Santa Barbara County
Air Pollution Control District
Our Vision: Clean Air

FINAL

PERMIT to OPERATE No. 8092
and
PART 70 OPERATING PERMIT No. 8092

EXXON – SYU PROJECT
POPCO GAS PLANT

12000 CALLE REAL, GOLETA
SANTA BARBARA COUNTY, CA

OPERATOR

ExxonMobil Production Company ("ExxonMobil")

OWNERSHIP

Pacific Offshore Pipeline Company ("POPCO")

Santa Barbara County
Air Pollution Control District

September 5, 2000

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ABBREVIATIONS/ACRONYMS

AP-42	USEPA's *Compilation of Emission Factors*
APCD	Santa Barbara County Air Pollution Control District
API	American Petroleum Institute
ASTM	American Society for Testing Materials
ATC	Authority to Construct
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
bpd	barrels per day (1 barrel = 42 gallons)
Btu	British thermal unit
CAM	compliance assurance monitoring
CEMS	continuous emissions monitoring
DCS	Distributed Control System
dscf	dry standard cubic foot
E100	emitters less than 100 ppmv
E500	emitters less than 500 ppmv
EQ	equipment
ESE	entire source emissions
EU	emission unit
°F	degree Fahrenheit
FID	facility identification
gal	gallon
gr	grain
HAP	hazardous air pollutant (as defined by CAAA, Section 112(b))
H_2S	hydrogen sulfide
I&M	Inspection & Maintenance
ISO	International Standards Organization
k	kilo (thousand)
l	liter
lb	pound
lbs/day	pounds per day
lbs/hr	pounds per hour
LACT	Lease Automatic Custody Transfer
LFC	Las Flores Canyon
LPG	liquid petroleum gas
LRGO	Linear relief gas oxidizer (part of ZTOF)
M	mega (million)
MACT	Maximum Achievable Control Technology
MM	million
MW	molecular weight
NAR	Nonattainment Review
NEI	net emissions increase
NGL	natural gas liquids
NG	natural gas
NH_3	ammonia
NSPS	New Source Performance Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NSCR	non-selective catalytic reduction
O_2	oxygen
OCS	outer continental shelf

OTP	Oil Treating Plant
PI	Process Information System
PM	particulate matter
PM_{10}	particulate matter less than 10 microns
POPCO	Pacific Offshore Pipeline Company
ppm(vd or w)	parts per million (volume dry or weight)
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PRD/PSV	pressure relief device
PTO	Permit to Operate
RACT	Reasonably Available Control Technology
ROC	reactive organic compounds, same as “VOC” as used in this permit
RVP	Reid vapor pressure
scf	standard cubic foot
scfd (or scfm)	standard cubic feet per day (or per minute)
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SGTP	Stripping Gas Treating Plant
SOV	Stabilizer Overhead Vapor
SSID	stationary source identification
STP	standard temperature (60°F) and pressure (29.92 inches of mercury)
SYU	Santa Ynez Unit
TEG	Tri-ethylene glycol
THC, TOC	total hydrocarbons, total organic compounds
TGCU	Tail Gas Cleanup Unit
tpq, TPQ	tons per quarter
tpy, TPY	tons per year
TT	Transportation Terminal
TVP	true vapor pressure
USEPA	United States Environmental Protection Agency
VE	visible emissions
VRS	vapor recovery system
WGI	Waste Gas Incinerator
w.c.	water column
ZTOF	John Zinc Company thermal oxidation flare

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1.0 Introduction

1.1 Purpose

General. The Santa Barbara County Air Pollution Control District ("APCD") is responsible for implementing all applicable federal, state and local air pollution requirements that affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 60, 61, 63, 68, 70 and 82. The State regulations may be found in the California Health & Safety Code, Division 26, Section 39000 et seq. The applicable local regulations can be found in the APCD's Rules and Regulations. This is a combined permitting action that covers both the Federal Part 70 permit (*Part 70 Operating Permit No. 8092*) as well as the State Operating Permit (*Permit to Operate No. 8092*).

The County is designated as an ozone nonattainment area for both the state and federal ambient air quality standards. The County is also designated a nonattainment area for the state PM_{10} ambient air quality standard.

Part 70 Permitting. The issuance of this Part 70 permit for the POPCO Gas Plant satisfies the permit issuance requirements of the APCD's Part 70 operating permit program. The POPCO Gas Plant is a part of the *Exxon - Santa Ynez Unit ("SYU") Project* stationary source (SSID = 1482), which is a major source for VOC [a], NO_x, CO, SO_x and PM_{10}. Conditions listed in this permit are based on federal, state or local rules and requirements. Sections 9.A, 9.B and 9.C of this permit are enforceable by the APCD, the USEPA and the public since these sections are federally enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. Conditions listed in Section 9.D are "APCD-only" enforceable.

Pursuant to the stated aims of Title V of the CAAA of 1990 (i.e., the Part 70 operating permit program), this permit has been designed to meet two objectives. First, compliance with all conditions in this permit would ensure compliance with all federally enforceable requirements for the facility. Second, the permit would be a comprehensive document to be used as a reference by the permittee, the regulatory agencies and the public to assess compliance.

1.2 Stationary Source/Facility Overview

1.2.1 Stationary Source/Facility Overview: The POPCO Gas Plant is part of the *Exxon – SYU Project* stationary source. Pacific Offshore Pipeline Company ("POPCO"), a subsidiary of Exxon Mobil Corporation, owns the facility. ExxonMobil Production Company ("ExxonMobil"), an unincorporated division of Exxon Mobil Corporation, operates the facility.

[a] VOC as defined in Regulation XIII has the same meaning as reactive organic compounds as defined in Rule 102. The term ROC shall be used throughout the remainder of this document, but where used in the context of the Part 70 regulation, the reader shall interpret the term as VOC.

The POPCO facility processes raw sour gas produced from the ExxonMobil owned and operated Santa Ynez Unit oil and gas field located in the Outer Continental Shelf off the western Santa Barbara Channel. The Project is comprised of the following facilities:

- Platform Hondo to POPCO Gas Plant Pipeline. The sour gas produced from the ExxonMobil Santa Ynez Unit is delivered to the POPCO gas processing plant located in Las Flores Canyon, Santa Barbara County, via an underwater and onshore 12-inch diameter pipeline. The pipeline originates at ExxonMobil's OCS Platform Hondo located 5 miles offshore. The pipeline is sized to handle up to 90 MMSCFD of sour gas. Up to 75 MMSCFD can be delivered to the POPCO plant and up to 15 MMSCFD can be delivered to the ExxonMobil Las Flores Canyon gas plant for processing by ExxonMobil into fuel that is used in their facility's combustion and energy producing equipment (primarily a 49 MW gas turbine-powered electric/steam cogeneration unit).

- The POPCO Gas Plant. The POPCO facility was the first to operate in the consolidated Las Flores Canyon oil and gas processing area. POPCO began routine operations starting in July 1984. Once the raw sour gas is delivered to the POPCO Gas Plant facility via the pipeline from Platform Hondo, this gas is treated first to remove condensate (consisting of natural gas hydrocarbon liquids and water), then to remove hydrogen sulfide using regenerable amine solutions, and finally compression to natural gas transmission line pressures (approximately 1000 to 1100 psig). In addition, the plant contains a Sulfur Removal Unit ("SRU") process to convert the extracted hydrogen sulfide into elemental sulfur; the capacity of the SRU is 60 LTD of elemental sulfur. The elemental sulfur is sold and trucked out of the facility as a by-product chemical. The plant also contains ancillary processes which generate emissions, consisting of: two 41 MMBtu/hr steam boilers used primarily to supply process heat for amine regeneration and natural gas liquids processing, but also used to incinerate SRU tail gas produced from the SRU Stretford Unit which contains approximately 143 ppmvd total reduced sulfur (of which 21 ppmvd is H_2S); two tri-ethylene glycol (TEG) reboilers burning natural gas; an electrically-driven propane-refrigerant gas treatment system; and, a thermal oxidation unit (called a "ZTOF") utilized to safely handle and dispose waste hydrocarbon and SRU gases generated during facility start-ups, shutdowns, and process upsets.

The *Exxon - SYU Project* stationary source consists of the following 5 facilities:

- Platform Harmony (FID= 8018)
- Platform Heritage (FID= 8019)
- Platform Hondo (FID= 8009)
- Las Flores Canyon Oil and Gas Plant (FID= 1482)
- POPCO Gas Plant (FID= 3170)

1.2.2 Facility New Source Review Overview: POPCO has operated the existing gas processing plant since 1984. The plant is capable of processing 75.0 million standard cubic feet per day (MMSCFD) of wet, sour (at 0.7 percent H_2S) natural gas produced from the ExxonMobil Santa Ynez Unit located in the OCS.

The following is a summary of significant past and present ATC and PTO permits and applications for this facility:

ATC 4078	7/30/80	This ATC permit was issued by the APCD on July 30, 1980. The scope of the ATC was a two-phase project. The first phase to be built was a 30 MMSCFD gas processing capacity facility; and the second phase to be built was to be a 60 MMSCFD processing plant. The second phase was never built consistent with the ATC permit. Consistent with the New Source Review rule in effect on that date ATC 4078 was issued, the ATC triggered the requirement to apply BACT to the B-801 A/B NO_x emissions and BACT for the SRU SO_x emissions. An Air Quality Impact Analysis ("AQIA") and emission offsets for any project criteria pollutant were not triggered by this ATC. With the fugitive emission calculations documented by ATC 4078, however, there is one significant aspect of the original NEI calculations that merits additional discussion. This is that POPCO's ATC 4078 application stated that an estimated quantity of 608 valves would be installed to build the Phase I facility rated at processing up to 30 MMSCFD of gas. The fugitive emissions attributed to the Phase I facility as specified and permitted under ATC 4078, were thus the 608 valves times the fugitive emission factor of that permit, for a total of 3.37 tons/year of fugitive ROC emissions (8.86 tons/year of total hydrocarbon emissions as stated in the ATC 4078 application). However, the installed valve count in the existing facility was actually 3,956 valves. The APCD has addressed this inconsistency with POPCO. The APCD contended that a correct ATC 4078 application would have identified a valve component count that should have been much closer to the 3,956 valves that were actually installed. However, in recognition of the significant time-span between the Phase I facility which was originally permitted and constructed in the early 1980's, and the fact that attention to and procedures for counting fugitive emission sources has become more sophisticated over time, the APCD has permitted, through ATC 9047, the entire existing facility's installed valve count of 3,956 valves.
PTO 4078	12/16/83	The PTO was issued with an analysis similar to that of the ATC, including emission factors and BACT analyses. POPCO initially began operations under this PTO in late December 1983. During this early operating period, the

		facility was found to have delivered sales gas with a higher than allowed by PUC standard hydrogen sulfide content to the main PUC gas distribution line. The facility was required by several agencies to cease operations until the source of this problem was identified and corrected. Subsequent to implementing several corrective actions, the facility began routine operations under this PTO in July 1984.
PTO 8092	6/15/90	This PTO was issued as part of the required triennial permit reevaluation process performed pursuant to the California Health and Safety Code, Section 42301(e). The primary purpose of a reevaluation is to update the existing PTO to reflect the requirements of any new rules and regulations. PTO 8092 incorporated equipment specific emission limits for each permitted and exempt emission unit associated with the existing 30 MMSCFD facility built per the original ATC 4078. The previous PTO 4078 only specified overall facility emission limits. In addition, a revised fugitive emissions limit for all the installed valves and fittings in hydrocarbon service was specified in this permit, consistent with EPA/Radian Six Gas Plant Study (published circa 1983) derived emission factors adopted by the APCD at that date. These revised and updated fugitive emission factors form the basis of this facility's PTE emission calculations.
PTO 9215	9/27/96	This PTO was issued as a follow-up to ATC 9215-01 and ATC 9215-02 issued by the APCD for installation of low-NO_x burners in the process boilers B-801A/B pursuant to the requirements of APCD Rule 342. The PTO documents the emission limits, control equipment, process controls, source testing and recordkeeping requirements for this equipment consistent with APCD Rule 342 and the New Source Review Rule 205.C.
ATC/PTO 9471	4/16/91	This ATC documents the installation of a vapor recovery system for the facility's pressure drain system to comply with APCD Rule 359 - *Flares and Thermal Oxidizers*. The vapor recovery system is designed to fully recover up to 10 SCFM of sour gas released to this system back into the facility's gas processing equipment. Previous to this system's installation, these sour vapors were released to the facility's thermal oxidizer. Subsequent to June 1994, and the adoption of APCD Rule 359, such planned releases or sour gas (in excess of 239 ppmv total sulfur) were prohibited.

ATC 9471-01	3/6/97	This permit allowed for the a tie-in to the Pressure Drain System vapor recovery system to effect the full control of pig receiver pressure blowdowns. Because of the high sulfur content of this gas, the full capture of the pig receiver blowdown eliminates 1.18 lb/hr, and 0.07 tons/year of facility SO_x emissions.
ATC 9487	4/16/96	ATC authorizes the installation of a Flare Volume Metering System to measure the volumetric flow rate and total volumes of gas/vapor release to the facility's thermal oxidizer. The equipment specified in this ATC is required to meet the requirements of APCD Rule 359 (*Flare Minimization Plan*).
ATC 9047	2/4/97	This ATC authorized a significant expansion of the existing facility's gas processing capacity from 30 MMSCFD to 60 MMSCFD of raw sour gas containing up to 2.67 percent hydrogen sulfide ("H_2S"). To accomplish this, the facility was modified to: 1) add new pressure vessels to debottleneck certain existing gas processing equipment; 2) add additional components which emit fugitive hydrocarbon emissions; 3) significantly modify the existing Sulfur Removal Unit ("SRU") to debottleneck its acid gas processing capacity and authorize an increase from it of permitted oxides of sulfur (SO_x) mass emissions; and 4) restrict peak hourly and daily volumes of gas sent to the existing facility's John Zink Thermal Oxidation Flare (or "ZTOF") during planned activities such as equipment maintenance and facility startup. In addition: • the Project resulted in a reduction of fugitive hydrocarbon emissions as compared to the prior facility's permitted emissions. This occurred as a result of POPCO retrofitting existing facility fugitive emitting valves and fittings with Best Available Retrofit Control ("BARCT") technology, and implementation of Best Available Control Technology ("BACT") into any new fugitive emitting component; • the Project implemented BACT for the control of SO_x emissions from: A) the modified SRU unit and its increased capacity; B) potential SRU failures and flaring of acid gas; and C) processes which combust natural gas fuel;

		• the modified project description and operational restrictions specified in the permit that apply to planned uses of the ZTOF during equipment maintenance and facility startup activities will result in reduced hourly flaring combustion emissions, such that no violation of the ambient air quality standard for NO_2, CO, SO_x, PM_{10} and TSP will result.
ATC 9047-01	2/4/97	ATC mod application to limit hourly Startup Flaring rate. This reduced rate ensures compliance with AAQS for 1-hour NO_2 standard; the ZTOF operational restrictions applied for in the ATC 9047-01 application were directly incorporated into ATC's 9047 final decision document ("FDD"). As such, the issuance of the modified ATC 9047-01 permit was considered a part of ATC 9047.
ATC 9675	2/28/97	Installation of a Natural Gas Liquids (NGL) transfer system between the POPCO and Exxon processing facilities.
ATC 9693	4/4/97	Low-NO_x burner modifications to the two Utility Boilers.
ATC 9047-02	7/22/97	This ATC authorized POPCO to install additional components in fugitive hydrocarbon service associated with the gas plant expansion permitted under ATC 9047, to incorporate some minor administrative amendments to the descriptions, evaluations and conditions contained in ATC 9047, as well as to incorporate some minor component count revisions for the NGL Interconnect Project of ATC 9675. ROC emissions increased by 9.51 lb/day and 1.74 tpy.
PTO Mod 8092-02	2/8/99	Eliminated DAS and odor monitoring conditions from this permit. The conditions were moved to ATC 9047.
ATC 9047-03	2/9/99	This ATC modified permit conditions 37 (*Ambient Air Quality and Odor Monitoring Program*) and 41 (*Central Data Acquisition System*) and added permit condition 41.a (*Data Acquisition System Operation and Maintenance Fee*).
Trn O/O 8092-01	4/13/99	Application to transfer operator from POPCO to Exxon Company USA.
ATC 9047-05	10/22/99	This ATC authorized the expansion of the gas plant to process an annual average inlet (raw) gas rate of 75 MMSCFD and a daily maximum of 75 MMSCFD inlet (raw) gas on any given day. Permit condition 15 (*Facility Use Limitations*) was

		revised.
ATC 9047-04	12/22/99	This ATC permit addressed all remaining SCDP issues from the issuance of ATC 9047. Included were: (a) an increase in the fugitive hydrocarbon component count, (b) ROC emissions from the Stretford Oxidizer Tank, (c) solvent use, (d) planned flaring and (e) vacuum truck use. In addition, the facility emission tables in Section 5 were all revised and emission offset tables in Section 7 were added.

1.3 Emission Sources

The emissions from the POPCO Gas Plant come from numerous sources, such as: two utility boilers, a sulfur plant, various pumps and compressors, a thermal oxidizer, piping components and solvent use. Section 4 of this permit provides the APCD's engineering analyses of these emission sources. Section 5 of this permit describes the allowable emissions from each permitted emissions unit and also lists the potential emissions from non-permitted emission units.

1.4 Emission Control Overview

Air pollution emission controls are utilized at the POPCO Gas Plant. The emission controls employed at the facility include:

- An Inspection & Maintenance program for detecting and repairing leaks of hydrocarbons from piping components and compressors to reduce ROC emissions by approximately 80 percent, consistent with the requirements of NSPS KKK and Rule 331.

- Implementation of BACT and BARCT levels of control for fugitive hydrocarbon emissions from piping components as required by ATC 9047.

- Use of low-NO_x burners on the two utility boilers.

- Use of a thermal oxidizer for the combustion of waste gases.

- Use of low sulfur plant natural gas as fuel gas for the utility boilers.

- Use of two sulfur recovery processes; first a "Claus" type process, and further H_2S reduction by processing the Claus effluent gases through a Beavon and Stretford Tail Gas Unit.

- Use of a vapor recovery systems to collect hydrocarbon vapors from various tanks and vessels.

- Use of carbon canisters on wastewater tank vents to eliminate odors.

1.5 Offsets/Emission Reduction Credit Overview

Offsets: NEI emissions from the POPCO Gas Plant must be offset pursuant to the APCD's New Source Review regulation. Offsets are required for ROC, NO_x, SO_x, PM and PM_{10}. Section 7

details the offset requirements for the facility. NEI emissions do not equal the permitted emissions for this facility.

ERCs: POPCO does not generate emission reduction credits.

1.6 Part 70 Operating Permit Overview

1.6.1 Federally-enforceable Requirements: All federally enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under "applicable requirements." These include all SIP-approved APCD Rules, all conditions in the APCD-issued Authority to Construct permits and all conditions applicable to major sources under federally promulgated rules and regulations. All permits (and conditions therein) issued pursuant to the OCS Air Regulation are federally enforceable. All these requirements are enforceable by the public under CAAA. (*see Section 3 for a list of the federally enforceable requirements)*

1.6.2 Insignificant Emissions Units: Equipment or activities exempted from permitting under APCD Rule 202 are considered as insignificant emissions units. The guidance under the USEPA's White Paper II, Sections C.2.c and C.2.d, applies to insignificant emission units

1.6.3 Federal Potential to Emit: The federal potential to emit ("PTE") of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement, or (2) included in the 29-category source list specified in 40 CFR 51.166 or 52.21. The federal PTE does include all emissions from any insignificant emissions units. (*See Section 5.4 for the federal PTE for this source)*

1.6.4 Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the APCD. Permit shields cannot be indiscriminately granted with respect to all federal requirements. A request for a permit shield was not made.

1.6.5 Alternate Operating Scenarios: A major source may be permitted to operate under different operating scenarios, if appropriate descriptions of such scenarios are included in its Part 70 permit application and if such operations are allowed under federally-enforceable rules. POPCO made no request for permitted alternative operating scenarios.

1.6.6 Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually on or before March 1st or on a more frequent schedule specified in the permit. A "responsible official" of the owner/operator company whose name and address is listed prominently in the Part 70 permit signs each certification. (*see Section 1.6.9 below)*

1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data. This permit is expected to be re-

opened in the future to address new monitoring rules, if the permit is revised significantly prior to its first expiration date. *(see Section 4.11.3, CAM).*

1.6.8 Hazardous Air Pollutants ("HAPs"): The requirements of Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology ("MACT"), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability. (*see Sections 4.14 and 5.5)*.

