northwest Clean Air agency

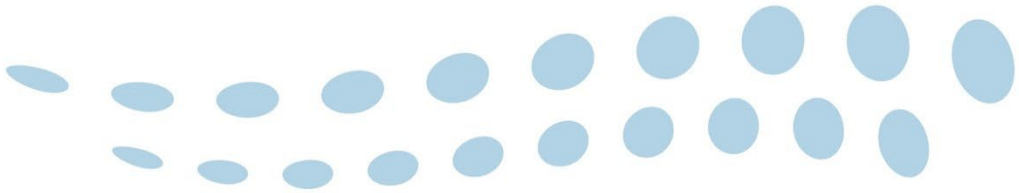
Serving Island, San Juan, Skagit and Whatcom Counties

Air Operating Permit—PROPOSED AOP 009R3

Chemtrade Solutions LLC

Anacortes, Washington

May 12, 2026



PERMIT INFORMATION

Chemtrade Solutions LLC, Anacortes Works
8579 North Texas Road, Anacortes, Washington

SIC: 2819
NAICS: 325188
EPA AFS: 53-057-00002

NWCAA ID: 1010

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Air Operating Permit Number: 009R3

Issued: TBD 2026

Expires: Issue Date +5 years

Renewal Application Due: Issue Date +4 years

TABLE OF CONTENTS

TABLES

FIGURES

1 INTRODUCTION

Chemtrade Solutions LLC operates the Anacortes Works Facility (Chemtrade, permittee, or the facility), located near Anacortes, WA. The facility is required to obtain an Air Operating Permit (AOP or Permit) pursuant to Title V of the 1990 Federal Clean Air Act and chapter 173-401 of the Washington Administrative Code (WAC) because it has the potential to emit greater than 100 tons of sulfur dioxide (SO_2) per year among other reasons. See Section 3.2 for a discussion of the applicability of federal programs to the facility. As a sulfuric acid plant and a sulfur recovery plant are both on the list in 40 CFR 52.21(b)(1)(i)(a), the Chemtrade facility is major for the Prevention of Significant Deterioration (PSD) program for SO_2 as well with a potential to emit greater than 100 tons per year.

The purpose of this Statement of Basis is to set forth the legal and factual basis for the AOP conditions to provide background information to facilitate review of the permit by interested parties. The Statement of Basis is not a legally enforceable document.

Northwest Clean Air Agency (NWCAA or Agency) issued the original AOP on March 18, 2002. NWCAA issued the first AOP renewal (AOP 009R1) on April 14, 2009 which was modified on December 20, 2010 (AOP 009R1M1). The NWCAA issued the second AOP renewal on April 9, 2021. Chemtrade submitted a timely complete renewal on April 9, 2025. See Statement of Basis (SofB) Section 1.1 for the changes made to the AOP during this renewal.

1.1 Changes Made During the Third Renewal

NWCAA received the application for the third AOP renewal on April 9, 2025. The following revisions have been made to the permit during this renewal.

- Updated the source contact information and general permit information on the Permit Information Page of both Statement of Basis and Permit.
- Updated each Section header to match NWCAA template.
- Updated Section 2 and Section 3 Standard Terms and Conditions to match NWCAA template.
- Updated citation dates throughout to match NWCAA's most recent adopt-by-reference in Section 104.
- Revised AOP Section 1 to reflect replacement of 3.348 MMBtu/hr natural gas-fired boiler SRU auxiliary boiler with 9.9 MMBtu/hr natural gas-fired boiler; and to list Sulfuric Acid Plant Abatement Units 10 & 11 Process Heaters to reflect 6.61 MMBtu/hr higher heating value; previous table listed lower heating value.
- Added gap-filling (WAC 173-401-615(1)(b) & (c) citations or sufficiency monitoring citations (WAC 173-401-630(1)) to all terms that have been enhanced.
- Added Compliance Assurance Monitoring regulatory citations for sulfuric acid (mist) and visible emissions requirements for the Sulfuric Acid Plant.
- Updated SRU Fugitive Components in VOC service to address retention of records reported in EPA's CEDRI in electronic format and submission of semiannual reports using the appropriate electronic template on through the CEDRI website.
- Moved from Section 3 to Section 5 Refinery MACT 2 general duty, visible emission (VE) & non-VE standards apply at all times.
- Updated SRU Auxiliary Boiler tune-ups and compliance reports to every two years to reflect Boiler MACT frequency based on boiler rating.

- Added 40 CFR 60 Subpart Kc to Section 6 as an Inapplicable Requirement.
- Added rental maintenance heaters (less than 1 MMBtu/hr) for temporary use on an as-needed basis to the list of Insignificant Emission Units in Table 10 of the Statement of Basis, as they meet the criteria under WAC 173-401-533(2)(g).

2 FACILITY DESCRIPTION

2.1 General Facility Description

The Chemtrade facility (Anacortes Works) comprises a sulfuric acid plant and a sulfur recovery unit. It is located on March Point, a heavy industrial area approximately 2 miles southeast of Anacortes, WA, and 11 miles west of Mount Vernon, WA in Skagit County. March Point is bordered on the west by Fidalgo Bay and on the east by Padilla Bay. The Chemtrade plant is located between the Tesoro Refining & Marketing Company LLC (Tesoro Anacortes Refinery) facility to the north and the HollyFrontier Sinclair Puget Sound Refinery to the southeast. The nearest Class I area is Olympic National Park, which is located 43 miles to the west. A location map is shown in Figure 1.

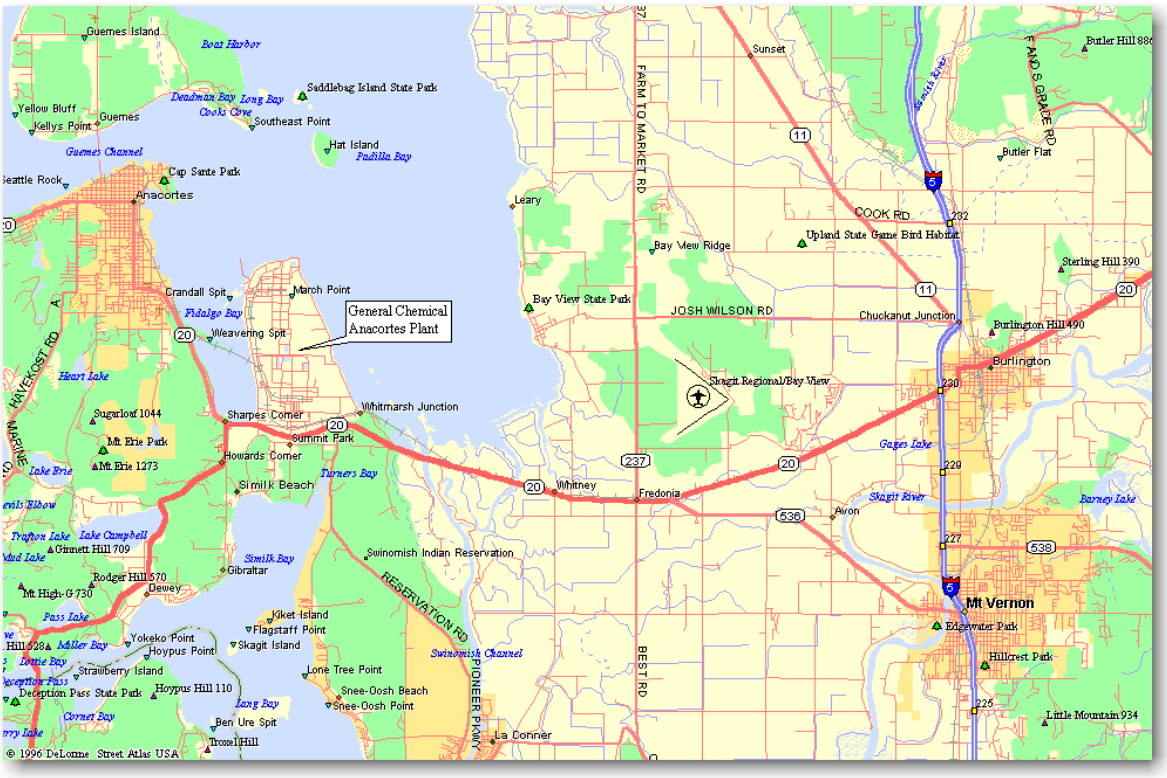

Figure 1 Location of Chemtrade Solutions LLC

The facility consists of three sulfuric acid production units (Sulfuric Acid Plant Units (SPU) 1, 2 and 3) with two abatement units (Abatement Units 10 and 11) and a Claus sulfur recovery unit (SRU) with a Shell Claus Off-gas Treating (SCOT) unit, Tail Gas Treatment Unit (TGTU), and incinerator. The Sulfuric Acid Plant units are owned by Chemtrade while the SRU and the land upon which the SRU is situated are owned by Tesoro. Chemtrade operates the entire facility.

Chemtrade receives spent sulfuric acid as a raw material primarily from the Tesoro Anacortes Refinery's and the HollyFrontier Sinclair Puget Sound Refinery's (PSR) alkylation units. Tesoro Anacortes Refinery also sends its refinery acid gas for treatment in the Chemtrade SRU. Chemtrade processes these materials into 99 percent sulfuric acid, 93 percent sulfuric acid, 30 percent sulfuric acid, and elemental sulfur. A large portion of the product acid is sold to nearby refineries where it is returned to the process as alkylation catalyst. The elemental sulfur is loaded into trucks and transported offsite for ultimate use

in other industries, including fertilizer manufacturing. Natural gas is used for any supplemental fuel firing. A plot plan is included in Figure 2.

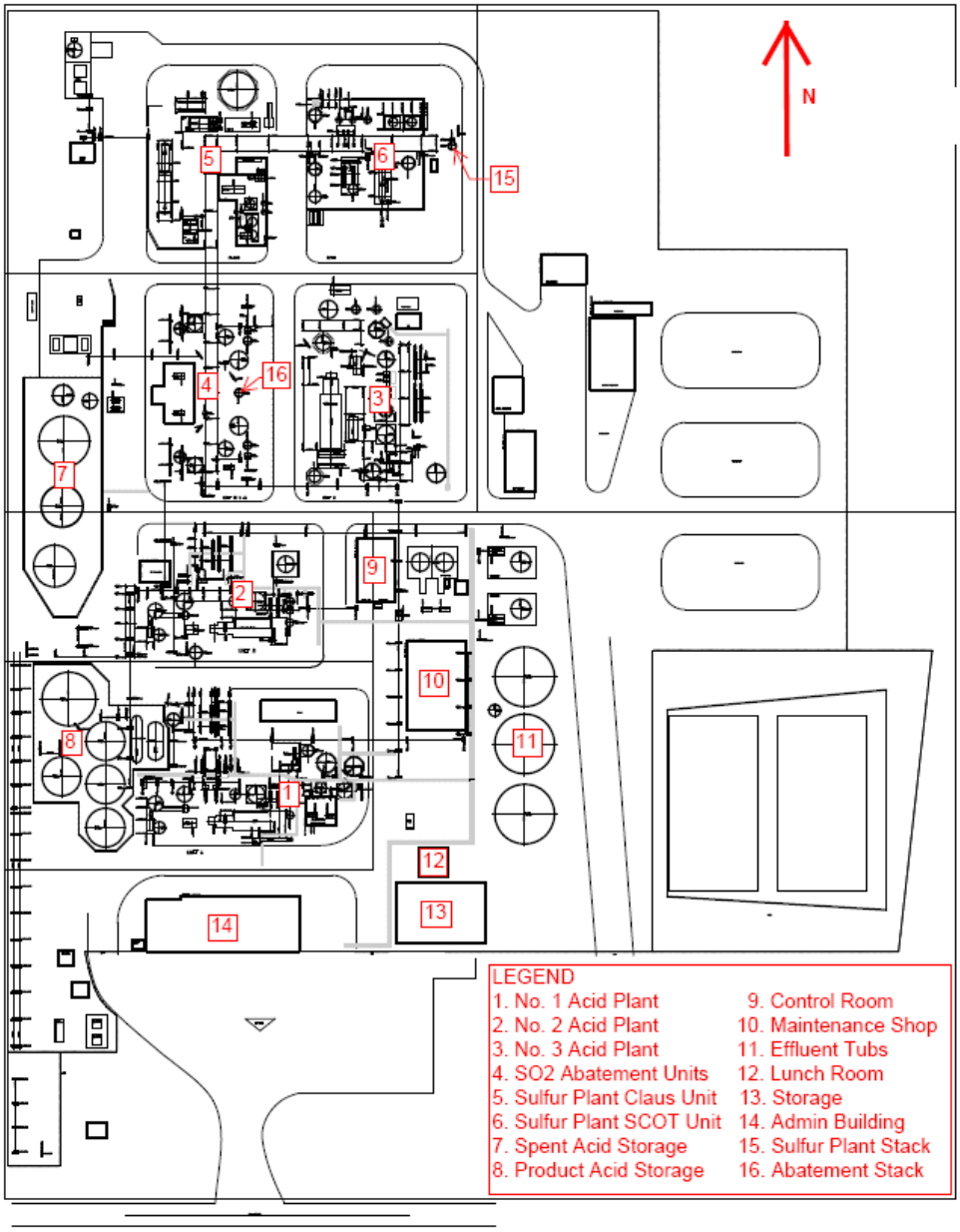

Figure 2 Chemtrade Plot Plan

Note that wastewater generated at the Anacortes Works is piped to the oily water sewer system at HollyFrontier Sinclair PSR. This water is treated in the PSR effluent plant and then released to Fidalgo Bay.

Chemtrade operates one 300-gallon above-ground fixed-roof gasoline storage tank used to fuel facility vehicles (referred to as a Gasoline Dispensing Facility (GDF)).

2.2 Emission Unit Description

Industrialization of March Point began in 1955 with the opening of the Anacortes Refinery, followed by the Puget Sound Refinery opening in 1958. The first sulfuric acid unit (SPU1) at the facility, then Allied Chemical Corporation, was built in 1957 in response to the availability of refinery wastes as raw materials. A second sulfuric acid unit (SPU2) was added in 1964. The two abatement units were added in 1971. The third sulfuric acid unit (SPU3) was added in 1975. On April 27, 1981, Allied Chemical Corporation (an indirectly wholly-owned subsidiary of Allied-Signal, Inc.) changed its name to Allied Corporation; then on May 21, 1986 ownership transferred to General Chemical Corporation of Parsippany, New Jersey. The sulfur recovery unit (owned by Tesoro) was constructed in 1986. On January 27, 2014, Chemtrade Solutions LLC took ownership of the facility. For the purposes of this Air Operating Permit, the facility has been divided into two primary process areas: the sulfuric acid plant and the sulfur recovery unit.

Sulfuric Acid Plant

The Sulfuric Acid Plant is made up of three production trains (SPUs 1, 2, and 3). The sulfuric acid trains vent to two abatement processes (Abatement Units 10 and 11), which treat the exhaust gases prior to release to the atmosphere.

Figure 3 and Figure 4 are process flow diagrams illustrating the SPU1 & 2 and SPU3, respectively. The sulfuric acid trains have a combined maximum production capacity of 566 tons per day (tpd) of acid (100% basis). SPU1 and SPU2 each have a maximum production capacity of 143 tpd of acid (100% basis) and SPU3, 280 tpd of acid (100% basis).

