



Serving Island, Skagit & Whatcom Counties

GENERAL CHEMICAL LLC
ANACORTES, WASHINGTON

STATEMENT OF BASIS
for
AIR OPERATING PERMIT
FINAL MODIFICATION

December 20, 2010

PERMIT INFORMATION

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SIC: 2819

EPA AFS NUMBER: 53-057-0002

NWCAA ID NUMBER: 010-V-S

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Air Operating Permit Number:	Issuance Date:
009R1	Renewal April 14, 2009
Permit Modifications	Modification Date:
Modification 1	December 20, 2010
Supersedes Permit Number:	Expiration Date:
N/A	April 14, 2014
Application Date:	Renewal Application Due:
December 9, 2010 (modification)	April 14, 2013

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1. INTRODUCTION

General Chemical LLC operates the Anacortes Works Facility (General Chemical, permittee, or the facility), located near Anacortes, WA. The facility is required to obtain an operating permit pursuant to Title 5 of the 1990 Federal Clean Air Act and Washington Administrative Code (WAC) Chapter 173-401 because it has the potential to emit greater than 100 tons of sulfur dioxide (SO₂) per year.

The purpose of this Statement of Basis (SOB) is to set forth the legal and factual bases for the conditions of General Chemical's Air Operating Permit (AOP). This document also provides background information to facilitate review of the permit by interested parties. The Statement of Basis is not a legally enforceable document.

The AOP was originally issued March 18, 2002 as AOP 009. Air operating permits have to be renewed every five years. AOP 009R1 is the renewed air operating permit for General Chemical. It is nearly identical to the previous version of the air operating permit, except for the following changes:

- The Northwest Air Pollution Authority became the Northwest Clean Air Agency (NWCAA) in January 2005.
- Inclusion of conditions from Order of Approval to Construct 880a, issued February 2, 2009, for a startup heater on sulfuric acid unit 3 (OAC 880 was issued on July 22, 2004, and was superseded by OAC 880a).
- Incorporation of 40 CFR Part 63 Subpart UUU provisions applicable to the sulfur recovery unit on April 22, 2005.
- Sections 2, 3, 4 and 5 have been updated to reflect the most current regulations and standardized AOP language.
- References to requirements for meteorological, ambient pollutants, and continuous emissions monitors have been updated to reflect current NWCAA Regulation §367 and Appendix A.
- Regulatory citations in the permit have been updated to reflect more recent revision/promulgation dates; and
- Some text has been rephrased for clarification.

An administrative modification to AOP 009R1 was issued on December 15, 2010. The following typographical changes were made:

- The permit expiration date was changed from April 14, 2012 to April 14, 2014 which is five years from the issuance date of April 14, 2009. The renewal application date was changed from April 14, 2011 to April 14, 2013.
- The "Permit Modifications" field has been filled, the "Modification Date" field has been filled, and the "Supersedes Permit Number" field has been updated.
- The name "Betty Wiese" was replaced with Richard Albright wherever it appeared in the permit.

2. FACILITY DESCRIPTION

2.1 Location

General Chemical is located on March Point near Anacortes, Washington in Skagit County between the Tesoro Refining and Marketing facility to the north and the Shell Puget Sound Refinery to the southeast. The plant is approximately 2 miles southeast of Anacortes, WA, and 11 miles west of Mount Vernon, WA. March Point is bordered on the west by Fidalgo Bay and on the east by Padilla Bay. 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.

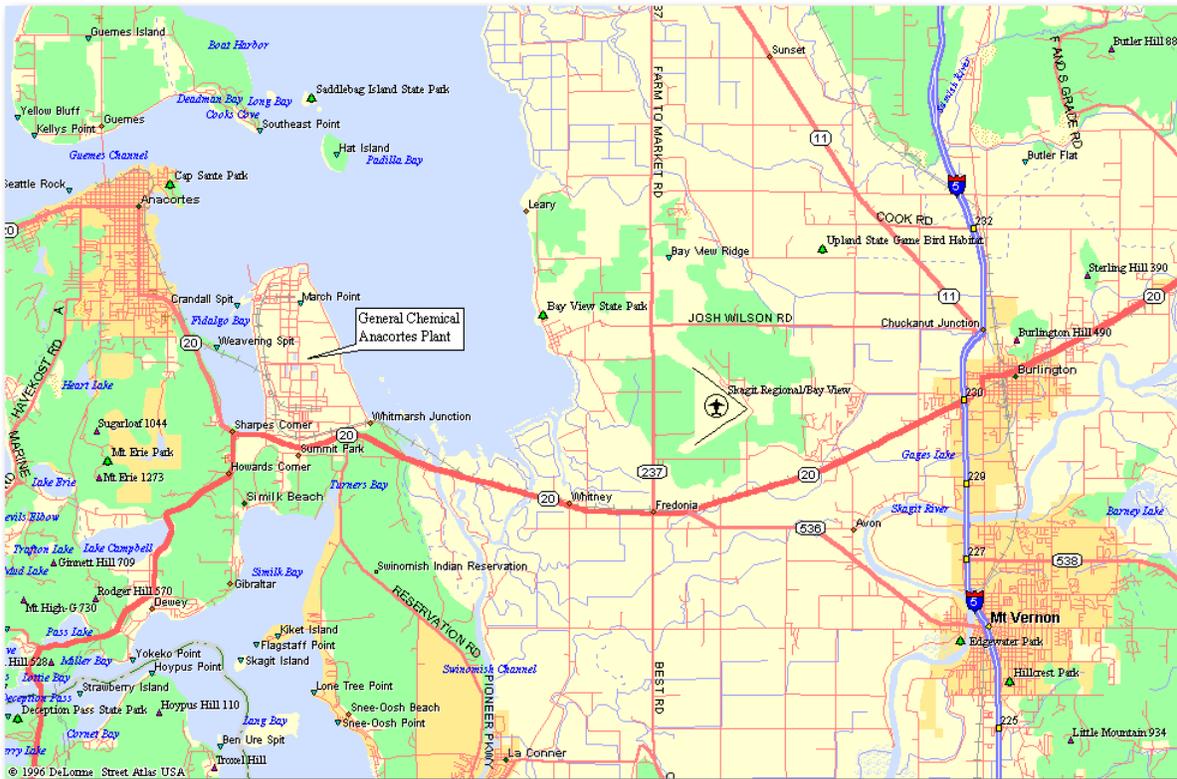


Figure 1 Location of General Chemical LLC

2.2 Process Description

General Chemical receives spent sulfuric acid and refinery acid gas as raw materials from the Tesoro Refining and Marketing refinery and the Shell Puget Sound Refinery’s alkylation units. General Chemical processes these materials into 99 percent sulfuric acid, 93 percent sulfuric acid, 30 percent sulfuric acid, electrolyte grade sulfuric acid, and elemental sulfur. A large portion of the product acid is sold to nearby