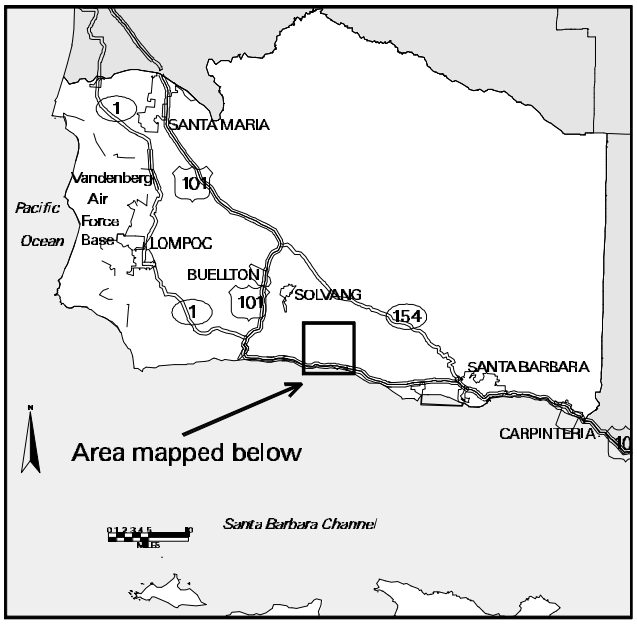
1.6.9 Responsible Official: The designated responsible official and their mailing address is:

Mr. John P. Chaplin
President
Pacific Offshore Pipeline Company
Post Office Box 61707
1555 Poydras Street
New Orleans, LA 70161-1707

Telephone: (504) 561-4050

Figure 1.1 - Location Map

Santa Ynez Unit Project - (onshore)



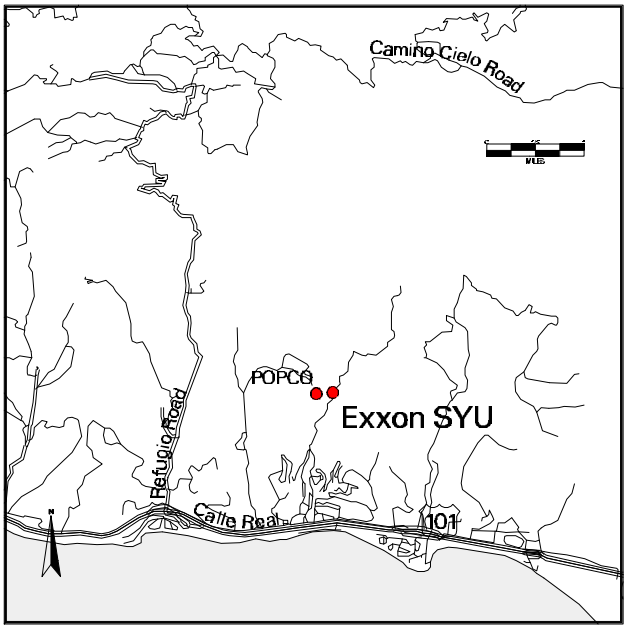
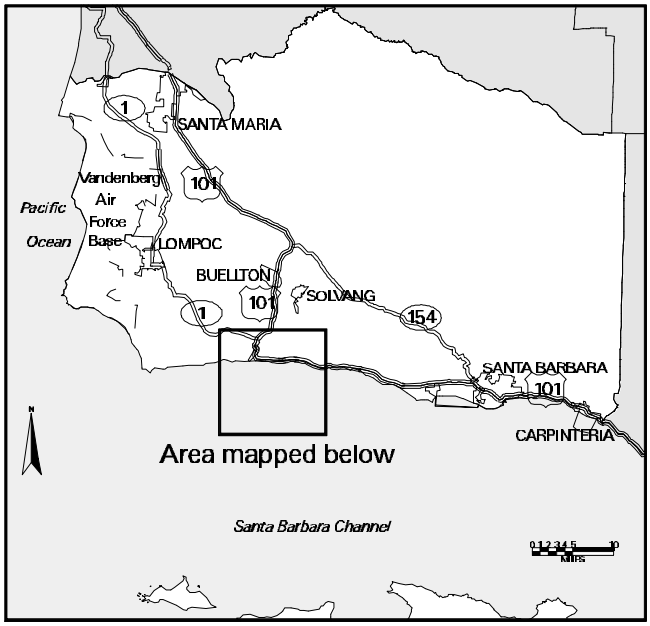
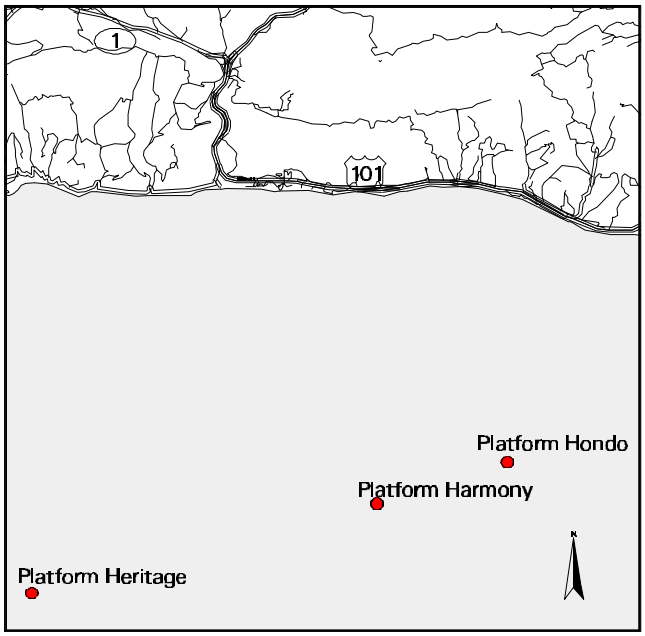


Figure 1.1 - Location Map (continued)

Santa Ynez Unit Project - (offshore)





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2.0 Description of Proposed Project and Process Description

2.1 Project and Process Description

2.1.1 Project Ownership: Pacific Offshore Pipeline Company ("POPCO"), an unincorporated division of Exxon Mobil Corporation, owns the Gas Plant. ExxonMobil Production Company ("ExxonMobil"), an unincorporated division of Exxon Mobil Corporation, operates the Gas Plant. ExxonMobil is the major owner and operator of the remaining Santa Ynez Unit facilities, including OCS Platforms Hondo, Harmony and Heritage.

2.1.2 Geographic Location: The onshore facilities are located in Las Flores Canyon ("LFC") approximately 20 miles west of Santa Barbara, California in the southwestern part of Santa Barbara County. The property consists of a pie-shaped piece of property, approximately 1500 acres, starting on the north side of Highway 101 and continuing to the north. Of this area, approximately 110 acres have been cleared with 34 acres containing facilities and the remainder left as open space. A paved road about 1.5 miles long from Calle Real, the frontage road off Highway 101, provides access to the facility.

Within the property, approximately 17 acres is leased to POPCO to operate a natural gas treating facility. Small areas of the property provide space for utility connections by Southern California Gas Company, Southern California Edison Company as well as a pump station by the All American Pipeline Company for crude transportation. The remaining part of the property is used to operate ExxonMobil's LFC oil and gas plant.

The property is located within the western part of the Transverse Ranges physiographic province of Southern California. This region is characterized by predominately east west oriented topographic and structural elements. The canyons area is predominately rural in character, with some agricultural and industrial uses present.

2.1.3 Facility Description: The Santa Ynez Unit ("SYU") Project develops production from three platforms (Platforms Hondo, Harmony and Heritage) located offshore California in the Santa Barbara Channel. The production is transported to shore through a subsea pipeline and treated in production facilities located in Las Flores Canyon. The POPCO Gas Plant processes the majority of the natural gas produced by the SYU Project. Overall recovery from the development totals approximately 500 million barrels of crude oil and almost one trillion cubic feet of natural gas.

The POPCO Gas Plant receives the raw natural gas from the offshore platforms via the 12-inch produced gas pipeline. The Gas Plant produces PUC quality natural gas, propane, butane and sulfur products for sale. The recovered produced water is treated to acceptable standards and returned to Platform Harmony for release to the ocean in accordance with NPDES permit No. CA0110842.

2.1.4 Gas Dehydration, Sweetening and Fractionating: The gas plant is designed to process a total of 75 MMSCFD of sour gas from the pipeline, and if the sour gas approaches the design limit of 2.67 percent hydrogen sulfide content only 60 MMSCFD of gas can be processed. The lower gas processing throughput limit as a function of higher hydrogen sulfide content is due to SRU throughput limitations. The gas plant separates the hydrogen sulfide (H_2S), propane, butane, and heavier hydrocarbons (C_5+) from the sour gas. The treated natural gas, comprised primarily of methane and ethane, is then sold to the public utility company (Southern California Gas Company). The H_2S is converted to elemental liquid sulfur and is trucked offsite. Propane, butane and heavier hydrocarbons are fractionated from the gas condensate in the plant's Stabilizer tower, and sent to NGL storage vessels. The Stabilizer overhead gases are further processed in the plant's gas processing system to become sales gas.

2.1.5 Sales Gas Shipping: Sales gas is sold directly to the Southern California Gas Company through a local Odorant and Metering station, where it is metered, odorized and the pressure is regulated.

2.1.6 Natural Gas Liquids Storage and Shipping: Natural gas liquids ("NGL") are produced from fractionation of the gas condensates that are collected in the plant gas processing equipment, in the facility Stabilizer tower. The NGL is comprised of propane and heavier molecular weight hydrocarbons. NGL is stored in three pressurized "bullet" tanks.

Most of the NGL is sent via a pipeline to the adjacent ExxonMobil facility for further fractionation into propane, butane, and a residual natural gas liquid intermediate product. Some of the propane product (some butane also) will be trucked offsite from the ExxonMobil facilities. The NGL and butane fractions will be blended back into Exxon's treated crude to the maximum extent feasible consistent with that project's county land use permit requirements.

2.1.7 Sulfur Recovery Unit: Acid gas from the amine unit is processed in the SRU in three stages. The first stage is a "Claus" reaction process, where H_2S is catalytically converted to elemental sulfur. The elemental sulfur from this part of the SRU is trucked out of the facility for use as a fertilizer and other industrial and commercial uses.

The second stage is a "Beavon" unit, where the Claus tailgas residual SO_2 content is converted back into H_2S. This is done with a catalytically induced hydrogenation reaction process.

The third stage of the SRU is processing of the H_2S enriched Beavon tailgas through a Stretford process. The Stretford process utilizes an aqueous-based vanadium catalyzed oxidation-reduction system to selectively absorb H_2S from the Beavon tailgas in a two-stage contactor system. The H_2S, once absorbed, is converted to elemental sulfur. This sulfur is skimmed from the Stretford solution and sent to a filter press to remove residual Stretford solution prior to truck shipment from the plant as a hazardous waste product (State of California designation). The Stretford solution is both skimmed of sulfur in the oxidizer tanks and is also regenerated in these tanks. Regenerated Stretford solution is then recycled back into the contactors to remove additional H_2S from the Beavon tailgas.

In 1997, SRU modifications included a new burner system, incorporation of a pure oxygen feed system, and other process controls to accept up to 60 LTD of H_2S for processing (up from the

prior 30 LTD capability). The additional SRU throughput capability is gained through substituting pure oxygen for ambient air to combust the SRU acid gas feed. The use of pure oxygen (delivered from the LOX storage tank and vaporizer system) in effect backs out the inert nitrogen that is passed through the SRU when ambient air is used. Removing nitrogen, thus allowed the existing SRU to be hydraulically de-bottlenecked to handle the anticipated additional acid gas flows generated by the 60 to 75 MMSCFD of sour gas processing capacity.

This process employs what is considered Best Available Control Technology that is designed to remove at least 99.9 percent of the mass H_2S from the acid gas, or reduce the residual H_2S concentration in the SRU tailgas exiting the final Stretford Tailgas Unit treatment process to no more than 100 ppmv (dry basis), whichever is the more stringent requirement. The SRU process, however, is not nearly so effective at removing other reduced sulfur species such as mercaptans, carbon disulfide, and carbonyl sulfide either entering in the acid gas feed, or generated as a byproduct through the processing of the SRU inlet acid gas. These other reduced sulfur compounds also contribute to this processes total SO_x emissions. Two additional performance standards control the total SO_x emissions emitted by the SRU process; these standards are the 40 CFR, Subpart LLL requirements, and the total SO_x mass emissions cap of the process. POPCO has proposed a total sulfur reduction efficiency performance of this process which at and below 20 LTD achieves 98.0 %, and above 20 to 60 LTD achieves 99.9% total sulfur reduction, as well as no more than 5.44 lb/hr of SO_2 emissions from incineration of the SRU tailgas in the Utility Boilers.

2.1.8 Waste Gas and Emergency Flaring: The gas plant is equipped with closed vent systems (hydrocarbon and acid gas manifolds) to collect all planned and unplanned releases of vented gases for incineration in the flare system (ZTOF & LRGO). Venting of process gases to the flare is expected due to routine planned equipment commissioning and purging of vessels for maintenance. In addition, unplanned, emergency equipment failures and other process upsets may also vent gases to the LRGO equipment.

In ATC 9047, two significant ZTOF/LRGO operating scenarios were evaluated pursuant to Air Quality Impact Analyses ("AQIAs"). One scenario was the impact associated with an "uncontrolled" emergency shutdown failure of the modified SRU. This uncontrolled event has the potential to generate a localized exceedance of the state and federal primary ambient air quality standards for SO_2. Pursuant to that ATC and land-use permit condition E-5, POPCO identified a SRU failure mitigation system that eliminates excess flaring associated with SRU failures, and thus prevents the air quality standard violation, if operated consistent with the conditions of this permit.

The other flaring scenario evaluated by an AQIA was facility startup flaring. This AQIA indicated that to prevent localized exceedance of the NO_2 primary standard (1 hour), the startup flaring rate as previously permitted in PTO 8092 must be reduced by 50 percent. Pursuant to a modified ATC 9047-01 application submitted by POPCO, a 50 percent reduced planned hourly flaring rate was specified, with a duration increase from 12 to 24 hours as a new limit pursuant to the conditions of ATC 9047. No ZTOF or plant equipment modifications were required to comply with these revised planned flaring limits; these limits represent reduced hourly capacity utilization of the ZTOF.

Refer to the AQIA discussion section of ATC 9047 for a more detailed discussion of these two AQIAs.

2.1.9 Vapor Recovery System: There are two vapor recovery systems in this facility. One is for the NGL loading rack operations; in this system vapors from pressurized tank trucks are returned to the facility NGL tanks via a vapor balance line. As this system is comprised of valves, fittings, and hard-piping, the ROC emissions generated from this vapor recovery system components are calculated as part of the facility fugitive emissions inventory.

The other vapor recovery system is that attached to the facility Drain Systems (Pressure Drain System, TEG Drain System and Sulfinol Drain Systems) and the pig receiver. Because this system is comprised of valves, fittings, and hard-piping systems with no possible direct to atmosphere vent path, the ROC emissions generated from this vapor recovery system components are calculated as part of the facility fugitive emissions inventory.

2.1.10 Wastewater Treatment: Wastewater is generated by the existing facility's gas processing equipment. The existing system is comprised of a closed piping system, a Sour Water Stripper ("SWS"), and two (2) wastewater holding tanks (T-807 and T-601) which are used in an interchangeable manner. The Sour Water Stripper handles water produced from systems that handle sour and hydrocarbon gases. All produced water from the sour and hydrocarbon gas systems is first sent to the SWS, where the water is heated to drive off most of any dissolved hydrocarbons and sulfides (primarily H_2S). The gases driven out of the water by the SWS are commingled with the SRU's acid gas feed stream and processed in the SRU where the H_2S is converted to elemental sulfur, and the hydrocarbons are oxidized to CO_2.

The SWS-system cleaned water is then sent either to tank T-807 or T-601. T-807 has a capacity of 36,700 gallons and usually serves as a short-term storage and flow surge system for the cleaned water from the SWS. The tank vent is equipped with a carbon adsorption device to control any residual odorous emissions from the cleaned water. After a short-term in T-807 the cleaned sour water is then usually delivered to tank T-601 prior to shipment by truck and final disposition to a municipal wastewater treatment facility. T-601 has a capacity of 92,000 gallons, and it usually receives water from the SWS treatment system described above, as well as water from the boiler blowdown and boiler feed water systems. The majority of throughput into tank T-601 is from boiler blowdowns. Boiler blowdown water is non-hazardous and does not contain any appreciable hydrocarbons or sulfides, but it does have a relatively high solids content due to solids concentration from its use to make steam. The tank T-601 vent is also equipped with a carbon adsorption device to control any odors from this system.

2.1.11 Utility Boilers: Two 41 MMBtu/hr utility boilers are used to provide process steam for the gas plant. The boilers, fired on plant natural gas, are also used to combust residual Stretford off gases from the tail gas cleanup process.

2.2 Support Systems

2.2.1 Pipeline and Pipeline Pigging Activities: The POPCO Gas Plant receives produced sour gas and water/gas condensates via a 12 inch undersea and underground pipeline from ExxonMobil's

Platform Hondo. The capacity of this line is 90 MMSCFD, with up to 75 MMSCFD to POPCO and through a branch of this line, up to 15 MMSCFD to ExxonMobil's LFC oil and gas plant. The offshore-to-onshore part of the pipeline into the POPCO facility is typically pigged once or twice per day to remove condensate and water build up in the line. About once per week the pig receiver is taken out of service, and de-pressured, to remove the accumulated pigs.

Produced gas is shipped from the plant via pipeline directly to the public utility company (Southern California Gas Company). The Gas Company maintains an Odorant and Metering Station and a Pressure Limiting Station directly adjacent to the gas plant.

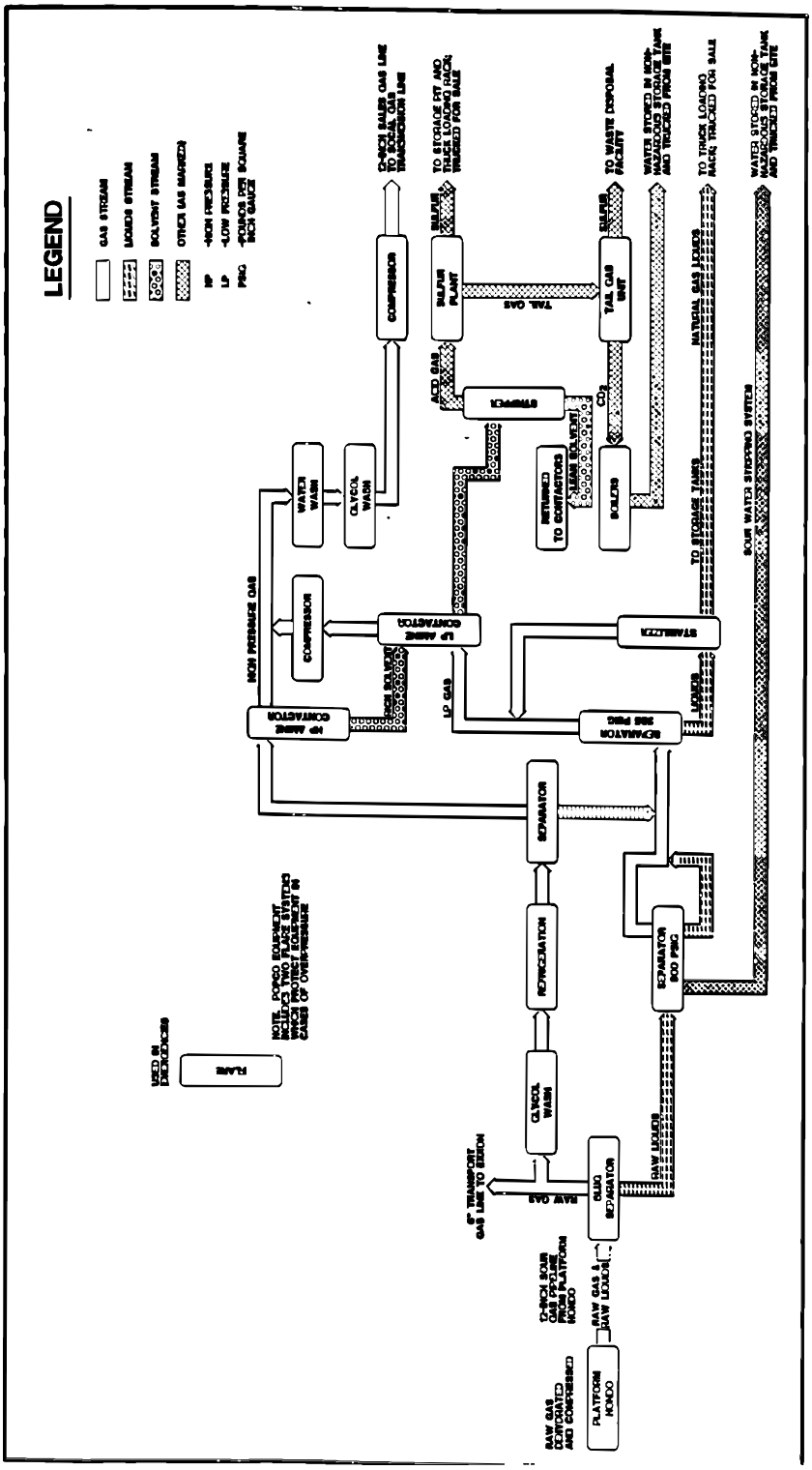
2.2.2 Maintenance Activities: POPCO performs a variety of maintenance activities, including welding and painting. Equipment use includes gas-powered generators, welders, forklifts and man-lifts.