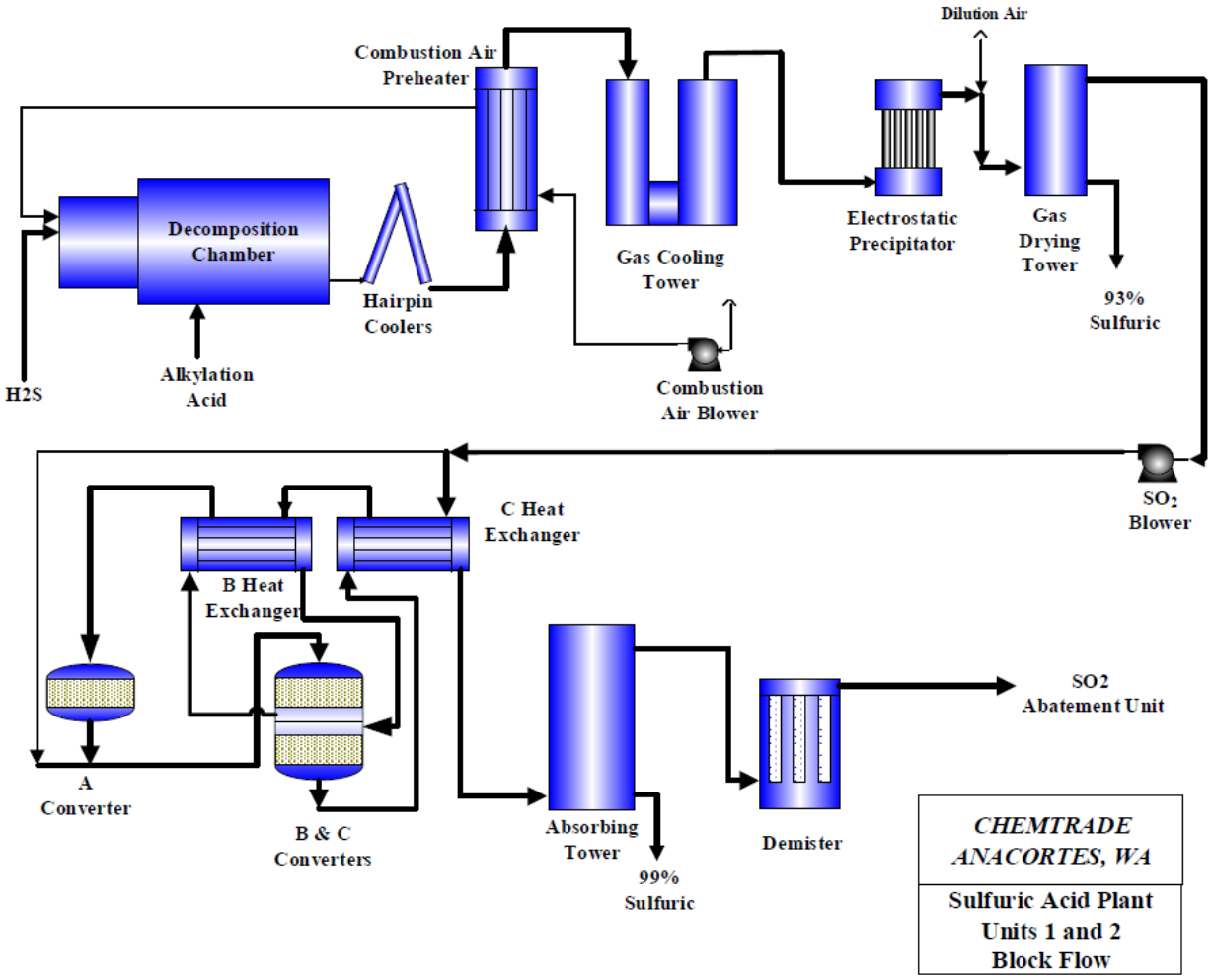

Figure 3 Sulfuric Acid Plant Units 1 and 2 Flow Diagram

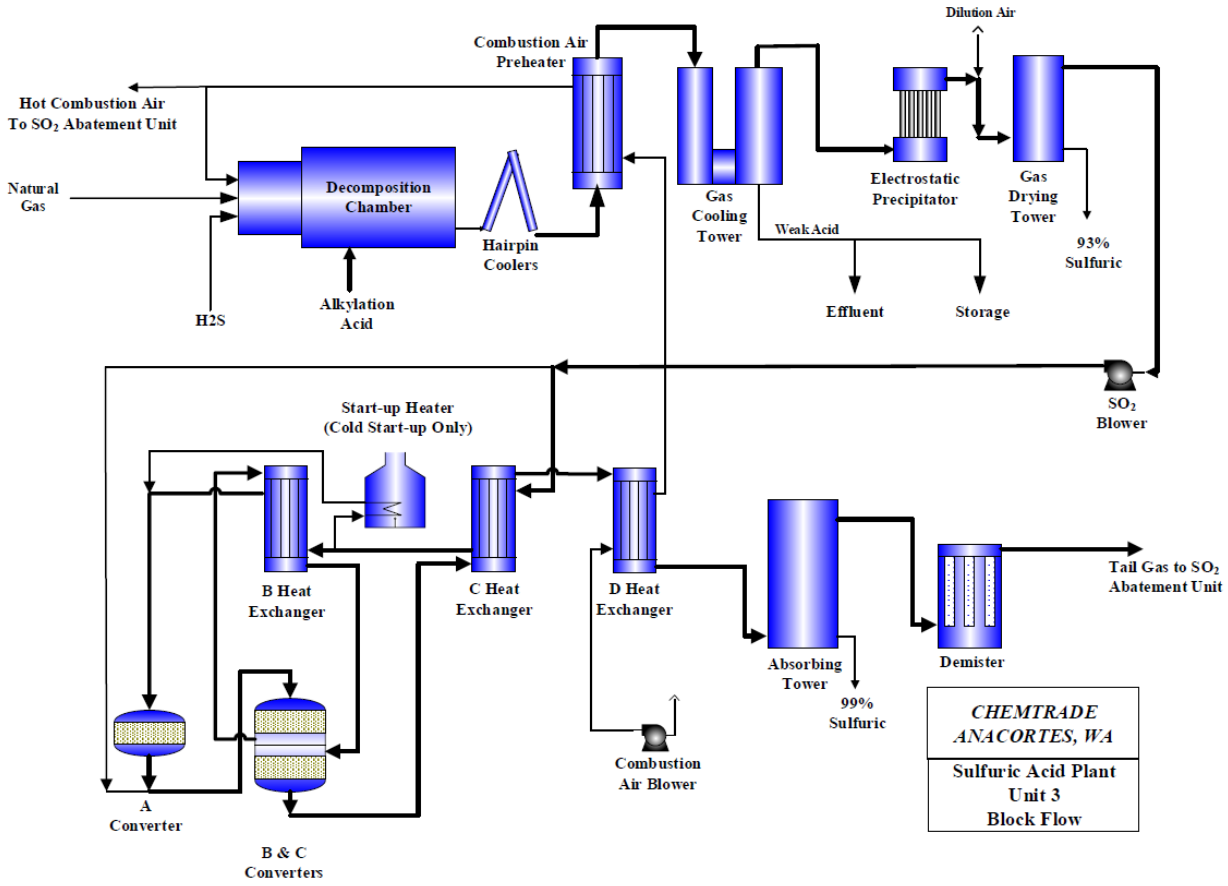

Figure 4 Sulfuric Acid Plant Unit 3 Flow Diagram

Each of the three sulfuric acid trains consists of the following equipment: decomposition chamber, gas cooling tower, electrostatic precipitator, gas drying tower, SO_2 blower, catalytic converter, absorption tower, and mist eliminator. SPUs 1 and 2 use a small portable natural-gas direct-fired in-line catalyst preheater (1-3 MMBtu/hr) to heat the catalyst during start up.[1] The SPU3 train includes a 9.2 MMBtu/hr natural gas-fired startup heater.

The facility is a spent acid regeneration (SAR) type sulfuric acid manufacturing facility that uses the contact process. The process is based on the catalytic conversion of SO_2 to SO_3 and the subsequent hydration of SO_3 to sulfuric acid.

Refinery acid gas and spent acid are subjected to high temperatures in the decomposition chambers where they are broken down into SO_2 and SO_3 gases. The hot acid gas is cooled and purified in a three-step process to eliminate acid mist, particulate matter, and water. The purified gas is then reheated to initiate the conversion reaction. The converter vessel holds catalyst that facilitates SO_2 in the stream to react with O_2, forming SO_3. The SO_3-rich stream then passes to the absorption tower where 99% sulfuric acid is produced.

[1] The portable in-line catalyst preheater is used to preheat the catalyst during start up moving between SPU1 and SPU2 as needed. While air quality standards generally do not apply to portable or temporary sources, the portable in-line catalyst preheater has been used at Chemtrade for years in the same service so, pursuant to NWCAA Section 200 (definition of Temporary Source), is considered part of the facility stationary source.

Particulate matter is generated from the decomposition of the metals, hydrocarbons, and other solid compounds in spent acid. The metals and ash are removed primarily at the gas cooling tower and the rest at the wet electrostatic precipitator (WESP). The gas stream also flows through a series of candle filters and mist pads which would remove potential material, although Chemtrade has no evidence of any remaining particulate being collected in the product acid.

Tail gas exiting the sulfuric acid train contains residual SO_3 and acid mist. The stream is further treated in the abatement units in order to meet emission requirements and to improve the overall efficiency of the plant. Each of the abatement units consists of a natural gas-fired heater (5.75 MMBtu/hr), a two-stage catalytic converter, and an absorption tower. Figure 5 is a process flow diagram of the Chemtrade abatement units.

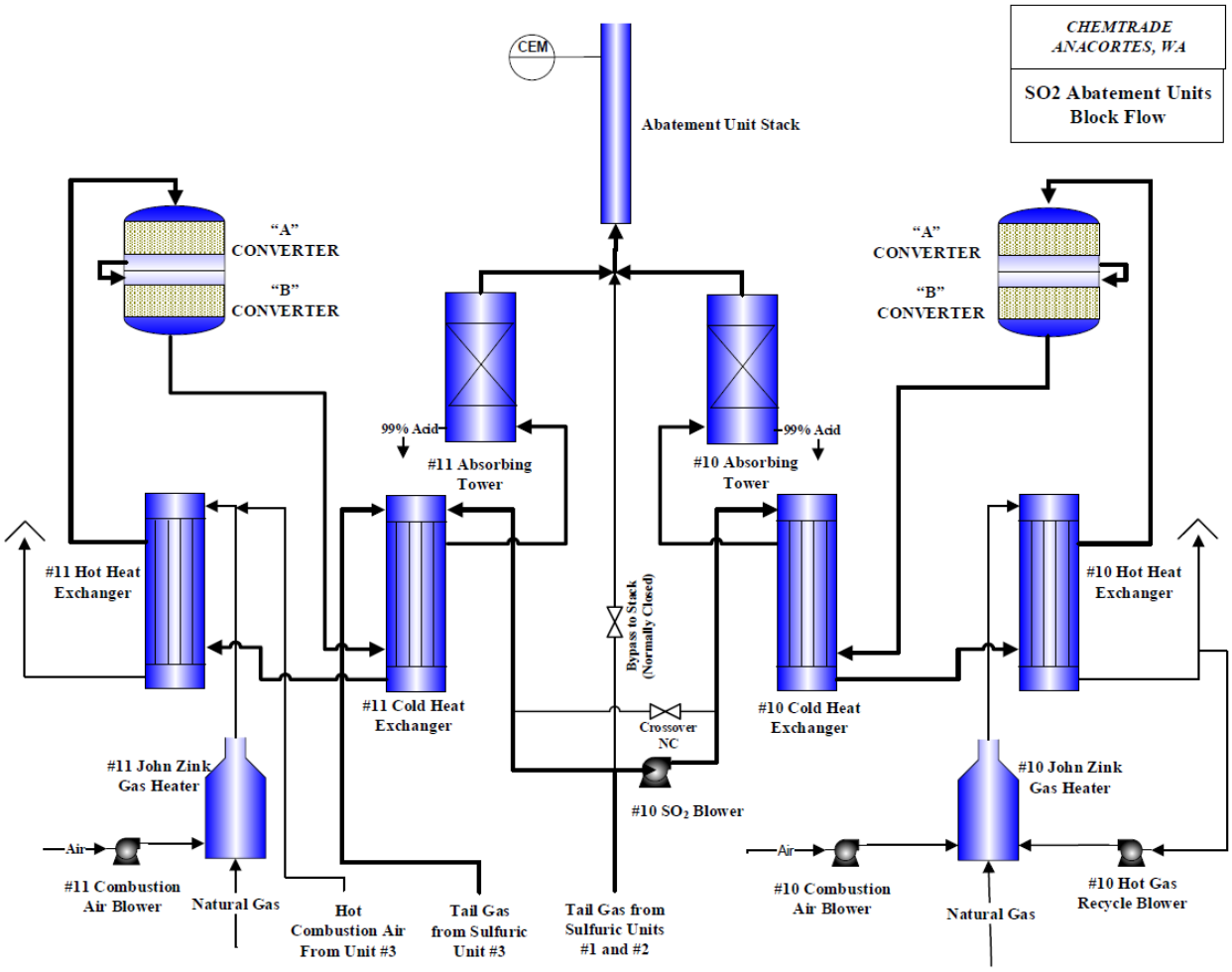

Figure 5 Abatement Unit Flow Diagram

Tail gas is heated prior to entering the catalytic converter, where SO_2 is converted to SO_3. The gas stream is cooled and then directed to the secondary absorption unit where SO_3 is absorbed by a countercurrent stream of 99 percent sulfuric acid. Gas from the absorption tower passes through a mist eliminator prior to exhausting through the common stack for Abatement Units 10 and 11.

A continuous emission monitoring system (CEMS) and a data acquisition and handling system (DAHS) are used to measure and record SO_2 emissions from the Sulfuric Acid Plant common stack. See SofB Section 3.5 for further discussion of the CEMS.

Sulfur Recovery Unit

The Sulfur Recovery Unit (SRU) uses the Claus process to recover and produce elemental sulfur from acid gas from the Tesoro Anacortes Refinery. Following the Claus unit is the Shell Claus Off-gas Treating (SCOT) process that reduces residual H_2S emissions. The SRU has the capacity to produce up to 50.6 tons of elemental sulfur per day. A process flow diagram is shown in Figure 6.

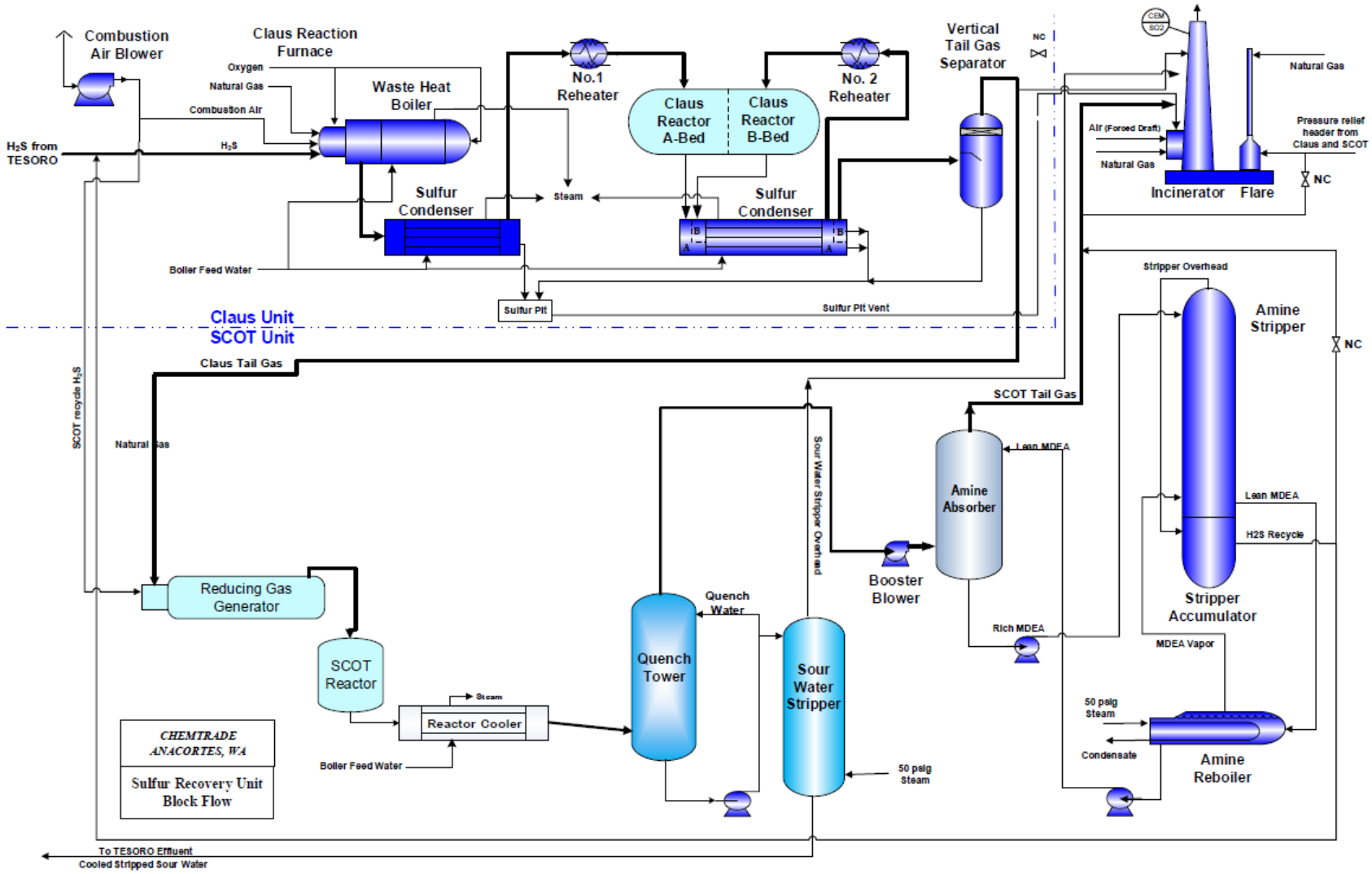

Figure 6 Sulfur Recovery Unit Flow Diagram

Acid gas from the refinery contains primarily H_2S and a minor amount of hydrocarbons. The incoming acid gas is combined with recycled gas from the SCOT process, air, and supplemental oxygen and fed into the Claus furnace with integral waste heat boiler. The Claus furnace converts the H_2S to SO_2 and water vapor. The gas is then passed through a series of reactors and condensers (Condensers A/B and C) and catalytic reactors (A-Reactor and B-Reactor), converting the sulfur dioxide to elemental sulfur and steam. Condensed elemental sulfur drains to the sulfur pit for collection and storage. Non-condensable gases from the Claus train are sent to the SCOT abatement unit for additional treatment.

Claus tailgas enters the SCOT unit through an in-line heater and is mixed with reducing gas. The stream then enters the fixed bed catalyst reactor (SCOT reactor) where sulfur compounds are converted back to H_2S. The gas is cooled with water in a quench tower. From the quench tower, the stream enters a countercurrent flow absorbing tower (amine absorber) contacting a 25-30% methyl diethanolamine (MDEA)/water solution to recover the H_2S. Overhead gas from the absorber (which contains small amounts of residual H_2S) is routed to the incinerator, where it is combusted to SO_2 prior to discharge to the atmosphere. H_2S-rich amine solvent from the bottom of the amine absorber is stripped in the amine stripper, recovering the H_2S back to the front end of the Claus train.

The Sulfur Recovery Unit is designed to handle up to 55 short tons/day of hydrogen sulfide. This is equivalent to 2,400 SCFM of acid gas with a H_2S content of 75%. The SRU incinerator stack is designed for a maximum natural gas heat input of 4.5 MMBtu/hr from the burner(s). This rate of heat release ensures that any H_2S in the process gas exiting the SCOT unit is combusted to SO_2. The incinerator stack is 2'-6" in outside diameter and 100'-1" in height.

The Sulfur Recovery Unit is also equipped with an emergency flare system. The flare is used for emergency situations to vent gas from the incinerator combustion zone to prevent explosive conditions. The bypass line to the flare is sealed with a manual lock system (i.e., carseal). The flare stack is 1'-0" in diameter and is designed to combust the acid gas stream to SO_2. Design combustion conditions are an operating temperature of 1,400^{o}F and a residence time in the combustion zone of at least 0.6 seconds.

In 2025, Chemtrade replaced their small (3.348 MMBtu/hr) natural gas-fired auxiliary boiler with a new 9.9 MMBtu/hr natural gas boiler (B-501) to supply heat to the Claus process during cold starts and low process rates. This boiler is equipped with a dedicated exhaust stack.

A CEMS and a computerized data acquisition and handling system (DAHS) are used to measure and record SO_2 emissions and oxygen concentrations from the incinerator stack. See SofB Section 3.5 for further discussion of the CEMS.

2.3 Facility Emissions Inventory

Each year all major sources are required to submit an air pollution emissions inventory upon request of NWCAA. This report includes criteria air pollutants, hazardous air pollutants (HAP), and greenhouse gas (GHG) emissions. NWCAA publishes an emissions inventory report each year that includes emissions summaries for all of the large industrial facilities located within Whatcom, Skagit, San Juan and Island counties; emissions from Chemtrade are also included. Table 1 summarizes the last five years of available emissions data for the facility.

