the A-1 SO<sub>2</sub> Abatement Unit and would result in a reduction in the amount of sulfuric acid produced. The overall impact would be a decrease in production from the facility. Therefore, the mist eliminator is necessary for the proper and safe functioning of the sulfuric acid production process. For these reasons, the facility would operate the mist eliminator even if the sulfuric acid plant were not subject to any sulfuric acid mist emission limitations.

The preamble to the CAM Regulation (Federal Register, Vol. 62, No. 204, October 22, 1997, 54913) specifies three criteria that can be used to distinguish inherent process equipment from control devices.

1. Is the primary purpose of the equipment to control air pollution? As discussed above, the primary purpose of the mist eliminator is to prevent acid from attacking downstream equipment and recover product.
2. Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment? The cost of the recovered product together with cost-savings associated with the increased life of the downstream equipment, justify the cost of the mist eliminator.
3. Would the equipment be installed if no air quality regulations are in place? As discussed above, the mist eliminator would be used even if no emission limits applied, because it recovers product and protects downstream equipment.

*Other Control Devices*

CAM does not apply to all other abated sources at this facility. For S-1, pre-control device emissions of SO<sub>2</sub> exceed the BAAQMD major source threshold of 100 tons per year. However, S-1 uses a continuous emissions monitor for SO<sub>2</sub> and therefore CAM does not apply per 40 CFR 64.2(b)(1)(vi). For the other sources, CAM does not apply because pre-control device emissions do not exceed any of the BAAQMD major source thresholds. The table below summarizes the pre-control device emissions for these sources. The pre-control device emissions calculations are based on maximum source throughput rates or permitted throughput limits, emission factors/rates, and total annual operating hours, which are taken from District permit evaluations and data forms for this facility. In the absence of permitted throughput limits, maximum source throughput rates were used for the pre-control device emission calculations.

**CAM Applicability**

| A-# | Description   | Required Efficiency   | Source(s) Controlled                     | Pre-Control Emissions  |   |   |                               |                               |                               |
|-----|---|---|--|--|---|---|-------------------------------|-------------------------------|-------------------------------|
|     |   |   |  | SO <sub>2</sub>  | PM  | H <sub>2</sub> SO <sub>4</sub>  | POC                           | NO <sub>x</sub>               | CO                            |
| A-1 | Sulfur Dioxide Abatement System (“Dual Absorption” process) | 9-1-309: limit SO <sub>2</sub> emissions to no more than 300 ppm @ 12% O <sub>2</sub><br><br>6-1-320 and 6-320: limit SO <sub>3</sub> and H <sub>2</sub> SO <sub>4</sub> emissions to less than 0.04 grain/dscf | S-1<br>Sulfuric Acid Manufacturing Plant | (25 tons/hr)*(8760 hr/yr)*(49.5 lb/ton)/(2000 lb/ton) = <b>5420.25 TPY</b><br><b>(exempt from CAM because S-1 has CEM)</b> | (25 tons/hr)*(8760 hr/yr)*(0.1 lb/ton)/(2000 lb/ton) = <b>10.95 TPY</b> | (25 tons/hr)*(8760 hr/yr)*(0.0234 lb/ton)/(2000 lb/ton) = <b>2.56 TPY</b> | No emission limit or standard | No emission limit or standard | No emission limit or standard |
|     |   |   | S-16<br>Alkylation Acid Storage          | (0.04 lb/hr)*(8760 hr/yr)/(2000 lb/ton) = <b>0.175 TPY</b>   | SO <sub>3</sub> : [(2.797E-17 mmHg)/(760 mmHg)]*(27 lb-                 | (25 tons/hr)*(8760 hr/yr)*(1.72E-7 lb/ton)/                               | No emission limit or standard | No emission limit or standard | No emission limit or standard |

| A-#                     | Description   | Required Efficiency   | Source(s) Controlled  | Pre-Control Emissions   |   |   |  |                               |                               |
|-------------------------|---|---|---|---|---|---|--|-------------------------------|-------------------------------|
|                         |   |   |   | SO2   | PM  | H2SO4   | POC  | NOx                           | CO                            |
|                         |   | 12-6-301:<br>limit acid mist emissions to no more than 0.15 gram per kilogram (0.3 lb/ton) of acid produced | Tank #13  |   | mol/day)*<br>(80 lb SO3/lb-mol)*<br>(365 days/yr) =<br>0 TPY<br><br>H2SO4:<br>(25 tons/hr)*<br>(8760 hr/yr)*<br>(1.72E-7 lb/ton)/<br>(2000 lb/ton) =<br>0 TPY<br><br><b>Combined:<br/>0 TPY</b>   | (2000 lb/ton)<br>=<br><b>0 TPY</b>  |  |                               |                               |
|                         |   |   | S-24<br>Electronic Grade Sulfuric Acid Manufacturing Process  | (15000 TPY)*(0.093 lb/ton)/(2000 lb/ton) = <b>0.698 TPY</b>                         | Conservatively assuming that SO3 emissions equal H2SO4 emissions:<br><br>SO3:<br>(15000 TPY)*(0.0974 lb/ton)/(2000 lb/ton) = 0.731 TPY<br><br>H2SO4:<br>(15000 TPY)*(0.0974 lb/ton)/(2000 lb/ton) = 0.731 TPY<br><br><b>Combined:<br/>0.731+0.731 = 1.462 TPY</b> | (15000 TPY)*<br>(0.0974 lb/ton)/<br>(2000 lb/ton)<br>= <b>0.731TPY</b>                                  | No emission limit or standard  | No emission limit or standard | No emission limit or standard |
| A-4<br><br>&<br><br>A-5 | Acid Storage Back-Up Vent Activated Carbon Beds<br><br>Acid Storage Back-Up Vent Packed | Limit hydrocarbon emissions to 0.37 lb/hour<br><br>Limit SO2 emissions to 10 ppmv                           | S-3 Alkylation Acid Storage Tank #12<br><br>S-10 Alkylation Acid Storage Tank #11<br><br>S-13 Alkylation Acid | Total:<br><br>(0.04 lb/hr)*<br>(8760 hr/yr)/<br>(2000 lb/ton) =<br><b>0.175 TPY</b> | Total (as H2SO4):<br><br>(25 tons/hr)*<br>(5.8E-6 lb/ton)*<br>(8760 hr/yr)/<br>(2000 lb/ton)=<br><b>0.0006 TPY</b>  | Total:<br><br>(25 tons/hr)*<br>(5.8E-6 lb/ton)*<br>(8760 hr/yr)/<br>(2000 lb/ton)=<br><b>0.0006 TPY</b> | Total:<br><br>(25 tons/hr)*<br>(6.7E-3 lb/ton)*<br>(8760 hr/yr)/<br>(2000 lb/ton)=<br><b>0.717 TPY</b> | No emission limit or standard | No emission limit or standard |