2.2.3 Planned Process Turnarounds: It is anticipated that partial or complete shutdown of the gas plant for maintenance purposes may occur one or more times each year. These shutdowns are anticipated to result in some venting of gases to the flare system. Refer to Section 4 for a description of flare emission controls and Sections 5 for additional information on shutdown emissions.

2.3 Detailed Process Equipment Listing

A detailed listing of permitted and exempt equipment authorized under this permit is included in Attachments 10.4 and 10.5 respectively.

Figure 2.1 - Block Flow Diagram



3.0 Regulatory Review

3.1 Rule Exemptions Claimed

⇒ APCD Rule 202 (*Exemptions to Rule 201*): POPCO qualifies for a number of exemptions under this rule. An exemption from permit, however, does not grant relief from any applicable prohibitory rule unless specifically exempted by that prohibitory rule. The following exemptions are approved by the APCD:

- As of March 10, 2000, the *de minimis* increases (per Section D.6) are zero.
- Section D.8 for routine surface coating maintenance activities.
- Section F.1.d for two diesel internal combustion engines driving emergency firewater pumps (P-805, P-806) each rated at 420 bhp.
- Section F.1.d for a diesel internal combustion engine driving an emergency electrical generator (G-801) rated at 268 bhp.
- Section F.1.d for a diesel internal combustion engine driving emergency generator serving the instrument air compressor rated at 111 bhp.
- Section G.1.a for two TEG Reboilers (process heaters) fired exclusively with PUC quality natural gas (i.e., 4 ppmv H_2S and 80 ppmv total sulfur), rated at 1.2 MMBtu/hr and 2.1 MMBtu/hr respectively.
- Section H.3 for all portable abrasive blasting equipment (excluding IC engines that are subject to Section F of Rule 202).
- Section L.6 for a 50,000 Btu/hr natural gas fired forced air furnace.
- Section Q.1 for a 5-gallon batch tank and associated metering pump.
- Section U.2.a for parts degreasers using unheated solvent with a surface area of less than 1 square foot.
- Section V.2 for the storage of diesel fuel.
- Section V.3 for lube oil storage tanks.
- Section V.8 for the Refrigerant make-up tank (T-151), propane 10,000-gallon capacity.

⇒ APCD Rule 311 (*Sulfur Content of Fuels*): Based on the exemption in Section A.1 for the manufacturing of sulfur or sulfur compounds, the sulfur recovery unit is exempt from the standards in this rule.

⇒ APCD Rule 321 (*Solvent Cleaning Operations*): Pursuant to Section B.2, the Safety-Kleen cold solvent degreaser is exempt from all provisions of this rule, except for Section G.2.

⇒ APCD Rule 325 (Crude Oil Production and Separation): Pursuant to Section B.3, The wastewater tanks are exempt from the requirements of Sections D.1 and D.2 because the ROC content of the water is less than 5 milligrams per liter of ROC.

⇒ APCD Rule 326 (*Storage of Reactive Organic Compound Liquids*): Per Section B.1.b, the following emission units are exempt from all provisions of the rule:

- Compressor Lube Tanks

⇒ APCD Rule 331 (*Fugitive Emissions Inspection and Maintenance*): The following components are exempt from certain/all provisions of the rule:

- Components buried below ground (exempt from all requirements)
- One half inch and smaller stainless steel tube fittings that have been determined to be leak free by the Control Officer (exempt from all requirements)
- Components totally contained or enclosed such that there are no ROC emissions into the atmosphere are exempt from Sections F.1, F.2, F.3 and F.7.
- Components exclusively in heavy liquid service are exempt from Sections F.1, F.2, F.3 and F.7.
- Components that are unsafe-to-monitor, as documented and established in a safety manual or policy, and with prior written approval of the Control Officer are exempt from Sections F.1, F.2 and F.7.

⇒ APCD Rule 333 (*Control of Emissions From Reciprocating Internal Combustion Engines*): Section B.1.b exempts engines that are exempt from permit per Rule 202 from all the requirements of this rule.

⇒ APCD Rule 346 (*Loading of Organic Liquids*): Per Section B.4, the transfer of liquefied natural gas, propane, butane or liquefied petroleum gases.

⇒ APCD Rule 359 (*Flares and Thermal Oxidizers*): Per Section B.2, the acid gas flare header is exempt from all requirements, except Section D.2.

3.2 Compliance with Applicable Federal Rules and Regulations

3.2.1 40 CFR Parts 51/52{*New Source Review (Nonattainment Area Review and Prevention of Significant Deterioration*)}: The POPCO Gas Plant was permitted in 1980 under APCD Rule 205. The facility was subsequently modified in 1997 under APCD Rule 205.C. That rule was superseded by APCD Regulation VIII (*New Source Review*) in April of 1997. Compliance with PTO 8092 requirements and Regulation VIII ensures that the POPCO facility will comply with the federal NSR requirements.

3.2.2 40 CFR Part 60 {*New Source Performance Standards*}: The following NSPS apply at the POPCO facility:

Subpart A	General Provisions
Subpart KKK	Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants
Subpart LLL	Standards of Performance for Onshore Natural Gas Processing; SO_2 Emissions

3.2.3 40 CFR Part 61 {*NESHAP*}: This facility is not currently subject to the provisions of this Subpart.

3.2.4 40 CFR Part 63 {*MACT*}: On June 17, 1999, EPA promulgated Subpart HH, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. POPCO is required to submit for APCD review an *Initial Notification of Applicability* by June 17, 2000. If the facility is subject to the MACT, POPCO is required to modify this Part 70 Operating Permit to include the specific requirements that are applicable and full compliance must be achieved by June 17, 2002.

3.2.5 40 CFR Part 64 {*Compliance Assurance Monitoring*}: This rule became effective on April 22, 1998. Compliance with this rule is not required until the next Part 70 permit renewal or significant permit revision.

3.2.6 40 CFR Part 68 {*Chemical Accident Prevention Provisions*}. POPCO is required to comply with the requirements of this regulation. Their initial Section 112r Risk Management Plan ("RMP") was submitted to the EPA in June of 1999. The annual compliance certification must include a statement regarding compliance with this part, including the registration and submission of the RMP.

3.2.7 40 CFR Part 70 {*Operating Permits*}: This Subpart is applicable to the POPCO facility. Table 3.1 lists the federally enforceable APCD promulgated rules that are "generic" and apply to the facility. Table 3.2 lists the federally enforceable APCD promulgated rules that are "unit-specific". These tables are based on data available from the APCD's administrative files and from POPCO's Part 70 Operating Permit application. Table 3.4 includes the adoption dates of these rules.

In its Part 70 permit application (Forms I and J), POPCO certified compliance with all existing APCD rules and permit conditions. This certification is also required of POPCO semi-annually.

Issuance of this permit and compliance with all its terms and conditions will ensure that POPCO complies with the provisions of all applicable Subparts.

3.3 Compliance with Applicable State Rules and Regulations

3.3.1 Division 26. Air Resources {California Health & Safety Code}: The administrative provisions of the Health & Safety Code apply to this facility.

3.3.2 California Administrative Code Title 17: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at the Las Flores Canyon facility are required to conform to these standards. Compliance is typically assessed through onsite inspections. However, CAC Title 17 does not preempt enforcement of any SIP-approved rule that may be applicable to abrasive blasting activities.

3.4 Compliance with Applicable Local Rules and Regulations

3.4.1 Applicability Tables: In addition to Tables 3.1 and 3.2, Table 3.3 lists the non-federally enforceable APCD promulgated rules that apply to the POPCO facility. Table 3.4 lists the adoption date of all rules applicable to this permit at the date of this permit's issuance.

3.4.2 Rules Requiring Further Discussion: This section provides a more detailed discussion regarding the applicability and compliance of certain rules.

The following is a rule-by-rule evaluation of compliance for the POPCO facility:

Rule 301 - Circumvention: This rule prohibits the concealment of any activity that would otherwise constitute a violation of Division 26 (Air Resources) of the California H&SC and the SBCAPCD rules and regulations. To the best of the APCD's knowledge, POPCO is operating in compliance with this rule.

Rule 302 - Visible Emissions: This rule prohibits the discharge from any single source any air contaminants for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of 1 on the Ringelmann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of 1 on the Ringelmann Chart. Sources subject to this rule include: the thermal oxidizer, the utility boilers, the TEG reboilers, and all diesel-fired piston internal combustion engines, regardless of exemption status. Improperly maintained diesel engines and the thermal oxidizer have the potential to violate this rule. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules per the APCD-approved *IC Engine Particulate Matter Operation and Maintenance Plan* and by requiring POPCO to have personnel training in visible emissions evaluations.

Rule 303 - Nuisance: This rule prohibits POPCO from causing a public nuisance due to the discharge of air contaminants. There are no recent nuisance complaints that can be attributable to operation of the POPCO facility. All nuisance complaints are investigated by the APCD and follow the guidelines outlined in Policy & Procedure I.G.2 (*Compliance Investigations*). This rule is included in the SIP.

Rule 305 - Particulate Matter, Southern Zone: The POPCO facility is considered a Southern Zone source. This rule prohibits the discharge into the atmosphere from any source particulate matter in excess of specified concentrations measured in gr/scf. The maximum allowable concentrations are determined as a function of volumetric discharge, measured in scfm, and are listed in Table 305(a) of the rule. Sources subject to this rule include: the thermal oxidizer, the utility boilers, the TEG reboilers, and all diesel-fired piston internal combustion engines, regardless of exemption status. Improperly maintained diesel engines have the potential to violate this rule. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules per the APCD-approved *IC Engine Particulate Matter Operation and Maintenance Plan*. Rule 359 addresses the need for the thermal oxidizer to operate in a smokeless fashion.

Rule 309 - Specific Contaminants: Under Section "A", no source may discharge sulfur compounds and combustion contaminants in excess of 0.2 percent as SO_2 (by volume) and 0.1 gr/scf (at 12% CO_2) respectively. Sulfur emissions due to planned flaring events will comply with the SO_2 limit. Flaring of acid gas may not comply with the SO_2 limit, however, and POPCO will need to obtain breakdown and/or variance relief in such cases. All diesel powered piston IC engines have the potential to exceed the combustion contaminant limit if not properly maintained (see discussion on Rule 305 above for compliance).

Rule 310 - Odorous Organic Compounds: This rule prohibits the discharge of H_2S and organic sulfides that result in a ground level impact beyond the property boundary in excess of either 0.06 ppmv averaged over 3 minutes and 0.03 ppmv averaged over 1 hour. No measured data at the fence line exists to confirm compliance with this rule, however the consolidated odor monitoring station (*LFC Odor*) will be placed at the fence line and future data will be available.

Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted at the POPCO facility to 0.5 percent (by weight) for liquids fuels and 15 gr/100 scf (calculated as H_2S) {or 239 ppmvd} for gaseous fuels. All fuel gas is required to have a sulfur content not exceeding 24 ppmv (as S). Further, the exempt TEG process heaters and the forced air furnace are required to use natural gas meeting PUC Quality standards in order to maintain their permit exemption. Compliance with this requirement is achieved through use of an inline H_2S analyzer, daily Draeger tube readings and fuel sampling. The flare relief system is not subject to this rule (see discussion under Rule 359).

Rule 317 - Organic Solvents: This rule sets specific prohibitions against the usage of both photochemically and non- photochemically reactive organic solvents (40 lb/day and 3,000 lb/day respectively). Solvents may be used at the POPCO facility during normal operations for degreasing by wipe cleaning and for use in paints and coatings in maintenance operations. There is the potential to exceed the limits under Section B.2 during significant surface coating activities. POPCO is required to maintain records to ensure compliance with this rule.

Rule 318 - Vacuum Producing Devices or Systems – Southern Zone: This rule prohibits the discharge of more than 3 pounds per hour of organic materials from any vacuum producing device or system, unless the organic material emissions have been reduced by at least 90 percent. POPCO states that there are no emission units subject to this rule.

Rule 321 - Control of Degreasing Operations: This rule sets equipment and operational standards for degreasers using organic solvents. Small-unheated solvent cleaners that are less than 1 gallon in capacity or having an evaporative surface area of less than 1 square foot (aggregate cap of 10 square feet) are exempt from all rule provisions, except Section G.2. Compliance is determined via facility inspections.

Rule 322 - Metal Surface Coating Thinner and Reducer: This rule prohibits the use of photochemically reactive solvents for use as thinners or reducers in metal surface coatings. POPCO is required to maintain records during maintenance operations to ensure compliance with this rule.

Rule 323 - Architectural Coatings: This rule sets standards for many types of architectural coatings. The primary coating standard that will apply to the platform is for Industrial Maintenance Coatings that have a limit of 340 gram ROC per liter of coating, as applied. POPCO is required to comply with the Administrative requirements under Section F for each container at the facility.

Rule 324 - Disposal and Evaporation of Solvents: This rule prohibits any source from disposing more than one and a half gallons of any photochemically reactive solvent per day by means that will allow the evaporation of the solvent into the atmosphere. POPCO is required to maintain records to ensure compliance with this rule.

Rule 325 - Crude Oil Production and Separation: This rule, adopted January 25, 1994, applies to equipment used in the production, gathering, storage, processing and separation of crude oil and gas prior to custody transfer. The primary requirements of this rule are contained in Sections D and E. Section D requires the use of vapor recovery systems on all tanks and vessels, including wastewater tanks, oil/water separators and sumps. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. All pressure vessels are connected to gas gathering systems and all relief valves are connected to the flare relief system. The wastewater tanks are exempt from the requirements of Sections D.1 and D.2 because the ROC content of the water is less than 5 milligrams per liter of ROC. POPCO has installed vapor recovery on all remaining equipment subject to this rule. Compliance with this exemption will be verified by APCD inspections and wastewater tank analyses. Compliance with Section E is met by directing all produced gas to a sales compressor, injection well or to the flare relief system.

Rule 326 - Storage of Reactive Organic Liquids: This rule applies to equipment used to store reactive organic compound liquids with a vapor pressure greater than 0.5 psia. The methanol tank is subject to this rule. Compliance will be assessed via APCD inspections.

Rule 327 - Organic Liquid Cargo Tank Vessel Loading: There is no organic liquid cargo tank vessel loading operations associated with this facility.

Rule 328 - Continuous Emissions Monitoring: This rule details the applicability and standards for the use of continuous emission monitoring systems ("CEMS"). Process monitoring systems (e.g., fuel use meters) are used to track emissions. CEMS are required for the facility as outlined in

Section 4.11.1 and Tables 4.3 and 4.4. A number of process variables are also continuously monitored to assess compliance with the applicable requirements. POPCO operates the CEMS and process monitors consistent with their CEMS Plan (conditionally approved 3/21/00).

Rule 330 - Surface Coating of Metal Parts and Products: This rule sets standards for many types of coatings applied to metal parts and products. In addition to the ROC standards, this rule sets operating standards for application of the coatings, labeling and recordkeeping. This rule only applies to metal parts and products that are not currently installed as appurtenances to the existing stationary structures. It is not anticipated that POPCO will trigger the requirements of this rule. Compliance shall be based on site inspections.

Rule 331 - Fugitive Emissions Inspection and Maintenance: This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas processing plants. POPCO has submitted an I&M Plan and received APCD approval of this Plan on (approved August 7, 2000). Ongoing compliance with the many provisions of this rule will be assessed via facility inspection by APCD personnel using an organic vapor analyzer and through analysis of operator records.

Rule 333 - Control of Emissions from Reciprocating Internal Combustion Engines: This rule applies to all engines with a rated brake horsepower of 50 or greater that are fueled by liquid or gaseous fuels. However, per Section B.1.b any engine exempt from the requirement to obtain a permit under Rule 202 is also exempt from this rule (see Section 3.1 above). The IC engines at the facility include two emergency firewater pump engines and two emergency electrical generators that are exempt from permit. Compliance with the terms of the B.2 exemption is based on use of a non-resettable hour meter. Use of any other IC engine is subject to the provisions of this rule, as applicable.

Rule 342 - Control of Oxides of Nitrogen from Boilers, Steam Generators and Process Heaters: This rules sets emission standards for external combustion units with a rated heat input greater than 5.0 MMBtu/hr. The two utility boilers are subject to this rule. These boilers were retrofit with low-NO_x burners in order to comply with the rule's emission standards. Compliance is assessed through the monitoring, recordkeeping and reporting requirements listed in Section 9.C of this permit.

Rule 343 - Petroleum Storage Tank Degassing: This rule applies to the degassing of any above-ground tank, reservoir or other container of more than 40,000 gallons capacity containing any organic liquid with a vapor pressure greater than 2.6 psia, or between 20,000 gallons and 40,000 gallons capacity containing any organic liquid with a vapor pressure greater than 3.9 psia. This rule does not apply to any equipment at the POPCO facility.

Rule 344 - Petroleum Sumps Pits and Well Cellars: This rule applies to sumps, pits and well cellars at facilities where petroleum is produced, gathered, separated, processed or stored. There are no units at this facility subject to this rule.

Rule 346 - Loading of Organic Liquids: This rule applies to the transfer of organic liquids into an organic liquid cargo vessel. For this rule only, an organic liquid cargo vessel is defined as a truck,

trailer or railroad car. POPCO is exempt from this rule per Section B.4. Further, the vacuum trucks are exempt from the provisions of Sections D, E and F pursuant to Section B.5.

Rule 353 – Adhesives and Sealants: This rule applies to the use of adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers. Compliance shall be based on site inspections.

Rule 359 - Flares and Thermal Oxidizers: This rule applies to flares for both planned and unplanned flaring events. Compliance with this rule has been documented. POPCO uses a thermal oxidizer to combust waste gases, as well as the utility boilers to incinerate Stretford Unit tailgas. The utility boilers are exempt from the provisions of this Rule pursuant to Section B.1. A detailed review of compliance issues is as follows:

§ D.1 - Sulfur Content in Gaseous Fuels: Part (a) limits the total sulfur content of all planned flaring from South County flares to 15 gr/100 cubic feet (239 ppmv) calculated as H_2S at standard conditions.

§ D.2 - Technology Based Standard: Requires all thermal oxidizers to be smokeless and sets pilot flame requirements. POPCO's thermal oxidizer is in compliance with the smokeless requirement as determined through APCD inspections and POPCO observations of the visible emissions using staff certified in visual emissions evaluations. POPCO has not demonstrated compliance with the flame pilot requirements, as each pilot is not continuously monitored for the presence of a flame.

§ D.3 - Flare Minimization Plan: This section requires sources to implement flare minimization procedures so as to reduce SO_x emissions. The Planned Flaring volume is 18.2 million standard cubic feet per month. POPCO has fully implemented their Flare Minimization Plan.

Rule 505 - Breakdown Conditions: This rule describes the procedures that POPCO must follow when a breakdown condition occurs to any emissions unit associated with the POPCO facility. A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment which causes a violation of an emission limitation or restriction prescribed in the APCD Rules and Regulations, or by State law, or (2) any in-stack continuous monitoring equipment, provided such failure or malfunction:

a. Is not the result of neglect or disregard of any air pollution control law or rule or regulation;

b. Is not the result of an intentional or negligent act or omission on the part of the owner or operator;

c. Is not the result of improper maintenance;

d. Does not constitute a nuisance as defined in Section 41700 of the Health and Safety Code;

e. Is not a recurrent breakdown of the same equipment.

Rule 603 - Emergency Episode Plans: Section "A" of this rule requires the submittal of *Stationary Source Curtailment Plan* for all stationary sources that can be expected to emit more than 100 tons per year of hydrocarbons, nitrogen oxides, carbon monoxide or particulate matter. POPCO's is required to submit an *Emergency Episode Plan* within one month of the issuance of this permit.

3.5 Compliance History

This section contains a summary of the compliance history for this facility and was obtained from documentation contained in the APCD's Administrative file.

3.5.1 Variances: POPCO has sought variance relief per Regulation V and received two Interim (I) Variances since the last permit reevaluation date of March 7, 1996:

35-00E: Granted 8/15/2000. Rule 206 (PTO 8092, Condition 4.d / ATC 9047-4, Table 5.1). Exceedance of pilot gas flow limit to the thermal oxidizer.

30-00E: Granted 7/21/2000. Rule 359 an Rule 206 (ATC 9047, Condition 19). Planned flaring of gas in excess of 24 ppmv total sulfur.

19-00R and 18-00I: Granted 6/7/2000. Rule 359 and Rule 206. Lack of continuous monitoring for the presence of a flame at the pilots installed in the facility's Thermal Oxidizer (Equipment ID No. A803)

35-99I: Granted 12/10/1999. Rule 206, ATC 9047-02, Condition 19. Unplanned flaring greater the 500 scfh.