Table 1 Annual Actual Emissions from the Anacortes Works

Pollutant	Calendar Year Emissions (tons)				
	2020	2021	2022	2023	2024
PM_{10}	0	1	1	1	1
SO_2	91	144	168	186	139
NOx	1	6	4	5	5
VOC	1	0	0	1	1
CO	1	7	6	8	8
H_2SO_4[2]	1.4	1.6	6.9	3.9	3.5
GHG (CO_2e)	12,261	9,525	8,303	12,335	11,683

2.4 Permit History

NWCAA Order of Approval; Issued September 3, 1971

On September 1, 1971, Allied Chemical submitted a "Notice of Construction and Application for Approval" (NOC application) to NWCAA requesting approval to install two mist eliminators - one downstream of each of the two existing sulfuric acid units. The Order of Approval was issued on September 3, 1971. This permit is considered "narrative only" because it does not contain any specific conditions that are considered specifically applicable requirements under Title V and, therefore, is not included in the AOP.

NWCAA Order of Approval; Issued February 25, 1974

On July 2, 1973, Allied Chemical submitted NOC applications to NWCAA. One application requested approval for a third sulfuric acid unit. The second application requested approval for two sulfur dioxide abatement units. The Order of Approval issued on February 25, 1974 permitted both of these projects to proceed. Preliminary construction was allowed prior to issuance of the Approval Order. Though construction began in late 1973, the third sulfuric acid unit was not completed and brought online until April 2, 1975. As a result of this project, the entire Sulfuric Acid Plant became subject to 40 CFR 60 Subpart H – New Source Performance Standards (NSPS) for Sulfuric Acid Plants. This permit is considered "narrative only" because it does not contain any specific conditions that are considered specifically applicable requirements under Title V and, therefore, is not included in the AOP.

NWCAA Order of Approval to Construct (OAC) 307; Issued February 20, 1986

On December 5, 1985, Allied Corporation submitted an NOC application to NWCAA for the installation of a sulfur recovery unit. This unit included a single Claus process train with a SCOT process, an incinerator, and auxiliary equipment, including a start-up boiler, steam vent, and sulfur storage. The Sulfur Recovery Unit was subject to 40 CFR 60 Subpart J – NSPS for Petroleum Refineries upon startup.

OAC 307a was issued May 14, 2007 to remove boilerplate language and eliminate duplicate grain loading and visible emission requirements. Requirements in OAC 307a have been superseded by issuance of OAC 650d on June 25, 2015.

[2] Toxic air pollutant (TAP), per Chapter 173-460 Washington Administrative Code (WAC)

NWCAA OAC 421; Issued May 11, 1993

On February 11, 1993, General Chemical submitted an NOC application to NWCAA as required by the letter from NWCAA dated November 2, 1992. This NOC requested approval to increase sulfuric acid production at the facility through the use of a new blower on SPU3 and enhanced catalysts in the converters. Requirements in OAC 421 have been superseded by the issuance of OAC 458c on December 13, 2001.

Ecology PSD Approval 94-01; Issued August 24, 1994

In late 1993, General Chemical proposed to increase production at SPU3 by increasing the size of the blower fan on the unit, enlarging the catalytic converters, and adding a new heat exchanger. This project qualified as a major modification, and was therefore evaluated and permitted under the Prevention of Significant Deterioration (PSD) rules. Washington State Department of Ecology (Ecology) PSD Approval 91-04 was issued on August 24, 1994.

PSD Approval 91-04 Amendment 1 was issued January 14, 1998 to remove one-time requirements for emission testing, made interim emission limits permanent, and updated the method specified for determining compliance with the visible emission standard to 40 CFR 60 Appendix A Method 9 (EPA Method 9).

NWCAA OAC 458; Issued August 29, 1994

On October 18, 1993, General Chemical submitted an NOC application to NWCAA requesting approval for the same plant expansion project covered by PSD 94-01. OAC 458 was issued on August 29, 1994 and essentially mirrors the requirements of the PSD permit. This OAC has been revised on four occasions. A summary of each revision is listed below:

Revision a issued April 23, 1998: Deleted throughput and production limits, removed unenforceable Condition 1, added annual performance testing for SO_2 and H_2SO_4, added recordkeeping and adjusted reporting to match NSPS and PSD.

Revision b issued June 25, 2001: Adjusted language of visible emission requirement to match PSD, updated contact names, deleted paragraph about fees.

Revision c issued December 13, 2001: Updated facility address, added superseded permit term clarifying that OAC 458 superseded all requirements found in OAC 421, clarified and updated language to match PSD, deleted duplicate requirements.

Revision d issued June 25, 2015: Deleted requirements duplicated in PSD, deleted completed tasks and duplicative requirements, updated to current OAC format and language.

NWCAA OAC 650; Issued April 23, 1998

On February 12, 1998, General Chemical submitted an NOC application to NWCAA requesting approval to install liquid oxygen combustion augmentation equipment to the sulfur recovery unit. This installation would result in an increase in the processing capacity of the unit from 22 short tons (2000 lb/ton) of H_2S per day to 55 short tons per day. On February 23, 1998, Ecology concurred with a NWCAA interpretation that the project was not subject to review under the PSD regulations. This OAC has been revised on four occasions.

A summary of each revision is listed below:

Revision a issued July 13, 2000: Increased acid mist mass emission limit to account for increased emissions at higher permitted production rate and restated Condition 9 to require a single series of annual performance tests at a minimum production rate of 25 tons per day (50% of the current limit of 50 tons per day) using either air or oxygen as a combustion gas.

Revision b issued June 25, 2001: Updated compliance demonstration method for visible emissions to EPA Method 9.

Revision c issued December 13, 2001: (Incorrectly) removed reference to NSPS Subpart GGG found in version OAC 650b.

Revisions d issued June 25, 2015: Combined OAC 307a into OAC 650d. Deleted overlapping, duplicative, and completed requirements, and included applicability of NSPS Subpart GGG, MACT Subpart UUU, and MACT Subpart DDDDD.

NWCAA OAC 880; Issued July 22, 2004

The facility filed an NOC application on December 12, 2003 for approval to construct a 7.7 MMBtu/hr natural gas fired heater for facilitation of startups on acid plant 3 without excess emissions. General Chemical actually installed a 9.2 MMBtu/hr heater instead of the 7.7 MMBtu/hr unit. The startup heater began operation on November 20, 2005 successfully eliminating excess emissions during cold startups of the unit. The heater is operated normally only during startup and is limited to less than 1,000 hours of operation in a 12-month operating period. This OAC has been revised on three occasions.

A summary of each revision is listed below:

Revision a issued February 2, 2009: Allowed an exemption to the 1,000 hour per any 12-month period operating limit up to 5,000 hours for calendar year 2009 during which the SPU3 natural gas-fired heater would be used for acid plant startup and also for additional heat to decompose spent acid when the quantity of H_2S feed drops below the minimum amount required for optimum conversion temperatures.

Revision b issued July 8, 2010: Allowed additional operating hours for the SPU3 natural gas-fired heater in excess of the 1,000 operating hour limit for calendar year 2010 and changed the visible emission compliance demonstration to EPA Method 9.

Revision c issued June 25, 2015: Removed allowance for 2010 additional hours of operation for SPU3 natural gas-fired heater and modified language to match current usage.

2.5 Periodic Reports

Chemtrade has periodic reporting requirements from various orders and regulations. Reported elements provide a valuable tool indicating the facility's compliance status with regard to an applicable emission or operational limit. In addition to these periodic reports, the facility has specific action-based notifications and on-site recordkeeping requirements. Note that, similar to all recordkeeping, the data supporting the reported information must be maintained for at least 5 years from its date of generation.

Generally, reports are due 30 days after the close of the period that the report covers. Also, reporting periods are on a calendar basis: monthly reports cover a calendar month, quarterly reports cover a calendar quarter, six-month reports cover January through June and July through December, and annual reports cover a calendar year.

Monthly Reports: The monthly reports include a wide range of data collected during the month that are required to be submitted monthly by various permits, orders and regulations. A large part of the monthly report comprises continuous emission monitoring system (CEMS) performance data which provides information about the duration and nature of CEMS downtime, changes made to the CEMS, total operating time and dates of CEMS audits or certifications. Another significant element of monthly reports is the disclosure of deviations from required monitoring and exceedance of emission limits.

Quarterly and Seminannual Reports: Chemtrade is required to submit semiannual reports under 40 CFR 63 Subpart UUU which should address any compliance exceptions to the requirements of the rules. Leak detection and repair (LDAR) programs also require submittal of semiannual reports that summarize the number of leaking components found and the number not repaired in a timely manner, an explanation as to the reason for any delay of repair, any process unit shutdowns, and any revisions to the program since the initial report.

All monitoring reports required by the AOP must be certified by a responsible official as to their truth, accuracy and completeness. Where an applicable requirement requires reporting more frequently than once every six months, the responsible official's certification need only be submitted in a semiannual report that specifically identifies all documents subject to certification. .

Annual Reports: 40 CFR 63 Subpart DDDDD requires submittal of an annual compliance report that summarizes tune-ups performed on subject boilers and heaters and post-tune-up combustion analysis.

Reports required by federal programs, such as NSPS or NESHAP, are frequently required to be submitted electronically through the EPA's CEDRI electronic reporting system (www.cdx.epa.gov).

A compliance certification is required to be submitted annually, listing each term of the permit, the facility's compliance status, whether compliance was continuous or intermittent, and the methods used for determining compliance status.

2.6 Performance Testing

Each year, stack tests at emission units are performed to determine compliance with emission limits and standards found in NWCAA-issued Orders of Approval to Construct, Ecology PSD permits, and as part of New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements. Table 2 contains information on the tests performed during the last air operating permit term.

Table 2 Performance Test Summary

Sulfuric Acid Plant (SAP)				
Date	**Pollutant**	**Limit**	**Result**	**Frequency**
9/18/24	SO_2	4 lb/ton acid produced	Pass	Annually
		59.9 lb/hr	Pass	
		315 ppmvd	Pass	
		1,000 ppmvd	Pass	
	SO_3/H_2SO_4	0.15 lb/ton acid produced	Pass	Annually

		0.105 lb/ton acid produced	Pass	
		1.5E-06 lb/dscf	Pass	
8/16/23	SO_2	4 lb/ton acid produced	Pass	Annually
		59.9 lb/hr	Pass	
		315 ppmvd	Pass	
		1,000 ppmvd	Pass	
	SO_3/H_2SO_4	0.15 lb/ton acid produced	Pass	Annually
		0.105 lb/ton acid produced	Pass	
		1.5E-06 lb/dscf	Pass	
9/8/22	SO_2	4 lb/ton acid produced	Pass	Annually
		59.9 lb/hr	Pass	
		315 ppmvd	Pass	
		1,000 ppmvd	Pass	
	SO_3/H_2SO_4	0.15 lb/ton acid produced	Pass	Annually
		0.105 lb/ton acid produced	Pass	
		1.5E-06 lb/dscf	Pass	
8/17/21	SO_2	4 lb/ton acid produced	Pass	Annually
		59.9 lb/hr	Pass	
		315 ppmvd	Pass	
		1,000 ppmvd	Pass	
	SO_3/H_2SO_4	0.15 lb/ton acid produced	Pass	Annually
		0.105 lb/ton acid produced	Pass	
		1.5E-06 lb/dscf	Pass	
Sulfur Recovery Unit (SRU) SCOT Incinerator				
Date	**Pollutant**	**Limit**	**Result**	**Frequency**
9/19/24	SO_2	250 ppmvd @ 0% O_2, 12-hr rolling average	Pass	Annually
		1,000 ppmvd	Pass	
		9.2 lb/hr	Pass	
		99.0% Efficiency	Pass	
	SO_3/H_2SO_4	0.45 lb/ton acid produced	Pass	Annually
8/17/23	SO_2	250 ppmvd @ 0% O_2, 12-hr rolling average	Pass	Annually
		1,000 ppmvd	Pass	
		9.2 lb/hr	Pass	
		99.0% Efficiency	Pass	

	SO_3/H_2SO_4	0.45 lb/ton acid produced	Pass	Annually
9/9/22	SO_2	250 ppmvd @ 0% O_2, 12-hr rolling average	Pass	Annually
		1,000 ppmvd	Pass	
		9.2 lb/hr	Pass	
		99.0% Efficiency	Pass	
	SO_3/H_2SO_4	0.45 lb/ton acid produced	Pass	Annually
8/18/21	SO_2	250 ppmvd @ 0% O_2, 12-hr rolling average	Pass	Annually
		1,000 ppmvd	Pass	
		9.2 lb/hr	Pass	
		99.0% Efficiency	Pass	
	SO_3/H_2SO_4	0.45 lb/ton acid produced	Pass	Annually

Based on a review of the stack test results since the last AOP renewal, NWCAA concluded that testing frequency was sufficient and that tests demonstrate an adequate margin of compliance, therefore no changes to testing, monitoring, recordkeeping or reporting were warranted.

2.7 Enforcement History

A summary of Notices of Violation (NOVs) issued to the facility by NWCAA for the period from April 2021 through February 2026 are presented in Table 3. Each violation listed in the table has been resolved through a combination of penalty assessments and/or by corrective action taken by the source.

Table 3 Notice of Violations Issued

Case No	Violation Date	Issue Date	Description
4757	11/4/24 through 11/6/24	1/28/25	Sulfur recovery unit (SRU) stripper reboiler emissions exceeded 1,000 ppm SO_2 1-hour average for (22) 1-hour averages during the event and 250 ppm SO_2 12-hour rolling average for (9) 12-hour rolling periods during the event due to a failed steam trap. 616 lb excess SO_2 was emitted. This violation was resolved with payment of $3,000 penalty on 4/4/25.
4692	3/1/22, 12/21/22, 3/27/23, & 7/24/23	12/5/23	Four excess SO_2 events stemming from, in part, insufficient equipment maintenance. At SRU: exceedances of 1,000 ppm SO_2 1-hour average, and/or 250 ppm SO_2 12-hour rolling average - 3/1/22 for 290 lb excess SO_2; and 12/21/22 for 11 lb excess SO_2. At SAP: exceedances of 4 lb SO_2/ton sulfuric acid produced 3-hour average and/or 315 ppmvd SO_2 3-hour average and/or 1,000 ppm SO_2 1-hour average: 3/27/23 for 334 lb excess SO_2; and 7/24/23 for 71 lb excess SO_2. The NOV was closed out 6/7/24, based on (relatively) small excess emissions and mitigation measures taken.

Case No	Violation Date	Issue Date	Description
4620	12/26/21 through 12/29/21, & 1/5/22	10/17/22	Insufficient weatherization to prevent operational upsets that caused or contributed to exceedances of 1,000 ppm SO_2 1-hour average and 250 ppm SO_2 12-hour rolling average: 510 lb excess SO_2 while SRU in hot standby; and 3.3 lb excess SO_2 during SRU startup. The NOV was closed out 3/1/23; current action serves as baseline for future weather events.

2.8 Miscellaneous Non-Process Activities & Insignificant Emission Units

There are several regulated activities that can emit air pollutants not generated by sulfuric acid production and sulfur recovery operations. These include laboratory services, asbestos removal, fire training, abrasive blasting, painting, gasoline dispensing and cutback asphalt paving. Asbestos removal occurs during the demolition or modifications of buildings and piping that are likely to include asbestos-containing materials such as insulation and tiles. Abrasive blasting and painting occur during maintenance and repair activities of tanks and equipment to remove old and chipped paint and surface contaminants, which are subject to state and NWCAA regulations. Gasoline is dispensed from one pump for fueling Chemtrade vehicles used on site and is regulated under NWCAA gasoline dispensing regulations. And cutback asphalt paving may occur from time to time to repair road and other impermeable surfaces. Use of cutback asphalt is subject to NWCAA regulations.

In addition, Chemtrade has emission units and activities determined to be insignificant under WAC 173-401-530, -532, and -533. In general, they are considered insignificant because they have low emission rates or, generally, are only fugitive emissions. The Generally Applicable Requirements in Section 4 of the AOP apply to these units, although the testing, monitoring, recordkeeping and reporting requirements do not apply. As specified in WAC 173-401-530(2)(a), no emission unit or activity subject to a federally enforceable requirement, other than generally applicable requirements of the state implementation plan, may qualify as insignificant. The insignificant emission units and activities located at Chemtrade are listed in Section 6 of this SofB.

3 GENERAL REGULATORY REQUIREMENTS

3.1 New Source Review

3.1.1 Minor NSR

Projects resulting in increases of regulated air pollutants less than the significance levels of the Prevention of Significant Deterioration (PSD) program must undergo minor new source review (NSR) in the State of Washington. NWCAA evaluates both criteria and toxic air pollutants that will result from new and modified sources of air pollution. NWCAA may then issue an "Order of Approval to Construct" (OAC) that identifies Best Available Control Technology (BACT), establishes maximum pollutant concentrations and emission rates, identifies required source testing and/or continuous emission monitors, and requires operation and maintenance procedures that will ensure continuing compliance with applicable air pollution rules and regulations. OAC conditions are federally enforceable because the NWCAA minor NSR program is approved in the State Implementation Plan (SIP). Several minor NSR permits have been issued by NWCAA to Chemtrade, as described in SofB Section 2.4 . However, only three OACs currently contain applicable requirements and are included in the AOP (i.e., OAC 458d, 880c, and 650d).

3.1.2 Prevention of Significant Deterioration (PSD)

Before a major source can be constructed or modified in an area that meets all the ambient air requirements, the owner or operator must demonstrate that the project will not cause or contribute to violations of any ambient air quality standard or air quality increment pursuant to the Prevention of Significant Deterioration (PSD) program under 40 CFR 52.21. Also, the owner or operator must demonstrate that the project will not cause significant deterioration in nearby Class I Areas (parks and wilderness areas).

Chemtrade qualifies as a PSD major source and is therefore, potentially, a subject source under the PSD program. PSD permit 94-01 was issued on August 24, 1994 by Ecology prior to the expansion of SPU3. The PSD permit was amended on January 14, 1998. The applicable requirements from PSD 94-01 Amendment 1 are included in the AOP.

3.2 Federal Regulations

The applicability of certain federal rules to the SRU and to other emission units that are part of the Chemtrade facility depends on whether the SRU is considered part of the adjacent Tesoro Anacortes Refinery for the purposes of those rules or whether it is a separate stationary source. Federal rule applicability will also depend on whether the Sulfuric Acid Plant and the SRU are determined to be part of the same source.