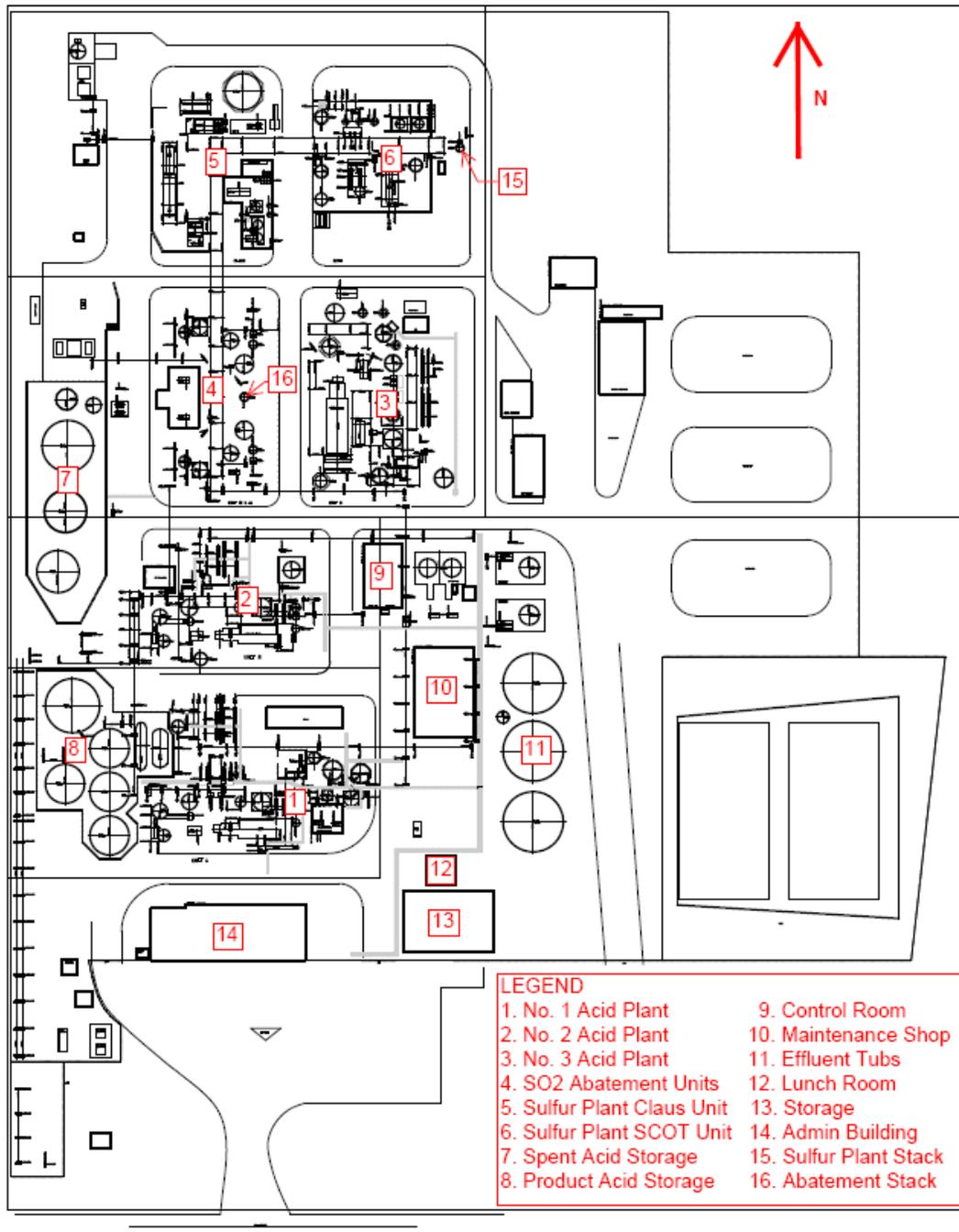


Figure 2 General Chemical Plot Plan

refineries where it is returned to the process as alkylation catalyst.

The elemental sulfur produced in the sulfur recovery unit (SRU) is loaded into trucks and transported offsite for ultimate use in other industries, including fertilizer manufacturing.

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. Unit operations at the facility include three sulfuric acid trains, two sulfur dioxide abatement units and one Claus sulfur recovery unit (SRU) with Shell Claus off-gas treatment (SCOT). General Chemical operates the entire facility. The sulfuric acid plants are owned by General Chemical while the SRU and the land upon which the SRU is situated are owned by Tesoro. A plot plan is included in Figure 2.

For the purposes of the air operating permit the plant has been split into two primary process areas: the sulfuric acid process and the sulfur recovery unit.

2.2.1 Sulfuric Acid Process

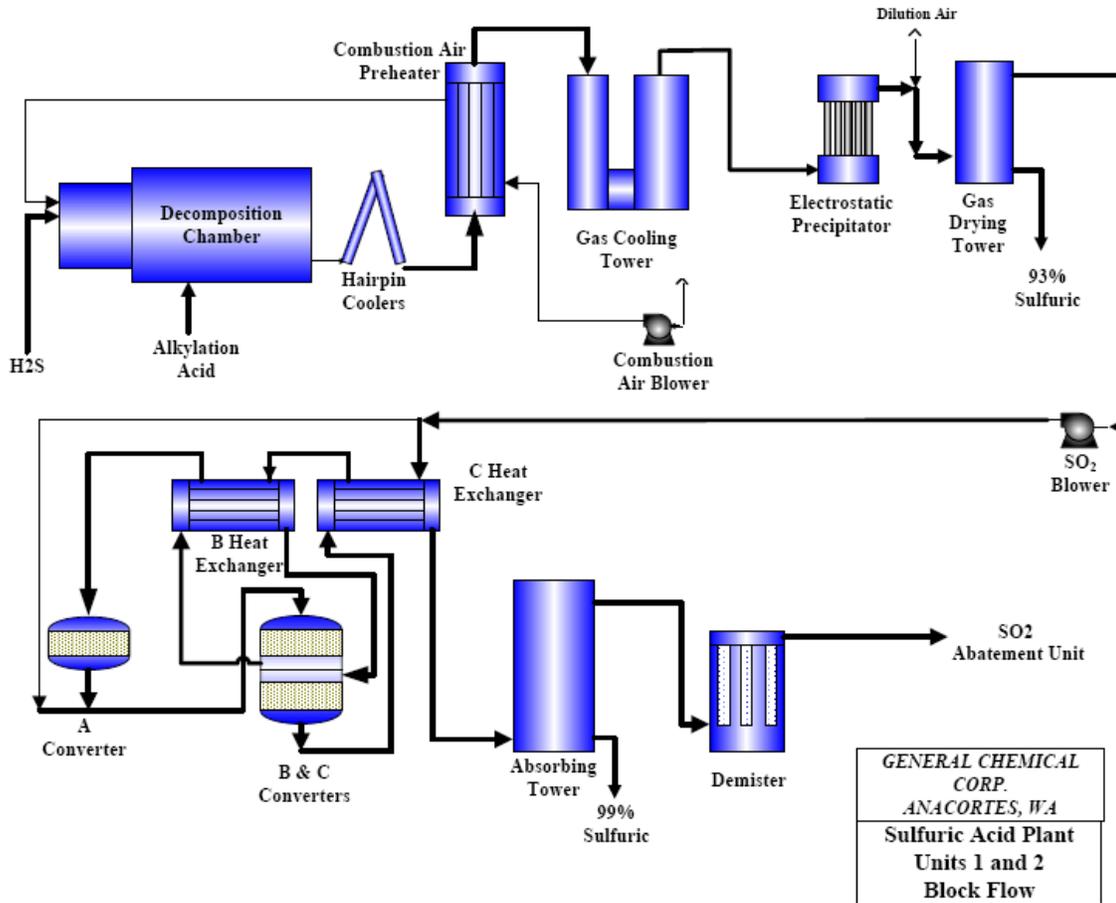


Figure 3 Sulfuric Acid Plant Units 1 and 2 flow diagram

The sulfuric acid plant is comprised of three production trains (designated as Units 1, 2, and 3) and the abatement processes (designated at 10 and 11). The sulfuric acid trains vent to the abatement process, which treats the exhaust gases prior to release to the atmosphere. Figures 3 and 4 illustrate the sulfuric

acid process. The sulfuric acid trains have a combined maximum production capacity of 566 tons per day (tpd) of acid (100% basis) on a 365-day rolling average.

Each of the three sulfuric acid trains consists of the following equipment: decomposition chamber, gas cooling tower, electrostatic precipitator, gas drying tower, SO₂ blower, catalytic converter, absorption tower, and mist eliminator. The #3 sulfuric acid train includes a 9.2 MMBtu/hr natural gas-fired startup heater.

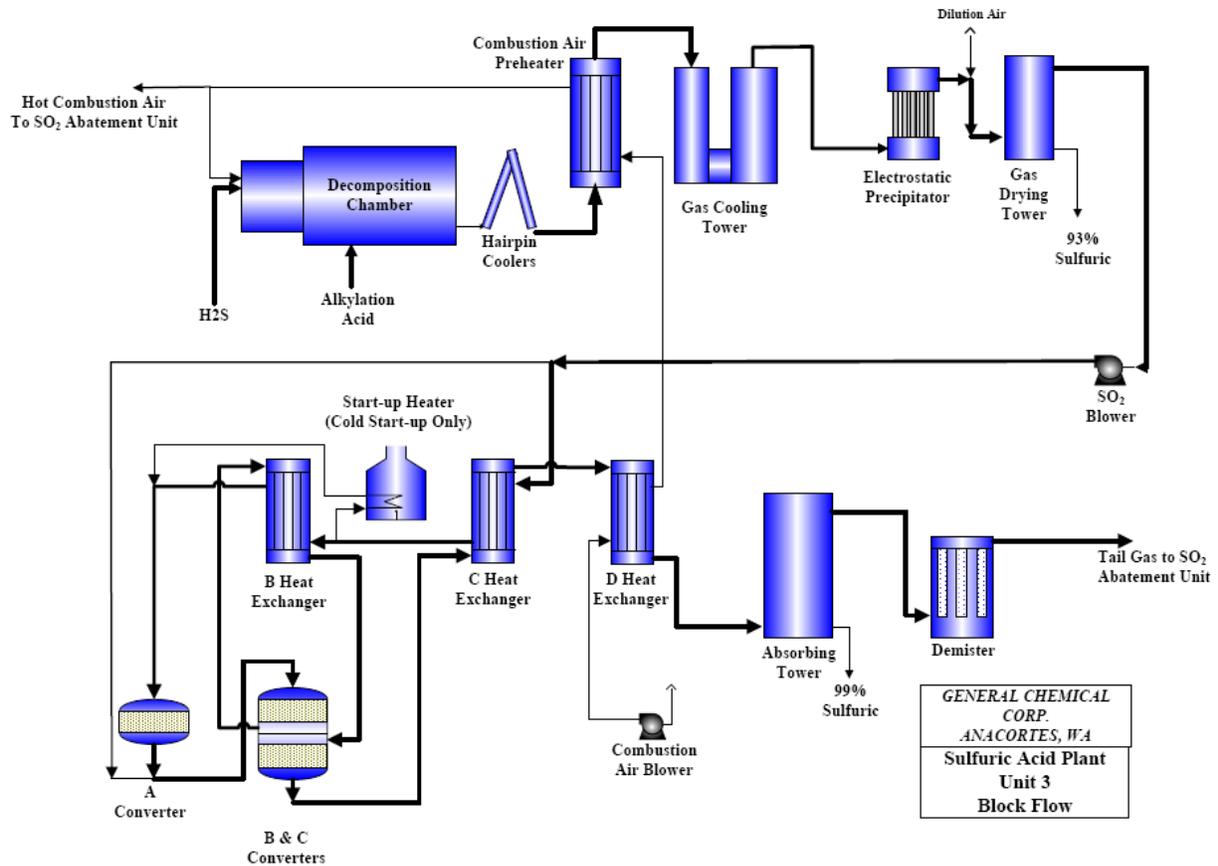


Figure 4 Sulfuric Acid Plant Unit 3 flow diagram

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.