| A-#  | Description                       | Required Efficiency   | Source(s) Controlled  | Pre-Control Emissions  |   |  |   |   |   |
|------|-----------------------------------|---|---|--|---|--|---|---|---|
|      |                                   |   |   | SO2  | PM  | H2SO4  | POC   | NOx   | CO  |
|      | Tower Caustic Scrubber            | limit H2SO4 emissions to 5 ppmv<br><br>Limit SO2 emissions to 0.09 lb/hr<br><br>limit H2SO4 emissions to 0.014 lb/hr                                  | Storage Tank #16<br>S-16 Alkylation Acid Storage Tank #13<br>S-17 Railcar Loading/Unloading Station (Sulfuric/Alkylation Acid)<br>S-18 Truck Unloading Station (Alkylation Acid)<br>S-32 Alkylation Acid / Sulfuric Acid Storage Tank #14 |  |   |  |   |   |   |
| A-6  | Emergency Caustic Scrubber System | Limit SO2 emissions to 51 ppmv<br><br>limit H2SO4 emissions to 0.3 lb/ton of acid produced<br><br>Limit SO3 and/or H2SO4 emissions to 0.04 grain/dscf | S-1 Sulfuric Acid Manufacturing Plant   | Assuming maximum of 1 hr/day, 365 day/yr operation of A-6:<br><br>(1.26 lb/day)*<br>(365 hr/yr)/<br>(2000 lb/ton) =<br><b>0.23 TPY</b> | Assuming maximum of 1 hr/day, 365 day/yr operation of A-6:<br><br>(25 tons/hr)*<br>(365 hr/yr)*<br>(0.1 lb/ton)/<br>(2000 lb/ton) =<br><b>0.456 TPY</b> | Assuming maximum of 1 hr/day, 365 day/yr operation of A-6:<br><br>(25 tons/hr)*<br>(365 hr/yr)*<br>(0.0234 lb/ton)/<br>(2000 lb/ton) =<br><b>0.107 TPY</b> | No emission limit or standard   | No emission limit or standard   | No emission limit or standard   |
| A-33 | SCR Emission Control System       | Limit NOx emissions to 0.15 g/bhp-hr<br><br>Limit CO emissions to 0.6 g/bhp-hr<br><br>Limit POC emissions to 0.15 g/bhp-hr                            | S-36 Natural Gas-Fired IC Engine  | No emission limit or standard  | No emission limit or standard   | No emission limit or standard  | (0.2 g/hp-hr)*<br>(1971 hp)*<br>8760 hr/yr/<br>(453.6 g/lb)/<br>(2000 lb/ton) =<br><b>3.806</b> | (0.5 g/hp-hr)*<br>(1971 hp)*<br>8760 hr/yr/<br>(453.6 g/lb)/<br>(2000 lb/ton) =<br><b>9.516</b> | (2.5 g/hp-hr)*<br>(1971 hp)*<br>8760 hr/yr/<br>(453.6 g/lb)/<br>(2000 lb/ton) =<br><b>47.58 TPY</b> |

| A-# | Description | Required Efficiency | Source(s) Controlled | Pre-Control Emissions |    |       |     |     |    |
|-----|-------------|---------------------|----------------------|-----------------------|----|-------|-----|-----|----|
|     |             |                     |                      | SO2                   | PM | H2SO4 | POC | NOx | CO |
|     |             |                     |                      |                       |    |       | TPY | TPY |    |

Changes to permit:

The dates of adoption or approval of the rules and their "federal enforceability" status in each of the tables have been updated.

The following changes were made to Table IV-A, S-1 Sulfuric Acid Manufacturing Process:

- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from "Y" to "N" because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1

The following changes were made to Table IV-B, S-9 Process Air Heater:

- Added BAAQMD Regulation 6, Rule 1 because it was omitted in error
- Added SIP Regulation 6 because it was omitted in error
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from "Y" to "N" because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1
- Removed BAAQMD Regulations 9-7-301.1 and 9-7-301.4 because these regulations were effective until 1/1/12, which has passed
- Removed "1/1/12," which pertained to the future effective date for BAAQMD Regulation 9-7-307.3, since this date has passed

The following changes were made to Table IV-D (renumbered from Table IV-E), S-15 Startup Air Heater:

- Added BAAQMD Regulation 6, Rule 1 because it was omitted in error
- Added SIP Regulation 6 because it was omitted in error
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from "Y" to "N" because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1
- Removed "1/1/12," which pertained to the future effective date for BAAQMD Regulation 9-7-307.3, since this date has passed

The following changes were made to Table IV-H (renumbered from Table IV-I), S-24 Electronic Grade Sulfuric Acid Manufacturing Process:

- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from "Y" to "N" because this rule is no longer federally enforceable

- Added 6/8/99 version of SIP Regulation 9, Rule 1

The following changes were made to Table IV-N, S-34 Caustic Pump Diesel Engine:

- Deleted BAAQMD Regulation 6-1-310.3 because this regulation was included in error and BAAQMD Regulation 6-1-310 applies to S-34
- Deleted SIP Regulation 6-310.3 because this regulation was included in error and SIP Regulation 6-310 applies to S-34
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from “Y” to “N” because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1
- Removed “5/3/13,” which pertained to the future effective date for 40 CFR 63, Subpart ZZZZ, since this date has passed

The following changes were made to Table IV-O, S-36 Natural Gas Fired IC Engine:

- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from “Y” to “N” because this rule is no longer federally enforceable
- Added SIP Regulation 9, Rule 8 because it was omitted in error
- Added 6/8/99 version of SIP Regulation 9, Rule 1
- Removed “10/19/13,” which pertained to the future effective date for 40 CFR 63, Subpart ZZZZ, since this date has passed

## **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 contains only sections 2-6-409.10.1 and 2-6-409.10.2.

Changes to permit:

The schedule of compliance now states that the permit holder shall also comply with applicable requirements “cited in” this permit that become effective during the term of the permit "on a timely basis" to follow the regulation more closely.

**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.

When 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 ‘strike-out’ language will be deleted; all “underline” language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also 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. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

When applicable, conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

When applicable, BAAQMD Regulation 6 standards have been updated to Regulation 6-1 to reflect current BAAQMD Rules.

When applicable, conditions have also been deleted due to the following:

- Redundancy in record-keeping requirements.
- Redundancy in other conditions, regulations and rules.
- The condition has been superseded by other regulations and rules.
- The equipment has been taken out of service or is exempt.
- The event has already occurred (i.e. initial or start-up source tests).