6-96I: Granted 03/10/1996. Rule 342. Failure to meet the Rule 342 compliance deadline for the NO_x emission standard of 30 ppmv at 3% O_2.

3.5.2 Violations: The last facility inspections occurred during July 1999. The inspector reported that the facility was in compliance with all APCD rules and permit conditions.

As of March 2000 one Notice of Violations (NOVs) was issued since the last permit reevaluation date of March 7, 1996:

NTC No. 6434: Violation of Rule 359. Issued 5/16/2000. Specifically, POPCO failed to comply with Section D.2.b.2 of Rule 359 by not continuously monitoring the pilots of the thermal oxidizer for the presence of a flame. Resolved Date: Regular variance No. 19-00R granted June 7, 2000. Condition 9.C.39 of this permit contains the increments of progress required by the variance in order for compliance to be achieved.

NTC No. 6299: Violation of Rule 206. Issued 1/19/2000. Specifically, POPCO failed to perform the required Process Stream Sampling and Analyses as required by permit condition No. 39 of ATC 9047. Resolved Date: 2/08/2000.

NTC No. 6298: Violation of Rule 206. Issued 11/23/1999. Specifically, POPCO failed to follow the approved source test plan and APCD source test procedures manual for tests performed for the

Sulfur Recovery Unit as required by Conditions 38.b and 38.c of ATC 9047. Resolved Date: 12/22/1999.

NTC No. 6279: Violation of Rule 212.C.2. Issued 8/17/2000. Specifically, failure to provide a signed annual emissions fee certification statement as required by Rule 212. Resolved Date: 8/30/2000.

NOV No. 5728: Violation of Rule 201. Issued 4/08/1996. Specifically, POPCO had installed and operated 3,348 valves in hydrocarbon service. The APCD subsequently issued ATC 9047 in February of 1997 to add these valves to the permit. Resolved Date: 02/04/1997.

3.5.3 Significant Historical Hearing Board Actions/NOVs: As of March 2000, there was no significant *historical* Hearing Board actions or NOVs.

Table 3.1 - Generic Federally Enforceable APCD Rules

Generic Requirements	Affected Emission Units	Basis for Applicability
RULE 101: Compliance by Existing Installations	All emission units	Emission of pollutants
RULE 102: Definitions	All emission units	Emission of pollutants
RULE 103: Severability	All emission units	Emission of pollutants
RULE 201: Permits Required	All emission units	Emission of pollutants
RULE 202: Exemptions to Rule 201	Applicable emission units	Insignificant activities/emissions, per size/rating/function
RULE 203: Transfer	All emission units	Change of ownership
RULE 204: Applications	All emission units	Addition of new equipment of modification to existing equipment.
RULE 205: Standards for Granting Permits	All emission units	Emission of pollutants
RULE 206: Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
RULE 208: Action on Applications – Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment of modification to existing equipment.
RULE 212: Emission Statements	All emission units	Administrative
RULE 301: Circumvention	All emission units	Any pollutant emission
RULE 302: Visible Emissions	All emission units	Particulate matter emissions
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.
RULE 305: PM Concentration – South Zone	Each PM source	Emission of PM in effluent gas
RULE 309: Specific Contaminants	All emission units	Combustion contaminants
RULE 310: Odorous Org. Sulfides	All emission units	Emission of organic sulfides
RULE 311: Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur
RULE 317: Organic Solvents	Emission units using solvents	Solvent used in process

Generic Requirements	Affected Emission Units	Basis for Applicability
		operations.
RULE 318: Vacuum Producing Devices – Southern Zone	All systems working under vacuum	Operating pressure
RULE 321: Solvent Cleaning Operations	Emission units using solvents	Solvent used in process operations.
RULE 322: Metal Surface Coating Thinner and Reducer	Emission units using solvents	Solvent used in process operations.
RULE 323: Architectural Coatings	Paints used in maintenance and surface coating activities	Application of architectural coatings.
RULE 324: Disposal and Evaporation of Solvents	Emission units using solvents	Solvent used in process operations.
RULE 353: Adhesives and Sealants	Emission units using adhesives and sealants	Adhesives and sealants use.
RULE 505: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
RULE 603: Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	ExxonMobil SYU Project PTE is greater than 100 tpy.
REGULATION VIII: New Source Review	All emission units	Addition of new equipment of modification to existing equipment. Applications to generate ERC Certificates.

Table 3.2 - Unit-Specific Federally Enforceable APCD Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
RULE 325: Crude Oil Production and Separation	EQ Nos: 4-1, 5-2, 5-3	All pre-custody production and processing emission units
RULE 326: Storage of Reactive Organic Compounds	EQ Nos: 5-1	Stores ROCs with vapor pressure greater than 0.5 psia
RULE 328: Continuous Emission Monitors	EQ Nos: 1-1, 1-2, 7-1, 7-2	Section C and NSPS
RULE 331: Fugitive Emissions Inspection & Maintenance	EQ Nos: 3-x	Components emit fugitive ROCs.
RULE 342: Control of Oxides of Nitrogen from Boilers, Steam	EQ Nos: 1-1, 1-2	Rated greater than 5 MMBtu/hr

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
Generators and Process Heaters		
RULE 359: Flares and Thermal Oxidizers	EQ Nos: 2-1	Used in petroleum service

Table 3.3 – Non Federally-Enforceable APCD Rules

Requirement	Affected Emission Units	Basis for Applicability
RULE 210: Fees	All emission units	Administrative
RULES 501-504: Variance Rules	All emission units	Administrative
RULES 506-519: Variance Rules	All emission units	Administrative

Table 3.4 – Adoption Dates of APCD Rules Applicable at Issuance of Permit

Rule No.	Rule Name	Adoption Date
Rule 101	Compliance by Existing Installations: Conflicts	June 1981
Rule 102	Definitions	January 21, 1999
Rule 103	Severability	October 23, 1978
Rule 201	Permits Required	April 17, 1997
Rule 202	Exemptions to Rule 201	April 17, 1997
Rule 203	Transfer	April 17, 1997
Rule 204	Applications	April 17, 1997
Rule 205	Standards for Granting Permits	April 17, 1997
Rule 206	Conditional Approval of Authority to Construct or Permit to Operate	October 15, 1991
Rule 208	Action on Applications - Time Limits	April 17, 1997
Rule 212	Emission Statements	October 20, 1992
Rule 301	Circumvention	October 23, 1978
Rule 302	Visible Emissions	June 1981

Rule No.	Rule Name	Adoption Date
Rule 303	Nuisance	October 23, 1978
Rule 305	Particulate Matter Concentration - Southern Zone	October 23, 1978
Rule 309	Specific Contaminants	October 23, 1978
Rule 310	Odorous Organic Sulfides	October 23, 1978
Rule 311	Sulfur Content of Fuels	October 23, 1978
Rule 317	Organic Solvents	October 23, 1978
Rule 318	Vacuum Producing Devices or Systems - Southern Zone	October 23, 1978
Rule 321	Solvent Cleaning Operations	September 18, 1997
Rule 322	Metal Surface Coating Thinner and Reducer	October 23, 1978
Rule 323	Architectural Coatings	July 18, 1996
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	January 25, 1994
Rule 326	Storage of Reactive Organic Compound Liquids	December 14, 1993
Rule 331	Fugitive Emissions Inspection and Maintenance	December 10, 1991
Rule 333	Control of Emissions from Reciprocating Internal Combustion Engines	April 17, 1997
Rule 342	Control of Oxides of Nitrogen (NOx) from Boilers, Steam Generators and Process Heaters	April 17, 1997
Rule 343	Petroleum Storage Tank Degassing	December 14, 1993
Rule 344	Petroleum Sumps, Pits and Well Cellars	November 10, 1994
Rule 349	Polyester Resin Operations	April 27, 1993
Rule 352	Natural Gas-Fired Fan Type Central Furnaces and Residential Water Heaters	September 16, 1999
Rule 353	Adhesives and Sealants	August 19, 1999
Rule 359	Flares and Thermal Oxidizers	June 28, 1994
Rule 505	Breakdown Conditions (Section A, B1 and D)	October 23, 1978
Rule 603	Emergency Episode Plans	June 15, 1981
Rule 801	New Source Review	April 17, 1997

Rule No.	Rule Name	Adoption Date
Rule 802	Nonattainment Review	April 17, 1997
Rule 803	Prevention of Significant Deterioration	April 17, 1997
Rule 804	Emission Offsets	April 17, 1997
Rule 805	Air Quality Impact and Modeling	April 17, 1997
Rule 806	Emission Reduction Credits	April 17, 1997
Rule 901	New Source Performance Standards (NSPS)	May 16, 1996
Rule 903	Outer Continental Shelf (OCS) Regulations	November 10, 1992
Rule 1001	National Emission Standards for Hazardous Air Pollutants (NESHAPS)	October 23, 1993
Rule 1301	General Information	September 18, 1997
Rule 1302	Permit Application	November 9, 1993
Rule 1303	Permits	November 9, 1993
Rule 1304	Issuance, Renewal, Modification and Reopening	November 9, 1993
Rule 1305	Enforcement	November 9, 1993

4.0 Engineering Analysis

4.1 General

The engineering analyses performed for this permit were limited to the review of:

- Emission factors and calculation methods for each emissions unit
- Emission control equipment (including RACT, BACT, NSPS, NESHAP)
- Emission source testing, sampling, CEMS
- Process monitors needed to ensure compliance.

Unless noted otherwise, default ROC/THC reactivity profiles from the APCD's document titled "*VOC/ROC Emission Factors and Reactivities for Common Source Types*" dated 7/13/98 (ver 1.1) were used to determine the non-methane, non-ethane fraction of THC.

4.2 Stationary Combustion Sources

4.2.1 General: The stationary combustion sources associated with the Gas Plant consist of two 41 MMBtu/hr natural gas utility boilers (B-801A/B);, two triethlyene glycol ("TEG") reboilers (E-121 and E-251 rated at 1.2 MMBtu/hr and 2.1 MMBtu, respectively (both exempt from permit for being rated under 5 MMBtu/hr and using PUC quality natural gas) and four diesel-fired emergency equipment items (two firewater pumps each rated at 420 bhp and two emergency electrical generators rated at 268 bhp and 111 bhp, respectively). Electrical power at the POPCO Gas Plant is utility-grid supplied. During utility grid power losses, normal gas plant processing of sour gas ceases until power is restored.

Each boiler is capable of accepting Tail Gas Unit off gas ("TGU off gas") produced from the Stretford Unit part of the facility's Sulfur Recovery Unit ("SRU"). The TGU off gas contains up to 100 ppmv total reduced sulfur ("TRS") compounds (e.g., H_2S, CO_S, CS_2), which is incinerated in the boilers to oxidize the TRS compounds to oxides of sulfur (SO_x). The TGU off gas also contains small amounts of hydrogen and hydrocarbons, as well as inert gases such as CO_2 and N_2. The hydrogen and hydrocarbons can contribute an additional 5.62 MMBtu/hr of heat release within a boiler or be split between both boilers. Each stack is equipped with a CEM system that measures the concentration and mass emissions of NO_x and SO_x.

4.2.2 Emission Factors:

BOILERS - The emission factors for the two 41 MMBtu/hr Babcock-Wilcox utility boilers, shown in Table 5.2, are based on POPCO's permit application for the COEN QLN Low-NO_x burners in use. The NO_x emission factor is based on Rule 342 requirements (30 ppmv at 3% O_2) while the CO emission factor is based on the manufacturer guarantee of 100 ppmv at 3% O_2. The PM emission factor was derived from the PM_{10} factor by using a PM/PM_{10} ratio of 0.95. The SO_x emission factor is based on mass balance using a total sulfur content of 24 ppmv.

IC ENGINES – Emission factors for the IC engines are based on Table 3.3-1 of USEPA AP-42. The SO_x emission factor is based on mass balance.

TEG REBOILERS – Emission factors for the TEG reboilers are based on Tables 1.4-1 and 1.4-2 of USEPA AP-42. The SO_x emission factor is based on mass balance using PUC quality natural gas meeting the specifications of General Order – 58a.

4.2.3 Emission Controls: The emission controls for the two utility boilers include use of COEN QLN Low-NO_x burners. The burners are also equipped for steam injection (50 psig and up to 650 lb/hr) to reduce NO_x emissions. These controls were installed in 1996 in order to comply with the requirements of APCD Rule 342. The steam injection system has not been used to date. There are no controls used for the IC engines or the TEG reboilers.

4.3 Fugitive Hydrocarbon Sources

4.3.1 General: Fugitive hydrocarbon emissions occur from leaks in process components such as valves, connections, pumps, compressors and pressure relief devices. Each of these component types may be comprised of several potential "leak paths" at the facility. For example, leak paths associated with a valve include the valve stem, bonnet and the upstream and downstream flanges. The total number of leak paths at the facility must be determined to perform fugitive emission calculations.

4.3.2 Emission Factors: Emissions of reactive organic compounds from piping components such as valves, flanges and connections have been calculated using emission factors pursuant to APCD P&P 6100.061 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition*) for components in gas/light liquid service. The component-leakpath was counted consistent with P&P 6100.061. This leakpath count is not the same as the "component" count required by APCD Rule 331. No oil service components are present at this facility.

The operator determined the number of emission leakpaths and APCD staff verified these data by checking a representative number of P&IDs and by site checks. A total of 0 oil/emulsion component-leakpaths and 18,371 gas/light-liquid component-leakpaths exist at the POPCO facility. The calculation methodology for the fugitive emissions is:

$$ER = [(EF \times CLP \div 24) \times (1 - CE) \times (HPP)]$$

where:

ER =	emission rate (lb/period)
EF =	ROC emission factor (lb/clp-day)
CLP =	component-leakpath (clp)
CE =	control efficiency
HPP =	operating hours per time period (hrs/period)

4.3.3 Emission Controls: A fugitive emissions control program is used to minimize potential leaks from the process components. Emission reductions are expected as a result of POPCO's implementation of an Inspection and Maintenance ("I&M") program and component installation that is considered BACT and BARCT. The I&M program is designed to minimize leaks through a combination of

pre- and post-leak controls. Pre-leak controls include venting of leaks from compressor seals to the vapor recovery system, use of dual mechanical seals on pumps in light liquid service, venting of pressure relief devices to the flare system, and plugging of open-ended lines (an open-ended line is a valve that has one side of the valve seat in contact with the process fluid, and is open to the atmosphere on the other). Post-leak controls consist of regular inspection of each leak source for leakage and repair of all components found leaking. Inspections are performed with an Organic Vapor Analyzer consistent with EPA Method 21. Components are required to be repaired between 1 to 14 days, depending on the severity of the leak. POPCO's I&M program is consistent with the most stringent requirements of APCD Rule 331 and EPA New Source Performance Standards, Subpart KKK. POPCO's I&M program also includes a leak path identification system. Leak paths are physically identified in the field with a "tag" and given a unique number. An inventory of each tag is then maintained which describes the component type, service, accessibility and all associated leak paths. The leak path inventory serves as a basis for compliance with fugitive hydrocarbon emission limits. Table 4.1 summarizes the requirements for the I&M Program. Tables 4.2-1 and 4.2-2 define the BACT requirements for the fugitive hydrocarbon sources.

POPCO has classified a large number of flange/connection components as “emitters less than 500 ppmv” (E500) and “emitters less than 100 ppmv” (E100). E500s are defined as component-leakpaths associated with closed vent systems (e.g., vapor recovery systems) for which screening values are maintained at or below 500 ppmv as methane, monitored per EPA Reference Method 21. E100s are defined as component-leakpaths subject to the BACT standards and for which screening values are maintained at or below 100 ppmv as methane, monitored per EPA Reference Method 21. For such E500s and E100s, screening values above background trigger the Rule 331 repair process per the minor leak schedule.

The I&M program for leak detection and repair is consistent with Rule 331 requirements. The control efficiencies vary: for bellows seal valves – 100%; for Low Emission Valves (LEV) – 90%; and 80% for the remainder of the safe-to-monitor components. Unsafe to monitor components are not eligible for I&M control credit. Component-leakpaths classified as E500 and E100 are assigned a mass emission control efficiency of 85% and 90%, respectively. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

BACT standards apply for Rule 331 components subject to NSR BACT provisions of that rule. Table 4-1b (*Rule 331 BACT Requirements*) lists the specific BACT requirements for these components.

4.4 Sulfur Recovery / Tailgas Unit

4.4.1 General: POPCO's Sulfur Recovery Unit ("SRU") is comprised of three separate stages: a Claus-type catalytic converter stage; a Beavon converter stage; and a Stretford tailgas unit stage. The Claus-type unit operates to convert the H_2S in the raw acid gas produced from the Sulfinol system regenerator (acid gas also contains CO_2, but CO_2 passes through the entire SRU as an inert species). The H_2S is converted to elemental sulfur. The Beavon converter is used to convert the residual quantities of byproduct SO_2 in the Claus off gas back into H_2S, whereby in the next stage of the SRU process, the Stretford tailgas unit, most all of the residual H_2S in the Beavon off gas is removed and converted into wet elemental sulfur.

The system used by POPCO incorporates BACT to remove H_2S from the acid gas feed to the SRU. The BACT standard that applies to this process is considered a different "class" of process than the standard that has been applied to date for "refinery-based" SRUs. Refinery-based SRUs typically do not contain much else in their acid gas except H_2S, because all the hydrocarbons and other reduced sulfur species were converted to H_2S in catalytic-desulfurization processes (for the gasoline, kerosene, and diesel products produced by refineries) upstream of their SRUs. Because gas plants used to produce utility-grade fuel gas directly from production wells, such as POPCO (and the adjacent ExxonMobil SYU gas plant), they handle acid gas streams which are much "leaner" (i.e., lower in concentration) in H_2S, and also contain significantly higher proportions of other reduced sulfur species than refinery-based SRU acid gases.

As a result, all of POPCO's three SRU stages basically operate most effectively to remove H_2S from the acid gas stream sent to the SRU from the POPCO gas processing equipment's amine-based gas sweetening system. The SRU systems are only partially effective at removing and converting other reduced sulfur species such as carbonyl sulfide, carbon disulfide, and mercaptans to the elemental sulfur product. Because of this limitation, this SRU's BACT standard is limited to specifying the minimum allowed H_2S reduction efficiency. This SRU's performance is also specified for minimum total sulfur reductions to ensure compliance with the applicable federal NSPS (40 CFR, Subpart LLL).

4.4.2 Emission Factors/Controls: Emission calculations for the SRU's H_2S and total sulfur recovery efficiency are based upon the minimum required reduction in these species across the SRU (see Table 4.2-3 and 4.2-4). The monitoring systems in place and the formulae used to track compliance with these specifications are shown in Figures 4.1 and Table 4.3.

The minimum H_2S and TRS recovery efficiency specifications will be met by limiting the maximum capacity of the SRU's contribution to the POPCO facility SO_2 emissions to no more than 5.44 lb/hr. This equates to a calculated H_2S mass reduction efficiency of 99.9484 percent at a 60 LTD feed rate to the SRU. It is important to note, though, this permit only specifies the H_2S and TRS mass reduction efficiencies to three significant figures (e.g., 99.9 percent for H2S). This is because of the intrinsic (but allowed by CFR standards) instrument accuracy limitations used to monitor these efficiencies; for example, with both the inlet H_2S and Stretford tailgas H_2S, and even the boiler stack SO_2 CEM, all capable of accuracy to approximately ± 3.5%, no more than three significant figures of mass reduction efficiency can be specified. However, using the Stretford H_2S tailgas, and the boiler stack SO_2 CEMS mass emission monitors, ensures that at least the applicable three-significant-figure-based BACT and NSPS standards are achieved or even exceeded (on a calculated basis), and that total SO_2 mass emissions impact from the SRU is minimized.

In addition to SO_2 from the SRU, the Stretford tailgas also contains some residual combustible species such as hydrogen (H_2) and low molecular weight hydrocarbons that are carried through or generated by the SRU process. These combustible species are estimated to contribute up to 5.62 MMBtu/hr of additional heat release in the B-801A/B boilers during incineration of about 225,000 SCF/hr of off gas. The residual heating value of the Stretford tailgas has been estimated at 25.0

Btu/scf. In general then, the SRU incineration emissions can be calculated using formulae similar to standard combustion processes as follows:

$$ER = EF \times FR \times HVC$$

where:

ER	=	emission rate (lb/period)
EF	=	pollutant specific emission factor (lb/MMBtu of incinerated gas)
FR	=	Stretford tailgas flow rate (SCF/period)
HVC	=	average high heating value from combustion of Stretford tailgas (Btu/scf).