Tail gas exiting the absorption tower 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, a two-stage catalytic converter, and an absorption tower. 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 abatement stack.

All tailgas generated in sulfuric acid trains 1, 2, and 3, is ducted to the abatement system, as shown in Figure 4. Each of the two units in the abatement system contains a 5.75 MMBtu/hr natural gas fired John Zink heater, converters and an absorbing tower. The exhaust from abatement units 10 and 11 is ducted to a common stack where it is discharged to atmosphere. A continuous emission monitoring system (CEMS) and a computerized data management system (DMS) are used to measure and record SO_2 emissions from the stack. CEMS performance is demonstrated by quarterly quality assurance testing and annual stack test comparison. Sulfuric acid mist emissions are also measured once per year by means of stack testing. Plant personnel perform regular visible emissions readings for determination of compliance with opacity standards. Emissions of sulfuric acid mist would be readily detected by the periodic visible emissions monitoring.

2.2.2 Sulfur Recovery Unit

The Sulfur Recovery Unit (SRU) uses the Claus process to recover and produce elemental sulfur exclusively from acid gas from the Tesoro refinery. SRU tailgas is treated in the Shell Claus Off-gas Treating (SCOT) process that converts residual hydrogen sulfide (H_2S) to elemental sulfur reducing SO_2 emissions from the process. The SRU operates 24 hours per day; 365 days per year except during shutdown for maintenance or breakdowns, and has the capacity to produce up to 50.6 tons of elemental sulfur per day. This process has the Standard Industrial Classification (SIC) number 2819. A process flow diagram is shown in Figure 5.

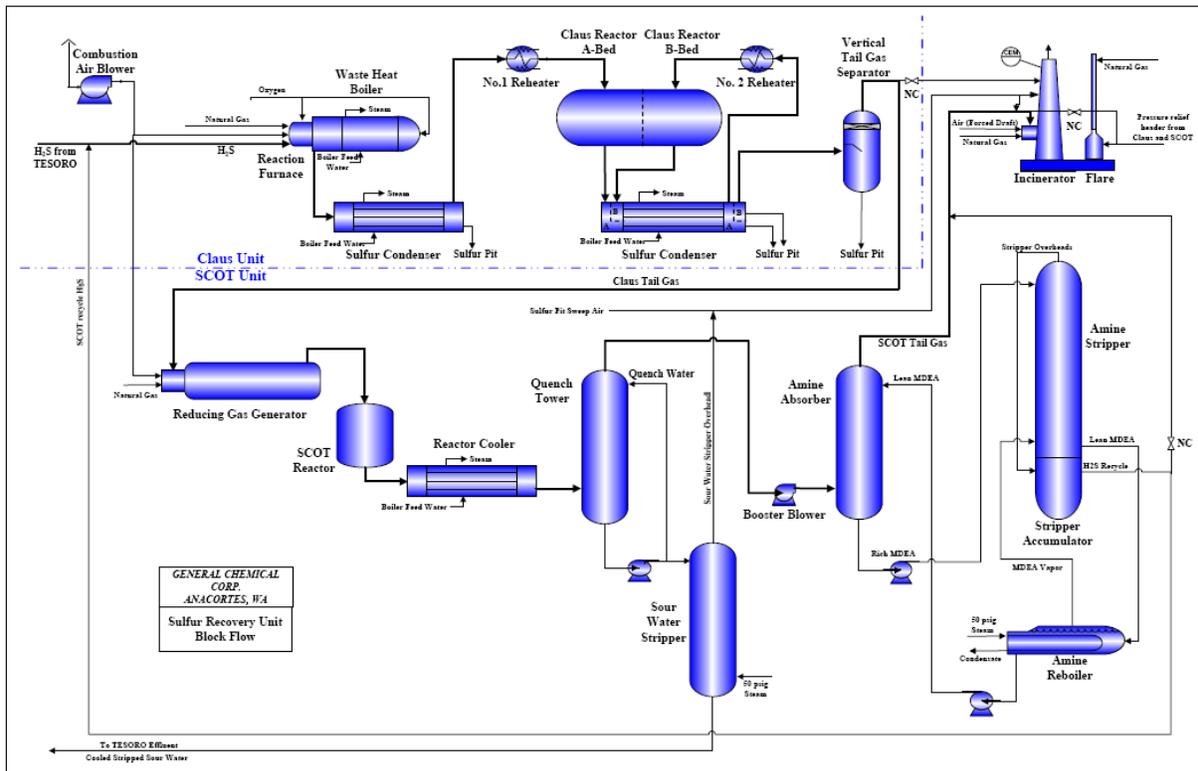


Figure 5: Sulfur Recovery Unit Process Diagram

Acid gas from the refinery contains H₂S and hydrocarbons. The incoming acid gas is combined with recycled gas from the SCOT process, air, and supplemental oxygen and fed into the Claus furnace. The Claus furnace converts the H₂S to SO₂ 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 H₂S. 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 the solvent methyl diethyl amine (MDEA) to recover the H₂S. Overhead gas from the absorber (which contains small amounts of residual H₂S) is routed to the incinerator, where it is combusted to SO₂ prior to discharge to the atmosphere. H₂S-rich amine solvent from the bottom of the amine absorber is stripped in the amine stripper, recovering the H₂S back to the front end of the Claus train.

Under normal operation, all tail gas generated in the Claus process is routed to the SCOT abatement system. Unrecovered H₂S is burned in an incinerator where the combustion by-product, SO₂, is discharged to the atmosphere. The SCOT abatement system has been determined to represent best available control technology (BACT) for the control of hydrogen sulfide compounds.

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 H₂S content of 75%. The SRU incinerator stack is designed for a maximum heat input of 4.5 MMBtu/hr from the burner(s). This rate of heat release ensures that any H₂S in the process gas exiting the SCOT unit is combusted to SO₂. The incinerator stack is 2'-6" in diameter and 100' in height. SO₂ concentration in the exhaust gas from the incinerator is monitored by a continuous emission monitor.

The sulfur recovery unit is also equipped with a flare system. The flare is used for startup of the unit and emergency situations requiring immediate venting of H₂S from the process. The only normal use of the flare at the facility is 15-30 minutes during startup only. In order to bring the SCOT unit up to temperature quickly and safely, a slipstream of tailgas is routed to the flare.

As indicated, the SRU flare is designed to only operate during startup and for short periods in emergency situations when the Claus Unit suffers an emergency shutdown. The flare stack is 1'-0" in diameter and is designed to combust the acid gas stream to SO₂. Design combustion conditions are an operating temperature of 1,400°F and a residence time in the combustion zone of at least 0.6 seconds.

There is a small (3.35 MMBtu/hr) natural gas fired auxiliary boiler (B-501) that supplies 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 management system (DMS) are used to measure and record SO₂ emissions from the incinerator stack. Operating parameters are also monitored and recorded to enable calculation of emissions data in units of the various standards. Sulfur recovery efficiency is determined once per year during the annual performance test. In addition, sulfuric acid mist and SO₂ emissions are measured once per year by means of manual stack testing. Plant personnel perform regular visible emissions readings for determination of compliance with relevant opacity standards. If any visible emissions are observed, corrective action must be taken.

2.3 Facility Emissions Inventory

General Chemical reports total emissions annually to the NWCAA for publication in the annual emission inventory report. Table 1 lists annual criteria emissions reported by the facility since 2000.

Table 1: Annual Emissions Inventory in Tons/Year

General Chemical, Anacortes Works							
Year	H ₂ SO ₄	SO ₂	NO _x	CO	VOC	PM ₁₀	CO ₂
2000	7.43	152	13	3	0	0	NR
2001	8.04	159	13	6	0	0	NR
2002	6.43	153	12	6	0	0	3,542
2003	6.70	187	13.3	6	0	0	8,101
2004	8.30	177	12.7	NR	NR	NR	7,457
2005	7.34	128	12	NR	NR	NR	7,471
2006	3.92	155	9	5	0	0	7,871
2007	5.56	181	11	5	0	0	39,192

Notes:

- NR = not reported
- Sulfuric acid mist emissions are based on annual source testing and total production. Sulfur dioxide emissions are based on CEMS data. Remaining pollutant calculations are based on published emission factors.