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- **BACT:** This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- **Cumulative Increase:** This term 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 term 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 term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

Changes to permit:

In Condition #7606, part 3, the NO<sub>x</sub> limit for S-15 Startup Air Heater has been changed from 66 ppmv to 15 ppmv @ 3% O<sub>2</sub> per application #25838.

**VII. Applicable Limits and Compliance Monitoring Requirements**

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

Changes to permit:

The following changes were made to Table VII-A, S-1 Sulfuric Acid Manufacturing Process:

- Added SIP Regulation 6 because it was omitted in error
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from "Y" to "N" because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1

The following changes were made to Table VII-B, S-9 Process Air Heater:

- Added BAAQMD Regulation 6, Rule 1 because it was omitted in error
- Added SIP Regulation 6 because it was omitted in error
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from "Y" to "N" because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1

- Removed the NO<sub>x</sub> and CO limits in BAAQMD Regulations 9-7-301.1 and 9-7-301.4 (shown in error as 9-7-301.2), respectively, because these regulations were effective until 1/1/12, which has passed
- Removed “1/1/12,” which pertained to the future effective date for the NO<sub>x</sub> and CO limits in Regulations 9-7-307.3, since this date has passed
- 

The following changes were made to Table VII-C, S-15 Startup Air Heater:

- Added BAAQMD Regulation 6, Rule 1 because it was omitted in error
- Added SIP Regulation 6 because it was omitted in error
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from “Y” to “N” because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1
- Removed the CO limit in BAAQMD Regulation 9-7-301.4 (shown in error as 9-7-301.2), because this regulation was effective until 1/1/12, which has passed
- Removed “1/1/12,” which pertained to the future effective date for the NO<sub>x</sub> and CO limits in Regulations 9-7-307.3, since this date has passed
- Emission limit for NO<sub>x</sub> in Condition #7606 Part 3 has been changed from 66 ppmv to 15 ppmv per Application 25838

The following changes were made to Table VII-E, S-24 Electronic Grade Sulfuric Acid Manufacturing Process:

- Added SIP Regulation 6 because it was omitted in error
- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from “Y” to “N” because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1

The following changes were made to Table VII-N, S-34 Caustic Pump Diesel Engine:

- Changed the federal enforceability of BAAQMD Regulation 9, Rule 1 from “Y” to “N” because this rule is no longer federally enforceable
- Added 6/8/99 version of SIP Regulation 9, Rule 1

The following changes were made to Table VII-O, S-36 Natural Gas-Fired Engine:

- Added BAAQMD Regulation 9, Rule 1 because it was omitted in error
- Added SIP Regulation 9, Rule 8 because it was omitted in error
- Added 6/8/99 version of SIP Regulation 9, Rule 1
- Removed “10/19/13,” which pertained to the future effective date for the CO limit in 63.6600(a), Table 2d, part 8.a., since this date has passed

The District has reviewed all monitoring and has determined the existing monitoring is adequate with the following exceptions.

*The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements.* The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements. It follows that, although Title V calls for a re-examination of all monitoring, there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation. Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate.

NOx Sources

| <b>S# &amp; Description</b>      | <b>Emission Limit Citation</b> | <b>Federally Enforceable Emission Limit</b> | <b>Monitoring</b> |
|----------------------------------|--------------------------------|---|-------------------|
| S-9 Process Air Heater           | SIP Regulation 9-7-301.1       | 30 ppmv, dry @ 3% O <sub>2</sub>            | None              |
| S-15 Startup Air Heater          | BAAQMD Condition #7606, part 3 | 15 ppmv, dry @ 3% O <sub>2</sub>            | None              |
| S-36 Natural Gas Fired IC Engine | SIP Regulation 9-8-301.2       | 140 ppmv, dry @ 15% O <sub>2</sub>          | None              |

**NOx Discussion:**

An annual source test is required for S-9 and S-15 to comply with BAAQMD Regulation 9-7-307.3, which has an emissions limit of 15 ppmv @ 3% oxygen. This annual source test requirement for S-9 will ensure that S-9 also will also comply with SIP Regulation 9-7-301.1 (which does not contain a monitoring requirement) because BAAQMD Regulation 9-7-307.3 contains a more stringent emission limit than SIP Regulation 9-7-301.1. This annual source test requirement for S-15 will ensure that S-15 also will also comply with BAAQMD Condition #7606, part 3 (which does not contain a monitoring requirement) because BAAQMD Regulation 9-7-307.3 contains the same emission limit as BAAQMD Condition #7606, part 3.

Quarterly monitoring using a portable analyzer is required for S-36 to comply with BAAQMD Regulation 9-8-301.2, which has an emissions limit of 65 ppmv @ 15% oxygen. This quarterly monitoring requirement for S-36 will ensure that S-36 also will also comply with SIP Regulation 9-8-301.2 (which does not contain a monitoring requirement) because BAAQMD Regulation 9-8-301.2 contains a more stringent emission limit than SIP Regulation 9-8-301.2.

**CO Sources**

| <b>S# &amp; Description</b>      | <b>Emission Limit Citation</b> | <b>Federally Enforceable Emission Limit</b> | <b>Monitoring</b> |
|----------------------------------|--------------------------------|---|-------------------|
| S-9 Process Air Heater           | SIP Regulation 9-7-301.2       | 400 ppmv, dry @ 3% O <sub>2</sub>           | None              |
| S-15 Startup Air Heater          | BAAQMD Condition #7606, part 4 | 50 ppmv, dry @ 3% O <sub>2</sub>            | None              |
|                                  | SIP Regulation 9-7-301.2       | 400 ppmv, dry @ 3% O <sub>2</sub>           | None              |
| S-36 Natural Gas Fired IC Engine | SIP Regulation 9-8-301.3       | 2000 ppmv, dry @ 15% O <sub>2</sub>         | None              |

**CO Discussion:**

An annual source test is required for S-9 to comply with BAAQMD Regulation 9-7-307.3, which has an emission limit of 400 ppmv @ 3% oxygen. This annual source test requirement for S-9 will ensure that S-9 also will also comply with SIP Regulation 9-7-301.2 (which does not contain a monitoring requirement) because BAAQMD Regulation 9-7-307.3 contains the same emission limit as SIP Regulation 9-7-301.2.

An annual source test is required for S-15 to comply with BAAQMD Regulation 9-7-307.3, which has an emission limit of 400 ppmv @ 3% oxygen. This annual source test requirement for S-15 will ensure that S-15 also will also comply with SIP Regulation 9-7-301.2 (which does not



contain a monitoring requirement) because BAAQMD Regulation 9-7-307.3 contains the same emission limit as SIP Regulation 9-7-301.2.