Emissions from this waste stream are calculated separately from the main fuel gas emission calculations in two line items in Table 5. The first line item addresses the non-SO_x criteria emissions and uses the same emission factors as used for the utility boilers. The second item addresses the SO_x emissions that are specific to the tailgas stream characteristics. As permitted under ATC 9047, the SO_x emission factor is 5.44 lb/hr. Also included in the second item are emissions of ROC from the Stretford Oxidizer Tanks. The POPCO proposed emission factor of 0.10 lb/hr is used. The pollutant specific emission factors and other data required for these calculations are documented in Section 5 of this permit

4.5 Thermal Oxidizer

4.5.1 General: Emissions associated with a variety of flaring events are anticipated from the POPCO facility. Flaring emissions associated with the controlled start-up and shut-down of the Gas Plant for maintenance and inspection were supplied by the applicant as part of the Rule 359 *Flare Minimization Plan* activities and the POPCO *1983 Flaring Analysis* (revised 7/84). Anticipated failure rate frequencies and emissions levels were projected in the project SEIR based on past operating records from similar facilities.

The POPCO flare relief system consists of hydrocarbon and low-pressure acid gas headers. Each of these headers connects the various PRDs and manual pressure relief/vent paths to a common enclosed ground flare (the ZTOF). No hydrocarbon service pressure relief devices are equipped with relief valves vented directly to the atmosphere. The flare itself is manufactured by John Zink and is rated at about 72,159 lbs of hydrocarbons an hour for the three ZTOF stages, and an additional 269,000 lb/hr for the LRGO stage.

4.5.2 Operating Modes: This permit categorizes all flaring activities into one of the following four categories:

- *Purge and Pilot* - Up to 2000 scfh of plant gas and 200 scfh of sales gas (PUC quality) are used to maintain pilot flames and to purge the thermal oxidizer respectively. Per APCD P&P 6100.004, this category is included in all emission scenarios (i.e., hourly, daily, quarterly and annual).

- *Planned Continuous* - This category includes all continuous flaring events. This includes compressor seal leakage to the acid gas header and “baseline” system leakage to both the hydrocarbon and acid gas headers. Each compressor is equipped with a totalizing flow meter.

The baseline system leakage is a calculated value for each flare header based on the principle of taking the total volume metered at each flare header and subtracting out all known metered volumes (e.g., purge gas, compressor seal leakage, flaring events).

The compressor seal leakage rate of 311 scfh is greater than one-half the minimum detection limit of the acid gas flare header flow meter (245 scfh) and as such an additional emissions line item is not required. Further, since the hydrocarbon flare header flow meter minimum detection limit is very low (45 scfh), it is assumed that the purge gas flow rate through the hydrocarbon flare header is greater than one-half the minimum detection limit of the flow meter (22.5 scfh), and as such an additional emissions line item is not required. Per APCD P&P 6100.004, this category is included in all emission scenarios.

- *Planned Other* - This category includes planned infrequent flaring events and is <u>only</u> comprised of plant startups and maintenance. Other planned flaring events may only occur via a variance per Regulation V. This category includes operations occurring a maximum of four times per year. Per APCD P&P 6100.004, emissions from this category are included only in the quarterly and annual emission scenarios.

- *Unplanned Other* - This category includes unplanned infrequent flaring and is <u>only</u> comprised of plant SRU failures occurring no more than 4 times per year for the same cause. Other unplanned flaring events may only occur via a variance per Regulation V. Per APCD P&P 6100.004, emissions from this category are included only in the quarterly and annual emission scenarios.

4.5.3 <u>Emission Factors</u>: The emission factors are based on prior permitting actions. The basis for selection of the emission factors is not known. The SO_x emission factor is determined using the equation: (0.169)(ppmv S)/(HHV) [b]. The calculation methodology for the flare emissions is:

$$ER = [(EF \times SCFPP \times HHV) \div 10^6]$$

where:	ER =	emission rate (lb/period)
	EF =	pollutant specific emission factor (lb/MMBtu)
	SCFPP =	gas flow rate per operating period (scf/period)
	HHV =	gas higher heating value (Btu/scf)

To meet the requirements of Rule 359, POPCO uses purge and pilot gas that complies with the rule limit of 239 ppmv. POPCO's fuel gas for the pilot cannot exceed a total sulfur content of 24 ppmv and the fuel gas for the purge cannot exceed a total sulfur content of 80 ppmv and a hydrogen sulfide content of 4 ppmv.

4.5.4 <u>Meters</u>: The Flare Volume Metering system is divided into two parts: (1) a hydrocarbon metering system; and, (2) an acid gas metering system.

[b] Reference: *SOx Emission Factors for Gaseous Fuels*, SBCAPCD, January 31, 1997

HYDROCARBON METERING SYSTEM - The "hydrocarbon" metering system is comprised of three overlapping stages of flow metering, such that the low and very high flows in this manifold can be accurately measured. The minimum detectable flow measured by this system is 45 scfh. At a "zero" reading from this metering system, it is assumed that one-half of the minimum detectable flow measurement capability (i.e., 22.5 scfh), at a minimum, is continuously flowing to the hydrocarbon side of the flare. Specifically:

Low Flow Metering System: Installed into 3-inch flare first stage piping downstream of HC Flare K.O. Drum, V-802. Measures flow as low as 45 scf/hr and up to 0.036 MMSCF/hr. Make: Fluid Components International ("FCI"); Model No: GF90; this meter's flow readings are inherently pressure and temperature compensated.

Intermediate Flow Metering System: Installed into 16-inch flare main header piping upstream of HC Flare K.O. Drum, V-802. Measures flow rates as low as 1,125 scf/hr up to 1.14 MMSCF/hr (equivalent to 27.5 MMSCF/day). Make: Fluid Components International ("FCI"); Model No: GF90; this meter's flow readings are inherently pressure and temperature compensated.

High Flow Metering System: Installed into 16-inch flare main header piping upstream of HC Flare K.O. Drum, V-802. Measures flow rates as low as 0.729 MMSCF/hr up to 9.58 MMSCF/hr (equivalent to 17.5 to 230 MMSCF/day). Make: Dietrich Standard; Model No: Diamond II annubar; this meter's flow readings are temperature and pressure compensated.

Temperature and Pressure Transducers: As shown on POPCO P&ID No. D-972-28K, Rev. 11 (1/11/96) labeled as PT/PI #898; and TT/TI #898 for pressure and temperature respectively. These transducers are used to correct hydrocarbon flare flows measured by the annubar high flow meter system.

ACID GAS METERING SYSTEM - The other part of the system measures acid gas releases from the facility Sulfur Removal Unit ("SRU") process into the "Acid Gas" manifold; it is comprised of one "thermal dispersion" type flow meter. The minimum detectable flow measured by this system is 490 scfh. Thus, at a "zero" reading from this meter, it is assumed that one-half of its minimum detectable flow measurement capability (i.e., 245 scfh), at a minimum, is continuously flowing to the Acid Gas side of the flare. This is slightly less than the permitted compressor seal leakage rate of 311 scfh that enters the acid gas flare header.

4.5.5 Mitigation of SRU Failures and Acid Gas Releases to the ZTOF: As previously analyzed in POPCO's *1983 Flaring Analysis*, two SRUs were originally intended to be operating, and only one was deemed likely to fail at a time. Such a failure produces a significant spike in SO_2 emissions, but one that in the 1983 analysis was predicted to not create a localized violation of a state or federal ambient air quality standard for SO_2 in effect at that time. However, the current single-SRU design, doubles the potential SO_2 emissions associated with this failure scenario, as the entire acid gas rate associated with a 60 LTD SRU acid gas capacity could go to the ZTOF. As a result, ATC 9047 performed an Air Quality Impact Analysis ("AQIA") of this scenario, and a POPCO proposed mitigation of its impact, in accordance with APCD rules and Santa Barbara County FDP land use condition E-5. This analysis has shown that POPCO's proposed SRU failure mitigation system is anticipated to prevent a localized, short-term violation of any state and federal SO_2 ambient air quality standard.

4.5.6 Mitigation of Planned ZTOF Operations during Maintenance and Startup Activities: The ZTOF is also used to safely flare gases in a planned manner. Planned flaring is defined (pursuant to APCD Rule 359) as *"...a flaring operation that constitutes a designed and planned process at a source, and which would have been reasonably foreseen ahead of its actual occurrence, or is scheduled to occur*". As such, planned uses of the ZTOF are considered to be clearly within the control of POPCO in regards to schedule, duration, and rate of flaring. It should also be noted that the ZTOF is not operating in these planned activities as a "safety" device; it is however disposing of the flared gases in a safe manner (such that no fire or explosive atmospheres result). During evaluation of ATC 9047, it became apparent that an AQIA was required for the reasonable "worst-case" use of the ZTOF during planned activities; this worst-case activity is that of facility "Start-up" in which off-specification and equipment purge gases are safely vented to the ZTOF. This unavoidable activity is needed to safely bring the facility's gas processing equipment into operations. To minimize the time required to accomplish this activity, POPCO has desired as high an allowed volumetric flow rate limit as is permissible. However, an AQIA analysis was performed and it discovered that the permitted limit for planned activities of 1.5 MMSCF/hr for 12 hours in duration contained in PTO 8092 was predicted to create a violation of the 1-hour primary ambient air quality standard for NO_2. The analysis also indicated that at one-half the flow rate, and twice the duration (to 24 hours), the NO_2 standard and any other standard would not be exceeded. As a result, ATC 9047 was conditioned to restrict ZTOF operations during any planned use to no more than 0.75 MMSCF/hr and up to a continuous 24 hours in duration. This restriction does not reduce the total quantity of emissions from this activity; it does however reduce its peak hourly emissions impact.

4.6 Tanks/Sumps/Separators

4.6.1 General:

TANKS: There are three types of atmospheric storage tank systems operating at this facility that contain process fluids that have contacted hydrocarbons. These are the Stretford Oxidizer tanks, the wastewater tanks and the methanol tank. POPCO has stated that it is unlikely the wastewater tankage system emits hydrocarbons to the atmosphere. Wastewater tanks T-807 and T-601 do, however, have the potential to emit odorous sulfur compounds. For the Stretford Oxidizer tanks, testing during the SCDP of ATC 9047 confirmed that ROC emissions occur from the atmospheric venting of Stretford oxidation air. The ROCs are emitted because the Stretford solution has come into direct contact with a stream that contains low concentrations of hydrocarbons.

VESSELS*:* All pressure vessel PRDs in this facility are either connected to the plant's hydrocarbon or acid gas flare manifolds. Permitted emissions of ROCs from pressure vessels are therefore only due to fugitive hydrocarbon leaks from valves and connections.

4.6.2 Emission Factors: Emissions from the Stretford oxidizer tanks are based on an emission factor of 0.10 lb/hr that was provided by POPCO. Emissions from the methanol tank are based on the ideal gas law and vapor displacement during tank fillings. Emissions from the methanol tank are based on the ideal gas law and one tank loading operation per year.

4.6.3 Emission Controls: Carbon canister emission controls are used on wastewater tanks T-807 and T-601 to minimize any potential odorous compounds. There are no controls on the Oxidizer Tanks.

The methanol tank is equipped with a submerged fill pipe and a pressure-vacuum relief valve per Rule 326.D.1a and D.2.a, respectively.

4.7 Vapor Recovery Systems

4.7.1 Drain Systems: A gas eductor system (J-203) creates a vacuum to remove vapors emitted into the plant's Pressure Drain System ("PDS"), TEG Drain System ("TDS"), and Sulfinol Drain Systems ("SDS"). In addition, this system serves the pipeline pig receiver. This gas eductor system prevents the release to the plant Acid Gas flare system of routine, intermittent sour-vapor releases through the PDS, TDS and SDS equipment from blowdowns of level-control gages and sight glasses. Without this vapor recovery system, these blowdowns would emit vapors to the PDS, TDS, and SDS equipment that sometimes exceed the sulfur limits authorized by APCD Rule 359 (i.e., 239 ppmv) for planned flaring activities. The recovered vapor will be returned by the eductor system for processing by the plant's existing fuel gas contacting system (V-211 and V-203). This system is comprised of valves, fittings, and hard piping. ROC emissions generated from this vapor recovery system components are calculated as part of the facility fugitive emissions inventory.

4.7.2 NGL Loading Rack: The NGL loading rack is equipped with a hard piped vapor recovery line. With this system, vapors from pressurized tank trucks are returned to the facility NGL tanks via a vapor balance line. This system is comprised of valves, fittings, and hard piping. ROC emissions generated from this vapor recovery system components are calculated as part of the facility fugitive emissions inventory.

4.8 Other Emission Sources

4.8.1 Pigging: Pipeline pigging operations occur at the Gas Plant. The pig receiver is de-pressured to the Pressure Drain System vapor recovery system. The receiver is purged with nitrogen prior to opening the unit to the atmosphere, as such there is no potential to vent hydrocarbons due to this process besides those associated with fugitive emissions from valves and fittings.

4.8.2 General Solvent Cleaning/Degreasing: Solvent usage (not used as thinners for surface coating) occurring at the POPCO facility as part of normal daily operations includes cold solvent degreasing and wipe cleaning. Mass balance emission calculations are used assuming that all the solvent used evaporates to the atmosphere unless an APCD-approved Solvent reclamation is used.

4.8.3 Surface Coating: Surface coating operations typically include normal touch-up activities. Entire facility painting programs are performed once every few years. Emissions are determined based on mass balance calculations assuming that all solvents evaporate to the atmosphere. Emissions of PM/PM_{10} from paint overspray are not calculated due to the lack of established calculation techniques.

4.8.4 Abrasive Blasting: Abrasive blasting with CARB-certified sands may be performed as a preparation step prior to surface coating. Particulate matter is emitted during this process. A general emission factor of 91 pound PM per 1000 pound of abrasive and 13 pound PM_{10} per pound abrasive is used (USEPA, 5th Edition, Supplement D, Table 13.26-1, 9/97) to estimate emissions of PM and PM_{10}.

4.9 BACT/NSPS/NESHAP/MACT

4.9.1 BACT: Best Available Control Technology is required for certain emission units and processes for ROC and SO_x. The applicable BACT control technologies and the corresponding BACT performance standards are listed in Table 4.2. Table 4.1 lists the BACT requirements for the fugitive hydrocarbon I&M Program.

Pursuant to APCD Policy and Procedure 6100.064, once an emission unit is subject to BACT requirements, then any subsequent modifications to that emissions unit or process is subject to BACT. This applies to both *de minimis* changes and equivalent replacements, regardless of whether or not such changes or replacements require a permit.

4.9.2 Rule 331 BACT Determinations: Pursuant to Sections D.4 and E.1.b of Rule 331, components are required to be replaced with BACT in accordance with the APCD's NSR rule. These BACT determinations are based on a case-by-case basis following the APCD's guidance document for determining BACT due to Rule 331. Rule 331 BACT determinations are documented in Table 4.1b.

4.9.3 NSPS: Discussion of applicability and compliance with New Source Performance Standards is presented in Table 4.7. An engineering analysis for the affected equipment is found in the sections above.

4.9.4 NESHAP: POPCO has not identified any equipment or processes that are subject to an applicable National Emission Standard for Hazardous Air Pollutants.

4.9.5 MACT: On June 17, 1999, EPA promulgated Subpart HH, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. POPCO is required to submit for APCD review *Initial Notification of Applicability* by June 17, 2000. If the facility is subject to the MACT, POPCO is required to modify this Part 70 Operating Permit to include the specific requirements that are applicable and full compliance must be achieved by June 17, 2002.

4.10 Best Available Retrofit Control Technology (Fugitive Emissions)

During the processing of ATC 9047, an analysis of what constituted Best Available Retrofit Control Technology ("BARCT") was jointly performed by the APCD and POPCO to identify a suitable fugitive emissions mitigation approach short of obtaining ROC emission offsets. BARCT should identify an emission limitation that, according to the California Health and Safety Code, Section 40406: *"...is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts of the class or category of source"*. The APCD and POPCO also agreed that if application of BARCT resulted in the facility's ROC NEI dropping below the 25.0 tpy ROC offset threshold of Rule 205.C, no ROC offsets would be required.

To reconcile the fact that full BARCT is cost-effective, yet not fully achievable in the short construction window, the APCD and POPCO also developed a "deferred" retrofit BARCT program that applies to the remaining existing valves left in-service after construction is completed.

The BARCT analysis performed by the APCD and POPCO as part of ATC 9047 identified equipment and techniques to reduce fugitive emissions from the existing facility valves and connections. The basic requirements of the BARCT plan resulted in the retrofit of the existing facility components during the expansion construction of sealess valves in unsafe to monitor locations; replacement of standard valves with low emission packing ("LEP") design valves; a modified LDAR threshold for all remaining in-service standard valves (BARCT retrofit or not) and threaded static connection leak-paths; and a reduction of the "minor" leak LDAR threshold for all existing valves (constituting the "deferred" BARCT retrofit program). The specific details of the total BARCT program are specified in a permit condition in Section 9.C.

These elements of BARCT taken together were anticipated to immediately reduce the facility's current emissions by 35.32 tons/year, and to be accomplished at a cost effectiveness of $6,642/ton ROC reduced. Further, a requirement that BARCT retrofit technology be applied to any standard valve which cannot be repaired to below 500 ppmv during the quarterly LDAR activities, are estimated to generate additional, but unquantified emission reductions over the remaining life of the facility after the expansion was completed.

4.11 CEMS/Process Monitoring/CAM/Meter Calibration

4.11.1 CEMS: In 1983, and pursuant to PTO 4078 the APCD determined the emission sources and operating parameters that need continuous monitoring to ensure permit compliance. Table 4.3 and Table 4.4 identify the current set of emission sources and operating parameters that require continuous monitoring pursuant to this permit. In order for the APCD to assess facility operational status and to ensure major emission sources are operating properly, selected monitored data are connected to and telemetered to the Data Acquisition System ("DAS") at the APCD's office on a real-time basis; these parameters are also listed and specified in Table 4.3 and Table 4.4.

The monitoring devices described herein must meet the applicable requirements set forth in APCD Rule 328 and in 40 CFR Part 51 and Part 60. Process parameter monitors shall be maintained and calibrated consistent with applicable CFR or APCD regulations and manufacturer's specifications. POPCO's current APCD-approved CEM Plan specifies the analyzer types, operating procedures, computer software and hardware, emission calculations, maintenance and calibration, and recordkeeping and reporting requirements.

The monitors must meet the requirements set forth in APCD Rule 328 and the Code of Federal Regulations (CFR), 40 CFR Parts 51, 52 and 60. These must be installed in accordance with manufacturer's specifications, and EPA requirements as specified in the CFR.

POPCO must obtain the APCD’s approval of any modifications/updates to the CEMS Plan (conditionally approved 3/21/00). POPCO is required to follow the APCD *Continuous Emission Monitoring Protocol Manual* (10/22/92 and all updates).

4.11.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed through process monitoring systems. Examples of these monitors include: engine hour meters, fuel usage meters, mass flow meters, flare gas flow meters and hydrogen sulfide analyzers. Once these process monitors are in place, it is important that they be well maintained and calibrated to ensure that the required accuracy and precision of the devices are within

specifications. At a minimum, the following process monitors will be required to be calibrated and maintained in good working order:

⇒ B-801A/B Fuel Flows
⇒ B-801A/B Incineration Zone Temperature Indicator(s)
⇒ B-801A/B SO_x and NO_x mass emission CEM systems
⇒ Stretford Unit Tailgas H_2S concentration analyzer
⇒ Stretford Unit Tailgas Flow to B-801A/B
⇒ Acid Gas to SRU Inlet flow meter
⇒ Plant inlet sour gas flow rate, and H_2S concentration analyzer
⇒ Plant outlet sales gas flow rate and H_2S concentration analyzer
⇒ Flare header flow meters (acid gas and hydrocarbon manifolds)
⇒ Compressor seal leakage to flare header flow meters (meter required for each compressor)
⇒ hour meters (emergency generator, emergency generator for the instrument air compressor and firewater pumps)
⇒ production meters (NGL shipped via truck, elemental molten and Stretford sulfur products, produced water via truck)
⇒ TEG Reboiler fuel meters
⇒ SRU Steam Generator fuel meter

As necessary to ensure compliance with this permit and applicable rule and regulations, the APCD may require POPCO, by written notice, to install additional process monitors and/or to expand the list of existing plant process monitors detailed in the list above.

4.11.3 CAM: *ExxonMobil – SYU Project* is a major source that is subject to the USEPA's Compliance Assurance Monitoring (CAM) rule (40 CFR 64). Any emissions unit at the facility with uncontrolled emissions potential exceeding major source emission thresholds for any pollutant is subject to CAM provisions. POPCO must submit a compliance plan to the APCD for this rule at the time of Part 70 permit renewal or before if the permit is reopened due to a significant permit change.

4.11.4 Meter Calibration: To ensure that appropriate calibration and maintenance procedures are applied to the metering specified above, a *Process Monitor Calibration and Maintenance Plan* is required from POPCO. This Plan shall take into consideration manufacturer recommended maintenance and calibration schedules, as well as the following supplemental requirements:

⇒ The sour gas flow meter and inlet H_2S analyzer shall follow the requirements in the APCD's CEM Protocol document.

⇒ The Stretford H_2S analyzer and tailgas flow meter shall follow the CEM Protocol document.

⇒ The Utility Boiler NO_x and SO_x CEMS system shall follow the CEM Protocol document.