3. FACILITY REGULATORY HISTORY

Industrialization of March Point began in 1955 with the opening of the Shell (now Tesoro) refinery, followed by the Texaco (now Shell Puget Sound Refinery) refinery opening in 1958. The first sulfuric acid unit (acid plant 1) at the facility, then Allied Chemical Corporation (an indirectly wholly-owned subsidiary of Allied-Signal, Inc.), was built in 1957 in response to the availability of refinery wastes as raw materials. A second sulfuric acid unit (acid plant 2) was added in 1964. A third sulfuric acid unit (acid plant 3) was added in 1975. The sulfur recovery unit (owned by Tesoro Refining and Marketing) was constructed in 1986.

The NWCAA New Source Review (NSR) regulation was adopted in January, 1969. Therefore, all facility modifications after 1969 are included as permit actions. Federal Clean Air Act (FCAA) and Revised Code of Washington (RCW) / Washington Administrative Code (WAC) provisions also apply to the facility. Table 2 summarizes the projects considered under the NSR regulation.

Table 2: Summary of Emissions Unit Projects

General Chemical, Anacortes Works			
Unit	Initial Installation	Projects	
Sulfuric Plant 1	1957	1971 Abatement unit 11	
Sulfuric Plant 2	1964	1971 Abatement unit 12	
Sulfuric Plant 3	1975	1994 Catalyst change - PSD expansion	2004 Startup heater installed
Sulfur Recovery Unit	1986	1998 O ₂ enrichment	

3.1 Federal Regulations

3.1.1 Prevention of Significant Deterioration (PSD)

The entire jurisdiction of the NWCAA is and has always been designated as “in attainment” for all criteria pollutants. Therefore, federal PSD rules (40 CFR §52.21) are applicable to major new or modified sources of air pollution in the NWCAA jurisdiction. General Chemical became subject to review under 40 CFR §52.21 during modification of acid unit 3 in 1994. This project increased production at the acid unit 3 through enlarging and enhancing the catalytic converters and replacing a 250-horsepower fan with a 450-horsepower fan. Production capacity of the unit increased from 180 to 275 tons of sulfuric acid per day. Interim emission limits and testing requirements were set in PSD Approval 94-01.

3.1.2 New Source Performance Standards (NSPS)

Title 40 Code of Federal Regulations (40 CFR) Part 60 Subpart H - New Source Performance Standards for Sulfuric Acid Plants: Applies to affected facilities constructed or modified after August 17, 1971. The entire sulfuric acid plant (all three trains) is subject to this subpart as of startup of sulfuric acid unit 3 in 1975, which was a modification of the affected facility. Title 40 Part 60 Subpart H requires the facility to meet a sulfur dioxide standard of 4 pounds per ton of sulfuric acid produced (as 100% H₂SO₄). The Subpart also requires that the facility meet a sulfuric acid mist standard of 0.15 pounds per ton of sulfuric acid produced (as 100% H₂SO₄) and exhibit less than 10% opacity.

40 CFR Part 60 Subpart J - New Source Performance Standards for Petroleum Refineries: Applies to refining units including Claus sulfur recovery plants greater than 20 long tons of sulfur commencing construction or modification after October 4, 1976. The sulfur recovery unit is subject to this subpart because the unit was constructed in 1986. Title 40 CFR Part 60 Subpart J requires that the facility limit discharge of sulfur dioxide from the SRU to no more than 250 ppm by volume (dry basis) at zero percent excess air during a 12-hour period.

40 CFR Part 60 Subpart J was amended on April 30, 2007 and December 12, 2008. Most of the amended requirements were applicable to fuel combustion sources. Since the facility is subject to Subpart J for the sulfur recovery unit (and for no other units) the amendments do not impact the facility's AOP requirements.

40 CFR Part 60 Subpart Ja – Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007: The new Subpart Ja standards were proposed April 30, 2007, finalized on June 24, 2008, and stayed on September 26, 2008. The stay was extended and amendments were proposed on December 12, 2008. Since Subpart Ja applies to equipment constructed, modified, or reconstructed after May 14, 2007 (or, for flares, June 24, 2008), and the sulfur recovery unit has not been modified or reconstructed after the deadline, Subpart Ja (as proposed) does not apply to the facility.

3.1.3 National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries (NESHAP)

Title 40 CFR Part 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 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. Compliance was required by April 11, 2005.

40 CFR 63 Subpart UUU was updated by the EPA on February 9, 2005. Most of the changes were for emission units that are not present at General Chemical. One change that does affect the sulfur recovery unit is the way that the “affected source” is defined. Paragraph 63.1562(a) states that Subpart UUU applies to each new, reconstructed, or existing affected source at a petroleum refinery. Paragraph 63.1562(b)(3) used to say “Each sulfur recovery unit and the tail gas treatment unit serving it.” Now it says “The process vent or group of process vents on Claus or other types of sulfur recovery units or the tail gas treatment units serving sulfur recovery plants that are associated with sulfur recovery.” No changes to conditions in the General Chemical AOP are required due to this change.

Table 31 to Subpart UUU contains requirements for continuous monitoring systems for HAP emissions from sulfur recovery units. The original version only required a CEMS for the 300 ppmv TRS emission limit. The updated version calls for installation and operation of either a CEMS to demonstrate compliance with the 250 ppmv SO₂ limit or a CEMS to demonstrate compliance with the 300 ppmv H₂S limit. A citation to 40 CFR 63.1568 (b)(1) Table 31 item 1 was added to Term 5.25 in the AOP. Term 5.25 already requires continuous monitoring for emissions of SO₂, so no changes to existing requirements for monitoring, recordkeeping, or recording were required.

Table 33 to Subpart UUU details the requirements for demonstrating initial compliance with Subpart UUU. Item one of the table used to say: “You have demonstrated initial compliance if... you have conducted a performance test to demonstrate initial compliance with the NSPS and the hourly average SO₂ emissions measured by the continuous emissions monitoring system are less than or equal to 250 ppmv (dry basis) at zero percent excess air.” Now it says: “You have demonstrated initial compliance if... you have conducted a performance test to demonstrate initial compliance with the NSPS and each 12-hour rolling average concentration of SO₂ emissions measured by the continuous emissions monitoring system are less than or equal to 250 ppmv (dry basis) at zero percent excess air.” The AOP already requires the SO₂ standard to be met on a 12-rolling hour average, so no changes to the AOP were required.

EPA's update to Subpart UUU of 40 CFR 63 does not require any substantive changes in the air operating permit.

40 CFR Part 63 Subpart DDDDD, the NESHAP for boilers and process heaters, would apply to the existing small natural-gas fired combustion units at General Chemical if the regulation had not been vacated by the District of Columbia Circuit Court of Appeals. The facility is still subject to the requirements of the rule under NWCAA authority provided by federal legislation. The following background provides the bases for this determination.

Under the 1990 Clean Air Act (CAA) Amendments, the EPA was required to promulgate NESHAPs over a 10-year schedule for certain sources of air pollutants. The CAA required state and local permitting authorities to step in for the EPA if the deadline was missed. Under Section 112(j) of the Act, permitting authorities were required to revise the air operating permits of affected major sources to incorporate hazardous air pollutant limits equivalent to the limits that the EPA would have established if they had met the schedule. The NWCAA, as the local permitting authority for major sources in the agency's jurisdiction, has the authority and responsibility to process any Section 112(j) determinations in their jurisdiction.

EPA established a detailed process by which Section 112(j) determinations are to be handled. This process establishes guidelines for both the affected sources and state/local permitting agencies. The process begins with an affected facility filing an application for a case-by-case MACT determination if the applicable NESHAP had not be promulgated in a timely manner. Provisions were also made for how to proceed if a 112(j) determination was incorporated into the AOP, and EPA subsequently promulgated a delayed NESHAP. According to Section 112(j) guidance documents, if EPA issues a delayed NESHAP, the AOP must be revised, as necessary, to incorporate the NESHAP.

The EPA did not meet the promulgation schedule for the NESHAP for boilers and process heaters. On May 13, 2003, the EPA promulgated revisions to the 112(j) portion of the NESHAP rules (40 CFR Part 63 Subpart B) effectively providing more time (up to April 28, 2004) to complete the rulemaking actions which were going to trigger 112(j) actions. EPA completed the rulemaking for 40 CFR 63 Subpart DDDDD, to include director signature, by the deadline. Publication as a final regulation was completed later. EPA proposed a draft version to 40 CFR 63 Subpart DDDDD in a January 13, 2003 Federal Register posting (68 FR 1660), which was published before the April 28, 2004 deadline. Title 40 CFR 63 Subpart DDDDD was codified on September 13, 2004 (69 FR 55217), putting an end to the need for a 112(j) determination. However, on July 30, 2007 the District of Columbia Circuit Court of Appeals issued a decision to vacate and remand the regulation, leaving the NWCAA without an enforceable NESHAP for boilers and process heaters.

The NWCAA decided to make a case-by-case MACT 112(j) determination for boilers and process heaters in the absence of a NESHAP promulgated by the EPA. Since the EPA's original promulgation of Subpart DDDDD established limits "equivalent to the limitations that would apply if an emission standard had been issued in a timely manner", and based these limits on an analysis using the principles in 40 CFR 63.55, the NWCAA decided to rely on the EPA's analysis and conclusions.