By Definition Under NSPS and NESHAP (SRU & Refinery): As discussed above, the Chemtrade SRU processes acid gas produced solely by the adjacent Tesoro Anacortes Refinery. Both NSPS 40 CFR 60 Subparts J and Ja explicitly include an SRU as part of petroleum refinery by definition:

> 40 CFR 60.100(a): The provisions of this subpart are applicable to the following affected facilities in petroleum refineries: fluid catalytic cracking unit catalyst regenerators, fuel gas combustion devices, and all Claus sulfur recovery plants except Claus plants with a design capacity for sulfur feed of 20 long tons per day (LTD) or less. The Claus sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery.

> 40 CFR 60.100a(a): The provisions of this subpart apply to the following affected facilities in petroleum refineries: fluid catalytic cracking units (FCCU), fluid coking units (FCU), delayed coking units, fuel gas combustion devices (including process heaters), flares and sulfur recovery plants. The sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery.

Note that the NSPS standards expressly provide for SRUs not located within the boundaries of a petroleum refinery to nevertheless be considered an affected facility for the purposes of these standards.

SRUs are considered by definition to be part of a petroleum refinery under 40 CFR 63 Subpart UUU as well (emphasis added):

> 40 CFR 63.1561(a)(1): A petroleum refinery is an establishment engaged primarily in petroleum refining as defined in the Standard Industrial Classification (SIC) code 2911 and the North American Industry Classification (NAIC) code 32411, and used mainly for:
>
> (i) Producing transportation fuels (such as gasoline, diesel fuels, and jet fuels), heating fuels (such as kerosene, fuel gas distillate, and fuel oils), or lubricants;
>
> (ii) Separating petroleum; or
>
> (iii) Separating, cracking, reacting, or reforming an intermediate petroleum stream, or *recovering a by-product(s) from the intermediate petroleum stream (e.g., sulfur recovery)*.

Definition of Stationary Source (SRU & Refinery): Under New Source Review (NSR) and Title V, there are three criteria that must be met for pollutant emitting activities to be considered part of the same "stationary source" even if they are not located within the same plant site:

1. They belong to the same industrial grouping, or one entity is a "support facility" for the other;
2. They are located on one or more contiguous or adjacent properties; and
3. They are under the control of the same person, or of separate persons that are under common control.

The SRU is considered a "support facility" for the adjacent Tesoro Anacortes Refinery, meeting the first criterion. The SRU and the land on which the SRU is located is owned by Tesoro and is located contiguous to the refinery, meeting the second criterion. The question becomes whether the SRU is under common control with the adjacent Tesoro Anacortes Refinery.

Historically, EPA guidance held that a contract between companies was enough to demonstrate common control – that is, "companies don't just locate on another's property and do whatever they want. Such relationships are usually governed by contractual, lease or other agreements that establish how the facilities interact with one another. Therefore, we [EPA] presume that one company locating on another's land established a 'control' relationship."[3] In addition, "EPA interprets the term 'common control' of an owner to

[3] Letter from W. Spratlin, Director of Air, RCRA, and Toxics Division, EPA Region VII, to Peter R Hamlin, Chief, Iowa Department of Natural Resources, September 18, 1995.

include an operator (who is different from an owner) of a source that is operating under a contractual obligation with the owner and funded by the owner."[4]

Chemtrade currently has a contract with Tesoro to process up to 95 tons per day of Tesoro's hydrogen sulfide. In addition, Tesoro owns the land and the SRU equipment; the SRU receives all of the hydrogen sulfide raw material from Tesoro Anacortes Refinery; and operation of the SRU is completely dictated by Tesoro Anacortes Refinery's operation. These factors lead NWCAA to conclude that the SRU is under Tesoro's control, even though it is operated by Chemtrade.

EPA issued a memo (the Meadowbrook letter[5]) that states that the existence of a contract between two companies may not be sufficient to establish common control. "[T]he agency [EPA] believes clarity and consistency can be restored to source determinations if the assessment of 'control' for title V and NSR permitting purposes focuses on the power of authority of one entity to dictate decisions of the other that could affect the applicability of, or compliance with, relevant air pollution regulatory requirements." EPA said this can include the first entity having the ability to act in a way that effectively determines the second entity's actions.

Chemtrade has agreed to process all of Tesoro Anacortes Refinery's hydrogen sulfide output, up to a contractual limit. Tesoro decides how much hydrogen sulfide Chemtrade will receive, except during rare maintenance stoppages. During maintenance or other stoppages or reductions in Chemtrade's capacity, Tesoro Anacortes Refinery must implement a sulfur curtailment program, but a sulfur curtailment program would be necessary regardless of who directly operates the SRU.

Chemtrade could argue that its operation of the SRU is not under Tesoro's control, based on three points: (1) Chemtrade decides whether the hydrogen sulfide is directed to the SRU or to the Sulfuric Acid Plant; (2) Chemtrade is responsible for maintaining and operating the SRU; and (3) Chemtrade is responsible for compliance with SRU-related applicable requirements, as they are in Chemtrade's AOP.

(1) The fact that Chemtrade has authority to direct some of the hydrogen sulfide to the Sulfuric Acid Plant does not change the requirements applicable to the SRU when it is in use, nor Tesoro Anacortes Refinery's obligation to comply with limits on its sulfur emissions. The relevant question is whether the SRU is used for Tesoro Anacortes Refinery to achieve compliance with sulfur emission constraints, not whether Chemtrade has other equipment that also may be used for the same purpose. It is used for that purpose – indeed, solely for that purpose.

(2) Chemtrade is responsible for operation and maintenance of the SRU, but only because it has contractually committed to Tesoro that it will take on those responsibilities. Tesoro owns the SRU. Tesoro has contracted with Chemtrade to operate the SRU for Tesoro Anacortes Refinery's benefit. Through the contract, Tesoro controls Chemtrade's operation and maintenance of a piece of equipment that is owned by Tesoro. Presumably if Chemtrade does not properly operate and maintain the SRU, Tesoro would have contractual remedies against Chemtrade for those failings. Tesoro's contractual rights and Chemtrade's contractual obligations give Tesoro control over Chemtrade's operation and maintenance of the SRU. This goes well beyond the "ability to influence".

[4] Letter from Kenneth Eng, Chief, Air Compliance Branch, US EPA, to Thomas Micai, Chief, Bureau of Operating Permits, New Jersey Department of Environmental Protection, April 5, 1995.
[5] Letter from William L. Wehrum, Assistant Administrator, Office of Air and Radiation, US EPA, to the Honorable Patrick McDonnell, Secretary, Pennsylvania Department of Environmental Protection, April 30, 2018 (Meadowbrook letter).

Tesoro also controls Chemtrade's use of the SRU through Tesoro's authority to control capital expenditures related to the SRU. Chemtrade relies on financial support from Tesoro (as the equipment owner) for maintenance activities and equipment upgrades to the SRU.

(3) Chemtrade did not become the operator of the SRU because it was issued an Air Operating Permit; it was issued an Air Operating Permit because it is the operator of the SRU. The obligation to obtain a permit rests on the "owner or operator". Here, the owner, Tesoro, has contracted with Chemtrade to be the operator of the SRU and all of Chemtrade's actions as SRU operator, including obtaining air permits, are in furtherance of its contractual obligations to Tesoro.

EPA also issued another memo (the Ameresco letter[6]) in which EPA differentiates between control of an entity and control of an activity. Chemtrade as an entity is not under Tesoro's control, but Chemtrade's activities in operating the SRU are under Tesoro's control. In this case, Tesoro does not just have some degree of control over the SRU. As the owner of the SRU, Tesoro controls the SRU and, through a contract, delegated some of that control to Chemtrade as operator of the SRU. Through that contract Tesoro controls Chemtrade's actions in relation to the SRU. This is substantially more than simply having shared responsibility for performance of a piece of equipment, as discussed in the Ameresco letter.

Chemtrade's status as operator of the SRU is entirely derived from its contract with Tesoro. It has no independent authority or control over the SRU. An emission unit is not removed from a source simply by the owner of the source delegating operation of the emission unit to a third party.

Note that both the Meadowbrook and the Ameresco letters state that they are EPA's opinions in these matters. The letters themselves each assert that the permitting authority retains the ultimate discretion to make source determinations based on its EPA-approved Title V and NSR rules. EPA approved NWCAA's Title V program most recently on January 2, 2003[7] and NSR rules on June 15, 2020[8]. NWCAA's determination that the SRU is under the control of Tesoro, and so is part of the Tesoro Anacortes Refinery stationary source, has been made giving consideration to EPA's interpretation but is an exercise of NWCAA's discretion under the Washington Clean Air Act and its own regulations.

In addition, EPA more recently issued additional memos (the Ocean County Landfill (OCLC) letter[9] and the Eastman letter[10]) that clarify that the new source determination policies and interpretations apply prospectively rather than retroactively:

> [A]s a general matter, the guidance contained in EPA's recent documents concerning common control was intended to assist with future source determinations and was not intended to prompt permitting authorities to revisit prior permitting decisions. EPA does not believe it would be appropriate in most circumstances for permitting authorities to re-evaluate prior source determinations based solely on the change in EPA policy on which the 2018 OCLC Letter relies, especially where, as is the case with the OCLC request, relevant facts have not changed.

[6] Letter from Anna Marie Wood, Director, Air Quality Policy Division, US EPA, to Gail Good, Director, Wisconsin Department of Natural Resources, October 16, 2018 (Ameresco letter).
[7] 40 CFR 70 Appendix A
[8] 40 CFR 52.2470(c) Table 5
[9] Letter from Anne L. Idsal, Acting Assistant Administrator, EPA Office of Air and Radiation, to Catherine McCabe, Commissioner, New Jersey Department of Environmental Protection, July 12, 2019 (OCLC letter).
[10] Letter from Cristina Fernandez, Director, Air and Radiation Division, EPA, to Brett A. Sago, Director, HSE Legal Services, Eastman Chemical Company, February 12, 2020 (Eastman letter).

NWCAA is not aware of any change regarding the relationship between Tesoro and Chemtrade triggering a new applicability review.

EPA Guidance (SRU & Refinery): EPA guidance has been clear that sources cannot avoid permit requirements by dividing the facility up.

> "[W]e [EPA] have found at least one case where a company set up an 'unrelated' corporation in the middle of their property to split the property into multiple, distinct sites. After concluding that these 'distinct' sites were in fact under the common control of the companion company's president, the split was later disallowed for permitting purposes. …
>
> We [EPA] seriously urge you [Iowa Department of Natural Resources] to consider the principles found in the various guidance documents and in this letter when evaluating requires to split properties for permitting purposes. We [EPA] realize that in many cases it is easier not to second guess a company's motives. However, we [EPA] also believe this administratively expedient approach can result in allowing circumvention of the permit requirements and ultimately jeopardize the goals and effectiveness of the permitting programs."[11]

It would be illogical and unreasonable for the SRU to be subject to different requirements depending on who is operating it, Tesoro versus Chemtrade.

Major Source MACT Standards (SRU & Refinery): For purposes of MACT standards (40 CFR 63.2), a "major source" is "any stationary source or group of stationary sources located within a contiguous area and under common control" that emits more than the relevant threshold amount of HAPs. The Tesoro Anacortes Refinery is a major source for HAPs. The SRU is under common control with the Tesoro Anacortes Refinery, and so is subject to MACT standards that are applicable to petroleum refineries that are a major source of HAPs.

Conclusion (SRU & Refinery): Based on the above analysis, NWCAA has determined that the SRU is part of the adjacent Tesoro Anacortes Refinery stationary source under the applicable Title V and NSR definitions, and is an affected source for purposes of MACT standards applicable to refineries. The SRU is potentially subject to rules applicable to petroleum refineries and also major sources of HAP, such as NSPS (e.g, 40 CFR 60 Subparts J, QQQ, and GGG/GGGa) and NESHAP (e.g., 40 CFR 61 Subpart FF, 40 CFR 63 Subparts CC and UUU, DDDDD). NWCAA has assigned the SRU to Chemtrade's AOP because Chemtrade is the operator of the SRU. This does not affect the applicability of these various standards to the SRU. The requirements applicable to an emission unit are not changed by the owner contracting out operation of that emission unit.

Major Source MACT Standards (SRU & Sulfuric Acid Plant): For MACTs other than the petroleum refinery-related standards applicable to the SRU, the Chemtrade facility is not a major source of HAPs. To be a major source of HAPs, the emission units located within a contiguous area and under common control must emit more than 10 tons a year of any one HAP or 25 tons a year of all HAPs combined. The collective HAP emissions from the emission units that are within the Chemtrade facility boundaries and under Chemtrade's direct control are less than the HAP major source thresholds. While the SRU is considered part of the Tesoro Anacortes Refinery source, for reasons discussed above, and Chemtrade, as operator of the SRU, shares control of the SRU with the Tesoro Anacortes Refinery, Chemtrade does not control other parts of the refinery source. Accordingly, HAP emissions from other parts of the refinery source cannot be attributed to the Chemtrade facility for purposes of the major source determination. Therefore, the Sulfuric Acid Plant is not part of a HAP major source and is not subject to HAP major source MACTs (e.g., 40 CFR 63 Subpart

[11] Spratlin 1995.

DDDDD). However, it is potentially subject to area source NESHAPs including 40 CFR 63 Subparts JJJJJJ (area source Boiler NESHAP) and CCCCCC (gasoline dispensing facility NESHAP).

NWCAA considered whether the Sulfuric Acid Plant, like the SRU, should be considered part of the petroleum refinery source by definition. Each regulatory program has a specific definition of what is included in each source category (e.g., petroleum refinery) so a separate determination must be made for each. Note that less than 50% of the Sulfuric Acid Plant output is sent to a single facility by contract; as such, the Sulfuric Acid Plant is not considered a support facility to either of the adjacent refineries. For the same reason, the refineries do not exercise control over the Sulfuric Acid Plant, in the way that the Tesoro Anacortes Refinery controls the SRU. Accordingly, the Sulfuric Acid Plant is not subject to those regulatory programs applicable to petroleum refineries (e.g., 40 CFR 60 Subpart GGG/GGGa, 40 CFR 61 Subpart FF, 40 CFR 63 Subparts CC and UUU) unless explicitly listed as subject.

Because the SRU is considered part of a petroleum refinery and potentially subject to federal requirements for petroleum refineries, the AOP includes general requirements or applicable-when-triggered requirements from federal requirements applicable to petroleum refineries.

3.2.1 New Source Performance Standards (NSPS)

40 CFR 60 Subpart Cd - Emissions Guidelines and Compliance Times for Sulfuric Acid Production Units: The emission guidelines in NSPS Subpart Cd apply to existing sulfuric acid productions units (i.e., those that were constructed or modified before August 17, 1971). SPU1 was constructed in 1957 and SPU2 in 1964 so both units were potentially subject to the emission guidelines. However, the construction of SPU3 in 1975 triggered the requirements for new sulfuric acid production units in NSPS Subpart H for all three trains. As such, NSPS Subpart Cd does not apply.

40 CFR 60 Subpart H – Standards of Performance for Sulfuric Acid Plants: The provisions of NSPS Subpart H are applicable to sulfuric acid production units constructed or modified after August 17, 1971. The construction of SPU3 in 1975 modified the Sulfuric Acid Plant triggering the applicability of this subpart to all three trains.

In late 1993, General Chemical proposed to increase production at SPU3 by increasing the size of the blower fan on the unit, enlarging the catalytic converters, and adding a new heat exchanger. This expansion project was considered a modification under NSPS Subpart H which triggered the initial requirements again.

40 CFR 60 Subparts J and Ja – Standards of Performance for Petroleum Refineries: 40 CFR 60 Subpart J applies to fluid catalytic cracking unit (FCCU) catalyst regenerators, fuel gas combustion devices, and Claus sulfur recovery plants greater than 20 long tons per day generally constructed, modified, or reconstructed after June 11, 1973 and on or before May 14, 2007. 40 CFR 60 Subpart Ja applies to FCCUs, fluid coking units (FCU), delayed coking units (DCU), fuel gas combustion devices, flares, and sulfur recovery plants generally constructed, modified, or reconstructed after May 14, 2007.

The SRU was originally constructed in 1986 with a throughput of 22 short tons per day (19.6 long tons per day). As such, it did not trigger Subpart J upon construction under OAC 307 (issued February 20, 1986). However, the 1998 modification under OAC 650 which increased production to 55 short tons per day (49.1 long tons per day) triggered direct applicability of Subpart J to the SRU. The SRU has not been modified since, so NSPS Subpart Ja does not apply.

The SRU emergency flare combusts refinery-generated gases (i.e., SRU exhaust gas) so it potentially is a fuel gas combustion device (FGCD) under NSPS Subpart J. Fuel gas combustion devices must not burn fuel gas that contains hydrogen sulfide in excess of 162 ppmvd (40 CFR 60.104(a)(1)). However, the combustion in a flare of process upset gases is exempt from this emission limitation and associated monitoring. Process upset gases are defined as: "any gas generated by a petroleum refinery process unit as a result of start-up, shut-down, upset or malfunction." Because gases are only routed to this flare during emergencies, the flare is subject to NSPS Subpart J but is exempt from the FGCD emission limitation (40 CFR 60.104(a)(1)) and associated monitoring (40 CFR 60.105(a)(4)(iv)).[12] Because the flare has no emission limits or ongoing monitoring, NSPS Subpart J applicability to the flare is listed in AOP Section 1 but the flare is not listed in AOP Section 5.

40 CFR 60 Subparts K, Ka, Kb and Kc - Standards of Performance for Volatile Organic Liquid Storage Vessels: The following New Source Performance Standards apply to tanks (i.e., vessels) depending on the date the tank was constructed, reconstructed or modified; what liquid it stores; and the storage capacity:

- 40 CFR 60 Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978
- 40 CFR 60 Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984
- 40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984
- 40 CFR 60 Subpart Kc - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after October 4, 2023

The only tanks at Chemtrade that are large enough and store material that may emit VOC to potentially be subject to NSPS requirements are the three 158,000-gallon storage tanks potentially storing spent acid. Spent acid does not qualify as a "petroleum liquid" under NSPS Subparts K and Ka. Based on information available as of this writing, Chemtrade's spent acid storage tanks are not affected facilities under NSPS Subpart Kb. In addition, none of the spent acid tanks have been constructed, reconstructed or been modified since October 4, 2023; therefore, they are not subject to NSPS Subpart Kc.

40 CFR 60 Subpart QQQ - Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems: 40 CFR 60 Subpart QQQ applies to individual drain systems, oil-water separators, and aggregate facilities in refinery oily wastewater systems that were constructed, modified, or reconstructed after May 4, 1987. The SRU and Sulfuric Acid Plants do not handle oil or hydrocarbons as part of the refining process so wastewater generated at Chemtrade is not considered oily wastewater subject to NSPS Subpart QQQ.