Quarterly monitoring using a portable analyzer is required for S-36 to comply with BAAQMD Regulation 9-8-301.3, which has an emissions limit of 2000 ppmv @ 15% oxygen. This quarterly monitoring requirement for S-36 will ensure that S-36 also will also comply with SIP Regulation 9-8-301.3 (which does not contain a monitoring requirement) because BAAQMD Regulation 9-8-301.3 contains the same emission limit as SIP Regulation 9-8-301.3.

S-15 Startup Air Heater was source tested on November 26, 2016 to determine compliance with the CO emission standard of BAAQMD condition #7606, part 4. The results of the test showed that S-15 was in compliance with that standard. S-15 emitted <0.5 ppm CO @ 3% O<sub>2</sub> which complies with the permit condition #7606, part 4 limit of 50 ppm CO and the limit of 400 ppm @ 3% O<sub>2</sub> in SIP Regulation 9-7-301.2.

The potential to emit for S-15 is not significant based upon the annual natural gas usage limit of 5,000,000 cubic feet per year established under condition #7606, part 2 and the maximum allowable CO emission rate of 50 ppm (equivalent to 0.0375 lb/MM BTU) as shown below:

$$(0.0375 \text{ lb/MM BTU})(5,000,000 \text{ ft}^3/\text{yr})(1050 \text{ BTU}/\text{ft}^3) = 197 \text{ lb}/\text{yr}$$

Therefore, additional monitoring is not necessary to insure ongoing compliance with this standard for S-15.

### SO<sub>2</sub> Sources

| <b>S# &amp; Description</b>   | <b>Emission Limit Citation</b> | <b>Federally Enforceable Emission Limit</b>  | <b>Monitoring</b>  |
|---|--------------------------------|--|--------------------|
| S-1 Sulfuric Acid Manufacturing Plant, S-9 Process Air Heater, S-15 Startup Air Heater, S-24 Electronic Grade Sulfuric Acid Manufacturing Process, and S-36 Natural Gas Fired IC Engine | BAAQMD 9-1-301 and SIP 9-1-301 | Ground level concentrations of SO <sub>2</sub> shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours | None               |
| S-9 Process Air Heater, S-15 Startup Air Heater, and S-36 Natural Gas Fired IC Engine   | BAAQMD 9-1-302 and SIP 9-1-302 | 300 ppm (dry)  | None               |
| S-34 Caustic Pump Diesel Engines  | BAAQMD 9-1-304 and SIP 9-1-304 | Sulfur content of liquid fuel < 0.5% by weight   | Fuel Certification |

## **SO<sub>2</sub> Discussion:**

### BAAQMD Regulation 9-1-301 and SIP Regulation 9-1-301

Because both S-1 Sulfuric Acid Plant and S-24 Electronic Grade Sulfuric Acid Plant are abated by A-1 Sulfur Dioxide Abatement System they achieve SO<sub>2</sub> emission rates of less than 300 ppmvd, @ 12% O<sub>2</sub> (monitored continuously by CEM) in compliance with BAAQMD Regulation 9-1-309 and SIP Regulation 9-1-309. Therefore, normal operation of S-1 and S-24 are not expected to result in violations of the ground level concentration limits of Regulation 9-1-301 and SIP Regulation 9-1-301 and additional monitoring is not necessary.

All facility combustion sources are subject to the SO<sub>2</sub> emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with 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. S-9 Process Air Heater, S-15 Start-up Air Heater, and S-36 Natural Gas Fired IC Engine are fired exclusively with natural gas. Therefore, no monitoring is necessary for this requirement.

### BAAQMD Regulation 9-1-302 and SIP Regulation 9-1-302

All facility combustion sources are subject to the SO<sub>2</sub> emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with 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. S-9 Process Air Heater S-15 Start-up Air Heater, and S-36 Natural Gas Fired IC Engine are fired exclusively with natural gas. Therefore, no monitoring is necessary for this requirement.

### BAAQMD Regulation 9-1-304 and SIP Regulation 9-1-304

Because S-34 Caustic Pump Diesel Engine will be fired exclusively on "California diesel Fuel" that has a maximum sulfur content of 500 ppmw (0.05% by weight) compliance with Regulation 6-304 is expected. Per the CAPCOA/ARB/EPA agreement of 6/24/99 entitled "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", compliance with liquid fuel sulfur limits in BAAQMD Regulation 9-1-304 will be assured by certification of the sulfur content by the fuel supplier for each fuel delivery. Therefore, no additional monitoring is necessary for this source.

**PM Sources**

| <b>S# &amp; Description</b>   | <b>Emission Limit Citation</b>                         | <b>Federally Enforceable Emission Limit</b>                    | <b>Monitoring</b> |
|---|--|--|-------------------|
| S-1 Sulfuric Acid Manufacturing Plant, S-9 Process Air Heater, S-15 Start-up Air Heater, S-24 Electronic Grade Sulfuric Acid Manufacturing Process                      | BAAQMD Regulation 6-1-301 and SIP Regulation 6-301     | Ringelmann 1.0   | None              |
| S-34 Caustic Pump Diesel Engine, S-36 Natural Gas Fired IC Engine   | BAAQMD Regulation 6-1-303.1 and SIP Regulation 6-303.1 | Ringelmann 2.0   | None              |
| S-1 Sulfuric Acid Manufacturing Plant, S-24 Electronic Grade Sulfuric Acid Manufacturing Process, S-34 Caustic Pump Diesel Engine, and S-36 Natural Gas Fired IC Engine | BAAQMD Regulation 6-1-310 and SIP Regulation 6-310     | 0.15 gr/dscf   | None              |
| S-9 Process Air Heater, S-15 Start-up Air Heater  | BAAQMD Regulation 6-1-310.3 and SIP Regulation 6-310.3 | 0.15 gr/dscf at 6% O <sub>2</sub>                              | None              |
| S-1 Sulfuric Acid Manufacturing Plant, S-24 Electronic Grade Sulfuric Acid Manufacturing Process  | BAAQMD Regulation 6-1-311 and SIP Regulation 6-311     | 4.10P <sup>0.67</sup> lb/hr, where P is process weight, ton/hr | None              |

**PM Discussion:**

BAAQMD Regulation 6, Rule 1 “Particulate Matter and Visible Emissions” and SIP Regulation 6

Visible Emissions

Because both S-1 Sulfuric Acid Plant and S-24 Electronic Grade Sulfuric Acid Plant are abated by A-1 Sulfur Dioxide Abatement System, they achieve SO<sub>2</sub> emission rates of less than 300 ppmvd, @ 12% O<sub>2</sub> (monitored continuously by CEM) in compliance with BAAQMD Regulation 9-1-309. Therefore, normal operation of S-1 and S-24 are not expected to result in violations of the visible emissions standard of Regulation 6-1-301 and SIP Regulation 6-301 and additional monitoring is not necessary.