One of the EPA's conclusions was that existing natural gas-fired boilers and process heaters with a heat input of less than 10 MMBtu had no requirements for hazardous air pollutants, including initial notification requirements. As such, the NWCAA has listed General Chemical's boilers and process heaters, all of which are less than 10 MMBtu heat input, as emission units in Section 1 of the permit. The NWCAA has not included any additional applicable requirements additional other than generally or specifically-applicable requirements to which the units are subject under other regulations.

3.1.4 Compliance Assurance Monitoring

40 CFR Part 64 (also referred to as the CAM rule) applies to units having (1) potential pre-control emissions (on a pollutant-by-pollutant basis) classifying the unit as major, (2) emission limitations or standards for regulated air pollutants (or surrogates), and using (3) an add-on control device to achieve compliance with those limits. The units meeting this applicability are the sulfuric acid plant and the SRU, both for SO₂. The abatement units are the SO₂ control device on the sulfuric acid plant, while the SCOT unit is the SRU SO₂ control device. Pre-control SO₂ emissions of these units exceed major source thresholds. However, 40 CFR 64.2(b)(1)(vi) exempts units from the CAM rule if the unit is required by an Air Operating Permit to utilize a continuous compliance determination method. General Chemical's sulfuric acid plants and SRU meet this exemption because the facility is required to operate SO₂ CEMS on both the sulfuric acid plant and the SRU stacks providing direct measurement of emissions in the units of the applicable standards.

3.2 Permit History

Projects resulting in increases of regulated air pollutants less than the significance levels of the PSD program must undergo minor new source review (minor NSR) in the State of Washington. The NWCAA evaluates both criteria and toxic air pollutants that will result from new and modified sources of air pollution. The 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. The NWCAA minor new source review program is State Implementation Plan (SIP)-approved, as is the minor NSR program for the Washington State Department of Ecology (WDOE). "Notices of Construction and Applications for Approval" have been reviewed under guidance of the NWCAA Regulation Section 300 and Washington Administrative Code (WAC) 173-400-110.

The following is a list of permits issued to the facility:

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 the 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.

NWCAA Order of Approval; Issued February 25, 1974

On July 2, 1973, Allied Chemical submitted NOC applications to the 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 sulfuric acid plant became subject to Subpart H of Title 40 Code of Federal Regulations Part 60 (40 CFR §60)-New Source Performance Standards (NSPS) for Sulfuric Acid Plants.

Ownership Name Change; April 27, 1981

On April 27, 1981, Allied Chemical Corporation changed its name to Allied Corporation.

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

On December 5, 1985, Allied Corporation submitted an NOC application to the 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 Part 60 Subpart J - New Source Performance Standards (NSPS) for Petroleum Refineries upon startup.

New Facility Ownership; May 21, 1986

On May 21, 1986, Allied Corporation transferred ownership of the facility to General Chemical Corporation of Parsippany, New Jersey.

NWCAA Authorization Letter; Issued June 2, 1988

On April 18, 1988, General Chemical submitted a request for a solvent change in the SCOT unit. Previously, the SCOT unit operated using methyldiethanolamine (MDEA) as the solvent. General Chemical requested that MDEA be replaced with a mixture of 50% MDEA / 50% Union Carbide Ucarsol HS-101. Further, General Chemical requested that this action not require an NOC as it would result in a reduction in emissions. The NWCAA agreed that an NOC was not necessary and issued a letter dated June 2, 1988, authorizing the solvent change.

NWCAA Conditional Temporary Authorization Letter; Issued July 23, 1992

On July 22, 1992, General Chemical submitted a request that the NWCAA authorize higher production rates at the three sulfuric acid units. On July 23, 1992, NWCAA sent General Chemical a letter allowing a conditional temporary authorization to increase production rate on the sulfuric acid units. The ability to

operate the units at a higher production rate without a permit modification was based on operational changes that did not constitute reconstruction as defined in 40 CFR §60.15. The authorization expired on October 21, 1992.

NWCAA Conditional Temporary Authorization Letter; Issued November 2, 1992

On November 2, 1992, the NWCAA sent General Chemical a letter allowing continued operation of the sulfuric acid units at a production rate slightly greater than that approved in the July 23rd letter. This approval was temporary and based on a condition that General Chemical submits a NOC application to permit modifications at the facility. These modifications, principally the use of enhanced catalyst in the converters, allowed the increased acid production. The letter stipulated that the NOC application be submitted no later than February 1, 1993.

NWCAA OAC 421, Issued May 11, 1993

On February 11, 1993, General Chemical submitted an NOC application to the 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 the #3 sulfuric acid unit and enhanced catalysts in the converters. This OAC was superseded by OAC 458c.

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

In late 1993, General Chemical proposed to increase production at sulfuric acid unit #3 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 rules. WDOE Prevention of Significant Deterioration (PSD) Approval 91-04 was issued on August 24, 1994.

NWCAA OAC 458; Issued August 29, 1994

On October 18, 1993, General Chemical submitted an NOC application to the NWCAA requesting approval for the same plant expansion project covered by PSD permit 94-01. OAC 458 was issued on August 29, 1994 and essentially mirrors the requirements of the PSD permit.

WDOE PSD Approval 94-01 Amendment 1; Issued January 14, 1998

This approval removed the one-time requirements for emissions testing and made the interim emissions limits permanent. In addition, the method specified for determining compliance with the opacity (visible emissions) standard was changed from WDOE Method 9B to 40 CFR Part 60 Appendix A Method 9 (EPA Method 9).

NWCAA OAC 458 Revision A; Issued April 23, 1998

This revision included many of the changes incorporated by Amendment 1 of the PSD permit. Several other changes brought the OAC into better agreement with the PSD permit. The opacity compliance demonstration method was not changed to match the PSD permit.

NWCAA OAC 650; Issued April 23, 1998

On February 12, 1998, General Chemical submitted an NOC application to the 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 H₂S per day to 55 short tons per day. On February 23, 1998, WDOE concurred with a NWCAA interpretation that the project was not subject to review under the PSD regulations.

NWCAA OAC 650 Revision (a); Issued July 13, 2000

The acid mist mass emission limit was revised upward to account for increased emissions at the higher permitted production rate. Condition 9 was restated to require a single series of annual performance tests at a minimum production rate of 50% of the current limit of 50 tons per day (25 tons per day) using either air or oxygen as a combustion gas.

NWCAA OAC 458 Revision (b); Issued June 25, 2001

This revision updated the compliance demonstration method for the opacity requirement to agree with the PSD permit by requiring EPA Method 9.

NWCAA OAC 650 Revision (b); Issued June 25, 2001

This revision updated the compliance demonstration method for the opacity requirement to be consistent with other permits at the site (requiring EPA Method 9).

NWCAA OAC 458 Revision (c); Issued December 13, 2001

This revision clarified the fact that OAC 458 supersedes all requirements found in OAC 421 and removed duplicate requirements.

NWCAA OAC 650 Revision (c); Issued December 13, 2001

This revision removed the reference to NSPS Subpart GGG found in version (b) of the OAC. NSPS Subpart GGG is not applicable at the facility.

NWCAA OAC 880; Issued July 22, 2004

The facility filed a 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. Anticipated actual emissions should be much lower, because the heater is expected to run less than 36 hours per year. Visual emissions from the heater cannot be greater than 10%, and the heater shall be operated according to good combustion practices. The change in potential emissions is minimal; the change in anticipated actual emissions is even smaller.

Table 3: Starter heater emissions based on 1,000 hour per year operation, tons/yr

Capacity	NO _x	CO	VOC	PM	SO _x
7.7 MMBtu/hr	0.4	0.3	0.02	0.03	0.002
9.2 MMBtu/hr	0.5	0.4	0.02	0.04	0.002

NWCAA Conditional Approval Letter; March 7, 2005

General Chemical submitted a determination request on February 28, 2005 regarding a molten sulfur feed line to the acid plant 3 decomposition chamber. The feed line is needed in order to provide alternative raw materials to the unit, replacing diminishing acid gas supplies from the refineries. Although acid plant 3 was originally designed to accept solid sulfur as feed, the equipment was dismantled many years ago. This feed change constitutes a change in the method of operation of the unit under both federal and state regulations. However, if there is no emissions increase (as stipulated by General Chemical in the February 28, 2005 letter) and the rated capacity of the unit is not increased, this project does not constitute a modification under the definitions of either 40 CFR §51.21 or §60.2. The provisions of WAC 173-400-720(4)(b)(iii)(C) list the documentation required to be maintained by General Chemical demonstrating that emissions did not increase as a result of this project.

NWCAA OAC 880a; Issued February 2, 2009

On January 16, 2009 General Chemical submitted a request for a modification of OAC 880 for the #3 Sulfuric Acid Unit's 9.2 (previously permitted as a 7.7) MMBtu/hr natural gas fired heater to allow a one-time exemption of the 1,000 hour per any 12-month period operating limit. The 1,000 hour rolling 12-month total limitation is the default. For the year of 2009, the facility is allowed a total of 5,000 hours. January 2010 is the first month of the next 12-month period during which the operating hours cannot exceed 1,000 hours. The heater is used for acid plant startup and for additional heat to decompose spent acid when the quantity of H₂S feed drops below the minimum amount required for optimum conversion temperatures. OAC 880a superseded the original OAC 880.