Regardless of NSPS Subpart QQQ applicability, the wastewater generated at Chemtrade, including stormwater runoff and water falling on the pads supporting the process equipment, is collected and piped to the HollyFrontier Sinclair PSR oily water sewer. The oily water sewer is routed to the effluent for treatment before being released to Fidalgo Bay.

[12] See also EPA Applicability Determination Index (ADI) Control Number 0000086 (Gigliello to Guillemette, 12/2/99) and 1000045 (Czerniak (EPA) to Thiesse (Linde), 9/15/10)

PSR chose to have Chemtrade's wastewater enter the oily water sewer system for convenience (e.g., it was the closest entry point) and also because the volume of water from the Chemtrade is fairly insignificant relative to the rest of the refinery's oily water sewer.

40 CFR 60 Subparts GGG and GGGa - Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries: 40 CFR 60 Subpart GGG applies to refinery process units with equipment components in VOC service that have been constructed, reconstructed, or modified between January 4, 1983, and November 7, 2006. As part of a petroleum refinery that was constructed during the applicability window, the SRU is potentially subject to NSPS Subpart GGG. The SRU does not generally handle VOC-containing materials. However, the amine absorption system in the tail gas treatment unit does use methyl diethanolamine (MDEA) which qualifies as a VOC. As such, the SRU is subject to NSPS Subpart GGG. MDEA is considered a heavy liquid under Subpart GGG so only heavy liquid requirements are included in the AOP.

40 CFR 60 Subparts IIII and JJJJ - Standards of Performance for Stationary Compression and Spark Ignition Internal Combustion Engines: 40 CFR 60 Subpart IIII applies to stationary compression ignition internal combustion engines (ICE) that commenced construction after July 11, 2005 and were manufactured after, for engines that are not fire pump engines, April 1, 2006 and, for fire pump engines, July 1, 2006. NSPS Subpart JJJJ applies to stationary spark ignition internal combustion engines that commenced construction after the specified dates and were manufactured after the specified dates. Chemtrade does not maintain or operate any stationary internal combustion engines. Therefore, NSPS Subparts IIII and JJJJ do not apply.

3.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP)

40 CFR 61 Subpart FF – National Emission Standard for Benzene Waste Operations: 40 CFR 61 Subpart FF applies to the treatment, storage, and disposal of benzene-containing hazardous waste at petroleum refineries. NESHAP Subpart FF contains control requirements, limits, and work practice standards for equipment that handles and treats benzene-containing waste (e.g., tanks, individual drain systems, containers). In 1991, refineries were required to come into compliance with NESHAP Subpart FF. The purpose of this regulation was to reduce the amount of benzene emissions to the atmosphere from wastewater operations.

As part of a petroleum refinery, the Chemtrade SRU is potentially subject to NESHAP Subpart FF. However, because the facility does not handle or process oil or hydrocarbon that contains benzene, there are no ongoing requirements. Therefore, NESHAP Subpart FF applicability is not listed in the AOP.

Chemtrade's wastewater is piped into HollyFrontier Sinclair PSR's oily water sewer. Note that, regardless of the applicability of NESHAP Subpart FF to Chemtrade, PSR's oily water sewer complies with NESHAP Subpart FF.

40 CFR 63 Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers: 40 CFR 63 Subpart Q applies to industrial process cooling towers at major HAP sources that used chromium-based water treatment chemicals as of the proposal date (August 12, 1993). Because the Chemtrade cooling towers did not use chromium-based treatment chemicals as of August 12, 1993, the cooling towers at the facility are not considered affected sources under MACT Subpart Q and, hence, are not subject.

40 CFR 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries: 40 CFR 63 Subpart CC (commonly referred to as Refinery MACT 1) generally applies to fugitive HAP emission sources from petroleum refining process units. The subject unit categories include:

- Miscellaneous process vents (MPVs)
- Storage vessels
- Wastewater streams and treatment operations
- Gasoline loading racks
- Marine tank vessel loading
- Equipment leaks from petroleum refining process units
- Heat exchanger systems

The SRU is by definition a petroleum refining process unit subject to MACT Subpart CC. None of the SRU's process streams have a HAP content of more than the applicability thresholds. As such, any MPVs, storage vessels, wastewater streams and treatment operations, gasoline loading racks, marine tank vessel loading, fugitive components, and heat exchanger systems associated with the SRU are not subject to MACT Subpart CC. Note also that sulfur plant vents are explicitly exempted from being considered an MPV.

The Sulfuric Acid Plant is not considered a sulfur plant so is not a petroleum refining process unit subject to MACT Subpart CC. However, Chemtrade's spent acid is fed by the refinery alkylation units which are refining process units by definition. Based on information available as of this writing, Chemtrade's spent acid storage tanks are not subject to MACT Subpart CC.

40 CFR 63 Subpart UUU – National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units: 40 CFR 63 Subpart UUU (also referred to as Refinery MACT 2) became effective April 11, 2002 establishing hazardous air pollutant emission limits and control requirements at specific refinery operations including sulfur recovery units. The SRU is an affected source because it is owned by and serves the Tesoro Anacortes Refinery. The rule addresses emissions from bypass lines and startup, shutdown, and malfunction events, as well as normal operation requiring additional procedures, records, and reporting.

To control HAP emissions, SRUs have four options; however, if an SRU is already subject to NSPS Subpart J, such as at Chemtrade, it must comply with the Subpart J requirements option.

The Chemtrade SRU is equipped with a bypass line allowing the SCOT exhaust gas to bypass the incinerator and go directly to a flare. There is no way for the Claus outlet to bypass the SCOT to the flare. MACT Subpart UUU allows four different options for the control of HAP emissions from bypass lines. Chemtrade has chosen to install a manual lock system (i.e., carseal) to demonstrate compliance with MACT Subpart UUU.

Note that, due to the June 30, 2010 rule change, the startup, shutdown, malfunction plan (SSMP) requirements under 40 CFR 63 Subparts A and UUU no longer apply.

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants: Reciprocating Internal Combustion Engines: 40 CFR 63 Subpart ZZZZ applies to various Reciprocating Internal Combustion Engines (RICE) located at area and major sources of HAP. Chemtrade does not maintain or operate any stationary internal combustion engines. Therefore, MACT Subpart ZZZZ does not apply.

40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters: 40 CFR 63 Subpart DDDDD applies to industrial, commercial, or institutional boilers and process heaters that are located at a major source of hazardous air pollutants (HAPs), commonly referred to as the Boiler MACT.

See Table 4 for a list of the subject boilers and process heaters and associated ratings.

Table 4 Heaters and Boilers Subject to 40 CFR 63 Subpart DDDDD

Unit	Rating (MMBtu/hr)	Oxygen Trim?
SRU Auxiliary Boiler	9.9	No

Note that Chemtrade operates a couple of other "heaters". These are generally heat exchangers that use process gases to indirectly heat or cool other process gases with no supplemental fuel combustion. Note from earlier discussions that the Sulfuric Acid Plant is not part of a major HAP source, therefore neither the SPU3 startup heater nor the two process heaters associated with Abatement Units 10 and 11 are subject to Boiler MACT. The SRU is equipped with an integral waste heat boiler that recovers some of the heat generated in the sulfur recovery process. Waste heat boilers are excluded from the definition of "boiler" as affected sources under the Boiler MACT. Therefore, the SRU waste heat boiler is not subject to Boiler MACT.

The SRU natural gas-fired auxiliary boiler is subject to Boiler MACT. As such, this unit falls into the "units designed to burn gas 1 fuels" subcategory. Boiler MACT does not require any pollutant-specific emission limits for existing or new heaters and boilers in the gas 1 subcategory. Instead, the rule requires work practice standards that include periodic "tune-ups" as described in 63.7540(a)(10).

Note that none of the units at Chemtrade have oxygen trim; therefore, for units rated between 5 MMBtu/hr and 10 MMBtu/hr, Boiler MACT requires tune-ups biennially (every 2 years). Boiler MACT also requires a one-time energy assessment performed by a qualified energy assessor as described in 40 CFR 63 Subpart DDDDD Table 3.

40 CFR 63 Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities: 40 CFR 63 Subpart CCCCCC applies to Gasoline Dispensing Facilities (GDFs) located at area sources of HAP. Because the Chemtrade facility is an area source of HAP as discussed in SofB Section 3.2, 40 CFR 63 Subpart CCCCCC applies to the facility's GDF. Because the GDF has a throughput of less than 10,000 gallons per month, it must comply with 40 CFR 63.11116.

40 CFR 63 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources: 40 CFR 63 Subpart JJJJJJ applies to industrial, commercial, and institutional boilers located at area sources of HAP. Because the Chemtrade facility is an area source of HAP as discussed in SofB Section 3.2, 40 CFR 63 Subpart JJJJJJ potentially applies. However, the heaters and boilers at the Sulfuric Acid Plant all fire natural gas exclusively so are considered gas-fired boilers under the rule and are, thus, not subject to this subpart (63.11195(e)). Because the SRU Auxiliary Boiler is an affected source under 40 CFR 63 Subpart DDDDD, it is not subject to this subpart (63.11195(a)). As such, NESHAP Subpart JJJJJJ does not apply at the Chemtrade facility.

3.3 Washington State Regulations (WAC)

WAC 173-400-105(5)(b) requires that sulfuric acid plants continuously monitor sulfur dioxide. However, WAC 173-400-105(5)(g) lists the exceptions to the continuous monitoring requirements under -105(5) which include emission units that are required to continuously monitor emissions due to a requirement under, among others, 40 CFR Part 60. Because the Chemtrade Sulfuric Acid Plant is subject to sulfur dioxide continuous monitoring requirements under 40 CFR 60 Subpart H, it exempt from the continuous monitoring requirements under WAC 173-400-105(5).

Chapter 173-491 WAC lists requirements for Gasoline Dispensing Facilities. Because Chemtrade's gasoline storage tank is less than 40,000 gallons and the Gasoline Dispensing Facility (GDF) has a throughput less than 200,000 gallons per year, it is only subject to the requirement that all storage tank openings not related to safety are to be sealed with suitable closures (WAC 173-491-040(1)(c)).

3.4 NWCAA Regulations

The NWCAA Regulation defines "petroleum refinery" in NWCAA Section 200 as:

> A facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, asphalt, or other products by distilling crude oils or redistilling, cracking, extracting, or reforming unfinished petroleum derivatives.

Because Chemtrade is not engaged in producing hydrocarbon products, it is not considered a petroleum refinery under the NWCAA Regulation. As such, the facility is not subject to the requirements applicable to petroleum refineries (e.g., NWCAA Section 460, NWCAA 580.2). Because it is not a petroleum refinery subject to NWCAA Section 460, the Chemtrade facility is subject to the fuel sulfur requirements in NWCAA 520.14.

NWCAA Section 560 – Storage of Organic Liquid: NWCAA Section 560 requires that storage tanks of greater than 6,000 gallons that store organic liquids or solvents with a true vapor pressure greater than 1.5 psi or greater be equipped with vapor loss control devices.

Based on information available as of this writing, Chemtrade's spent acid storage tanks are not subject to NWCAA Section 560.

NWCAA 580.3 – High Vapor Pressure Volatile Organic Compound Storage Tanks: NWCAA 580.3 requires that storage tanks of greater than 40,000 gallons that store volatile organic compounds with a true vapor pressure greater than 1.5 psi or greater meet 40 CFR 60 Subpart Kb requirements.

Based on information available as of this writing, Chemtrade's spent acid storage tanks are not subject to NWCAA 580.3.

NWCAA 580.6 – Gasoline Dispensing Facilities: NWCAA 580.6 requires controls and testing for GDFs and storage tanks of a certain size. Chemtrade's Gasoline Dispensing Facility (GDF) has a throughput less than 120,000 gallons per year so is not subject to the control requirements. The storage tank is less than 2,000 gallons and was installed prior to January 1, 1990 so is not subject to most of the control and testing requirements. The storage tank is only subject to the requirement to maintain the tank in a vapor-tight condition and in good working order (NWCAA 580.6(E)).

3.5 Continuous Emission Monitoring Systems (CEMS)

Continuous Emission Monitoring Systems (CEMS) can be mandated via a variety of mechanisms, including federal or local rules (e.g., NSPS, NESHAP/MACT, NWCAA) and

construction permits (e.g., OACs, PSD). Table 5 lists the CEMS at Chemtrade and the type of requirement that mandates its use.

Table 5 CEMS at Chemtrade

Process Unit	Compounds Monitored	Type of Requirement
SPU Abatement Stack	SO_2	NWCAA Section 465, NSPS Subpart H, PSD 94-01 Amendment 1
SRU Incinerator Stack	SO_2, O_2	NSPS Subpart J, MACT Subpart UUU, OAC 650d

Note that, in addition to a CEMS, annual stack tests for SO_2 are required on both the Sulfuric Acid Plant and the SRU in addition to the CEMS as required by OAC 650d (SRU) and gap-filled under AOP Term 5.1.3 (SPU). This annual testing explicitly demonstrates compliance with the mass emission limits. These annual SO_2 tests are usually conducted in conjunction with the required annual sulfuric acid mist emission testing.

If the CEMS is mandated by NSPS or MACT, it must comply with the requirements in the applicable subpart along with the referenced terms in NSPS Subpart A (60.13) or in MACT Subpart A (63.8). The respective Subpart As list general CEMS installation, operation, and QA/QC requirements. In addition, the specific subpart (e.g., NSPS Subpart J, MACT Subpart UUU) mandates the specific QA/QC thresholds and also references the pollutant-specific Performance Specifications (PS) under 40 CFR 60 Appendix B for installation and initial evaluation and 40 CFR 60 Appendix F for the ongoing quality control and quality assurance.

In the case of NSPS Subpart J and MACT Subpart UUU, they can apply to the same pollutant and both require a CEMS to demonstrate compliance (i.e., SO_2 for SRU). As such, Subpart UUU has an overlap provision that generally aligns the requirements with those in Subpart J to simplify compliance.

In addition, all CEMS installed in the NWCAA jurisdiction must also comply with NWCAA Section 367 which references NWCAA Appendix A (formerly referred to as NWCAA Sections 365, 366 and the "Guidelines for Industrial Monitoring Equipment and Data Handling"). Note that NWCAA Sections 365 and 366 are federally enforceable (i.e., are included in the SIP). NWCAA Section 367 and NWCAA Appendix A were adopted on July 14, 2005; the new regulations are "State Only" until incorporated into the State Implementation Plan.

NWCAA Appendix A references the 40 CFR 60 Appendix B Performance Specifications for CEMS installation requirements and 40 CFR 60 Appendix F for ongoing operation. It also explicitly lists certain operating requirements (e.g., calibration; maintenance; auditing; data recording, validation, and reporting).

Generally, the calibration drift (zero and span) for each CEMS must be checked daily. Data accuracy assessments shall be performed at least once every calendar quarter. This entails a relative accuracy test audit (RATA) that must be performed once per year and cylinder gas audits (CGAs) performed once during each of the other calendar quarters. Data recorded during periods of CEMS breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages. Pursuant to NWCAA Appendix A III(F)(14), CEMs are required to maintain greater than 90% data availability on a monthly basis.

In addition, CEMS performance is required to be submitted to NWCAA on a monthly basis or as required by an applicable subpart. A large part of the CEMS report includes information

about the duration and nature of CEMS downtime, changes made to the CEMS, total operating time and dates of CEMS audits or certifications. Monthly reports include disclosure of deviations from required monitoring and exceedances of emission limits.

The CEMS quality assurance reports which document drift, out of control periods, and the results of relative accuracy test audits (RATA) and cylinder gas audits (CGA) are to be reported on a quarterly basis.

3.6 Compliance Assurance Monitoring

40 CFR Part 64 Compliance Assurance Monitoring (CAM) is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act of large emission units that rely on pollution control device equipment to achieve compliance. The CAM rule (40 CFR Part 64) requires owners and operators to conduct monitoring to determine that control measures, once installed or otherwise employed, are properly operated and maintained so that they continue to achieve a level of control that complies with applicable requirements.

The CAM approach establishes monitoring for the purpose of:

- Documenting continued operation of the control measures within ranges of specified indicators of performance that are designed to provide a reasonable assurance of compliance with applicable requirements,
- Indicating any excursions from the performance indicator ranges, and
- Responding to the data so that the cause or causes of the excursions are corrected.

The first step in the CAM process is to determine the applicability of CAM to each pollutant-specific emission unit (PSEU). The determination is made on a pollutant-by-pollutant basis for each emission unit. To be subject to CAM, the PSEU must be:

1. Located at a major source required to obtain a Part 70 permit,
2. Subject to an emission limit or standard for the applicable pollutant,
3. Use a control device to achieve compliance,
4. Have potential pre-control emissions of the applicable pollutant that are at least 100% of major source threshold, and
5. Not otherwise exempt.

Chemtrade is a major source required to obtain a Part 70 permit, so all emission units at the facility are potentially subject to CAM. Based on the discussion below, only one PSEU triggers the requirement to submit a CAM plan – the sulfuric acid plant controlled by mist eliminators. Table 6 (below) identifies the CAM triggers and provides a summary of the CAM applicability review for the sulfuric acid plant. Table 7 (below) discusses why CAM doesn't apply to other emission units at the facility.

Sources required to submit CAM plans must include:

- The approved monitoring approach, including the indicators (or the means to measure the indicators) to be monitored, and the performance requirements established to satisfy 40 CFR 64.3(b) or (d), as applicable;
- The means by which the owner or operator will define exceedances or excursions;
- The duty to conduct monitoring;
- If appropriate, minimum data availability and averaging period requirements; and

- Milestones for testing, installation or final verification.

Table 6 CAM Applicable

Pollutant-Specific Emission Unit	Control Device	Pollutant	Emission Limit	Pre-controlled Emissions
Sulfuric Acid Plant	Mist Eliminators	• H_2SO_4 / Visible Emissions	• $1.5x10^{-6}$ lb/dscf • 0.105 lb/ton acid produced • 0.15 lb/ ton acid produced[13] • 10% opacity, 3 min aggregate/hr • 10% opacity, 6 min/hr • 20% opacity, >3 min in any hour	> 100 tpy[14] (Permitted PTE)

Sulfuric Acid Mist: As can be seen in Table 6, CAM potentially applies to the Sulfuric Acid Plant for sulfuric acid mist. In this case, it has acid emission limits in terms of pounds per dry standard cubic foot (lb/dscf) and pounds per ton of acid produced (production expressed as 100% H_2SO_4) (lb/ton acid produced) and uses mist eliminators associated with Abatement Units 10 and 11 to meet these limits. Based on the emission limit in OAC 458d (i.e., 0.105 lb/ton acid produced), the SPU is a major source pre-control but post-control emissions are less than the major source threshold (i.e., 100 tons per year)[14]. Therefore, the SPU is subject to CAM for the lb/dscf and lb/ton acid produced limits and a CAM Plan is required.