BAAQMD Regulation 6-1-301 and SIP Regulation 6-301 limit 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). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Sources S-9 Process Air Heater, S-15 Start-up Air Heater, and S-36 Natural Gas Fired IC Engine burn natural gas exclusively, therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for these sources.

BAAQMD Regulation 6-1-303.1 and SIP Regulation 6-303.1 limit visible emissions to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour) for engines of less than 1500 cubic inch displacement. No monitoring has been required for S-34 Caustic Pump Diesel Engine and S-36 Natural Gas Fired IC Engine since visible emissions violations are not expected for properly tuned engines.

#### Particulate Weight Limitation

BAAQMD Regulation 6-1-310 and SIP Regulation 6-310 limit filterable particulate (FP) 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% O<sub>2</sub>. These are the "grain loading" standards.

Because both S-1 Sulfuric Acid Plant and S-24 Electronic Grade Sulfuric Acid Plant are abated by A-1 Sulfur Dioxide Abatement System, they achieve sulfuric acid mist emission rates of less than 0.15 g/kg of acid produced in compliance with BAAQMD Regulation 12-6-301. Therefore, normal operation of S-1 and S-24 are not expected to result in violations of the grain loading limit of Regulation 6-1-310 and SIP Regulation 6-310 and additional monitoring is not necessary.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Sources S-9 Process Air Heater, S-15 Start-up Air Heater, S-34 Caustic Pump Diesel Engine, and S-36 Natural Gas Fired IC Engine burn natural gas exclusively, therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with Regulation 6-1-310, SIP Regulation 6-310, Regulation 6-1-310.3 and SIP Regulation 6-310.3 for these sources.

### Allowable Rate of Emissions Based on Process Weight Rate

Because both S-1 Sulfuric Acid Plant and S-24 Electronic Grade Sulfuric Acid Plant are abated by A-1 Sulfur Dioxide Abatement System, they achieve sulfuric acid mist emission rates of less than 0.15 g/kg of acid produced in compliance with BAAQMD Regulation 12-6-301. Therefore, normal operation of S-1 and S-24 are not expected to result in violations of the process weight based mass emission limits of Regulation 6-1-311 and SIP Regulation 6-311 and additional monitoring is not necessary.

### **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 also appear in Section IV of the permit.

#### Changes to permit:

Added BAAQMD Regulation 9-8-301.1 because it was previously omitted in error

### **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 explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting 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.

Pursuant to District Regulations 2-6-233 and 2-6-409.12, the federally enforceable regulations and/or standards cited in the following table[s] do not apply to the source or group of sources

identified at the top of the table[s]. Enforcement actions and litigation may not be initiated against the source or group of sources covered by this shield based on the regulatory and/or statutory provisions cited, as long as the reasons listed below remain valid for the source or group of sources covered by this shield.

**Table IX-A  
 S-1 Sulfuric Acid Manufacturing Process**

| <b>Citation</b> | <b>Title or Description<br/>(Reason not applicable)</b>  |
|-----------------|--|
| SIP 9-1-302     | General Emission Limitation<br>(Source is subject to Section 9-1-309)  |
| SIP 6-302       | Opacity Limitation<br>(SIP regulations do not require opacity monitoring for this source)  |
| 40 CFR 60.82    | Standards of Performance for Sulfuric Acid Plants<br>(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<br>(Source constructed prior to 8/17/71 and not modified as defined by 40 CFR 60.14 since 8/17/71) |

**Table IX-B  
 S-24 Sulfuric Acid Manufacturing Process**

| <b>Citation</b> | <b>Title or Description<br/>(Reason not applicable)</b>  |
|-----------------|--|
| SIP 9-1-302     | General Emission Limitation<br>(Source is subject to Section 9-1-309)  |
| SIP 6-302       | Opacity Limitation<br>(SIP regulations do not require opacity monitoring for this source)                                |
| 40 CFR 60.82    | Standards of Performance for Sulfuric Acid Plants<br>(Source is not Sulfuric Acid Manufacturing as defined by 60.81(a))  |
| 40 CFR 60.83    | Standards of Performance for Sulfuric Acid Plants<br>(Sources is not Sulfuric Acid Manufacturing as defined by 60.81(a)) |

**Table IX-C  
 Facility-Wide**

| <b>Citation</b> | <b>Title or Description (Reason not applicable)</b>   |
|-----------------|---|
| SIP 6-302       | Opacity Limitation<br>(SIP regulations do not require opacity monitoring for these sources) |

**D. Alternate Operating Scenarios:**

No alternate operating scenario has been requested for this facility.

**E. Compliance Status:**

The responsible official for Chemtrade submitted a signed Certification Statement form dated October 27, 2017. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form that are in compliance will continue to comply with the applicable requirements;

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirements, on a timely basis;

Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;

All fees required by Regulation 3, including Schedule P have been paid.

**F. Differences between the Application and the Proposed Permit:**

The Title V permit renewal application was originally submitted on May 11, 2016. This version is the basis for constructing the proposed Title V renewal permit. Revisions were made to application 27973 as a result of changes at the facility that were made pursuant to permit applications 25838, 26921, and 27697. Changes to the permit conditions, application, sources, etc. include the following:

A Permit to Operate was issued for existing S-9 Process Air Heater and S-15 Startup Air Heater under Application 25838 for the replacement of the existing burners with low NOx burners with lower firing rates. The permit conditions were modified and a Permit to Operate Altered Equipment was issued on 12/2/13 under Application 25838.

A Permit to Operate was issued for existing S-1 Sulfuric Acid Plant under Application 26921 for the replacement of the existing waste heat recovery boiler at S-1 with a physically identical unit with the same maximum capacity. A Permit to Operate Altered Equipment was issued on 8/9/15 under Application 26921.

A Permit to Operate was issued for existing S-1 Sulfuric Acid Plant under Application 27697 for the replacement of the bottom section of an existing gas cooling tower at S-1 with a physically identical section with the same maximum capacity. A Permit to Operate Altered Equipment was issued on 3/24/16 under Application 27697.

## **APPENDIX A**

### **GLOSSARY**



**ACT**

Federal Clean Air Act

**APCO**

Air Pollution Control Officer

**ARB**

Air Resources Board

**BAAQMD**

Bay Area Air Quality Management District

**BACT**

Best Available Control Technology

**Basis**

The underlying authority which 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). Cumulative increase is 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<sub>x</sub>**

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, NO<sub>x</sub>, PM<sub>10</sub>, and SO<sub>2</sub>.

**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

**PM<sub>10</sub>**

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.