⇒ Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment shall be utilized.

4.12 Source Testing/Sampling

4.12.1 Source Testing: Source testing and sampling are required in order to ensure compliance with permitted emission limits, BACT, NSPS, prohibitory rules, control measures and the assumptions that form the basis of this operating permit. Table 4.5 details the emission units, pollutants and parameters, methods and frequency of required testing. POPCO is required to follow the APCD *Source Test Procedures Manual* (May 24, 1990 and all updates).

The parameters to be source tested annually (unless otherwise specified). The APCD may require additional source testing if problems develop or if unique circumstances occur that warrant special testing. The following emission points and control/monitoring systems are required to be source tested:

⇒ Sulfur Recovery Unit/Stretford Tailgas Plant (percent mass H_2S and TRS reduction)
⇒ Boilers B-801A/B (NO_x, SO_x, ROC and CO)
⇒ Functional testing of the SRU Failure shutdown system to ensure excess SRU acid gas will not be flared subsequent to any unplanned SRU failure.
⇒ SRU's Stretford Unit Oxidizer Tanks (ROC)

4.12.2 Sampling: Duplicate samples of the process streams below are required to be sampled and analyzed on a quarterly basis. A third party lab shall perform all analyses, except for daily sorbent tube samples.

⇒ Feed Gas (sour): Sample taken at sample probe of inlet H_2S analyzer. Analysis for hydrogen sulfide and total sulfur composition.

⇒ Boiler Fuel Gas: (a) Daily sorbent tube for hydrogen sulfide; (b) Quarterly sampling for hydrogen sulfide and total sulfur composition.

⇒ Sales (PUC Quality) Fuel Gas: Analysis for: HHV, total sulfur, hydrogen sulfide.

⇒ Stretford Tailgas to Boilers: Analysis for: HHV.

⇒ Waste Water Tanks: Analysis for ROC in the waste water (mg/l).

As necessary to ensure compliance with this permit and applicable rule and regulations, the APCD may require POPCO, by written notice, to sample additional process streams in a manner and frequency specified by the APCD. All sampling and analyses are required to be performed according to APCD-approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. All sampling and analysis must be traceable by chain of custody procedures. POPCO shall obtain APCD approval of all sampling and analytical methods used to obtain the process stream data stated above. Section 9 details the sampling that is required

4.13 Odor Monitoring

POPCO shall implement the APCD-approved *Odor Monitoring Plan* (approved September 13, 1993) for ambient odor monitoring and a human olfactory verification program for the life of the POPCO facility. The site identified in Table 4.6, *LFC Odor*, shall provide the following information: H_2S, wind speed, wind direction, and shelter temperature. Other odor-related pollutant -specific monitoring equipment may be added to the stations, if deemed necessary by the APCD.

4.14 Part 70 Engineering Review: Hazardous Air Pollutant Emissions

Hazardous air pollutant emissions from the different categories of emission units at the POPCO facility are based on emission factors listed in USEPA AP-42. Where no emission factors are available, the HAP fractions from the ARB VOC Speciation Manual – Second Edition (August 1991) are used in conjunction with the ROC emission factor for the equipment item in question.

Potential HAP emissions from each emissions unit at the POPCO facility are listed in Section 5.

Figure 4-1 - POPCO SRU BACT & NSPS Monitoring Systems

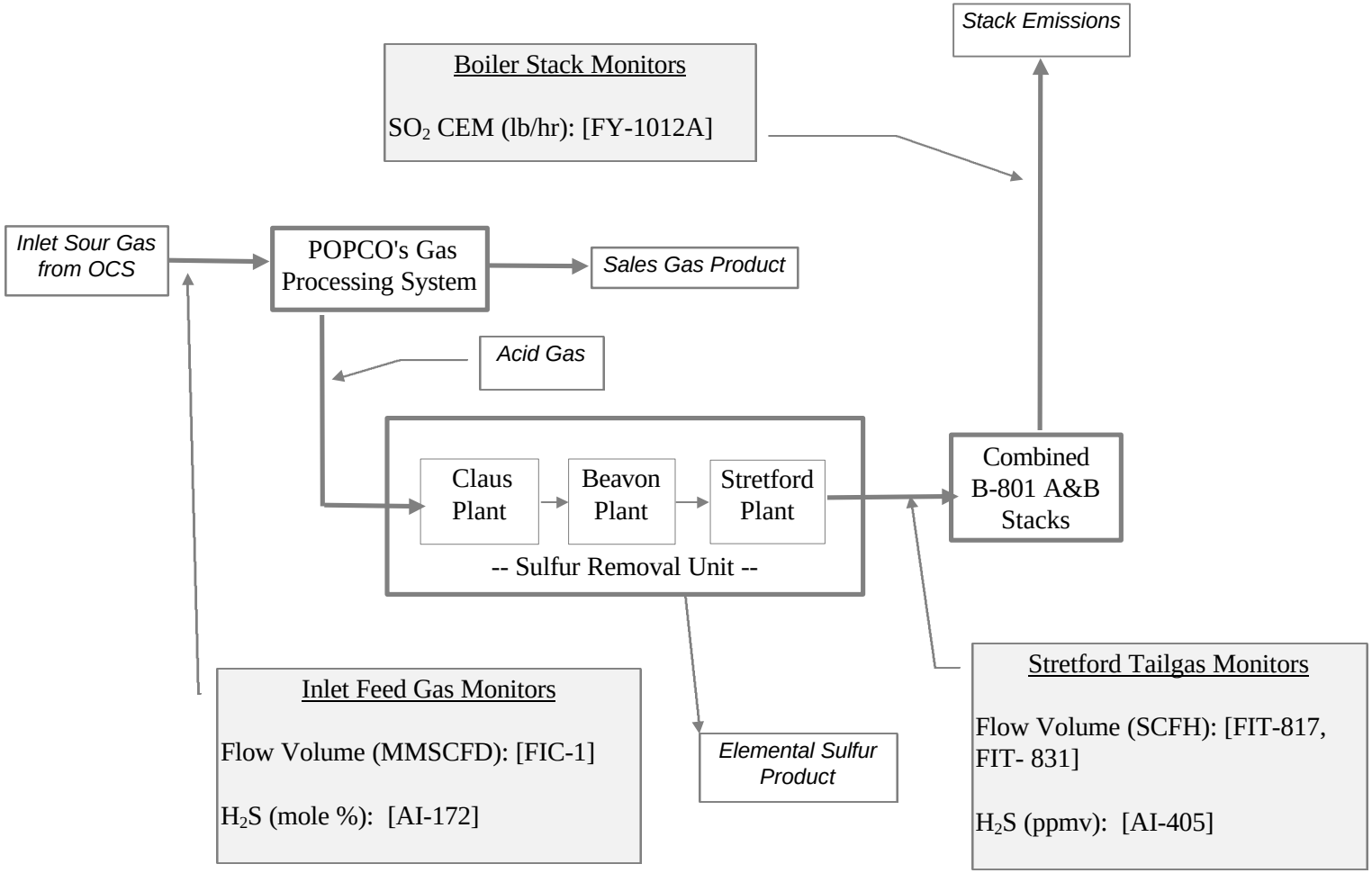


Table 4.1 - Fugitive Hydrocarbon Inspection And Maintenance (I&M) Program (Page 1 of 2)

	New GAS COMPONENTS[a]	Existing Gas COMPONENTS[b]
Leak Definition[c, d]	Gaseous Services, as follows: A) Static, Threaded-connections: 100 ppmv B) Valves: 100 ppmv C) Flanges: 100 ppmv Liquid: any indication	Gaseous Services, as follows: A) Static, Threaded-connections: 500 ppmv B) Valves: 500 ppmv C) Flanges: 1000 ppmv Liquid: any indication
Valve Monitoring [e, f]	Quarterly	Quarterly
Relief Valve Monitoring	Vented to flare	Vented to flare
Pump Monitoring	Dual Seals [j]	Dual Seals
Connections Monitoring [g,h,i, p]	Annual	Annual
Open-Ended Lines	Capped	Capped
Compressors	Vented to vapor control system	Vented to vapor control system
Repair Requirements [l,m,n]	First attempt within 5 days. Repair within 15 days. Also see Rule 331 requirements.	First attempt within 5 days. Repair within 15 days. Also see Rule 331 requirements. NOTE: Any standard-stem valve subsequent to repair per Rule 331 and which leaks between 501 and 1000 ppmv, is subject to BARCT retrofit with LEP[(q)] technology within 1 calendar year of the date of failed repair.
Record Keeping and Reporting Requirements	Similar to NSPS Final Rule. Also see Rule 331 requirements.	Pursuant to Rule 331 requirements, and specific conditions of this permit.

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a BACT. Applies to all components permitted on or after February 4, 1997. Similar to New Source Performance Standards (NSPS); Equipment Leaks of VOC from Onshore Natural Gas Processing Plants; Final Rule, 40 CFR Part 60, FR Vol. 50, No. 121, June 24, 1985. Applicable to equipment in VOC service (that is, contains or contacts a process fluid that is at least 10 percent VOC by weight at 150°C) or in wet gas service (that is, contains or contacts inlet gas before the plant extraction process). All components identified for I&M shall be uniquely tagged, in an APCD-approved manner, to distinguish these components from the components approved prior to that date.

b BARCT. Applies to all components permitted before February 4, 1997. Applicable to components in gaseous and light hydrocarbon services, that is, contains or contacts a process fluid that is equal to or greater than 10 percent VOC by weight at 150°C or in wet gas service (that is, contains or contacts inlet gas before the plant extraction process). All existing components identified for I&M shall be uniquely tagged, in an APCD-approved manner, to distinguish these components from components permitted on or after February 4, 1997.

c Gas Components Leak Detection
Gaseous and Light hydrocarbon Liquid component Leakage monitoring will be determined by a hydrocarbon analyzer which uses the flame ionization detection method, and additionally by visual inspection.

d Calibration of the hydrocarbon analyzer will be similar to NSPS requirements.

e Valves
The following reductions in fugitive emissions due to the implementation of the APCD I&M Programs and assuming that all valves are accessible to quarterly monitoring are, as follows:

1) Bellows, or sealess valves (in any USM or safe-to-monitor service) : 100%
2) Low Emissions Packing designs: 90%
3) Standard valves: 80%

f The quarterly valve monitoring program required by the District is similar to that of the NSPS valve monitoring program. NSPS requirements, subpart KKK (and VV) requires leak screening during initial first two months of operations of any new valve.

g Connections
The same record keeping and reporting procedures as NSPS are also required for connections; alternatively, a procedure approved by the Air Pollution Control Officer can be used. The following reductions in fugitive emissions due to the implementation of the APCD I&M Programs and assuming that all connections are accessible to annual monitoring are, as follows:

1) Static threaded-connections -

Existing @ <500 ppmv: 85%
New @ <100 ppmv: 90%

Note: *Static threaded-connections are defined as any threaded connection that is not during hydrocarbon gas processing (i.e., routine operations of the gas plant) moved, or removed, from its "normal" sealed position.*

2) Flanges and other non-threaded connections: 80%

h It is assumed that the total connection count includes all connections required for the venting of relief valves to a vapor control system, the capping of open-ended lines, and the conversion of sampling to a closed purge system.

i Leak detection for connections in gaseous and light hydrocarbon liquid service will utilize measurement enhancement techniques if determined to be necessary by the APCD.

j Pumps
The APCD I&M program on pumps with dual seals is similar to that required by NSPS on pumps with dual seals.

k Compressors
The APCD fugitive emissions calculation assumes no emissions from compressor seals that are required by BACT to be vented to a vapor control system. The APCD assumes that a leak detection program around the compressors will be part of the I&M program to ensure that the vent system is operating properly and that no emissions from the compressors are occurring.

l Repair Requirements
Repair requirements are similar to NSPS. Also see Rule 331.

m It is assumed that spare parts and maintenance personnel are available when necessary for repair.

n Emissions reduction credit will not be applicable to leaking components that are not repaired within the requirements of this program. For repairs made at process turnarounds, emissions reduction credit will be based on the statistical frequency of process turnarounds or shutdowns.

o Record Keeping and Reporting Requirements
Record keeping and reporting requirements are similar to the most stringent of NSPS requirements. Also see Rule 331.

p Component Accessibility
Consistent with NSPS, all components shall be accessible to leak detection monitoring where feasible. Access to components above ground level shall be maximized through the use of ladders, elevated platforms, manlifts, or other appropriate devices. Emissions reduction credit will be adjusted based on component accessibility.

q LEP is an acronym for Low Emissions Packing technology valve stem seal system. See APCD Policy and Procedure 6100.061 for definition of LEP.

Table 4.1b – Rule 331 BACT Requirements

Component Tag ID/Description	Technology	Performance Standard
21H-024 / Other: Vessel V-104.	Temporary Furmanite enclosure until next planned shutdown of V-104, at which time the enclosure must be removed and component 21H-04 is replaced with candidate BACT per Rule 331 or is removed from service.	100 ppm as methane above ambient, monitored per EPA Reference Method 21

4.2-1 BACT. Emission Unit/Process: Fugitive Emissions from Valves and Connections in Hydrocarbon Service

Pollutant	Control Technology	Emission Limit/Performance Standard	Verification / Recordkeeping Requirements
ROC	Valves		
	1) Use of Sealess valves (e.g. Bellows) or low-emissions packing ("LEP") systems; 2) Fugitive emissions Leak Detection and Repair ("LDAR") program consistent with Rule 331 LDAR requirements, and 40 CFR subpart KKK frequencies.	⇒ LDAR minor leak threshold @ 100 ppmv THC per Method 21	1) APCD inspection during SCDP to verify component counts and configuration specified herein; 2) Periodic APCD inspection of POPCO records pursuant to Rule 331. New valves to be uniquely "tagged" to differentiate BACT LDAR threshold.
	Connections (Flanges and Threaded Fittings)		
	1) Flange gaskets; graphitic-type or equivalent District-approved type, rated to 150 percent of process pressure at process temperature; 2) Static threaded connections maintained at <100 ppmv; 3) All connections subject to LDAR consistent with Rule 331 LDAR requirements, and 40 CFR subpart KKK frequencies.	⇒ LDAR minor leak threshold @ 100 ppmv THC per Method 21	1) & 2) APCD inspection during SCDP to verify component counts and configuration specified herein; 3) Periodic APCD inspection of POPCO records pursuant to Rule 331. New connections to be uniquely "tagged" to differentiate BACT LDAR threshold.

Note: LEP valve systems are considered to employ one of the following types of valve actuator sealing systems: quarter turn; live-loaded packing; graphite or PTFE packing, precision machine stem; or other APCD-approved system.

4.2-2 BACT. Emission Unit/Process: Fugitive Emissions from Pressure Relief Devices, Compressors, and Pumps in Hydrocarbon Service

Pollutant	Control Technology	Emission Limit/Performance Standard	Verification / Recordkeeping Requirements
ROC	<u>Pressure Relief Devices</u>		
	1) All new PRD reliefs to be routed via a closed vent system to the facility flare (i.e., the "ZTOF").	⇒ The combined capture/destruction efficiency of the system which handles PRD reliefs is a minimum of 98 percent ROC by weight.	1) APCD inspection during SCDP to verify component counts and configuration specified herein. 2) The hard-piped vent system, and the ZTOF meets the capture/destruction efficiency requirement.
	<u>Compressor</u>		
	1) Double mechanical seals with barrier fluid; or, 2) Route seal leakage emission points to closed vent system; 3) Subject to LDAR inspection pursuant to Rule 331 and 40 CFR subpart KKK frequencies.	1) Not applicable; see 2) below 2) New compressor's (K-300C) seal leakage is vented to the ZTOF system which can destroy ROCs to a minimum of 95 percent mass destruction efficiency; 3) LDAR leakage performance standard of any piping connection, or atmospheric compressor seal, on or to compressor is 100 ppmv per Method 21.	1) APCD inspection during SCDP to verify component configuration specified herein; 2) Periodic APCD inspection of POPCO records pursuant to Rule 331. New compressor to be uniquely "tagged" to differentiate BACT LDAR threshold.
	<u>Pumps</u> (in Liquid Service)		
	1) Equipped with double mechanical seal and barrier fluid systems; 2) Subject to LDAR inspection pursuant to Rule 331 frequencies, and 40 CFR subpart KKK frequencies.	⇒ Seal leakage LDAR threshold at 500 ppmv per Method 21.	1) APCD inspection during SCDP to verify component counts and configuration specified herein; 2) Periodic APCD inspection of POPCO records pursuant to Rule 331. New pumps to be uniquely "tagged" to differentiate BACT LDAR threshold.

4.2-3 BACT. Emission Unit/Process: Sulfur Recovery Unit (SRU)

Pollutant	Control Technology	Emission Limit/Performance Standard	Verification / Recordkeeping Requirements
SO_x as SO_2	Three stage conversion process of H_2S in acid gas from Sulfinol Amine System, to elemental sulfur ◊ *First stage*: liquid oxygen enhanced, Claus-type catalytic reduction of H_2S to molten elemental sulfur; without acid gas enrichment recycle. ◊ *Second stage*: Beavon-type catalytic reduction of Claus tailgas SO_x to H_2S. ◊ *Third stage*: Stretford H_2S removal process of Beavon tailgas; produces wet elemental sulfur cake	<u>At all SRU Acid Gas Feed Capacities</u> (0 LTD to 60 LTD) The more stringent of the following two requirements: 1) 99.9 percent by mass H_2S removal efficiency across the SRU, including sulfur removed by Stretford unit; or, 2) 100 ppmv, dry basis, Stretford Tailgas H_2S limit prior to incineration; and, No more than 2.89 lb/hr of H_2S in Stretford Tailgas or an equivalent SO_2 mass limit of 5.44 lb/hr to the boilers from Stretford Tailgas. <u>Transient Operations</u> *Startups & Scheduled SRU Shutdown*: 3) SO_2 mass limit of 5.67 lb/hr from B-801A & B stacks.	<u>All Operating Modes</u> 1) Mass H_2S removal efficiency, as follows: • Certified & calibrated inlet H_2S analyzer • Certified & calibrated inlet sour gas feed flow meter • B-801A/B SO_2 mass emissions CEM 2) Stretford Tailgas H_2S ppmv: • Certified & calibrated tailgas H_2S analyzer • Certified & calibrated Stretford tailgas flow meter 3) B-801A/B SO_2 mass emissions CEM: • Certified, calibrated and operated pursuant to 40 CFR and District CEMS Protocol.

<u>Notes</u>:

⇒ *SRU Startups* are defined as the first 12 hours of SRU operation following a complete loss of platform gas feed for one hour or longer.

⇒ *SRU Shutdowns* are defined as the 48-hour period immediately preceding a scheduled shutdown of the SRU. The beginning of the 48-hour period shall commence when platform gas feed is curtailed. During this time, the SRU is operated in a manner so as to safely prepare the catalyst bed for shutdown.

4.2-4 BACT. Emission Unit/Process: Sulfur Recovery Unit Failure & Natural Gas Combustion

Pollutant	Control Technology	Emission Limit/Performance Standard	Verification / Recordkeeping Requirements
SO_x	<u>SRU Failure Mitigation System</u> 1) POPCO to install a system which prevents excess flaring of acid gas: Section 9.C of this permit and Section 10.2 of ATC 9047 specify the process controls and sensors used to prevent flaring of SRU feed acid gas in excess of 1450 SCF which may be generated by the Sulfinol regenerator upon an unexpected SRU failure and shutdown.	APCD BACT standard for mitigating potential violations of SO_2 AAQS caused by unplanned SRU acid gas flaring is, as follows: ⇒ First, equipment and/or process controls must be considered to reduce the acid gas flow rate and/or quantity of acid gas flared such that no SO_2 AAQS violation occurs; or, ⇒ If no mitigation system is technically or safely feasible to eliminate a SO_2 AAQS violation, then a system shall be installed to reduce by a minimum of 90% by weight the potential uncontrolled acid gas released during the worst-case SRU flaring event; (the 90% standard may be relaxed with APCD concurrence that justifiable engineering or safety considerations prevent attainment of the 90% standard).	• APCD inspection during SCDP to verify system configuration specified in Section 9.C of this permit and Section 10.2 of ATC 9047.
	<u>Natural Gas Combustion Processes</u> 1) Regenerable Sulfinol amine-based solutions clean the raw sour-gas of H_2S to <6 ppmv. Residual total sulfur content of any cleaned fuel gases is less than 24 ppmv total sulfur. 2) Absorbed acid offgas produced from regenerated amine solution processed by the facility SRU.	⇒ All natural gas fuels and purge gases limited to 24 ppmv total sulfur content.	• Section 9.C of this permit.