Note that OAC 458d requires that the compliance demonstration for the lb/dscf and lb/ton acid produced sulfuric acid mist emission limits is annual source testing. This source testing is also used to demonstrate compliance with the applicable sulfuric acid mist limits in NWCAA 465.12 and NSPS Subpart H. As a unit with potential post-control non-major source emissions, CAM mandates that the required monitoring be collected at least once per 24-hours. As such, this stack test does not satisfy the monitoring frequency requirement under CAM.

Visible Emissions: Two pollutants from the Sulfuric Acid Plant stack potentially cause visible emissions – particulate matter (from combustion of the spent acid contaminants) and sulfuric acid mist. CAM for visible emissions from sulfuric acid mist is addressed in the CAM Plan for sulfuric acid mist emissions.

[13] Production expressed as 100% H_2SO_4

[14] Permitted maximum allowable emission rate is 0.105 lb/ton acid produced x 566 ton acid/day x 365 days/year x 1 ton/2000 lb = 10.8 tons per year post-control. Based on the control efficiency distribution for the chosen mist pads, the mist pads are at least 89.2% efficient by weight (1 - (10.8 tons per year post-control / 100 tons per year pre control) = 89.2%) so pre-control emissions are greater than 100 tons per year.

Sulfuric Acid Mist: Chemtrade submitted a CAM Plan for the Sulfuric Acid Plant for the lb/dscf, and lb/ton acid produced sulfuric acid mist limits, which is included in SofB Appendix A. As part of the CAM Plan, Chemtrade proposed to monitor differential pressure daily across each mist eliminator pad in the Abatement Units absorption towers coupled with daily visible emissions observations when indicated. A potential excursion is defined as two consecutive daily differential pressure readings less than 0.2" H_2O for Abatement Unit 10 and 0.4" H_2O for Abatement Unit 11. A potential excursion triggers an inspection. If it is determined that the decreased differential pressure is due to a decrease in SPU operation, this is not an excursion but shall be noted in a log and daily qualitative visible emission observations of the Sulfuric Acid Plant stack shall commence. If there is no corresponding SPU operation decrease, this is an excursion which requires corrective action as soon as practicable and reporting.

Visible Emissions: A visible emissions (VE) observation excursion is defined as a single daily qualitative reading where visible emissions is observed. A VE excursion triggers an inspection, corrective action as soon as practicable, and reporting. Daily VE observations will end for that abatement unit when the daily differential pressure reading rises above the designated threshold.

In addition to the CAM monitoring, Chemtrade also is required to stack test the Sulfuric Acid Plant annually for demonstrating compliance with the lb/dscf and the lb/ton acid produced limits. The testing will provide additional data to "spot-check" compliance and also evaluate the suitability of the CAM monitoring strategy.

This monitoring strategy is determined to be adequate to satisfy CAM requirements.

Table 7 lists other emission units at the facility and provides a summary of the CAM applicability review and is discussed further below. The table identifies the PSEU, pollutant, whether there is a control device other than inherent process equipment provided for safety or material recovery or passive methods that prevent pollutants from forming (e.g., low NOx burners, lids or seals, etc) used to destroy or remove pollutants prior to discharge to the atmosphere to achieve compliance, and the basis for the non-applicability determination.

Table 7 Emission Units Not Subject to CAM

Process Unit	Control Device	Pollutant	Reason(s) for Non-Applicability
Sulfuric Acid Plant	SO_2 Abatement Units 10 & 11	SO_2	Otherwise exempt – equipped with continuous compliance determination method – CEMS
	Gas Cooling Tower with WESP	PM & Visible Emissions	Inherent process equipment
Sulfur Recovery Unit	SCOT Unit & Incinerator	SO_2	Otherwise exempt – equipped with continuous compliance determination method – CEMS
	Uncontrolled	H_2SO_4/Visible Emissions	No active control device
	Uncontrolled	PM & Visible Emissions	No active control device
SPU3 Startup Heater	Uncontrolled	SO_2	No active control device
	Uncontrolled	PM & Visible Emissions	No active control device
Abatement Units Process Heaters	Uncontrolled	SO_2	No active control device
	Uncontrolled	PM & Visible Emissions	No active control device
SRU Auxiliary Boiler	Uncontrolled	SO_2	No active control device
	Uncontrolled	PM & Visible Emissions	No active control device

The Sulfuric Acid Plant is equipped with Abatement Units 10 and 11, which are considered active control devices that reduce SO_2 emissions. SO_2 emissions prior to the Abatement Units exceed major source thresholds (100 tons per year). However, the Sulfuric Acid Plant exhaust is equipped with an SO_2 CEMS. This CEMS is also subject to NWCAA Section 367 and NWCAA Appendix A which requires quality assurance for the CEMS. As such, the CEMS is considered a continuous compliance determination method, which exempts it from CAM requirements under 40 CFR 64.2(b)(1)(vi).

Particulate matter from combustion is removed from the gas stream using a gas cooling tower and a wet electrostatic precipitator (WESP). The gas cooling tower is considered inherent process equipment because it serves primarily to cool the exhaust gas in preparation for the next process step and collection of entrained particulate is a side benefit.

The WESP is primarily used to remove particulate matter to prevent it from plugging equipment downstream and from collecting in the product acid. Because the product acid has specifications for particulate matter and metals, the WESP is considered inherent process equipment so is not subject to CAM requirements.

The SRU is equipped with the SCOT and incinerator to control SO_2. Pre-control SO_2 emissions exceed major source thresholds. However, similarly to the Sulfuric Acid Plant, the SRU exhaust is equipped with a continuous compliance determination method (i.e., a CEMS) for SO_2 so is exempt from CAM for SO_2 under 40 CFR 64.2(b)(1)(vi).

The SRU is also potentially subject to CAM for a sulfuric acid mist emission limit. However, the SCOT and incinerator do not reduce sulfuric acid mist emissions; the SRU is not equipped with an active control device for sulfuric acid mist. Therefore, CAM does not apply to the SRU for sulfuric acid mist.

The SPU3 startup heater, abatement unit process heaters and SRU auxiliary boiler are potentially subject to CAM; none of these units are equipped with an active control device for either SO_2 or particulate matter. Therefore, CAM does not apply to these units.

Note that in this CAM applicability analysis, pre-controlled emissions are not calculated when:

- A control device is not used to achieve compliance,
- There are no emission limits or standards that apply, or
- The PSEU is otherwise exempt.

A PSEU is otherwise exempt when subject to:

- Post-11/15/90 proposed NSPS or NESHAP, as those standards were designed with monitoring that provides a reasonable assurance of compliance
- Stratospheric ozone protection requirements
- Acid rain program requirements
- Emission limitations, standards or other requirements apply solely under an approved emission trading program
- Emissions cap that meets the requirements of 70.4(b)(12)
- Emission limitations or standards for which a Part 70 permit specifies a continuous compliance determination method that does not use an assumed control factor, such as a CEMS used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period established for the emission limitation or standard and provides data in units of the standard.

An emission unit is not exempted from the CAM rule if nonexempt emission limitations or standards (e.g., a state rule or an older NSPS emission limit) apply to the emission unit.

3.7 Risk Management Plan (RMP)

The goal of 40 CFR Part 68 and the risk management program is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur. If a facility contains the hazardous or flammable substances listed in 40 CFR 68.130 in an amount above the "threshold quantity" specified for that substance, the facility operator is required to develop and implement a risk management program.

Chemtrade does not maintain any substances in quantities greater than the listed thresholds. As such, Chemtrade is not required to submit an RMP to the EPA. This regulation is implemented in its entirety by the EPA. The facility certifies their compliance status with all applicable requirements of 40 CFR Part 68 in their annual compliance certification.

3.8 Greenhouse Gas (GHG) Regulation

Greenhouse gases are chemicals that contribute to climate change by trapping heat in the atmosphere. The greenhouse gases recognized by EPA and Ecology are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). "Hydrofluorocarbons" or "HFCs" means a class of greenhouse gases primarily used as refrigerants, composed of hydrogen, fluorine, and carbon.

Chemtrade is required to meet the following federal and state greenhouse gas emission requirements, as applicable.

3.8.1 WAC 173-401-200(19) & (35) – Greenhouse Gas Definition

WAC 173-401-200(19) & (35) define what the terms "major source" and "subject to regulation" regarding greenhouse gases (GHGs) mean and how to calculate GHG emissions.

Because the statutory authority for WAC 173-401-200 was the state Clean Air Act (ch 70.94 RCW), it is considered an applicable requirement under the air operating permit program (WAC 173-401-200(4)); as such, it is included in the AOP.

3.8.2 Chapter 173-441 WAC – Reporting of Emissions of Greenhouse Gases

Chapter 173-441 WAC was adopted by Ecology on December 1, 2010, was subsequently amended, and became effective on March 12, 2022. The rule requires annual GHG inventories be provided to Ecology by no later than March 31 of the following year beginning for calendar year 2012. This regulation is implemented in its entirety by Ecology. Because the statutory authority for Chapter 173-441 WAC is the state Clean Air Act (Chapter 70A.15 RCW), it is considered an applicable requirement under the air operating permit program (WAC 173-401-200(4)); as such, it is included in the AOP.

Chapter 173-441 WAC, "Reporting of Emissions of Greenhouse Gases", adopts a mandatory greenhouse gas reporting rule for:

- Suppliers that supply applicable fuels sold in Washington state of which the complete combustion or oxidation would result in at least 10,000 metric tons of carbon dioxide annually, or
- Any listed source category that emits at least 10,000 metric tons of carbon dioxide equivalents (CO_2e) of greenhouse gases annually in the state.

Petroleum refineries is a listed source category. Tesoro Anacortes Refinery includes the GHG emissions from treatment of refinery sour gas at Chemtrade's facility in their ch 173-441 reporting.

4 GENERAL ASSUMPTIONS OF THE PERMIT

4.1 Permit Content

The permit contains standard terms; generally applicable conditions for the type of facility permitted; and specifically applicable conditions originating from PSD permits, orders of approvals to construct, and any orders issued to the facility. Applicable requirements that were satisfied by a single past action on the part of the source are not included in the AOP but are discussed in the SofB. In addition, as discussed below, conditions that do not contain substantive requirements and have no ongoing compliance demonstrations are excluded from the AOP. Also, regulations that require action by a regulatory agency, but not of the regulated source, are not included as applicable permit conditions.

4.2 Excluded Requirements

Requirements in permits (OACs) that have been superseded (e.g., an earlier version of a modified permit) are not considered applicable requirements and are not included in the AOP.

The following requirements are excluded from the AOP:

4.2.1 Sulfuric Acid Plant

40 CFR Part 60 Subpart H – Initial Construction:

- The facility notified NWCAA of the commencement of construction of the third Sulfuric Acid Plant unit by letter dated September 4, 1973. (40 CFR 60.7(a) and 40 CFR Part 60 Subpart H)
- The facility submitted the notification of initial startup of the third Sulfuric Acid Plant unit as required by 40 CFR 60.7(a) by letter, dated April 14, 1975.
- The initial performance test results required by 40 CFR 60.84 and 60.8 were submitted to NWCAA and EPA Region 10 dated June 2, 1976.
- The facility submitted initial monitoring information to EPA Region 10 indicating compliance with the monitoring requirements of 40 CFR 60.84 by a letter dated January 21, 1977.

40 CFR Part 60 Subpart H – Modification: The Sulfuric Acid Plant was expanded and modified under 40 CFR 60 Subpart H triggering the initial requirements again.

- The facility notified NWCAA of the proposed modification under 40 CFR 60.7(a) in a letter dated October 18, 1993.
- Notification of initial startup under 40 CFR 60.7(a) was submitted by letter, dated September 20, 1995.
- The facility notified NWCAA of the initial performance test as required by 40 CFR 60 Subpart A. The letter is dated February 22, 1996.
- Notification of a Relative Accuracy Test Audit (RATA) on the Sulfuric Acid Plant CEMS was provided via letter dated July 30, 1996. Note that the Sulfuric Acid Plant CEMS has been in operation and in compliance with 40 CFR 60 Subpart H since initial construction.

New Source Review Permits:

- Condition 6 of PSD 94-01 Amendment 1 (1/14/98) includes language regarding operating in accordance with the PSD application unless otherwise approved. This

condition has no specific substantive ongoing requirements. As such, it is not listed in the AOP.

- PSD 94-01 Amendment 1 Condition 7 (1/14/98) states that "Any activity that is undertaken by General Chemical that is inconsistent with the PSD application shall be subject to enforcement." NWCAA recognizes the difficulty in showing continuous compliance with this broadly-stated requirement and therefore considers that it does not have substantive requirements that need to be included in the AOP.

4.2.2 Sulfur Recovery Unit

40 CFR Part 60 Subpart J – Initial Construction:

- Records were not located in the NWCAA files demonstrating that the facility met the one-time initial notification requirements of the rule (40 CFR 60.7). There is evidence that the facility had some difficulty meeting the requirement to install and operate a CEM in accordance with 40 CFR 60.105. In a letter dated October 12, 1989, NWCAA stated that the facility had made "a determined effort" to comply with this requirement, and allowed additional time for this to occur. NWCAA does not assert that any outstanding requirements to provide the initial notifications remain for this rule at this time.

40 CFR Part 60 Subpart J – Modification: The SRU was modified under 40 CFR 60 Subpart J triggering the initial requirements again.

- The facility notified NWCAA of the proposed modification as required by 40 CFR 60.7(a) in a February 12, 1998 letter.
- The facility submitted the notification of commencement of construction as required by 40 CFR 60.7(a) in a September 9, 1998 letter.
- The facility submitted the notification of initial startup as required by 40 CFR 60.7(a) in an October 28, 1998 letter.
- The facility notified NWCAA of the initial performance test as required by 40 CFR Part 60 Subpart A in a March 25, 1999 letter.

40 CFR Part 63 Subpart UUU – Initial Applicability:

- The initial notification was required by 40 CFR 63.1574(a)(3)(i) and (d) to be submitted within 30 days of completion of the initial compliance demonstration. The facility submitted two documents labeled "initial notification".

4.2.3 Boilers and Process Heaters

40 CFR Part 63 Subpart DDDDD – Initial Compliance:

- The Initial Notification under 40 CFR 63. 7545(b) was due 120 days after January 31, 2013 (i.e., May 31, 2013). On February 3, 2009, NWCAA received an initial notice from Chemtrade listing all the subject units at the facility, all having a heat input capacity less than 10 MMBtu/hr, all firing only natural gas, and all commenced construction prior to June 4, 2010 (i.e., are considered existing units). NWCAA received a notice of intent to construct (replace) the SRU auxiliary boiler with a 9.9 MMBtu/hr natural gas-fired boiler on March 27, 2025; followed by notification of the actual startup date of the boiler on April 22, 2025.
- 40 CFR 63.7530(e) and (f) requires that the Notification of Compliance Status be submitted within 60 days of the compliance date (January 31, 2016). Chemtrade submitted the Notification of Compliance Status on February 18, 2016 and submitted supplemental information on March 31, 2016.

- The initial tune-ups must be completed by the compliance date (January 31, 2016). Chemtrade reported in the Notification of Compliance Status that they completed the initial tune-ups in a timely fashion. The initial tune-up and inspection for the replacement SRU auxiliary boiler occurred on May 12, 2025.
- The one-time energy assessment must be completed by the compliance date of January 31, 2016. Chemtrade reported in the Notification of Compliance Status that they completed the energy assessment in a timely fashion. The energy assessment was completed on January 23, 2016.

RCW 70.94.992 – Energy Assessment Submittal

- The nonproprietary information in the one-time energy assessment required under 40 CFR 63 Subpart DDDDD must be submitted to NWCAA by January 31, 2018. Chemtrade submitted their one-time energy assessment received on November 1, 2017.
- The nonproprietary information in the one-time energy assessment required under 40 CFR 63 Subpart DDDDD must be submitted electronically to the Washington State University extension energy program by January 31, 2018. The Washington State University extension energy program received Chemtrade's one-time energy assessment on November 7, 2017.

4.3 Federal Enforceability

Federally enforceable requirements are terms and conditions required under the Federal Clean Air Act or under any of its applicable requirements (e.g., NSPS or NESHAPs). Local and state regulations become federally enforceable by formal approval and incorporation into the State Implementation Plan (SIP) or through other delegation mechanisms. Federally enforceable requirements are enforceable by the EPA and citizens. All applicable requirements in the permit including standard terms and conditions, generally applicable requirements, and specifically applicable requirements are federally enforceable unless specifically identified as enforceable by only the state (i.e., labeled as "State Only").

Most rules and requirements are followed by a date in parentheses. For WAC regulations, the date listed in parentheses in the AOP represents the State Effective date. For the NWCAA regulations, the date represents the most recent Board of Directors adoption date, which is identified as the "Passed" or "Amended" date in the NWCAA Regulation. The date associated with an OAC or PSD permit represents the latest revision date of that order. For a federal rule, the date is the rule's most recent promulgation date.

Two different versions (identified by date) of the same regulatory citation may apply to the source if federal approval/delegation lags behind changes made to the Washington Administrative Code (WAC) or the NWCAA Regulation. As such, those citations that have been federally approved (i.e., incorporated into the SIP) are federally enforceable; the date listed is when it was incorporated into the SIP. If the rule has subsequently changed, those changes are enforceable only by the state or NWCAA; the date listed is of the current version and is identified as "State Only".

Chapter 173-401 WAC is not federally enforceable although the requirements of this regulation are based on federal requirements for the air operating permit program. Upon issuance of the permit, the terms based on ch 173-401 WAC become federally enforceable for the source.

4.4 Gap Filling

Title V of the Federal Clean Air Act is the basis for 40 CFR Part 70, which is the basis for the State of Washington air operating permit regulation, Chapter 173-401 WAC. Title V requires that all air pollution regulations applicable to the source be called out in the air operating permit for that source. Title V also requires that each applicable requirement be accompanied by a federally enforceable means of "reasonably assuring continuous compliance". 40 CFR Part 70 and WAC 173-401-615 all contain a "gap-filling" provision to address situations where no monitoring is present. 40 CFR 70.6(c)(1) and WAC 173-401-630(1) contain authority to address situations where monitoring exists, but is deemed to be insufficient. NWCAA relied upon these authorities to add monitoring where needed to the air operating permit.