**SO<sub>2</sub>**

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 <sup>2</sup> | = | 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    |
| scfm           | = | standard cubic feet per minute   |
| yr             | = | year                             |

## **APPENDIX B**

### **NSR Application Evaluation Reports**

**Applications 25358, 26921, 27697, & 27816**

General Chemical  
 Plant # 23

Application # 25838  
 Page 1 of 4

**ENGINEERING EVALUATION  
 GENERAL CHEMICAL  
 PLANT NO. 23  
 APPLICATION NO. 25838**

**BACKGROUND**

General Chemical has submitted an application to replace the burners of the following sources with lower firing rate low-NOx replacement burners:

- S-9 Process Air Heater, 18 MMBTU/hr to 12 MMBTU/hr
- S-15 Startup Air Heater, 16.55 MMBTU/hr to 14 MMBTU/hr

Both heaters (S-9 and S-15) shall continue using natural gas as a fuel and stay within annual usage limits stipulated in their existing permit conditions (Condition # 7934 and 7606, respectively). Although General Chemical indicated that S-9 will be "programmatically computer interlocked to 10 MMBTU/hr", the evaluation of S-9 alteration will be considered at 12 MMBTU/hr so that a permit condition limiting firing rate to 10 MMBTU/hr and its enforcement is not required.

**EMISSIONS SUMMARY**

General Chemical has stipulated that the burners for both S-9 and S-15 will meet Regulation 9-7-307.7 requirements because their burners will meet NOx and CO emission limits of 15 ppm and 400 ppm (at 3% O2), respectively. EPA's AP-42 emission factors for natural gas will be used to estimate emissions of POC, SO2, and PM10. The CO emissions from S-9 will be set at the 9-7 limit. However, for S-15, it will be set to 50 ppm because that source has existing conditions that limit CO to 50 ppm. As a result, the following are the emission factors that will be used:

$$\text{lb/MMBTU (NOx)} = 15\text{ppm}[(21-0\%)/(21-3\%)]*46*8,710 \text{ dscf/MMBTU}/385 \text{ dscf/mole} = 0.018$$

$$\text{lb/MMBTU(CO)} = 400 \text{ ppm}[(21-0\%)/(21-3\%)]*28*8,710 \text{ dscf/MMBTU}/385 \text{ dscf/mole} = 0.30 \text{ (S-9)}$$

$$\text{lb/MMBTU(CO)} = 50 \text{ ppm}[(21-0\%)/(21-3\%)]*28*8,710 \text{ dscf/MMBTU}/385 \text{ dscf/mole} = 0.04 \text{ (S-15)}$$

$$\text{lb/MMBTU (SO2)} = 0.6 \text{ lb}/10^6 \text{ scf}*(\text{scf}/1020 \text{ BTU})(10^6 \text{ scf/MMBTU}) = 0.0006$$

$$\text{lb/MMBTU (POC)} = 5.5 \text{ lb}/10^6 \text{ scf}*(\text{scf}/1020 \text{ BTU})(10^6 \text{ scf/MMBTU}) = 0.005$$

$$\text{lb/MMBTU (PM10)} = 7.6 \text{ lb}/10^6 \text{ scf}*(\text{scf}/1020 \text{ BTU})(10^6 \text{ scf/MMBTU}) = 0.007$$

| <b>Emissions from S-9</b> |                               |                             |                             |
|---------------------------|-------------------------------|-----------------------------|-----------------------------|
| Pollutant                 | Emission Factor<br>(lb/MMBTU) | Hourly Emissions<br>(lb/hr) | Daily Emissions<br>(lb/day) |
| NOx                       | 0.018                         | 0.22                        | 5.2                         |
| CO                        | 0.30                          | 3.6                         | 85                          |
| SO2                       | 0.0006                        | 0.007                       | 0.2                         |
| POC                       | 0.005                         | 0.06                        | 1.6                         |
| PM10                      | 0.007                         | 0.09                        | 2.1                         |

| <b>Emissions from S-15</b> |                               |                             |                             |
|----------------------------|-------------------------------|-----------------------------|-----------------------------|
| Pollutant                  | Emission Factor<br>(lb/MMBTU) | Hourly Emissions<br>(lb/hr) | Daily Emissions<br>(lb/day) |
| NOx                        | 0.018                         | 0.25                        | 6.1                         |
| CO                         | 0.04                          | 0.52                        | 12.4                        |
| SO2                        | 0.0006                        | 0.008                       | 0.2                         |
| POC                        | 0.005                         | 0.08                        | 1.8                         |
| PM10                       | 0.007                         | 0.10                        | 2.5                         |

There is no emission increase resulting from the alteration of S-9 and S-15 since the new burners will be smaller in firing rate. Leaving natural gas usages limits and emission limits for CO intact, there is no projected increase in emissions. In fact, emissions are expected to decrease since the firing rate of both sources will be less.

**PLANT CUMULATIVE INCREASE**

There is no cumulative increase for this application for altered sources.

**TOXIC RISK SCREENING ANALYSIS**

Because the firing rate of both burners (S-9 and S-15) will be less than the existing burners, there is no increase in toxics estimated. Hence, a risk screening is not triggered.

**BACT and OFFSETS**

This application is not subject to BACT requirements from Regulation 2-2 because each source shall not be modified but altered, because there is no increase in emissions from the low NOx replacement burners.

**STATEMENT OF COMPLIANCE**

The sources (S-9 and S-15) are subject to and will be in compliance with the Regulation 9-7. Regulation 9-7 requires initial demonstration of compliance and periodic testing in Sections 9-7-403 and 506.

Regulation 10 - New Source Performance Standard and Regulation 11 - Hazardous Pollutants requirements are not triggered. Because this application is ministerial (Permit Handbook Chapter 2.1), the requirements of the California Environmental Quality Act (CEQA) are not triggered.

This facility is not located within 1000 feet of any school. As a result, public notice requirements are not triggered.

General Chemical  
Plant # 23

Application # 25838  
Page 3 of 4

**PERMIT CONDITIONS**

I recommend no change of conditions to the existing conditions of S-9:

COND# 7934 -----

Condition #7934

For S-9 Process Air Heater

1. The owner/operator shall ensure that the Direct Fired Air Heater S-9 burns only Natural Gas. (basis: cumulative increase)
2. The owner/operator shall ensure that the usage of Natural Gas at S-9 does not exceed 61.3 million cubic feet during any consecutive 12-month period. (basis: NOx offsets, cumulative increase)
3. The owner/operator of S-9 shall maintain monthly records of natural gas usage at S-9 in a District approved log for a minimum of five years from the date of entry. These records shall be kept on site and made available to district personnel upon request. (basis: cumulative increase, BAAQMD Regulation 2-6-501)

I recommend the following amendments to the existing conditions of S-15 to reflect the change of 9-7 limits:

COND# 7606 -----

Condition #7606

For S-15 Startup Air Heater

1. The owner/operator shall ensure that Startup Air Heater S-15 burns only natural gas. (basis: BACT)
2. The owner/operator shall ensure that natural gas usage at S-15 does not exceed five million (5,000,000) standard cubic feet during any consecutive 12-month period. (Basis: NOx offsets, cumulative increase)
3. The owner/operator shall ensure that NOx emissions from S-15 do not exceed ~~66-15~~ ppmv and the applicable Regulation 9-7 NOx emission limit at 3% O2 on a dry basis, at any firing rate, except during the first fifteen minutes of start up of the S-15 Air Preheater. (basis: NOx offsets, NOx BACT, cumulative increase, Regulation 9-7)
4. The owner/operator shall ensure that CO emissions from S-15 do not exceed 50 ppmv and the applicable Regulation 9-7 CO emission limit at 3% O2 on a dry basis, at any firing rate, except during the first fifteen minutes of start up of the S-15 Air Preheater. (basis: CO BACT, cumulative increase, Regulation 9-7)
5. The owner/operator of S-15 shall maintain monthly records of natural gas usage at S-15 in a District approved log. These records shall be kept on site for a minimum of five years from the date of entry and shall be made available to District personnel upon request. (basis: cumulative increase, BAAQMD)



North San Mateo County Sanitation District  
Plant # 1507

Application # 25462  
Page 4 of 4

Regulation 2-6-501)

**RECOMMENDATION**

I recommend the following Alteration Authority to Construct be issued to General Chemical:

- S-9 Alteration of Process Heater, Natural Gas Fired, URS, RMB-G-10, 12 MMBTU/hr (NOx Burner Replacement)
- S-15 Alteration of Startup Air Heater, Natural Gas Fired, URS, RMB-G-14, 14 MMBTU/hr (Low NOx Burner Replacement)

By: M.K. Carol Lee Date: 11/20/2013  
M.K. Carol Lee Senior Air Quality Engineer

**ENGINEERING EVALUATION**  
**Chemtrade West US LLC, Plant: 23**  
**525 Castro Street, Richmond, CA 94801**  
**Application: 26921**

**BACKGROUND**

Chemtrade has applied for an alteration to replace an existing waste heat boiler at S-1:

**S-1 Sulfuric Acid Plant, contact process, 1 catalytic converter, abated by**  
**A-2 Mist Eliminator**  
**A-6 Emergency Caustic Scrubber System**

This replacement is considered an alteration because this is an in-kind replacement and will not result in an increase in production capacity. The replacement waste heat boiler has been confirmed to be physically identical to the existing unit and has the same maximum capacity of 18,000 lb/hr of steam.

The replacement waste heat boiler recovers heat from upstream equipment while cooling the process downstream. The main gas blower (located downstream of the waste heat boiler) governs the production capacity of S-1, which will not change as a result of this application.

In this application, the District also requested that the applicant provide the basis for the existing rated capacity of 219,000 TPY (600 TPD) of sulfuric acid for S-1. The applicant provided the calculations to demonstrate how the existing S-1 capacity was derived. The applicant also showed in the calculations that S-1 is actually physically capable of producing at a higher rate, but only under optimum conditions that can only be achieved on a short term basis and are unsustainable. The existing rated capacity of 219,000 TPY is consistent with the actual reported production levels for the last few years.

**EMISSIONS CALCULATIONS**

The boiler replacement will not result in an increase in permitted emissions.

**BACT REVIEW AND DETERMINATION**

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. BACT does not apply because this project will not result in an increase in permitted emissions and S-1 is not new or modified.

**PLANT CUMULATIVE INCREASE AND OFFSETS**

The cumulative emission increase is zero for all the criteria pollutants because this project will not result in an increase in emissions.

**STATEMENT OF COMPLIANCE**

**TOXICS NSR/TBACT**

None

## **DISTRICT RULES**

This project will not result in an increase in emissions. Therefore, S-1 is expected to continue to comply with all applicable District regulations, including Regulations 6-1 (Particulate Matter), 9-1 (Sulfur Dioxide), and 12-6 (Acid Mist from Sulfuric Acid Plants).

## **FEDERAL RULES**

PSD and NSPS are not triggered.

## **CEQA**

This application is considered to be exempt from CEQA review under Regulation 2-1-312.6. As required under Regulation 2-1-426.1, a completed Form Appendix H has been submitted by the applicant.

**2-1-312 Other Categories of Exempt Projects:** In addition to ministerial projects, the following categories of projects subject to permit review by the District will be exempt from the CEQA review, either because the category is exempted by the express terms of CEQA (subsections 2-1-312.1 through 312.9) or because the project has no potential for causing a significant adverse environmental impact (subsections 2-1-312.10 and 312.11). Any permit applicant wishing to qualify under any of the specific exemptions set forth in this Section 2-1-312 must include in its permit application CEQA-related information in accordance with subsection 2-1-426.1. In addition, the CEQA-related information submitted by any permit applicant wishing to qualify under subsection 2-1-312.11 must demonstrate to the satisfaction of the APCO that the proposed project has no potential for resulting in a significant environmental effect in connection with any of the environmental media or resources listed in Section II of Appendix I of the State CEQA Guidelines.

312.6 Permit applications relating exclusively to the repair, maintenance or minor alteration of existing facilities, equipment or sources involving negligible or no expansion of use beyond that previously existing.

## **PUBLIC NOTICES**

This facility is over 1,000 feet from the nearest school and this project will not result in an increase in emissions. Therefore, this project is not subject to the public notification requirements of Regulation 2-1-412.

## **PERMIT CONDITIONS**

No changes

## **RECOMMENDATION**

Issue an Alteration to Chemtrade West US LLC:

- S-1 Sulfuric Acid Plant, contact process, 1 catalytic converter, abated by**
- A-2 Mist Eliminator**
- A-6 Emergency Caustic Scrubber System**

By: \_\_\_\_\_

**Jimmy Cheng**  
**Air Quality Engineer**

**ENGINEERING EVALUATION**  
**Chemtrade West US LLC, Plant: 23**  
**525 Castro Street, Richmond, CA 94801**  
**Application: 27697**

**BACKGROUND**

Chemtrade has applied for an alteration to replace the bottom portion of an existing gas cooling tower at S-1:

- S-1 Sulfuric Acid Plant, contact process, 1 catalytic converter, abated by**
- A-2 Mist Eliminator**
- A-6 Emergency Caustic Scrubber System**

The process gas cooling tower T-301 quenches gases from boilers SG-201 and SG-202 by spraying the gases with weak recirculating acid. T-301 consists of a top and bottom section. The bottom section currently consists of a 3/8" thick carbon steel shell with 10# lead lining and acid resistant bricks. The bottom section holds packing. The bottom section has developed leaks due to breaches in the liner and needs to be replaced urgently. This section will be replaced with a dimensionally identical section, consisting of a 3/8" carbon steel shell with 6 mm rubber liner and acid resistant bricks. The only design modification will be the use of a rubber liner instead of a lead liner, which serves as a barrier between the acid resistant brick and the carbon steel outer shell.