4.2-5 BACT. Emission Unit/Process: Solvents

Pollutant	Control Technology	Emission Limit/Performance Standard	Verification / Recordkeeping Requirements
ROC	Use of Low VOC or Water-Based Solvents (where feasible)	⇒ APCD-approved BACT Solvent List	Condition 9.C

4.2-6 BACT. Emission Unit/Process: Planned Flaring

Pollutant	Control Technology	Emission Limit/Performance Standard	Verification / Recordkeeping Requirements
ROC, SOx	Thermal Oxidizer	⇒ Use of purge gas that meet sales gas quality ⇒ Properly maintained thermal oxidizer combustors ⇒ Use of sales gas in the compressors ⇒ Limit the sulfur content of the purge gas to 80 ppmv total sulfur and 4 ppmv H_2S (sales gas quality – PUC Quality)	Implementation of a *Thermal Oxidizer Combustor Maintenance Plan* / Section 9.C

Table 4.3 - Parameters To Be Continuously Monitored for the SRU [3]

Parameter Name	Instrument Tag No. [(8)]	Monitored Units	Applicable Footnote Comment
Inlet Sour Gas Feed Flow	FIC-1	MMSCF/D	1, 6, 7, *
Inlet Sour Gas H_2S Content	AI-172	mole% H_2S	1, 5, 6, 7, *
Stretford Tailgas H_2S Content	AI-405	ppmvd H_2S	1, 2a, 5, 6, 7, *
Stretford Tailgas Flow to Boilers	FIT-817, FIT- 831	SCFH	1, 6, 7, *
Combined Boiler SO_x as SO_2 Emissions	FY-1012A	lb/hr SO_2	1, 2a, 5, 6, 7, *
SRU Claus Elemental Sulfur Production	Not Applicable	LTD	4
SRU Stretford Sulfur Production	Not Applicable	Mass per shipment	4

Compliance Formulae

BACT for H_2S Removal

Inlet H_2S, lb/hr = "F" = (FIC-1) * (1/24) * (1/379) * (AI-172)/100 * (34) * 10^6
Stretford H_2S, lb/hr = "S" = (FI-405) * (1/379) * (AI-405)/10^6 * (34)
SRU, % H_2S mass removed = (F-S)/F * 100%

NSPS Equivalent Performance for Total Sulfur Removal

Inlet Total Sulfur (as SO_2), lb/hr = "T" ="F" (see above) * (64/34)
Combined Boiler Stack Sulfur Emissions as SO_2, lb/hr = "E" = (FY-1012A)
SRU, % Total Sulfur removed = (T-E)/T * 100%

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(1) Parameters to be telemetered and connected to the DAS.

(2) a. Equipped with High in plant alarm.
b. Equipped with Low in plant alarm.
c. Equipped with Hi/Low in plant alarm.

(3) Continuous monitoring of other parameters is not required initially. However, the APCD may request that monitors for other parameters be installed in the future.

(4) Production records will be maintained through the volume of produced sulfur sold. The quantity of produced sulfur will be determined by State certified truck scales.

(5) DAS to be configured with high or low process-alarm at the APCD based on telemeter DAS data.

(6) Permanent recording of parameter raw data required via strip-chart, circular chart, or computer printout.

(7) Parameters to be included in quarterly reports. The APCD may request additional information be presented in quarterly reports if necessary.

(8) Nomenclature indicates a POPCO-specified process indicator/device tag number.

(*) Indicates metering must be operated and maintained to meet APCD's *CEM Protocol*.

Table 4.4 - Parameters To Be Continuously Monitored [3]

UTILITY BOILERS B-801 A & B	SULFUR RECOVERY UNIT	ZTOF THERMAL OXIDIZER	GAS PROCESSING

*NO_x , ppmv - Stack emissions from each Boiler [1, 2a, 5, 6, 7, 8]	See Table 4.3	HC Manifold gas flow rate[1,2a,6,7]	*H_2S - sales gas stream - two monitors [1,6,7]
*NO_x , lb/hr - Stack emissions from each Boiler [1, 2a, 5, 6, 7]		Acid Gas Manifold flow rate [1,2a,6,7]	
*SO_x , lb/hr - Stack emissions from each Boiler [5, 6, 7]		Pilot temperature [2b]	
Fuel feed rate, MMSCFD - to each boiler[1, 6, 7]		Pilot and purge gas flow rates [6]	
Boiler incineration zone temperature - each boiler [1, 2b]		Flare gas sampling	
*Stack Exhaust Mass Flow Indicator [6, 7]		Compressor Seal Leakage rates [6]	
*Stack Oxygen Concentration – each boiler [6, 7]			

(1) Parameters to be telemetered and connected to the DAS.

(2) a. Equipped with High in plant alarm.
b. Equipped with Low in plant alarm.
c. Equipped with Hi/Low in plant alarm.

(3) Continuous monitoring of other parameters is not required initially. However, the APCD may request that monitors for other parameters be installed in the future.

(5) Equipped with high or low-alarm configured internally to the APCD DAS system.

(6) Permanent recording of parameter raw data required via strip-chart, circular chart, or computer printout.

(7) Parameters to be included in quarterly reports. The APCD may request additional information be presented in quarterly reports if necessary.

(8) PPMV for NO_x corrected 3% oxygen and adjusted for TGU gas dilution effect per §9.C.1(a)(i) of this permit.

(*) Indicates metering must be operated and maintained to meet APCD's *CEM Protocol*.

(9) Refer to §9.C.1(a)(i) for timelines regarding oxygen sensor installation and NOx ppmv telemetry.

Table 4.5 - Source Test Parameters

Emission & Test Points	Pollutants/ Parameters [b]	Test Methods [a] [c]
Boiler Stacks [b]	NO_x - ppmv & lb/hr	EPA Method 7E
	CO - ppmv & lb/hr	EPA Method 10
	SO_x - lb/hr	EPA Method 6C, or CARB Method 100
	ROC – lb/hr	EPA Method 18
	Sampling Point Loc.	EPA Method 1
	Stack Gas Flow Rate	EPA Method 2
	O_2, CO_2, Dry Mole Wt	EPA Method 3
	Moisture Content	EPA Method 4
	Stack TRS/(SO_2 + TRS) ppmv Ratio	EPA Method 15
	Boiler Incineration Zone Temperature (^oF)	
Boiler Fuel Gas(es)	Fuel Gas Flow Rate	Plant Gas meter
	Higher Heating Value	ASTM D 1826-88
	Total Sulfur Content [d]	ASTM D 1072
Inlet Feed Gas	Flow rate (MMSCFD)	EPA Method 2, CEM Protocol
Inlet Feed Gas	H_2S Concentration (ppmv)	CEM Protocol
Stretford Tailgas	Tailgas Flow Rate	Stretford Tailgas Flow meter
Stretford Tailgas	Tailgas Composition [d]	ASTM 1945-81

Boiler Stack Source Test Frequency Requirements [e]

Pollutant	Annually	Biennially
NO_x	Yes	Yes
SO_x	Yes	Yes
SO_2/TRS ratio	Yes	Yes
CO, ROC	No	Yes

Site Specific Requirements

a) Alternative methods may be acceptable on a case-by-case basis.
b) The emission rates shall be based on EPA Methods 2 and 4, or Method 19 along with the heat input rate.
c) For NO_x, SO_x, CO, ROC and O_2 a minimum of three 40-minute runs shall be obtained during each test.
d) Total sulfur content fuel samples shall be obtained using EPA Method 18 with Tedlar Bags (or equivalent) equipped with Teflon tubing and fittings. Turnaround time for laboratory analysis of these samples shall be no more than 24 hours from sampling in the field.
e) Source testing shall be performed for each boiler in an "as found" condition. Annually, at least one boiler shall be tested with Stretford tailgas combustion.

Table 4.6 – Requirements for Odor Monitoring

Parameters to be Monitored	LFC Odor [1]
H_2S	X
TRS	-
WS Avg.	X
WD Avg.	X
WS Result	X
WD Result	X
Sigma Theta	X
Int Temp.	X
Ext. Temp.	X

1 This station shall be located at the property boundary of the ExxonMobil LFC facility.

Table 4.7 – NSPS LLL Compliance Requirements

Item	*Subpart LLL Section (§)*	*Subpart LLL Requirement Summary*	*Source Test Observation* [*Report Page*]
1	60.642 (a)	Initial SO_2 removal efficiency, "R" test per §60.8 and Subpart LLL, Table 1. Table 1 requires Z_i for: Y = 13.77% H_2S X = 15.86 LTD Z_i = 93.5 %	Test was done within 180 day window at 72.8 MMSCFD rate (97.1 % of maximum design feed rate). Y= 13.77% X= 15.86 LTD Observed R = 99.9% [Table 4-3]
2	60.642 (b)	*Ongoing Compliance with NSPS*	See EPA Subpart LLL Waiver letter of 11/19/96. POPCO monitors inlet sour gas H_2S content and total flow volume. PTO 8092 BACT standard for H_2S & TRS removal is greater than any applicable Subpart LLL requirement. Inlet H_2S analyzer (AI-172) passed RATA test on October 5, 1998.
3	60.643 (1)	R must be > or equal to Z_i per §60.642 (a).	Observed R = 99.9% [Table 4-3] R is > than Z_i as determined through 8/11/98 to 8/12/98 source testing.
4	60.643 (2)	*Ongoing Compliance with NSPS* R must be > or equal to Z_c per §60.642 (b).	PTO 8092 TRS removal efficiency requirements are more stringent than any Subpart LLL, Table 2 requirements for Z_c. Per EPA waiver, ongoing compliance with Z_c shall be based on compliance with PTO BACT requirements and the real-time monitoring of the SRU's TRS removal efficiency.
5	60.644	Initial compliance test analytical methods shall be followed.	Notwithstanding the 11/19/96 EPA waiver for acid gas flow measurements, all §60.644 test methods were followed to calculate X, Y and R of 60.642 (a). [Table 4-3]
6	60.646 (a)	*Ongoing compliance with NSPS*	See 11/19/96 EPA waiver and PTO 8092, Table 4.3 and Condition 9.C.7 requirements. R = (S-E)/S where S is inlet SO_2 equivalents in the sour feed gas. E is directly measured at the plant boilers SO_2 CEM.
7	60.646 (b)	*Ongoing Compliance with NSPS*	(1) POPCO CEM meets applicable

Item	*Subpart LLL Section (§)*	*Subpart LLL Requirement Summary*	*Source Test Observation* [*Report Page*]
		Requires a SO_2 CEM where a reduction control system is followed by a continuous incineration device (i.e., the POPCO boilers), with the following additional requirements: (1) CEM measures atmospheric SO_2 emissions; and the span of the CEM shall be set so that the equivalent emission limit in §60.642(b) will be between 30% and 70% of the measurement range of the CEM. (2) An incineration combustion zone temperature monitor, accurate to +/- 1% of actual temperature, if ppmv of SO_2/(ppmv of SO_2 + TRS) ≥ 0.98 per §60.642 (a) tests, and temp monitoring to validate SO_2 CEM is measuring all TRS emissions. (3) A TRS monitor can be used in lieu of (2) above to calculated total sulfur emissions (E).	40CFR requirements. (2) Source tests showed that with maximum tailgas flow to one boiler and temperature of no less than 919 ^oF, that $SO_2/(SO_2+TRS)$ is ≥ 0.98 {0.993 actual ratio}. [Table 4-4] 919 ^oF is minimum boiler operating temperature when tailgas is being incinerated. (3) Not applicable to POPCO; see item (2) above.
8	60.646 (c)	Not applicable to POPCO.	Not applicable to POPCO
9	60.646 (d)	*Ongoing Compliance with NSPS* Average achieved sulfur emission reduction efficiency (R) shall be calculated for each 24-hour interval. The beginning and end of the 24-hour interval may be at any selected clock time, but it must be consistent. The 24-hour SO_2 reduction efficiency, R, shall be based on the 24-hour average of sulfur production rate (S) and the sulfur emission rate (E), consistent with the following subparagraph requirements: (1) data from 60.646(a) instrumentation shall determine S; (2) data from 60.646.(b) shall determine E. The E CEM must provide at least one data point in each successive 15-minute interval; at least two data points must be used to calculate each 1-hour average. A minimum of 18, 1-hour averages must be used to computed each 24-hour average.	Pursuant to an EPA-approved waiver, R is monitored by a mass balance of the inlet sulfur fed to the plant versus that emitted at the boiler stacks. The S production will the difference between the feed sulfur ("F") and E sulfur emitted, as follows: R = (F-E)/F = 1 – E/F (1) No elemental sulfur production, S, monitoring will be performed per the EPA waiver; (2) This PTO requires that six-minute average CEM data points be obtained for the E and feed sulfur, F, parameters, which are used to compute hourly and daily averages of R.
10	60.646 (e)	Alternative R monitoring protocol for source less than 150 LT/D capacity.	POPCO has not opted for this method.
11	60.646 (f) & (g)	*Ongoing Compliance with NSPS* Monitoring devices required per 60.646 (b)(1),	POPCO's CEM Plan is required to meet these minimum requirements for the E

Item	*Subpart LLL Section (§)*	*Subpart LLL Requirement Summary*	*Source Test Observation* [*Report Page*]
		(b)(3) and (c) of this section shall be calibrated at least annually per manufacturer's and §60.13(b) specifications, and otherwise shall be subject to the General Provisions requirements of §60.13(b).	and F CEM monitors.

5.0 Emissions

5.1 General

Emissions calculations are divided into "permitted" and "exempt" categories. APCD Rule 202 lists what equipment is exempt from permit. The permitted emissions for each emissions unit is based on the equipment's potential-to-emit (as defined by Rule 102). Section 5.2 details the permitted emissions for each emissions unit. Section 5.3 details the overall permitted emissions for the facility based on reasonable worst-case scenarios using the potential-to-emit for each emissions unit. Section 5.4 provides the federal potential to emit calculation using the definition of potential to emit used in Rule 1301. Section 5.5 provides the estimated HAP emissions from the POPCO facility. Section 5.6 provides the estimated emissions from permit exempt. Section 5.7 provides the net emissions increase calculation for the facility and the stationary source. In order to accurately track the emissions from a facility, the APCD uses a computer database. Attachment 10.3 contains the APCD's documentation for the information entered into that database.

5.2 Permitted Emission Limits - Emission Units

Each emissions unit associated with the facility was analyzed to determine the potential-to-emit for the following pollutants:

⇒ Nitrogen Oxides (NO_x) [c]
⇒ Reactive Organic Compounds (ROC)
⇒ Carbon Monoxide (CO)
⇒ Sulfur Oxides (SO_x) [d]
⇒ Particulate Matter (PM) [e]
⇒ Particulate Matter smaller than 10 microns (PM_{10})

Permitted emissions are calculated for both short term (hourly and daily) and long term (quarterly and annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachment 10.1. Table 5.1 provides the basic operating characteristics. Table 5.2 provides the specific emission factors. Tables 5.3 and 5.4 show the permitted short-term and permitted long-term emissions for each unit or operation. In these tables, the last column indicates whether the emission limits are federally enforceable. Those emissions limits that are federally enforceable are indicated by the symbol "FE". Those emissions limits that are APCD-only enforceable are indicated by the symbol "A". Emissions data that are shown for informational purposes only are not enforceable (APCD or federal) and are indicated by the symbol "NE".

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[c] Calculated and reported as nitrogen dioxide (NO_2)

[d] Calculated and reported as sulfur dioxide (SO_2)

[e] Calculated and reported as all particulate matter smaller than 100 μm

5.3 Permitted Emission Limits - Facility Totals

The total potential-to-emit for all emission units associated with the facility was analyzed. This analysis looked at the reasonable worst-case operating scenarios for each operating period. The equipment operating in each of the scenarios are presented below. Unless otherwise specified, the operating characteristics defined in Table 5.1 for each emission unit are assumed. Table 5.5 shows the total permitted emissions for the facility. Peak quarterly and annual emissions were based on the following, equipment-operating assumptions based on 8760 hrs/yr, and 2190 hrs/qtr, unless otherwise noted

- ⇒ 2 Utility boilers operating at maximum rating (41.0 MMBtu/hr).
- ⇒ Sulfur Recovery/Tail Gas Unit operating at maximum rating (60 – 75 LTD; depending on H_2S levels).
- ⇒ A 5.62 MMBtu fuel combustion contribution from SRU tailgas incineration to either, or split between both, B-80A/B boilers.
- ⇒ Flare pilot and purge volumes operating at maximum rating and 24 ppmv total sulfur content (pilot) and 80 ppmv total sulfur/4 ppmv H_2S (purge); baseline system leakage for the HC flare header and the acid gas flare header.
- ⇒ Planned flaring pursuant to POPCO's approved Rule 359 Flare Minimization plan, as modified by the AQIA of this event documented in ATC 9047 and ATC 9047-01 to not exceed 0.757 MMSCF/hr and 18.20 MMSCFD of sales gas quality gas (1190 Btu/SCF, HHV basis). Long term planned flaring pursuant to POPCO's approved Rule 359 Flare Minimization plan not exceeding 18.20 MMSCF/month of sales gas quality gas (1190 Btu/SCF, HHV basis).
- ⇒ Stretford Oxidizer Tank emissions of 0.10 lb/hr.
- ⇒ Methanol tank operations at permitted throughputs.

5.4 Part 70: Federal Potential to Emit for the Facility

Table 5.6 lists the federal Part 70 potential to emit. Being a NSR source, all project emissions, except fugitive emissions that are not subject to any applicable NSPS or NESHAP requirement., are counted in the federal definition of potential to emit. For the POPCO facility, fugitives from equipment subject to NSPS KKK and LLL are included in the federal PTE. Since this entire facility is a Gas Processing Plant subject to the above NSPS, the fugitives are included in the federal PTE calculations.

5.5 Part 70: Hazardous Air Pollutant Emissions for the Facility

Total emissions of hazardous air pollutants (HAP) are computed for informational purposes only. HAP emission factors are shown in Table 5.8-1. Potential annual HAP emissions, based on the worst-case scenario listed in Section 5.3 above, are shown in Table 5.8-2. Table 10.5 shows the basis for the HAP emission factors selected.

5.6 Exempt Emission Sources/Part 70 Insignificant Emissions

Equipment/activities exempt pursuant to Rule 202 include maintenance operations involving surface coating. Under the APCD's Part 70 regulation, equipment/activities that are exempt under Rule 202 are considered insignificant units emissions. In addition, *insignificant activities* such as maintenance operations using paints and coatings, contribute to the facility emissions. Table 5.7 lists these exempt emissions units and the

expected emissions. These are emission estimates only. They are not limitations. The basis for these calculations is presented in Table 10.1.

5.7 Net Emissions Increase Calculation

All emissions permitted after November 1990 contribute to the Net Emissions Increase Calculation (NEI). The NEI for the POPCO Gas Plant is shown in Tables 10.2, 10.3 and 10.4.

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Table 5.1: Operating Equipment Description

Table 5.2: Emission Factors

Table 5.3: Short-Term Permitted Emissions

Table 5.4: Long-Term Permitted Emissions

Table 5.5: Facility Permitted Emissions

Table 5.6: Federal Potential to Emit

Table 5.7: Permit Exempt Emissions

Table 5.8-1: HAP Emission Factors

Table 5.8-2: HAP Emissions

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6.0 Air Quality Impact Analyses

6.1 Scope of Review

The scope of the Air Quality Impact Analyses ("AQIA") performed for this project involved an AQIA for the routine operational emissions of the facility (for NO_2, SO_2, CO, PM_{10} and ROC), and for two intermittent operational scenarios with significantly much higher "peak" emissions rates than the routine operating scenario (these two scenarios for ROC, SO_2, NO_2, CO and PM). In addition, pursuant to the APCD's PSD Rule, the project's PTE triggered the requirement to perform a Visibility and Soils analysis.

For the routine operations AQIA and the Visibility & Soils Analysis, ATC 9047's analysis refers to and relies on the previous AQIA prepared for the adjacent ExxonMobil SYU Oil and Gas facility in its ATC 5651 (issued 11/19/87). This AQIA was reviewed in June 1994 SEIR prepared for the POPCO expansion project specified in ATC 9047 and was found to be valid for purposes of the analysis.

However, for certain intermittent operation scenarios, previous AQIA were found to be deficient. One of the scenarios, that of planned Startup Flaring, was identified as a worst-case flaring event, but was never adequately modeled in POPCO's 1983 Flaring Analysis. This deficiency was addressed in the ATC 9047 analysis through a new AQIA.

The other intermittent operation scenario evaluated by a new AQIA was for the impact associated with a SRU failure and the flaring of its acid gas feed. Again, the previous POPCO *1983 Flaring Analysis* AQIA for this scenario was deficient in that it only considered the SO_2 emissions generated by one of two SRUs failing at one time. Because POPCO is no longer proposed the installation of two SRUs, but only one with the acid gas throughput of two units, a new AQIA was required for this scenario. In fact, pursuant to FDP Condition E-5, this analysis was required such that a mitigation system could be identified and verified to prevent any potential violation of the SO_2 ambient air quality standard. The results of this new AQIA element, and an evaluation of the proposed mitigation of this scenario's SO_2 emissions are further summarized below.