The majority of cases where monitoring needed to be added were older regulations and permits that contained no monitoring. For example, NWCAA used its gap-filling authority to add monitoring for the 20% opacity visible emission standard, NWCAA 451.1. The term "Directly Enforceable" is included in each AOP term where NWCAA added gap-filling.

There were also some limited cases where monitoring did exist but was found to be insufficient. NWCAA used its sufficiency monitoring authority to add monitoring in those cases. "Directly Enforceable" is included in the AOP term when NWCAA used its authority to supplement insufficient monitoring.

The type and frequency of monitoring added under the authorities in WAC 173-401-615 and WAC 173-401-630(1) were set based on the following factors:

1. Historical Compliance – NWCAA reviewed the facility's past compliance with the underlying requirement. This information helped inform the decision about monitoring frequency and stringency.
2. Margin of Compliance – The margin of compliance is a measure of whether the facility can easily achieve compliance with a requirement, or whether they operate close to an exceedance. NWCAA considered the facility's margin of compliance for each underlying requirement in setting monitoring for that requirement.
3. Variability of Process and Emissions – Processes that vary their production rates and/or emissions over time (e.g., batch loading of grain silos, VOC emissions from lumber drying kilns) require different monitoring from steady-state processes. NWCAA considered each process and emission variability in setting monitoring.
4. Environmental Impact of a Problem – Exceedances of some permit requirements have greater environmental consequences than others. For example, a problem that causes an exceedance of a refinery sulfur plant limit could have a greater environmental impact than failing to use ultra-low sulfur diesel at an emergency generator. NWCAA considered the environmental impact of a problem in setting monitoring.
5. Clarity and Complexity – The requirements that apply to AOP facilities are numerous, varied and can be complex. The greater number, variety and complexity of requirements, the harder it is for a facility to understand and comply. NWCAA's goal is to write clear, concise permits the facilities can understand. To help achieve this goal, when possible, NWCAA aligned additional monitoring with monitoring that the facility is already performing. This approach required careful thought. NWCAA reviewed the monitoring the facility is already performing to see if it was adequate to stand-in as monitoring for the permit term, and only used it if deemed adequate. For example, an older storage tank may have a NWCAA construction permit that didn't list monitoring. The same tank may also be subject to 40 CFR 60 Subpart Kb.

Subpart Kb monitoring would only be used as the gap-filled (or sufficiency) monitoring if we found it was adequate to show compliance with the construction permit.

The Tables below list where in the AOP NWCAAA used its gap-filling monitoring authority (Table 8) or sufficiency monitoring authority (Table 9).

Table 8 Gap-filled Monitoring Under WAC 173-401-615

AOP Terms	Description	Monitoring
2.4.1.3	Monitoring report certification by responsible official	Semiannual RO certification for all required monitoring reports during the six-month period
2.4.3.2	Required recordkeeping	Report when emission unit shutdown, no monitoring & recordkeeping required when shutdown
2.4.7	Reporting deviations	Identification of "prompt" with respect to reporting when a deviation represents a potential threat to human health or safety
4.2	Operation & maintenance	Monitor, keep records & report
4.3-4.11	Nuisance (contaminants, odors, PM, fugitives)	Investigation, corrective action & documentation of air contaminant complaints.
4.12, 4.13, 4.15, & 4.16	Visible emissions	Visible emission observation monitoring
4.18-4.20	Emissions of sulfur compounds; SO_2	Monitor & record concentration of stack SO_2, or alternately, fuel gas H_2S
4.21-4.22	Sulfur in fuel	Retain fuel specifications & purchase records
5.2.2	SRU SO_2 emission limit	Calculation methodology for using CEMS data to calculate 12-month cumulative total
5.3.1 – 5.3.2	GDF vapor-tight tank & fixed roof storage	Delivery component inspections

Table 9 Sufficiency Monitoring Under WAC 173-401-630(1)

AOP Terms	Description	Monitoring
4.1	Required monitoring reports	Reporting periods identified
4.14	PM emissions	Visible emission observation monitoring
4.17	Ambient SO_2	Operate & maintain an ambient SO_2 monitor
5.1.3 – 5.1.4	SO_2 emission rate	Annual testing
5.1.5 – 5.1.7	H_2SO_4 (acid mist) lb/ton mass emission rate	Enhanced testing details, Visible emission observation, CAM pressure

		drop monitoring & VE excursions, corrective action
5.1.8 – 5.1.13	Visible emissions	Visible emission observation, CAM pressure drop monitoring & VE excursions, corrective action
5.1.15 & 5.2.1	Visible emissions	Visible emission observation monitoring

4.5 Future Requirements

Applicable requirements promulgated with future effective compliance dates may be included as applicable requirements in the permit with a reference stating when compliance needs to be demonstrated. Some requirements that are not applicable until triggered by an action, such as the requirement to file a Notice of Construction application prior to building a new emission unit, are addressed within the standard terms and condition section of the AOP.

There are no requirements with future compliance dates in Chemtrade's AOP.

Some requirements that are not applicable until triggered by an action, such as the requirement to file an application prior to constructing a new source, are addressed within the standard terms and conditions section of the AOP. Chemtrade certified in the permit application that the facility will meet any future applicable requirements on a timely basis.

4.6 Alternative Operating Scenarios & Compliance Options

Chemtrade did not request emissions trading provisions or specify more than one operating scenario in the air operating permit application. Therefore, the permit does not address these options as allowed under WAC 173-401-650. This permit does not condense overlapping applicable requirements (streamlining) nor does it provide any alternative emission limitations.

5 PERMIT ELEMENTS AND BASIS FOR TERMS AND CONDITIONS

5.1 Permit Organization

The permit is organized in the following sequence:

- Permit Information
- Attest
- Table of Contents
- Emission Unit Identification (AOP Section 1)
- Standard Terms and Conditions (AOP Section 2)
- Standard Terms and Conditions for NSPS and NESHAP (AOP Section 3)
- Generally Applicable Requirements (AOP Section 4)
- Specifically Applicable Requirements (AOP Section 5)
- Inapplicable Requirements (AOP Section 6)

5.2 Permit Information and Attest

5.2.1 Permit Information

The Permit Information page of the permit identifies the source and provides general information about the permit, the responsible official, and the agency personnel responsible for permit preparation, review, and issuance.

5.2.2 Attest

The Attest Page provides authorization for the source to operate under the terms and conditions contained in the permit.

5.3 AOP Section 1 Emission Unit Identification

The Emission Unit Identification section is a non-enforceable section of the permit that is meant to list and provide relevant information on significant emission units at the facility. It includes emission unit identification, size or rating of the unit, control equipment where applicable, fuel types, applicable regulations and other related comments. Additional information about the facility may be found in the operating permit application and in associated files.

5.4 AOP Section 2 Standard Terms and Conditions

The Standard Terms and Conditions section contains administrative requirements and prohibitions in the State and NWCAA regulations that do not generally have ongoing compliance monitoring provisions. The citations giving legal authority to the Standard Terms and Conditions are provided in the section. At times, requirements are paraphrased. In this case the language of the cited regulation takes precedence over the paraphrased summary. For clarity and readability, the terms and conditions have been grouped by function. Similar requirements from State and NWCAA regulations are grouped together where possible. There are several requirements included that are not applicable until triggered such as the requirement to file an NOC application.

Monitoring Report Certification by Responsible Official (AOP Term 2.4.1.3): NWCAA gap-filled language allowing facilities to send in certification statements once every six months that covers the listed reports during that period. In conjunction with AOP Term 4.1, these six-month periods are based on a calendar year. The addition of this requirement and clarification meets the intent of the requirement in the WAC in that all reports are certified, while minimizing the burden on a facility to go to the responsible official every time a report is submitted.

Required Recordkeeping (AOP Term 2.4.3.2): For clarity, NWCAA gap-filled language stating that monitoring and recordkeeping are not required when the source is not operating but the facility must report when the source is shut down.

Reporting of Deviations from Permit Conditions (AOP Term 2.4.7): WAC 173-401-615(3)(b) states that "The permitting authority shall define "prompt" in each individual permit in relation to the degree and type of deviation likely to occur and the applicable requirement." NWCAA gap-filled language to clarify the timeframe of the reporting of deviations that represent a potential threat to human health or safety.

5.5 AOP Section 3 Standard Terms and Conditions for NSPS and NESHAP

The Standard Terms and Conditions for NSPS and NESHAP sections contains administrative requirements or prohibitions with no ongoing compliance monitoring requirements. The conditions in this section are taken from the "General Provisions" in Subpart A of 40 CFR 60 and Subpart A of 40 CFR 63.

5.6 AOP Sections 4 and 5 Generally and Specifically Applicable Requirements

Requirements that limit emissions and broadly apply to all sources within NWCAA's jurisdiction or apply facility-wide are identified in AOP Section 4 – Generally Applicable Requirements. Requirements that limit emissions and apply to specific emission units at Chemtrade are identified in AOP Section 5 – Specifically Applicable Requirements.

The first column lists the condition number and identifies the pollutant. The second column identifies the regulatory citation. The third column provides a brief description of the applicable requirements for informational purposes and is not enforceable. The fourth column identifies the periodic or continuous MR&R obligations the source must perform as required by WAC 173-401-605(1), -615(1) & (2), or the underlying requirement. MR&R obligations do not apply to insignificant emission units pursuant to WAC 173-401-530(2)(c).

The requirements in the MR&R column labeled "*Directly Enforceable:*" are legally enforceable requirements added under NWCAA's "gap-filling" authority (WAC 173-401-615(1)(b) & (c)) or under NWCAA's sufficiency monitoring authority (WAC 13-401-630(1)).

The requirements in the MR&R column labeled "*CAM:*" stem from the CAM Plan that are unique to the CAM Plan (i.e., not repeated elsewhere) including descriptions of "excursion" and "exceedance" events, as appropriate. An excursion is a departure from an indicator range established for monitoring consistent with the averaging period specified for the monitoring. An excursion does not necessarily indicate that a permit limit has been exceeded. An exceedance is an incident when emissions limits have been surpassed. The CAM Plan for the Sulfuric Acid Plant for sulfuric acid (and visible emissions) is included in SofB Appendix A.

Other MR&R requirements not labeled "*Directly Enforceable:*" or "*CAM:*" are brief descriptions of the regulatory requirements for informational purposes and are not enforceable, unless they are identical to the cited requirement; the language of the cited

regulation takes precedence over a paraphrased requirement. The following paragraphs provide additional information describing the basis of those MR&R requirements that do not stem directly from other regulations (i.e., those requirements that are directly enforceable).

Required Monitoring Reports (AOP Term 4.1): To explicitly place all AOP sources in NWCAA jurisdiction on the same reporting schedule based on the calendar year, NWCAA added under NWCAA's sufficiency monitoring authority the schedule for report submittal under AOP Term 4.1.

Operation and Maintenance (AOP Term 4.2): For clarity, NWCAA gap-filled language that monitoring, recordkeeping, and reporting in accordance with the AOP can also demonstrate compliance with operating in good operating condition and repair.

Nuisance – Odor and Fugitive Dust (AOP Terms 4.3 through 4.6 and 4.7 through 4.11): None of the listed conditions related to nuisance, odor, and fugitive dust have explicit monitoring, recordkeeping, and reporting requirements. As such, NWCAA gap-filled in an MR&R program to address how nuisance issues and complaints are handled by the facility. Generally, all NWCAA AOP facilities have similar requirements.

Visible Emission Requirements (AOP Terms 4.12, 4.13, 4.15, 4.16; 5.1.8 through 5.1.13; 5.1.15; & 5.2.1): Monitoring, recordkeeping and reporting (MR&R) requirements for compliance with visible emission standards found in State and NWCAA regulations or contained in OACs for various emissions units have been gap-filled by NWCAA as the standards themselves did not contain sufficient monitoring to reasonably assure compliance.

- There may be up to three visible emission standards that utilize one of two demonstration methods for emission units at the SPU and SRU Visible emissions shall not exceed 10% or 20% opacity for any period aggregating more than three minutes in any one hour (demonstrated using Ecology Source Test Method 9A – Visual Determination of Opacity for a Three Minute Standard (7/12/90)) (AOP Terms 4.12, 4.13, 5.1.11, 5.1.12 & 5.1.13) and
- Visible emissions shall not exceed 10% opacity on a six-minute average (demonstrated using 40 CFR 60 Appendix A Method 9 – Visual determination of the opacity of emissions from stationary sources) (AOP Terms 5.1.8, 5.1.9, & 5.1.10).

Visible emission is also being used as a surrogate for the grain loading standards in NWCAA 455.1 (AOP Term 4.14), WAC 173-400-060 (AOP Term 4.15), and WAC 173-400-050 (AOP Term 4.16).

Note that visible emissions can stem from fuel combustion or from the emission of sulfuric acid mist.

For clarity and simplicity, the MR&R requirements for each of these requirements have been consolidated and gap-filled as directly enforceable. Demonstration of compliance with the visible emission limits for the emission units (e.g., Sulfuric Acid Plant, SRU, SPU3 Startup Heater, Abatement Unit 10 and 11 Process Heaters, SRU Flare, SRU Auxiliary Boiler) will be based on periodic qualitative visual emission observations, initially conducted monthly. Any observed visible emissions at any time will require within 24 hours either corrective action, shutting the unit down, or an EPA Method 9 observation. If any single reading is greater than an applicable numerical visible emission limit (e.g., 10%), a certified reading must be taken in accordance with the appropriate method for each limit (i.e., a 6-minute EPA Method 9 and a 1-hour Ecology Method 9A). This must be repeated daily until visible emissions are determined to be in compliance with each limit.

All EPA Method 9 or Ecology Method 9A visible emission readings must be taken by an individual holding a valid Certification of Completion for Plume Evaluation Training from the

Washington State Department of Ecology or other authorized training facility. Both methods call for visible emission readings to be taken at 15-second intervals.

If no visible emissions are seen during the monthly qualitative observations for six consecutive months, the periodic reading can drop to quarterly.

Generally, all NWCAA AOP facilities have similar requirements.

Ambient Station (AOP Term 4.17): NWCAA 465.21, 465.22, and 465.24 list requirements for sulfuric acid plants, including installing a continuous recording ground level sulfur dioxide (SO_2) monitor "as approved by the Control Officer". The requirement for the SO_2 ambient station has been added under NWCAA's sufficiency monitoring authority with a reference to the operation of the ambient station in accordance with NWCAA 367 and NWCAA Appendix A.

Sulfur Compound Emissions (AOP Terms 4.18, 4.19, and 4.20): NWCAA Section 462 and WAC 173-400-040(7) limit sulfur dioxide emissions from stacks but do not have any specific MR&R requirements. Because Chemtrade is required to monitor sulfur dioxide emissions from each of their stacks, the gap-filled MR&R was linked to the monitoring requirements in AOP Section 5.

Sulfur Compounds in Fuel (AOP Terms 4.21 and 4.22): NWCAA 520.11, 420.12, 520.13 and 520.15 limit the fuel sulfur content but do not have any specific MR&R requirements. To document the fuel sulfur content, NWCAA gap-filled language requiring that fuel specifications and purchase records be retained.

Sulfuric Acid Plant Requirements – SO_2 under NWCAA 465.11, 465.23, and 465.24 (AOP Term 5.1.3): NWCAA 465.11 limits SO_2 from sulfuric acid plants with different limits for "new" and "existing" facilities. Because SPU3 was added in 1975 and SPU3 production was significantly expanded in 1994, the Chemtrade SPU is considered a new facility under NWCAA 465.11.

NWCAA 465.11, 465.23, and 465.24 lists requirements for sulfuric acid plants, including installing a continuous emission monitoring system (CEMS) for SO_2 "if required by the Control Officer". As such, the requirement for the CEMS has been added under NWCAA's sufficiency monitoring authority with a reference to the operation of the SO_2 CEMS under 40 CFR 60 Subpart H and to NWCAA Section 367. The limit has an averaging period similar to that in 40 CFR 60 Subpart H.

In addition, annual performance testing using EPA Methods 1-4 and 6 or 6C was added under NWCAA's sufficiency monitoring authority to explicitly demonstrate compliance with the mass emission limits.

Sulfuric Acid Plant Requirements – SO_2 under PSD 94-01 Amendment 1 (AOP Term 5.1.4): Annual performance testing using EPA Methods 1-4 and 6 or 6C was added under NWCAA's sufficiency monitoring authority to explicitly demonstrate compliance with the mass emission limits.

Sulfuric Acid Plant Requirements – H_2SO_4 Compliance Demonstration (AOP Terms 5.1.5 through 5.1.7): To clarify how compliance will be demonstrated with sulfuric acid limits based on facility production, NWCAA added under NWCAA's sufficiency monitoring authority that the daily production rate may be used, even for shorter-term limits, since, according to the facility, it is the most accurate data currently available without significant expense at the time of this writing. This language will be reviewed during future AOP renewals for appropriateness.

Sulfuric Acid Plant Requirements – Visible Emission Compliance Demonstration (AOP Terms 5.1.8 through 5.1.13): See discussion above related to AOP Terms 4.12

through 4.16 regarding added monitoring under NWCAA's sufficiency monitoring authority ng for visible emission compliance.

Because sulfuric acid emissions can cause opacity, the proposed CAM monitoring strategy for sulfuric acid will also satisfy monitoring for visible emissions.

Sulfur Recovery Unit Requirements – SO_2 Tons Per 12-Month Period (AOP Term 5.2.2): OAC 650d Condition (7) limits SO_2 emissions from the SRU to 40 tons during any consecutive 12-month period. The OAC did not include any ongoing compliance demonstration. The compliance demonstration was gap filled as using the CEMS concentration data (an hourly average of ppm/minute data) multiplied by an average stack flow from the most recent 12 passing performance tests. Note that the appropriate average stack flowrate basis must be chosen for this calculation – to use the hourly average of ppm/minute data, it must be multiplied by the average actual cubic feet/minute flowrate; it must be converted to ppm/hour (i.e., multiplied by 60) to be multiplied by the actual cubic feet per hour flowrate.

An average stack flow was chosen because, according to the facility, it is the most reasonable and conservative method for determining stack flow currently available without significant expense at the time of this writing. This will be reviewed during future AOP renewals for appropriateness. Because the performance tests are generally performed at the upper end of SRU operation, using the stack flow from source tests is conservative. In addition, over the range of operating rates in the last 16 years of testing, the stack flow is fairly constant. A rolling average of the tested stack flows was to reflect potential shifts in tested operating rates and equipment age; an average of many performance tests was to avoid potential large step changes in flow rate.