This replacement is considered an alteration because this is an in-kind replacement and will not result in an increase in emissions or production capacity. The replacement section has been confirmed to be physically identical to the existing section and has the same maximum capacity.

The main gas blower (located downstream of the waste heat boiler) governs the production capacity of S-1, which will not change as a result of this application. The applicant provided the information necessary to confirm that the maximum flow rate of the blower is 27,465 scfm.

In this application, District staff determined that the existing maximum daily capacity of 600 TPD was used to establish the existing maximum annual capacity of 219,000 TPY (600 TPD x 365 days/year = 219,000 TPY). A maximum annual capacity that is based on the maximum daily capacity occurring over an entire 365-day period is not a realistic capacity because the conversion requires the use of a catalyst and the catalyst deteriorates over time, which reduces capacity. Therefore, the existing maximum annual capacity provides an unrealistically excessive margin of compliance. Therefore, District staff requested that the applicant provide data to establish an average daily sulfuric acid production level, which would then be used to establish a more realistically attainable maximum capacity. The information provided by the applicant has not been sufficient to establish the maximum annual capacity. The applicant claimed that 600 TPD actually represents the typical daily sulfuric acid production level and not the maximum daily capacity. The calculation to demonstrate the 600 TPD level assumes an efficiency of 99.6% for the conversion of SO<sub>2</sub> into SO<sub>3</sub> by the catalyst at S-1. The applicant stated 99.6% is the theoretical estimation of the best performance of the catalyst in new or like new condition, but that 99.6% is maintained over the life of the catalyst. Furthermore, the facility typically does not conduct any testing and/or monitoring to confirm the 99.6% efficiency (the applicant clarified that catalyst testing is only conducted for waste disposal characterization purposes per RCRA regulations). Without adequate testing or monitoring results, it cannot be confirmed that 99.6% can

be sustained over the entire life of a catalyst, and an average conversion rate cannot be established. Also, an email from the catalyst manufacturer suggested that catalyst efficiency may be as low as 50% upon changeout. Therefore, this issue concerning the accuracy of the maximum annual sulfuric capacity remains unresolved. However, this issue will be handled separately from this current application in order to allow to the facility to proceed with this critical project without further delay. The current annual throughput volume should probably not be used to determine future modifications per Regulation 2-1-234.

### **EMISSIONS CALCULATIONS**

The replacement of the bottom section of the existing cooling tower will not result in an increase in permitted emissions.

### **BACT REVIEW AND DETERMINATION**

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. BACT does not apply because this project will not result in an increase in permitted emissions and S-1 is not new or modified.

### **PLANT CUMULATIVE INCREASE AND OFFSETS**

The cumulative emission increase is zero for all the criteria pollutants because this project will not result in an increase in emissions.

### **STATEMENT OF COMPLIANCE**

#### **TOXICS NSR/TBACT**

None

#### **DISTRICT RULES**

This project will not result in an increase in emissions. Therefore, S-1 is expected to continue to comply with all applicable District regulations, including Regulations 6-1 (Particulate Matter), 9-1 (Sulfur Dioxide), and 12-6 (Acid Mist from Sulfuric Acid Plants).

6-1-301: Ringelmann No. 1 Limitation

6-1-302: 20% opacity limitation

6-1-303: Ringelmann No. 2 Limitation

6-1-305: visible particles

6-1-310: particulate weight limitation of 0.15 gr/dscf

6-1-311: particulate matter emission limits for general operations

6-1-320: limit SO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> emissions from sulfuric acid manufacturing plants to less than 0.04 grain/dscf

9-1-301: ground level concentrations of SO<sub>2</sub> will not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours; compliance with 9-1-309 ensures compliance with the ground level SO<sub>2</sub> concentration limits in 9-1-301

9-1-309: limit SO<sub>2</sub> emissions to no more than 300 ppm @ 12% O<sub>2</sub>

12-6-301: limit acid mist emissions to no more than 0.15 gram per kilogram (0.3 lb/ton) of acid produced

## FEDERAL RULES

PSD and NSPS are not triggered.

## CEQA

This application is considered to be exempt from CEQA review under Regulation 2-1-312.6. As required under Regulation 2-1-426.1, a completed Form Appendix H has been submitted by the applicant.

**2-1-312 Other Categories of Exempt Projects:** In addition to ministerial projects, the following categories of projects subject to permit review by the District will be exempt from the CEQA review, either because the category is exempted by the express terms of CEQA (subsections 2-1-312.1 through 312.9) or because the project has no potential for causing a significant adverse environmental impact (subsections 2-1-312.10 and 312.11). Any permit applicant wishing to qualify under any of the specific exemptions set forth in this Section 2-1-312 must include in its permit application CEQA-related information in accordance with subsection 2-1-426.1. In addition, the CEQA-related information submitted by any permit applicant wishing to qualify under subsection 2-1-312.11 must demonstrate to the satisfaction of the APCO that the proposed project has no potential for resulting in a significant environmental effect in connection with any of the environmental media or resources listed in Section II of Appendix I of the State CEQA Guidelines.

312.6 Permit applications relating exclusively to the repair, maintenance or minor alteration of existing facilities, equipment or sources involving negligible or no expansion of use beyond that previously existing.

## PUBLIC NOTICES

This facility is over 1,000 feet from the nearest school and this project will not result in an increase in emissions. Therefore, this project is not subject to the public notification requirements of Regulation 2-1-412.

## TITLE V STATEMENT OF BASIS (SOB)

No changes are required to be made to the facility's Title V permit as a result of this project.

## PERMIT CONDITIONS

No changes

## RECOMMENDATION

Issue an Alteration to Chemtrade West US LLC:

**S-1 Sulfuric Acid Plant, contact process, 1 catalytic converter, abated by**  
**A-2 Mist Eliminator**  
**A-6 Emergency Caustic Scrubber System**

By: \_\_\_\_\_

**Jimmy Cheng**  
**Air Quality Engineer**

**ENGINEERING EVALUATION**  
**Chemtrade West US LLC, Plant: 23**  
**525 Castro Street, Richmond, CA 94801**  
**Application: 27816**

**BACKGROUND**

This application has been withdrawn per applicant request. The applicant notified the District in a 11/12/16 email that the facility is no longer planning to pursue this project, and has decided to use another existing source to perform the same alkylation acid loading operations requested under this application.

**RECOMMENDATION**

Cancel Application #27816 per applicant request.

By: \_\_\_\_\_  
Jimmy Cheng  
Air Quality Engineer

Date: \_\_\_\_\_