3.3 Compliance History

NWCAA conducts unannounced inspections at the facility at least annually and responds to citizen complaints when General Chemical is named as a potential source of undesirable air emissions. Complaint response may involve a site visit as well as general surveillance around the plant. NWCAA

personnel periodically observe scheduled source emission tests, continuous emission monitoring system (CEMS) certification tests, and relative accuracy test audits (RATAs).

General Chemical is required to notify NWCAA of events such as a breakdown or start-up/shutdown that have a potential to result in excess emissions to the atmosphere. General Chemical submits monthly summary reports of emissions as required by the NWCAA regulation or specific reporting requirements from OACs or other permits. Reports must identify all excess emissions and a discussion as to their cause and corrective actions taken. Reports also contain CEMS information. Title 40 CFR Part 60 Appendix F and NWCAA regulation §367 and Appendix A (formerly the “Guidelines for Industrial Monitoring”) require specific quality assurance methods including daily calibration checks, quarterly cylinder gas audits, and annual relative accuracy test audits (RATAs) that assure precise and accurate CEM information is collected.

All excess emissions events are reviewed to determine if they were avoidable. The criteria used to determine avoidability is found in NWCAA Regulation 340.4. Events that result in an excess emission found to be avoidable are generally addressed by an enforcement action. Such actions include the issuance of a notice of violation, reporting on the EPA AIRS database, and/or listing the violation with EPA Region 10 as a high priority violation. The issue is tracked until the facility returns to compliance and appropriate penalties have been collected. Excess emission events found to be unavoidable do not generate enforcement actions.

Notices of Violation (NOVs) issued to General Chemical are detailed below according to NOV number and date of issuance. All NOVs are issued by NWCAA.

NOV 1694; Issued February 9, 1990

NOV 1694 was issued in response to General Chemical emitting SO₂ in excess of the concentration allowed under 40 CFR Part 60 NSPS Subpart J (250 ppmdv). The excess emissions resulted from operator error. General Chemical was fined \$100 and agreed to relocate the device causing the excess emissions that had been mistakenly activated.

NOV 2166; Issued August 5, 1992

NOV 2166 was issued in response to General Chemical emitting SO₃ directly to the atmosphere in sufficient quantity to create a nuisance in the area. The event was found to be in violation of NWCAA rule 530. General Chemical was originally fined \$6,000. However, the fine was reduced to \$2,000 upon General Chemical’s agreement to sign a “Consent Order and Assurance of Discontinuance” stipulating that General Chemical would complete the following actions: 1) establish a written preventive maintenance schedule to inspect gas drying tower back-up valve, 2) provide training to enable operators to respond expeditiously to the situation should it recur, 3) revise written unit operating procedures, 4) provide low-level indicator and alarm on absorbing tower, 5) provide written documentation before December 31, 1992 confirming that the listed requirements had been met.

NOV 2668; Issued August 23, 1996

NOV 2668 was issued in response to General Chemical causing the ground-level atmospheric SO₂ concentration to exceed the 0.800 ppm 5-minute ambient sulfur dioxide standard (as measured by station 32) for the second time in a twelve-month period (average >1.000 ppm for period ending 1240 PST, winds 11 mph, from 324 degrees). The event was found to be in violation of NWCAA rule 410.11. General Chemical was fined \$500, which was paid in full.

NOV 2669; Issued August 23, 1996

NOV 2669 was issued in response to General Chemical causing the ground-level atmospheric SO₂ concentration to exceed the 0.800 ppm 5-minute ambient sulfur dioxide standard (as measured by station 32) for the third time in a twelve-month period. (average 0.980 ppm for period ending 1245 PST, winds 11mph, from 316 degrees). This event was found to be in violation of NWCAA rule 410.11. General Chemical was fined \$1,250, which was paid in full.

NOV 2670; Issued August 23, 1996

NOV 2670 was issued in response to General Chemical causing the ground-level atmospheric SO₂ concentration to exceed the 0.800 ppm 5-minute ambient sulfur dioxide standard (as measured by station 32) for the fourth time in a twelve-month period. (average > 1.00 ppm for period ending 1250 PST, winds

13 mph, from 313 degrees). This event was found to be in violation of NWCAA rule 410.11. General Chemical was fined \$2,500, which was paid in full.

NOV 2671; Issued August 23, 1996

NOV 2671 was issued in response to General Chemical causing the ground-level atmospheric SO₂ concentration to exceed the 0.800 ppm 5-minute ambient sulfur dioxide standard (as measured by station 32) for the fifth time in a twelve-month period. (average 0.822 ppm for period ending 1340 PST, winds 11 mph from 309 degrees). This event was found to be in violation of NWCAA rule 410.11. General Chemical was fined \$2,500, which was paid in full.

NOV 3051; Issued June 14, 2000

NOV 3051 was issued in response to General Chemical exceeding the permitted emission rate of 0.049 lb H₂SO₄ per ton of sulfur produced on an hourly average from the Sulfur Recovery Unit on April 6, 2000 as determined by EPA Method 8 performance tests. The emission rate during three one-hour test runs averaged 0.204 lb H₂SO₄ per ton of sulfur produced. This discharge was found to be in violation of NWCAA rule 301.7. General Chemical was fined in the amount of \$100, which was later reduced to \$0. The fee was reduced, because the Order of Approval was determined to be in error. The permit was re-issued with appropriate emissions limits on July 13, 2000.

NOV 3404; Issued April 13, 2004

NOV 3404 was issued in response to a startup of acid plant 3 on April 7-8, 2004 causing: 1) AOP conditions 3.33 and 3.34 to be exceeded from 1900 to 2000 on 4/7, 2) AOP condition 4.6 to be exceeded from 1700 on 4/7 to 0100 on 4/8 with the highest 3-hour average being 8.46 lbs SO₂/ton acid produced from 1900 to 2200 on 4/7, 3) AOP condition 4.8 to be exceeded from 1700 on 4/7 to 0200 on 4/8 with the highest 3-hour average being 793 ppm SO₂ and 155 lbs/hr from 1900 to 2200 on 4/7. These excess emissions did not meet the criteria of unavoidable emissions under NWCAA regulation 341.4. Facility representatives presented information to NWCAA in December 2002 regarding installation of a preheater that would alleviate emissions from acid plant 3 during startup. However, a permit application had not been submitted to the agency as of April 2004. General Chemical was fined \$1,200 and required to install the startup preheater, which they did.

NOV 3516; Issued December 6, 2005

NOV 3516 was a warning issued in response to the shutdown of the continuous emission monitoring system on the SRU during an upset event. The CEMS must operate continuously as required under 40 CFR §63.1572(a)(3).

NOV 3517; Issued December 6, 2005

NOV 3517 was issued in response to excess SO₂ emissions and the shutdown of the continuous emission monitoring system on the SRU during an upset event. Routine maintenance work on the SCOT burner and electrical panels in the sulfur recovery unit resulted in Claus off-gas being bypassed to the incinerator from 15:02 to 16:25 on 10/6/2005 and an extended period of elevated emissions until 07:58 on 10/7/2005. The CEMS was turned off for a period of 1.4 hours of excess emissions on 10/6/2005. The 12-hour rolling average was exceeded for a total of 18 hours (19:00 on 10/6/2005 - 13:00 on 10/7/2005). SO₂ emissions exceeded the 9.2 lb/hr limit for 2 1-hour periods (15:00-17:00 on 10/6). The total excess emissions for the entire event were approximately 380 lb of SO₂. NWCAA Regulation Appendix A § III.(f)(12)(a) states that missing data from CEMS that are turned off during periods of excess emissions shall be reported as exceedances of all applicable emission standards. On January 11, 2006 General Chemical was assessed a civil penalty in the amount of \$5,000, which was paid in full.

NOV 3553, issued September 27, 2006

On September 7, 2006 General Chemical failed to conduct opacity monitoring of the auxiliary boiler in the sulfur recovery unit as required by the air operating permit. General Chemical failed to report the deviations from the required monitoring and inappropriately certified that the monitoring was conducted in annual compliance certifications submitted to the NWCAA according to AOP term 2.4.4 for the period March 2002 through March 2006. On December 15, 2006 General Chemical was assessed a civil penalty in the amount of \$20,000, which was paid in full.

NOV 3554, issued September 27, 2006

Since January 1, 2006 General Chemical failed to report nine occurrences of sulfur recovery unit

continuous emissions monitor system (CEMS) failures in periodic compliance reports. General Chemical also failed to maintain and report emissions data in accordance with applicable 40 CFR Part 63 regulations. On May 3, 2007 General Chemical was assessed a civil penalty in the amount of \$44,000, which was paid in full.

NOV 3556, issued September 27, 2006

General Chemical failed to revise the startup, shutdown, malfunction plan (SSMP) in a timely manner after being notified by the NWCAA that the plan was inadequate. The SSMP was revised 222 days after written notice from the NWCAA that the existing document was inadequate. General Chemical failed to notify the agency of the SSMP revision and continued to operate with an inadequate startup, shutdown, and malfunction plan. The facility failed to maintain adequate records of startup, shutdown, and malfunction events. The facility also failed to report three bypass line car seal breaks that occurred during startup, shutdown, and malfunction events in semi-annual compliance reports submitted to the NWCAA. On May 3, 2007 General Chemical was assessed a civil penalty in the amount of \$38,500, which was paid in full.