Gasoline Dispensing Facility (AOP Terms 5.3.1 and 5.3.2): Periodic inspections when gasoline is delivered were gap-filled to ensure the gasoline storage tank is maintained in a vapor-tight condition and in good working order.

5.7 AOP Section 6 Inapplicable Requirements

WAC 173-401-640 allows a determination regarding inapplicable requirements. AOP Section 6 contains a list of inapplicable requirements and the causal basis.

6 INSIGNIFICANT EMISSIONS UNITS

Table 10 below lists emission units present at Chemtrade that are insignificant based on their emission rate, size, or production rates in accordance with WAC 173-401-530 and -533. The third column of the table provides a justification for the exemption based on operational characteristics for each unit. Some categorically exempt insignificant emission units as defined in WAC 173-401-532 are present at Chemtrade but are not required to be listed herein. An emission unit cannot be considered insignificant if it is subject to any federally-enforceable applicable requirement.

Note that the Generally Applicable requirements in AOP Section 4 apply to all insignificant emission units, although the monitoring, recordkeeping, and reporting requirements are deemed to not apply.

Table 10 Insignificant Emissions Units

Exempt Unit	WAC Citation	Comment
Diesel Storage Tank (250 gal)	WAC 173-401-533(2)(c)	Operation, loading and unloading of VOC storage tanks of ten thousand gallons or less with lids or other appropriate closure, vp not greater than 80mm Hg at 21°C
Waste Oil Storage Tank (300 gal)	WAC 173-401-533(2)(c)	
MDEA Storage Tank (2,800 gal)	WAC 173-401-533(2)(c)	
Portable In-Line Catalyst Preheater	WAC 173-401-533(2)(e)	Rated at less than 5 MMBtu/hr (natural gas fired)
Rental Maintenance Heaters	WAC 173-401-533(2)(g)	Rated at less than 1 MMBtu/hr (natural gas fired)
Cooling Tower	WAC 173-401-533 (2)(m)	Water cooling tower not in contact with process streams, not using chromium-based corrosion inhibitors
Space and hot water heaters	WAC 173-401-533(2)(r)	Used for comfort. Space heaters and water heaters using natural gas, propane, or kerosene, and generating less than 5 million Btu per hour
Caustic Storage Tank (9,400 gal)	WAC 173-401-533(2)(s)	Tanks, vessels and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases, and acids.
93% H_2SO_4 Tanks (3 @ 71,400 gal each)	WAC 173-401-533(2)(s)	
30% H_2SO_4 Tanks (2 @ 17,000 gal each, 5,000 gal, 4,000 gal)	WAC 173-401-533(2)(s)	
Battery Acid Tanks (14,000 gal & 9,400 gal)	WAC 173-401-533(2)(s)	
Quality Control Lab	WAC 173-401-533(3)(c)	Chemical or physical analytical laboratory operations or equipment.
Effluent Neutralization	WAC 173-401-533(3)(d)	NPDES permitted ponds and lagoons utilized solely for the purpose of settling suspended solids and skimming of oil and grease

7 PUBLIC DOCKET

Copies of Chemtrade's Air Operating Permit, permit application, and any technical support documents were available at the following location during the public comment period, April 10, 2026 through May 11, 2026:

Online:

www.nwcleanairwa.gov

Office:

Northwest Clean Air Agency
1600 South Second Street
Mount Vernon, WA 98273-5202

(360) 428-1617 (call for an appointment to review)

No comments were provided to NWCAA during the public comment period.

8 DEFINITIONS AND ACRONYMS

Definitions are assumed to be those found in the underlying regulation. A short list of definitions has been included below.

An "applicable requirement" is a provision, standard, condition or requirement in any of the listed regulations or statutes as it applies to an emission unit or facility at a stationary source.

An "emission unit" is any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant.

A "permit" means, for the purposes of the air operating permit program, an air operating permit issued pursuant to Title V of the 1990 Federal Clean Air Act.

"State" means, for the purposes of the air operating permit program, NWCAA or the Washington State Department of Ecology.

The following is a list of acronyms used in the Air Operating Permit and/or Statement of Basis:

AOP	Air Operating Permit
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
CAM	Compliance Assurance Monitoring
CEM	continuous emission monitor
CFR	Code of Federal Regulations
CO	carbon monoxide
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
dscf	dry standard cubic foot
Ecology	Washington State Department of Ecology
GDF	Gasoline Dispensing Facility
HAP	Hazardous Air Pollutants
H_2S	hydrogen sulfide
H_2SO_4	sulfuric acid
MACT	Maximum Achievable Control Technology
MDEA	methyl diethanolamine
MR&R	Monitoring, Recordkeeping, and Reporting
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOC	Notice of Construction
NOx	Oxides of Nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
NWCAA	Northwest Clean Air Agency
O_2	oxygen
OAC	Order of Approval to Construct
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
ppmvd	parts per million by volume, dry
psia	pounds per square inch absolute
PTE	Potential to Emit (annual, unless otherwise noted)

QA/QC	Quality Assurance/Quality Control
RCW	Revised Code of Washington
RMP	Risk Management Plan
SCF	Standard Cubic Feet
SCOT	Shell Claus Off-gas Treating
SIP	State Implementation Plan
SO_2	sulfur dioxide
SofB	Statement of Basis
SRU	Sulfur Recovery Unit
VOC	volatile organic compounds
WAC	Washington Administration Code

APPENDIX A

CAM Plan for Sulfuric Acid and Visible Emissions from the Sulfuric Acid Plant

Compliance Assurance Monitoring
H_2SO_4 Mist (Acid Mist) and Opacity Control
Chemtrade Facility – Anacortes Washington

I. BACKGROUND

A. EMISSIONS UNIT

Description: Sulfuric Acid Plant
Identification: Sulfuric Acid Plant Units (SPUs) 1, 2, & 3
Facility: Chemtrade – Anacortes, WA

B. APPLICABLE REGULATIONS AND EMISSION LIMIT

Air Operating Permit:	AOP 009R2
Emission Limit:	Sulfuric Acid Mist:
	Sulfuric acid mist emissions (including sulfur trioxide) from the acid plant stack shall not exceed 0.15 lb/ton of sulfuric acid produced (expressed as 100% sulfuric acid). (40 CFR 60.83(a)(1), NWCAA 465.12)
	Sulfuric acid mist emissions from the acid plant stack shall not exceed 1.5×10^{-6} lb/dscf and 0.105 lb/ton of acid produced on an hourly average (expressed as 100% H2SO4). (OAC 458d Conditions (1) & (3))
Emission Limit:	Opacity
	Sulfuric acid plant tailgas emissions shall not exhibit 10% opacity or greater using Method 9. (40 CFR 60.83(a)(2), OAC 458d Condition (2), PSD 94-01 Amendment 1 Condition 2)
	Visible emissions from the sulfuric acid plant shall not exceed 10% opacity or greater for three minutes. (NWCAA 465.13)
	No person shall cause or permit the emission, for any period aggregating more than 3 minutes in any 1 hour, of an air contaminant from any source which, at the point at emission, or within a reasonable distance of the point of emission, exceeds 20% opacity. (NWCAA 451.1)

No person shall cause or allow the emission for more than three minutes, in any one hour, of an air contaminant from any emissions unit which at the emission point, or within a reasonable distance of the emission point, exceeds twenty percent opacity except: When the owner or operator of a source supplies valid data to show that the presence of uncombined water is the only reason for the opacity to exceed twenty percent. (WAC 173-400-040(2))

II. MONITORING APPROACH

The Sulfuric Acid Plant is made up of three production trains (SPUs 1, 2, and 3) and two abatement units (Abatement Units 10 & 11) to treat the exhaust gases prior to release to the atmosphere. SPU 1 and SPU 2 each have a maximum production capacity of 143 tpd of acid (100% basis) and SPU3, 280 tpd of acid (100% basis) for a total capacity of 566 tpd of acid (100% basis). SPUs 1 & 2 vent to Abatement Unit 10 and SPU3 vents to Abatement Unit 11. Each abatement unit is equipped with a mist eliminator pad in the absorption tower to control sulfuric acid mist. Abatement Units 10 & 11 vent to a common Sulfuric Acid Plant stack. The selected indicators of performance are differential pressure across each mist eliminator pad coupled with visible emissions observations when indicated.

Chemtrade installed differential pressure monitoring devices to measure the pressure drop across Abatement Unit 10 and 11 mist eliminator pads in accordance with manufacturer's specifications. When the abatement unit is operating, the differential pressure of the associated mist eliminator pad will be measured and recorded in a written log daily.

Note that differential pressure across the mist eliminator pads will vary with flow rate which is directly related to production rate of the associated SPUs. There will be limited periods, such as startup, shutdown, maintenance, significant reductions in oil refinery production rates, and limited raw material supply, where the decreased SPU operation will result in a differential pressure across the mist eliminator pad(s) to be below the normal operating envelope without it necessarily being an indicator that the mist eliminator pad is being bypassed. Note that it is expected to be in a startup, shutdown, or maintenance condition only approximately 400 hours per year.

Prior to COVID-19, it was extremely rare to reduce operations below 400 tons per day sulfuric acid produced (as 100% H2SO4) (except when one or more SPUs are down during maintenance or the refineries were down for turnaround). For instance, during July 2019, acid production did not drop below 416 tons per day; during July 2020, production was below 416 tons per day for 20 days and below 300 tons per day for 14 days. As such, in the current situation, Chemtrade spends significant time at lower operating rates, potentially lower than what was used in the original CAM threshold testing, and is proposing an alternative compliance method for this low operation mode.

When the SPU production rate decreases such that the differential pressure across the mist eliminator pad falls below the designated thresholds, Chemtrade will continue daily differential pressure readings but also will conduct daily qualitative visible emissions observations of the Sulfuric Acid Plant stack. When SPU operation shifts such that both of the differential pressure readings are above the designated thresholds, the daily visible emissions observations will no longer take place. Note that because the three SPUs can operate independently of one another, the monitoring status of one abatement unit mist eliminator pad may be different from the other at any one time.

The key elements of the monitoring approach are presented in Table 1.

TABLE 1 SULFURIC ACID PROCESS UNIT AT ANACORTES, WASHINGTON

REQUIREMENT	PARAMETER
Indicator: Differential Pressure Inspection	
Measurement Approach	Differential pressure across Abatement Units 10 and 11 mist eliminator pads
Indicator Range	
Indicator Range	A potential excursion is defined as two consecutive daily differential pressure readings below 0.2" H2O for Abatement Unit 10 or 0.4" H2O for Abatement Unit 11. Potential excursions trigger an inspection. If it is determined that the decreased differential pressure is due to a decrease in SPU operation, this is not an excursion but shall be noted in a log. If there is no corresponding SPU operation decrease, this is an excursion which requires corrective action as soon as practicable and a reporting requirement. If the corrective action requires the unit be shut down, the issue will be corrected during the next shutdown of the unit but no later than 90 days after the initial excursion. The date and a description of the corrective actions taken in response to each excursion shall be documented. Excursions, including corrective actions taken, shall be reported in writing to NWCAA within 30 days after the end of the calendar month in which the excursion occurred.
Performance Criteria	
A. Data Representativeness	A differential pressure monitoring device will be installed at each abatement unit mist eliminator pad to measure differential pressure across the mist eliminator pad. Its minimum precision will be at most 0.05" H2O.

B. Verification of Operational Status	The monitoring system shall be operated according to manufacturer specifications.
C. QA/QC Practices and Criteria	The monitoring system shall be maintained according to manufacturer specifications. Calibrate device(s) according to manufacturer's specification but no less frequently than every 12 months. Calibration information shall be recorded.
D. Monitoring Frequency and Data Collection Procedures	When the abatement unit is operating, differential pressure readings shall be measured and recorded on a daily basis in a log for each associated mist eliminator pad. The log shall include the date, time, and initials for each reading.
Indicator: Visible Emissions Qualitative Observations	
Measurement Approach	Qualitative visible emissions observations from the Sulfuric Acid Plant stack when indicated
Indicator Range	
Indicator Range	An excursion is defined as a single daily qualitative observation where visible emissions are present. Excursions trigger an inspection, corrective action, and a reporting requirement.
Performance Criteria	
A. Data Representativeness	While Method 9 certification is not required, staff will be trained with respect to the general procedures for determining the presence of visible emissions.
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	Staff will be trained initially and have a refresher at least once every 12 months. Keep training records.
D. Monitoring Frequency and Data Collection Procedures	When indicated, visible emissions observations of the Sulfuric Acid Plant stack shall be taken on a daily basis.

III. JUSTIFICATION

A. RATIONALE FOR SELECTION OF PERFORMANCE INDICATORS

Differential Pressure Monitoring

Mist eliminators are essentially coarse filter pads that allow sulfuric acid in the exhaust gas stream to collect on the mesh and drip back into the process. The most common failure mechanisms that potentially result in emissions are when the mesh pad is being bypassed either via a hole in the mesh, the reactive sheathing on the mesh wears out (thereby reducing its cross-section), or the mesh modules shift or are not installed correctly.

When the mist eliminator pad is operating properly and there is no bypassing, the differential pressure should be relatively constant with constant flow rate (i.e., operating rate). If bypassing occurs, the differential pressure across the mist eliminator pad will decrease below its normal operating envelope. Differential pressure monitoring is the suggested long-term method of monitoring by the manufacturer. When the mist eliminator pad becomes fouled, the differential pressure can also increase; however, this issue should not impact emissions so is not addressed in the monitoring strategy.

Visible Emissions Qualitative Observations

Since sulfuric acid mist emissions are visible, the presence of visible emissions is also an indicator of sulfuric acid mist emissions. This monitoring procedure requires only the qualitative determination of whether visible emissions are present since the presence of any visible emissions is an indicator of process issues. A determination of opacity levels is not required; therefore, observer certification according to the procedures of Method 9 is not required. However, it is necessary that the observer is knowledgeable with respect to the general procedures for determining the presence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training will be based on the lecture portion of the Method 9 certification course. This training will occur initially and once every 12 months thereafter and be documented.

This monitoring procedure is conservative because facility staff will be responding upon the presence of any visible emissions from the Sulfuric Acid Plant stack rather than the allowed 10% opacity on a 6-minute average (EPA Method 9) and 10% on a 3-minute aggregate in 1 hour (Ecology Method 9A).

Note that because both abatement units feed into a single stack, observing opacity from the single combined stack is conservative because both units are being monitored simultaneously and if visible emissions are observed, operation of the mist eliminator pad with the low differential pressure will be checked but so will all three SPUs.

B. Rationale for Selection of Indicator Ranges

Differential Pressure Monitoring

The selected indicator ranges for mist eliminator pad differential pressure are lower limits (i.e., shall not fall below) based on emission testing. There is no upper limit for the differential pressure, since a high differential pressure will indicate fouling of the mist eliminator pad but that condition will have no impact on emissions. Different values were selected for each abatement unit because, while the mist eliminator for each abatement unit is constructed identically, Abatement Unit 10 has a greater range of flow and therefore, experiences a larger range of operable differential pressures (i.e., Abatement Unit 10 handles the exhaust of two of the SPUs while Abatement Unit 11 handles only one SPU).

The differential pressure was measured periodically during the June 16, 2016; August 3-4, 2016; and June 14, 2017 stack tests. These tests were conducted to comply with the annual testing requirement while the overall SPU was operating at a "normal conditions" rate. Table 2 lists the results of this testing. The selected differential pressure values reflect the lowest value measured for each mist eliminator pad during both tests. All three stack tests showed no opacity and compliance with both of the sulfuric acid emission limits.

Because differential pressure across the mist eliminator pads varies with flow (i.e., operating rate), Chemtrade performed engineering testing at lower operating rates to set the differential pressure threshold values to allow more operational flexibility while still demonstrating compliance with the applicable limits. This testing took place on June 15, 2017 and the results are listed in Table 2. The engineering test indicated no opacity and compliance with the sulfuric acid emission limits.

TABLE 2 CAM THRESHOLD TESTING RESULTS

Test Date	Total (tpd)	Lb/ton	Lb/dscf	Abatement Unit 10 dP (" H2O)	Abatement Unit 11 dP (" H2O)	Opacity?
6/16/16	485	0.029	4.08E-07	0.8	0.7	No
8/4/16	483	0.02	2.84E-07	1.1	0.6	No
6/14/17	489	0.03	4.60E-07	0.8	0.6	No
6/15/17 Run 1	388	0.014	2.30E-07	0.51	0.49	No
6/15/17 Run 2	302	0.01	1.70E-07	0.3	0.4	No
6/15/17 Run 3	301	0.011	1.90E-07	0.17	0.4	No
Limit	--	0.105	1.5E-6	--	--	10%

The differential pressure meter has a degree of accuracy of ±0.05" H2O. As such, the thresholds chosen are 0.2" H2O for Abatement Unit 10 and 0.4" H2O for Abatement Unit 11 since they are the lowest differential pressure for which compliance is demonstrated. Note that at these low production rates, the emissions are less than 15% of the limits. Should the facility wish to change these thresholds, Chemtrade may source test at any time and submit the results for approval.

Two consecutive daily readings below the threshold was selected as triggering an excursion because, during the stack tests for which data were collected, the differential pressure across each mist eliminator pad can be extremely stable at constant production rates. Generally, Chemtrade sets the daily operation rate and maintains that operating rate throughout each day so swings in operation throughout a day are not expected.

This monitoring strategy was developed to monitor for sudden changes in differential pressure (e.g., when a hole is punched through the mesh or the mesh modules shift). Should the pressure gradually decrease, for example when the sheathing on the mesh is wearing off, this strategy may not explicitly capture this shift but as long as the differential pressure stays above the threshold

value, emissions should be below the emission limits as demonstrated by the testing. However, the sheathing wearing off should only be a problem if an improper mist eliminator pad is installed so this should be unlikely at best.

This differential pressure monitoring strategy will help to ensure that the mist eliminator pads are operating properly and, thus, maintain sulfuric acid mist emissions below the mandated thresholds.

Visible Emissions Qualitative Observations

The selected indicator range for visible emissions observations are a single daily reading of essentially an upper limit (i.e., shall not go above) based on emission testing. A single daily qualitative observation of the presence of visible emissions was selected because any presence of visible emissions is an indicator of a process issue. No visible emissions have been observed during any historical passing source tests including the engineering tests on June 15, 2017.