NOV 3604, issued June 4, 2007

A control design problem and possible operator error led to an increase in Sulfuric Acid Plant #3 catalyst temperatures and excess emissions of 161 pounds of SO₂. AOP condition 4.6 was exceeded on 2/2/07 from 1700 to 2000 hours. AOP condition 4.8 was exceeded from 1700 hours on 2/2/07 to 2000 hours. The exceedence event did not meet the criteria of unavoidable emissions under NWCAA Regulation 340.4. On July 11, 2007 General Chemical was assessed a civil penalty in the amount of \$2,000, which was paid in full.

NOV 3619, issued August 16, 2007

Sulfur Recovery Unit incinerator emissions of sulfur dioxide increased above emission limits (250 ppm_{dv} @ 0% O₂, 12-hour rolling period) from 2300 on 3/8/07 to 1000 on 3/9/07, due to operator error. AOP conditions 3.33 and 3.34 (1000 ppm for a sixty consecutive minute period) were exceeded from 2300 on 03/8/07 to 0100 on 3/9/07. A total of 210 pounds of SO₂ were emitted above allowable limits. On October 17, 2007 General Chemical was assessed a civil penalty in the amount of \$3,500, which was paid in full.

NOV 3620, issued August 16, 2007

Sulfur Recovery Unit incinerator emissions of sulfur dioxide increased above emission limits due to operator error. AOP conditions 3.33 and 3.34 (1000 ppm for a sixty consecutive minute period) were exceeded from 2100 to 2200 on 04/3/07. A total of 356 pounds of SO₂ were emitted above allowable limits. This incident is similar to an emissions exceedence on 3/8/07 for which NOV #3619 was issued. On October 25, 2007 General Chemical was assessed a civil penalty in the amount of \$5,000, which was paid in full.

NOV 3718, issued August 26, 2008

Sulfuric Acid Plant stack emissions of sulfuric acid were shown to have exceeded emission limits. Results of a stack test performed on June 4, 2008 averaged 0.161 lb/ ton of sulfuric acid produced versus limits of 0.15 lb/ton and 0.105 lb/ton sulfuric acid produced. A retest performed on June 11, 2008 showed compliance with the sulfuric acid mist emission limits. On September 26, 2008 General Chemical was assessed a civil penalty in the amount of \$15,000 with \$11,000 suspended if the facility complied with the terms of a Consent Order and Assurance of Discontinuance (AOD). The main requirement of the AOD was that additional stack tests shall be performed so that a test is done every six months on the sulfuric acid plant stack for a period of five years. General Chemical has not signed the AOD as of the date of this draft.

4. GENERAL ASSUMPTIONS OF THE PERMIT

4.1 One-Time Only Requirements

Applicable requirements, which were satisfied by a single past action on the part of the source are not included in the permit, but are discussed in this section. For example, completed initial performance testing to demonstrate compliance with applicable emission limitations as a requirement of initial startup are discussed here but not listed in the AOP.

4.1.1 Sulfuric Acid Plant

New Source Performance Standards general provisions and sulfuric acid plant requirements [40 CFR §60.7(a) and 40 CFR Part 60 Subpart H] and NWCAA OAC dated February 25, 1974: General Chemical notified the NWCAA of the commencement of construction by letter dated September 4, 1973. General Chemical submitted the notification of initial startup 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 the NWCAA and EPA Region 10 in a test report dated June 2, 1976. General Chemical 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.

General Chemical again became subject to one-time requirements under 40 CFR Part 60 Subpart H, required by NWCAA OAC 458, regarding modifications to the sulfuric acid plant. General Chemical notified the 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.

General Chemical notified the NWCAA of the initial performance test as required by 40 CFR 60 Subpart A. The letter is dated February 22nd, 1996.

- General Chemical was subject to a number of one-time requirements as a result of NWCAA OAC 458 (August 29, 1994 and subsequently modified – most recent version is OAC 458c; December 13, 2001) and PSD Permit #94-01:
- OAC 458c Condition 3 - General Chemical determined the modification date (under 40 CFR Parts 60 and 52) in accordance with OAC 458. The modification date, March 25, 1998, was submitted in writing to the NWCAA in a letter dated February 22, 1996.
- OAC 458c Conditions 4b, 4c, 4d, 5b, 5c, and 5d - General Chemical completed a 12-month test program and completed the program, as required in 4b and 5b, within 14 months of the modification date. The final results were submitted to the NWCAA in a letter dated May 27, 1997. The completion of this testing over-ride the default limits listed in conditions 4c and 5c. The NWCAA subsequently revised the OAC to reflect the site specific determined emission limits according to condition 4d and 5d on April 23, 1998.
- OAC 458c Condition 9a – initial performance testing was conducted as stated above for both conditions 4a and 5a.
- NWCAA OAC 458c Condition 12 (12/13/2001) and PSD 94-01 Amendment 1 Condition 3 (1/14/98) - Sampling ports and platforms must be provided on the common stack. The ports must meet the requirements of 40 CFR 60 Appendix A Method 1. Permanent and safe access to the ports must be provided. 40 CFR §60.8(e) requires these allowances. Sampling ports and platforms meeting the requirements of 40 CFR 60 Appendix A were provided on the sulfuric acid plant stack.
- PSD Permit #94-01 Amendment 1 Condition 7 states that “Any activity that is undertaken by General Chemical that is inconsistent with the PSD application shall be subject to enforcement.” The 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.

4.1.2 Sulfur Recovery Unit

The sulfur recovery unit at General Chemical became subject to the New Source Performance Standard for Petroleum Refineries (40 CFR Part 60 Subpart J) because it was constructed in 1986, after promulgation of the regulation. NWCAA OAC 307, dated February 20, 1986 approved the initial construction. Records were not located at the NWCAA demonstrating that General Chemical met the one-time initial notification requirements of the rule (40 CFR §60.7). There is evidence that General Chemical 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, the NWCAA stated that General Chemical had made “a determined effort” to comply with this requirement, and allowed additional time for this to occur. The NWCAA does not assert that any outstanding requirements to provide the initial notifications remain for this rule at this time.

NWCAA OAC 307 Condition 1 (2/20/1986) states that all equipment will be constructed and installed in accordance with the specifications submitted with the application. All equipment in the SRU was constructed in 1986. The NWCAA considers this to be an obsolete requirement and has not included it in the AOP permit.

General Chemical again became subject to a limited number of one-time requirements under the New Source Performance Standard for Petroleum Refineries (40 CFR Part 60 Subpart J) as a result of modifications to the SRU (permitted by NWCAA OAC 650 dated April 23, 1998): General Chemical notified the NWCAA of the proposed modification as required by 40 CFR §60.7(a) (February 12, 1998 letter). General Chemical submitted the notification of commencement of construction as required by 40 CFR §60.7(a) (September 9, 1998 letter). General Chemical submitted the notification of initial startup as required by 40 CFR §60.7(a) (October 28, 1998 letter) and NWCAA OAC 650c Condition 12. General Chemical notified the NWCAA of the initial performance test as required by 40 CFR Part 60 Subpart A (March 25, 1999 letter).

40 CFR Part 63 Subpart UUU (Refinery MACT II) became applicable to the SRU on April 11, 2005. The regulation required a series of one-time reports to be submitted to the agency: 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. General Chemical submitted two documents labeled “initial notification.”

4.2 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 if they are adopted into the state implementation plan (SIP). Federally enforceable requirements are enforceable by the EPA and citizens of the United States. All applicable requirements in the permit including standard terms and conditions, generally applicable requirements, and specifically applicable requirements are federally enforceable unless they are specifically identified as enforceable by only the state. Where similar versions of the same rule are referenced, generally one version is federally enforceable while the other is only enforceable at the state level. Both versions will be listed in the AOP. Upon issuance of this permit, the permit terms based on Chapter 173-401 WAC become federally enforceable.

4.3 Future Requirements

Applicable requirements promulgated with future effective compliance dates may be included as applicable requirements in the permit. 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 permit.

There are presently no pending applications to construct or modify General Chemical in such a way as to trigger New Source Review. General Chemical has certified in the permit application that the facility will meet any future applicable requirements on a timely basis.

4.4 Compliance Options

General Chemical 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.

4.5 Gap Filling

There are some air pollution rules and regulations and "Order of Approval to Construct" conditions that do not specifically call out a monitoring, reporting, or recordkeeping method(s) that would demonstrate compliance with the applicable requirement. In this case the permitting agency develops a site-specific requirement that the source must follow. The inclusion of these customized requirements is called "gap filling". For example, OAC 650 for the SRU does not specifically require annual testing for compliance with the requirement that H₂SO₄ emissions not exceed 0.45 pounds per ton of sulfur produced. This "gap" is filled in the Air Operating Permit, which requires an annual source test to demonstrate compliance.

4.6 Permit Elements and Basis for Terms and Conditions

The permit is organized in the following sequence:

- Air Operating Permit General Information
- Attest
- Table of Contents
- Emission Unit Identification
- Standard Terms and Conditions for New Source Performance Standard and National Emission Standards for Hazardous Air Pollutant Requirements
- Generally Applicable Requirements
- Specifically Applicable Requirements
- Inapplicable Requirements

The Permit Information section identifies the source, the responsible corporate official, and the agency personnel responsible for permit preparation, review, and issuance. The Attest section provides authorization by NWCAA for the source to operate under the terms and conditions contained in the permit. The Emission Unit Identification section lists the significant emissions units and associated control equipment.

Standard terms and conditions are administrative and/or other requirements that have no ongoing compliance monitoring requirements. All listed terms and conditions are federally enforceable unless identified as a "state only" requirement. Unless the text of the term is specifically identified to be directly enforceable, the language of the cited regulation takes precedence. Where possible, similar requirements by both the state and NWCAA have been grouped together. There are several requirements included that are not applicable until triggered. An example of these is the requirement to file a "Notice of Construction and Application for Approval".

Applicable regulations and OACs issued to the facility are listed within the Standard Terms and Conditions, Generally Applicable Requirements, and Specifically Applicable Requirements sections. Most rules and requirements are followed by a date in parentheses. For Washington Administrative Code (WAC) regulations, this date represents the date filed with the State Code Reviser (the State Effective Date). For NWCAA regulations, it represents the Board of Directors adoption date. In the case of an OAC, it represents the latest revision date of the order. For Federal rules, this date is the rule's promulgation date. If a part of a federal rule has been amended, that part may have a different promulgation date than the rest of the rule.

The Generally Applicable Requirements section identifies requirements that apply broadly to the facility. These requirements are generally not called out in "Orders of Approval to Construct", which are created for specific emissions units. They are found as general air pollution rules in NWCAA Regulation or the Washington Administrative Codes. The cited requirements are applicable plant-wide at the source, including insignificant emission units. The requirements are federally enforceable unless identified as "State Only." A brief description of the applicable requirements is included for informational purposes only and is not enforceable. Cited test method results or any credible evidence may be used by the agency to determine compliance. Identified monitoring, recordkeeping and reporting obligations the source must perform are listed as required by WAC 173-401-605(1) and 615(1) and (2). Insignificant emission units are exempt from all monitoring, recordkeeping and reporting. The monitoring and test methods stated in the specifically applicable requirements section of this permit takes precedence for the units and regulations addressed there.

The Specifically Applicable Requirements section identifies requirements that apply only to a specific set of emission units or processes. These requirements are generally listed in "Order of Approval to Construct", but may also originate directly from a regulatory citation.

The cited requirements are federally enforceable unless identified as "State Only". As with the generally applicable requirements section, a brief description of the applicable requirements for informational purposes only and is not enforceable. Cited test method results or any credible evidence may be used by the agency to determine compliance. Monitoring, recordkeeping, and reporting obligations the source must perform as required by WAC 173-401-605(1) and 615(1) and (2) are listed and are enforceable. Failure to comply with a monitoring requirement does not in itself constitute a violation of the underlying regulation for which it is a specified monitoring method.

4.7 Inapplicable Requirements

WAC 173-401-640 requires that the permitting authority issue a determination regarding the applicability of requirements with which the source must comply. Section 6 of the Air Operating Permit lists requirements that are deemed inapplicable to the facility. The basis for each determination of inapplicability is included.

5. INSIGNIFICANT EMISSIONS UNITS

Emission units that have been determined to be categorically exempt as allowed in WAC 173-401-532 and those found to be insignificant on the basis of size or production rate as defined in WAC 173-401-530 and WAC 173-401-533 are present at General Chemical. These emission units have very low, if any, emissions associated with their use and are therefore considered insignificant by regulation. These units are listed in Table 2I

Table 4: Insignificant Emissions Units

Exempt Unit	WAC Citation	Comment
Mobile Transport Tanks on Vehicles	WAC 173-401-532(2)	Categorically Exempt
Lubricating Oil Storage Drums	WAC 173-401-532(3)	Categorically Exempt
<ul style="list-style-type: none"> • Caustic Storage Tank (9,400 gal) • Spent Alkylation Feed Line (Pumping and Handling) • Waste Process Gas Feed Line Containing H₂S (Pumping and Handling) • Product Loading and Unloading (Pumping and Handling) • 99% Sulfuric Acid Product Tank (160,000 gal) • 99% Sulfuric Acid Product Tank (71,400 gal) • Spent Alkylation Storage Tanks (3 @ 160,000 gal) • Fuel Oil Storage Tank (20,000 gal) • Ammonia Gas Cylinders • Chlorine Gas Cylinders • Calibration Gas Cylinders • Oil in Transformers • Reclaim Water Storage Tanks (2@ 5,000 gal) 	WAC 173-401-532(4)	<p>Categorically exempt given that no objectionable odor is present - Should objectionable odor be detected, the equipment generating such odor may no longer be considered by the NWCAA as categorically exempt.</p> <p>General Chemical is bound to take any necessary measures to ensure that the storage tanks do not generate objectionable odor.</p>
Pressurized Nitrogen Tanks	WAC 173-401-532(5)	Categorically Exempt
CEM Vents	WAC 173-401-532(8)	Categorically Exempt
Plant Upkeep Activities	WAC 173-401-532(33)	Categorically Exempt
Cleaning of Paved Surfaces	WAC 173-401-532(35)	Categorically Exempt
MDEA Tote Bin	WAC 173-401-532(42)	Categorically Exempt
Lawn and Landscaping Activities	WAC 173-401-532(43)	Categorically Exempt
General Vehicle Maintenance	WAC 173-401-532(45)	Categorically Exempt
Comfort Air Conditioning	WAC 173-401-532(46)	Categorically Exempt
Natural Draft Hoods, Stacks, and Ventilators	WAC 173-401-532(47)	Categorically Exempt as Described in Referenced Standard.
Natural and Forced Air Vents	WAC 173-401-532(48)	Categorically Exempt as Described in Referenced Standard.
Office Activities	WAC 173-401-532(49)	Categorically Exempt
Personal Care Activities	WAC 173-401-532(50)	Categorically Exempt
Sampling Ports	WAC 173-401-532(51)	Categorically Exempt
Fuel and Emissions from Vehicles in Parking Lot	WAC 173-401-532(54)	Categorically Exempt
Solid-Phase Catalyst Handling	WAC 173-401-532(60)	Categorically Exempt

Exempt Unit	WAC Citation	Comment
Sample Gathering, Preparation, and Management	WAC 173-401-532(73)	Categorically Exempt
Repair and maintenance not involving installation of an emission unit and not increasing potential emissions of a regulated air pollutant.	WAC 173-401-532(74)	Categorically Exempt
Steam Vents and Safety Relief Valves	WAC 173-401-532(87)	Categorically Exempt
Air Compressors, Pneumatically Operated Equipment and Systems, and Hand Tools	WAC 173-401-532(88)	Categorically Exempt
Steam Leaks	WAC 173-401-532(89)	Categorically Exempt
Hydrogen Peroxide Tote Bin	WAC 173-401-532(100)	Categorically Exempt
<ul style="list-style-type: none"> • Gasoline Storage Tanks (2@ 240 gal) • Diesel Storage Tank (250 gal) • Waste Oil Storage Tank (300 gal) • MDEA Storage Tank (2,800 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.
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)	Space heaters and water heaters using natural gas, propane, or kerosene, and generating less than 5 million Btu per hour.
<ul style="list-style-type: none"> • 93% H₂SO₄ Tanks (3 @ 71,400 gal) • 30% H₂SO₄ Tanks (2 @ 17,000 gal) • 30% H₂SO₄ Tank (5,000 gal) • 30% H₂SO₄ Tank (4,000 gal) • Battery Acid Tank (14,000 gal) • Battery Acid 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.
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)	State waste discharge permitted, used for removing suspended solids and oil.

6. PUBLIC DOCKET

Copies of General Chemical's Air Operating Permit permit application and any technical support documents are available at the following location:

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

7. 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.

A "calendar month" is the period from midnight beginning the first day of the calendar month to midnight concluding the last of the calendar month.

A "calendar day average" is the average of hourly periods from midnight to midnight on a calendar day.

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 5 of the 1990 Federal Clean Air Act.

"Technology-Based Emission Standard" means a standard, the stringency of which is based on determinations of what is technologically feasible considering relevant factors.

"State" means, for the purposes of the air operating permit program, the 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:

AIRS	Aerometric Information Retrieval System
AOD	Assurance of Discontinuance
AOP	Air Operating Permit
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
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
H ₂ S	Hydrogen Sulfide
H ₂ SO ₄	Sulfuric acid
MRRR	Monitoring, Recordkeeping and Reporting Requirements
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOC	Notice of Construction
NO _x	Oxides of Nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
NWCAA	Northwest Clean Air Authority
O ₂	Oxygen
OAC	Order of Approval to Construct
PM	Particulate Matter
PM ₁₀	Particulate Matter less than 10 microns in diameter
ppmv	Parts Per Million by Volume, Dry
psia	Pounds per Square Inch, Atmospheric
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

SRU	Sulfur Recovery Unit
WAC	Washington Administration Code
WDOE	Washington Department of Ecology