6.2 Compliance with Ambient Air Quality Standards

6.2.1 Construction Emissions: In the expansion project SEIR (93-DPF-015rv), it was concluded that emissions associated with construction activities related to installation of the expansion equipment were not required to be quantitatively assessed for ambient air quality impacts because they were estimated to be much less than 25 tons/year of any criteria pollutant (i.e., NO_x, SO_x, CO, ROC, and PM_{10}).

Construction emissions were still required to be mitigated however, through lead agency permit (93-FDP-015) condition E-3 - *Construction Plan*. This plan specified construction dust, and construction internal combustion engine related mitigations to reduce NO_x, CO, SO_x and PM_{10} emissions.

6.2.2 Routine Operations: Impacts from the routine operations of the expanded POPCO Gas Plant were modeled for the criteria pollutants NO_2, SO_2, CO and PM_{10} using the Complex II Model following the procedures specified in the APCD's Authority to Construct Permit Processing Manual. In addition, a health risk assessment of the project ROC impacts was completed. A summary of the routine operational AQIA results and ROC health risk assessments follows:

ROC HEALTH RISK ASSESSMENT

The ISC Model was used to predict ROC pollutant impacts from the expanded facility's ROC emissions as estimated during the SEIR review. Based on the maximum-hour scenario, an ISC model was used to simulate the maximum ambient concentration of this pollutant. ISC was found by the APCD to produce comparable results to those generated by Complex II with significant lower computer time requirements.

Subsequent to implementation of BARCT and BACT controls for existing and expansion related fugitive emission sources (i.e., valves, flanges and connections) pursuant to the requirements of ATC 9047, the expanded facility project ROC emissions was estimated to be some 34.40 tons less than previously permitted for the entire facility through PTO 8092. This also implied the impact of the ROC pollutant as analyzed in the SEIR had also been reduced. In the SEIR, the ROC and associated air toxics emissions profile from this project were classified as "...adverse but insignificant...", because no adverse chronic hazard (i.e., cancer exposure risk) or acute exposure risks were identified. This conclusion remains unchanged as a result of the revised project's lower ROC emissions.

NO_2, SO_2, CO AND PM CRITERIA POLLUTANT AQIA

Besides ROC, the following pollutants were reanalyzed in the SEIR for the proposed expansion:

- Nitrogen Oxides (NO_x), as NO_2
- Carbon Monoxide (CO)
- Sulfur Oxides (SO_x), as SO_2
- Particulate Matter (PM_{10}) less than 10 microns in diameter

The modeling results as documented in the project expansion SEIR (93-DPF-015rv) for the proposed project operations are shown in Table 6.1. Since the SEIR's review of these results, two other significant changes besides ROC emissions have occurred to the routine operational emissions scenario. Project NO_x emissions have significantly dropped by 5.70 lb/hr and 24.95 tpy because of APCD Rule 342 implementation and compliance by POPCO. However project CO emissions have increased by 5.38 lb/hr and 23.56 tpy because of Rule 342 permitting activities. These changes have been reflected in the results shown in Table 6.1 for project specific impacts and Table 6.2 for the cumulative impacts in the Las Flores Canyon area consolidated oil and gas operating area. The project contribution of PM_{10} will add to the existing background levels that exceeded the state 24-hour average standard. No other violations of the ambient air quality standards were projected for normal operations of the expanded gas plant.

6.2.3 Startup and Maintenance Flaring Analysis: Startup and planned maintenance flaring is an activity that is under the control of POPCO. Thus, any AQIA analysis result of this activity that indicates it would cause a violation of an ambient air quality standard would have compelled the APCD to deny ATC 9047, unless the activity's emissions were mitigated to eliminate the predicted violation(s). In accordance with APCD- modeling rules, the worst case Startup and Maintenance flaring scenario was modeled to demonstrate to the satisfaction of the APCO that these emission scenarios will cause no ambient air quality standard or increment to be exceeded. The flaring rate is specified in 1997 version of PTO 8092, Condition No. 4.D.5 as 1.514 MMSCF/hr, and is further defined in the POPCO 1983 Flaring Analysis to occur for up to 12 hours in length. Table 6.3 summarizes the results of the pollutant emissions impact of this flaring event in addition to the routine operational emissions of this project and the adjacent ExxonMobil SYU facility. As is shown in this table, flaring at the rate permitted in the 1997 version of PTO 8092 results in an exceedance of the state and federal NO_2 ambient air quality standard outside of the POPCO facility boundary.

As a result, ATC 9047 permit was conditioned to limit the Startup flaring rate to no more than 50 percent of that which was assessed in the AQIA of this event (i.e., 0.757 MMSCF/hr of 1,190 Btu/SCF gas; or a 900.9 MMBtu/hr flaring rate). By POPCO limiting Startup Flaring to the specified rate in ATC 9047 (see Section 9.C), it is estimated this activity will not violate any ambient air quality standard.

6.2.4 SRU Failure Flaring & Mitigation: Failure of the modified SRU unit (operating at 60 LTD) and associated unmitigated acid gas flaring at a rate of 2,162 g/sec of SO_2 from the ZTOF is projected to exceed the state 1-hour SO2 standard if flaring were to last longer than 28 seconds. The state 3-hour SO_2 standard would also be exceeded if flaring lasted longer than 342 seconds. The results of the AQIA performed for this unmitigated "worst-case" SRU failure-flaring scenario are shown in Table 6.4.

POPCO proposed a revised SRU shutdown system, which they assert will prevent any excess flaring of acid gas beyond 28 seconds in duration to the ZTOF from an unexpected SRU shutdown, such that no violation of any applicable SO_2 hourly ambient air quality standard should occur. The equipment required to effect this SRU shutdown system and its performance are required as a condition of this permit.

6.3 Air Quality Increment Analysis

An increment consumption analysis was performed for the combined ExxonMobil Las Flores Canyon SYU and POPCO expansion projects for the pollutants NO_2, PM, PM_{10}, CO, SO_2 and ROC, as documented in the Exxon SYU ATC No. 5651, section 6.2, and Table 6-20. The same modeling methodology was used in this increment analysis as was employed for the standards compliance analyses Section 6.2.2 of ATC 9047. All pollutant increases from the POPCO expansion project were covered in the ExxonMobil ATC increment analysis of ATC No. 5651. The results of the routine operations increment analysis are shown in Table 6.5. During routine facility operations the maximum increment consumption of SO_2, PM, or CO from the expanded gas facility was not anticipated to exceed any allowable maximum. Some additional background on the scope and validity of this previous increment analysis follows.

In the increment analysis of the ExxonMobil SYU ATC No. 5651, it identified existing sources that would consume increment within the general vicinity of the project site. Increment consuming sources include major stationary sources (per 40 CFR 52.21) constructed since January 6, 1975, and all sources constructed, modified or otherwise permitted to increase emissions after either August 8, 1978 (for SO_2 and PM) or January 1, 1984 (for CO). The only increment consumers identified in the project area, in addition to the proposed POPCO project, were Exxon's SYU Oil and Gas Plant, and Platforms Harmony, Heritage and Heather, which were approved for installation by the US Minerals Management Service.

INCREMENT FEES

Increment fees were triggered for ROC as a result of the expansion permitted through ATC 9047-2. See Section 9.C for a listing of the fee payment schedule.

6.4 Vegetation and Soils Analysis

Because the modifications of ATC 9047 proposed to decrease ROC (an ozone precursor), but increase the project's SO_x emissions, this analysis was required pursuant to Rule 205.C. This portion of the AQIA section of ATC 9047 relies primarily on the similar analysis performed as part of the issuance of ExxonMobil's SYU oil and gas processing facility ATC No. 5651 on November 19, 1987. The basis of this updated analysis, background concentrations of affected pollutants, and the estimated impacts of both the ExxonMobil and the expanded POPCO facility's routine operations emissions were presumed to be accurately presented and analyzed by the previous analysis. A synopsis of the Vegetation and Soils Analysis considering the modified and expanded POPCO project follows.

The land in the general area of the proposed project is used for grazing. At sufficient concentration and duration, ambient air pollutants, specifically ozone, sulfur dioxide, nitrogen dioxide, and various combinations of the three, can injure vegetation. An ozone concentration of 0.25 ppmv over a six-hour period has been shown to injure plants. Additional studies have also demonstrated slight injury to sensitive plants at ozone exposure levels of 0.02-0.03 ppmv for an 8-hour duration and 0.08-0.15 ppmv for 2 hours. Evidence of minimal foliar injury to trees and shrubs at ozone concentrations of 0.2-0.5 ppmv for 1 hour and to agricultural crops at 0.2-0.41 ppmv for one-half hour has also been substantiated.

The maximum hourly ozone concentration expected during operation of the proposed project is projected to be 0.14 ppmv. Based on past studies this concentration may cause slight damage to sensitive plants.

Recent studies of sulfur dioxide exposure show injury thresholds at 0.3 ppmv for 8 hours (for middle-aged plants), at 0.14 ppmv for 15-20 hours (for oat seedlings), and at a 0.007-0.010 ppmv average for the growing season. The maximum hourly ambient concentration of sulfur dioxide expected during operation of the facility would be approximately 0.19 ppmv (523 μg/m3), which is below the thresholds cited by these studies. Therefore, no plant injury is expected from sulfur dioxide.

Nitrogen dioxide sensitivity has been cited in the literature at concentrations of 2.5 ppmv for a 4-hour duration for tomato seedlings and other plants with middle-aged leaves. Leaf symptoms have been observed at 1.6-2.6 ppmv for 2-day exposures and 20 ppmv for 1-hour exposures. The maximum hourly ambient concentration of nitrogen dioxide predicted during the production phase would be 0.42 ppmv (814 µg/m3), which is well below the injury threshold cited. Therefore, no plant injury is expected from nitrogen dioxide emissions.

During the operating phase, total emissions from the POPCO facility are predicted to be 25.35 tons per year of sulfur dioxide and 41.20 tons per year of nitrogen oxides. This is relatively small in comparison to the adjacent ExxonMobil's facility's peak contribution at 341 and 337 tons per year for these respective pollutants. However, annual deposition of sulfates and nitrates from both these projects' combined operations onto the surrounding soils will be minimal, based on the large project area over which the pollutants are dispersed. In addition, the pronounced alkalinity of the soils will ameliorate the effects of the minor decrease in pH expected from nitrate or sulfate deposition. No long-term buildup of deposition products is expected because of utilization of these compounds by existing vegetation. In addition, the POPCO facility is not anticipated to emit heavy metals or other toxic substances which could damage soils used for crop or forage production. Therefore, no impact on soils was predicted to occur from project emissions.

6.5 Potential to Impact Visibility and Opacity

During facility operations, the potential exists for opacity violations due to flaring activities and due to operation of the diesel-fired internal combustion engines. The potential for these violations are minimized through the use of a smokeless flare and through proper operation and maintenance of the IC engines.

6.6 Public Nuisance

Historically, oil and gas processing facilities handling high sulfur content petroleum and produced gases within the County of Santa Barbara were the subject of numerous public complaints regarding odors and other related public nuisance factors. Based on these experiences it was considered particularly important to evaluate the potential for public nuisance from the proposed facilities. Emissions from the operation phases of the project were reviewed to determine compliance with APCD Rules 205.A and 303. These rules relate to the prevention of public nuisance as required by Section 41700 of the State Health and Safety Code. In addition, an evaluation of this facility's operations in accordance with the requirements of Santa Barbara County's Ordinance No. 2832 which pertains to facilities "...handling sour gas with an H_2S content greater than 825 ppmv..." was also performed. This ordinance requires that a plan exist for detecting and monitoring H_2S emissions, and operating in a manner such that ambient H_2S concentrations do not exceed the limits established by Ordinance 2832 for the protection of public health. This ordinance also speaks to facilities operating "...in the vicinity of any residence or place of public gathering which could affect the safety or well-being of others...". Places of public gathering in the vicinity of the POPCO gas plant include the Refugio and El Capitan State Beaches.

There is a potential to create a public nuisance due to emissions of reduced sulfur compounds that could occur during POPCO facility operations. Both the high sulfur content of the sour gas feedstock and the natural gas liquids produced are potential sources of the reduced sulfur compounds. Additional sources of reduced sulfur emissions include the amine unit, the sulfur removal unit (SRU), the tail gas unit, the sour gas pipeline and fugitive emissions from gas and NGL handling facilities.

However, the potential release of reduced sulfur and H_2S emissions from routine operations of the POPCO facility is anticipated to be minimized to a great extent because of the following. SRU failures will be controlled by minimizing the quantity of acid gas sent to the flare. This avoids any potential for excess releases of H_2S and other reduced sulfur compounds. Tailgas unit emissions are expected to be controlled through incineration of this stream by the process boilers. Fugitive hydrocarbon and associated reduced sulfur emission sources will be controlled through a combination of BACT, BARCT and compliance with the LDAR activities specified in APCD Rule 331 and this permit.

However, since the human odor threshold for H_2S is very low at 0.00047 ppmv (Ref. SCAQMD EIR Handbook, App. M), it is possible that odors could, at times, be detectable outside the property line. Therefore, due to the potential for odorous emissions from this facility, an odor-monitoring program has been specified since this plant became operational in 1984. The existing Odor monitoring, including reduced sulfur compounds, is summarized in Table 4.6. POPCO is required to implement the APCD-approved Odor Monitoring Plan, as specified in Section 9.C.

6.7 Ambient Air Quality Monitoring

The pre-construction monitoring requirements of APCD's NSR rule were not triggered by ATC 9047 because none of the project's Net Emissions Increases since 1979 exceeded 10 lb/hr of any attainment pollutant, or 5 lb/hr of PM, or 3.3 lb/hr, 80 lb/day, or 15 tons per year of PM_{10}. However, the adjacent ExxonMobil SYU oil and gas processing facility project NEI did trigger these requirements. As a result, Exxon has installed sufficient ambient air quality monitoring stations to monitor and verify that consolidated facility operations do not adversely impact ambient air quality.

Table 6.1 - Air Quality Impacts - Operations Phase - Project Specific

Concentrations in ($\mu g/m^3$)

Pollutant	Averaging Time	Project Contribution	Background	Total	Ambient Standard
NO_2	1-hour	0.0	45	45	470
	Annual	4.0	6	10	100
PM_{10}	24-hour	0.3	61	61.3	50
	Annual	0.1	24	24.1	30
CO	1-hour	45.8	2,629	2,675	23,000
	8-hour	13.1	1,966	1,979	10,000
SO_2	1-hour	215.0	133	348	655
	3-hour	172.0	100	272	1,300
	24-hour	26.0	28	54	131
	Annual	6.7	5	11.7	80

References & Notes:

1. POPCO project specific contribution concentrations are from the 1987 APCD ATC No. 5651 for the Exxon SYU project, *Air Quality Impact Analysis Technical Support Document, Table 2.5-16*, except for the one-hour SO_2 impact which is derived from the 3-hour value. Background concentration is from Table 2.5-5 of the same document and the annual PM_{10} is derived from the 24-hour concentration.

2. Project-specific NO_2 impacts in this table are adjusted downward by 42% from those presented in SEIR which occurred from implementation of NO_2 emission controls pursuant to Rule 342 and PTO 9215.

3. CO impacts are adjusted upward from those presented in the SEIR for the hourly CO emission increase to 6.34 lb/hr from the hourly rate assessed in the project SEIR of 0.97 lb/hr that occurred through implementation of Rule 342 controls and PTO 9215.

Table 6.2 - Cumulative Air Quality Impacts in Las Flores Canyon - Operations Phase

Concentrations in ($\mu g/m^3$)

Pollutant	Averaging Time	Cumulative Project Contributions	Background	Total	Ambient Standard
NO_2	1-hour	392	45	437	470
	Annual	42	6	48	100
PM_{10}	24-hour	13	61	74	50
	Annual	4	24	26	30
CO	1-hour	10,399 (3)	2,629	13,028	23,000
	8-hour	4,132 (3)	1,966	6,098	10,000
SO_2	1-hour	346	133	479	655
	3-hour	282	100	382	1,300
	24-hour	51	28	79	131
	Annual	15	5	20	80

References & Notes:

1. Cumulative impacts in the Las Flores Canyon consolidated oil and gas processing area based upon maximum project operational contribution concentrations attributed to the Exxon SYU and POPCO projects. Except for CO, these values are from the 1987 APCD ATC No. 5651 for the Exxon SYU project, *Air Quality Impact Analysis Technical Support Document, Table 2.5-15*, except for the one-hour SO_2 impact which is derived from the 3-hour value. Background concentrations are from Table 2.5-5 of the same document and the annual PM_{10} is derived from the 24-hour concentration.

2. Project-specific NO_2 impacts in this table are adjusted downward by 3 $\mu g/m^3$ from those presented in SEIR which occurred from implementation of NO_2 emission controls pursuant to Rule 342 and PTO 9215.

3. CO impacts are adjusted upward from those presented in SEIR (Table5.1-5) for the hourly CO emission increase to 6.34 lb/hr from the hourly rate assessed in the project SEIR of 0.97 lb/hr that occurred through implementation of Rule 342 controls and PTO 9215.

   The change in the POPCO project's CO emissions was conservatively assumed to affect the cumulative Las Flores Canyon CO impacts by 100 percent of POPCO's increase in mass emissions from the original modeled CO emission rate (i.e., by a factor of 6.34/0.97 = 6.57). This assumption represents a reasonable worst case assessment of the cumulative projects' impacts in Las Flores Canyon.

Table 6.3 - Flaring Impacts - Startup Activities [5]

Concentrations in ($\mu g/m^3$)

Pollutant	Averaging Time	Maximum Air Quality Impacts	Background	Total	Ambient Standard
NO_2 [1]	1-hour	556	49	605	470
PM_{10}	24-hour	26 [3]	48	74	50 [4]
CO [2]	1-hour	7,993	1,181	9,174	23,000
	8-hour	3,690	1,181	4,871	10,000

References & Notes:

1. Calculated using the ozone-limiting method, using the background concentrations of 126 ppbv and 25 ppbv for ozone and NO_2 respectively.

2. Includes impact from assumed simultaneous operations of Exxon's turbine bypass.

3. POPCO sources contributed 12 µg/m3; POPCO flare alone contributed 11$\mu g/m^3$, and the Exxon source contributed 14 $\mu g/m^3$ to this highest concentration.

4. PM_{10} federal standard is 150 $\mu g/m^3$. The state standard is 50 $\mu g/m^3$

5. Impacts associated with POPCO facility startup flaring emission rates of 360.4, 648.7, and 25.23 lb/hr for NO_x as NO_2, CO, and PM_{10} respectively. Compliance with the NO_2 standard is achieved at one-half of these mass emission rates.

6. Results analysis and summary based upon data communicated in APCD memoranda provided in Attachment 10.4.

Table 6.4 - Flaring Impacts - SRU Failures [1]

Concentrations in ($\mu g/m^3$)

Pollutant	Averaging Time	Impact @ 30 min/hr Release (In Exxon Property)	Impact @ 30 min/hr Release (Outside of Exxon Property)	Ambient Standard	Maximum Flare Release Duration for No AAQS Violation [2] (Seconds)
SO_2	1-hour	36,924	33,037	655	28
	3-hour	19,940	17,555	1,300	342

References & Notes:

1. All data presented here is for impact modeling of Scenario 1, representing the worst-case SRU acid gas feed rate, and thus flaring rate, as reviewed and analyzed by APCD staff. See attachment 10.5. Modeling was performed for POPCO by their contractor, consistent with APCD-approved modeling protocols.

2. Flaring event durations which will not cause violation of standard are revised slightly downwards in accordance with findings of Attachment 10.5.

Table 6.5 - Maximum Project Increment Consumed

Concentrations in ($\mu g/m^3$)

Pollutant	Averaging Time	Project Contribution	Increment Consumed to Date (1996)[1]	Total	Allowable Increment
SO_2	3-hour	172.0	105.0	277.0	512
	24-hour	26.0	19.0	45.0	91
	Annual	6.7	5.6	12.3	20
PM	24-hour	0.6	13.5	14.1	37
	Annual	0.1	3.0	3.1	19
CO [2]	1-hour	45.8	1,471	1,517	10,000
	8-hour	13.1	590	603	2,500

References & Notes:

1. POPCO project, and Exxon project's specific contribution concentrations are from the 1987 APCD ATC No. 5651 for the Exxon SYU project, *Air Quality Impact Analysis, Table 6-20*.

2. CO impacts are adjusted upward from those presented in SEIR for the hourly CO emission increase to 6.34 lb/hr from the hourly rate assessed in the project SEIR of 0.97 lb/hr that occurred through implementation of Rule 342 controls and PTO 9215.

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7.0 CAP Consistency, Offset Requirements and ERCs

7.1 General

The *Exxon – SYU Project* stationary source is located in an ozone nonattainment area. Santa Barbara County is designated nonattainment for both the federal and state one-hour ambient air quality standards for ozone. In addition, the County is designated nonattainment for the state PM_{10} ambient air quality standard. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA- and State-approved Clean Air Plans (CAP) and must not interfere with progress towards attainment of federal and state ambient air quality standards. Under APCD regulations, any modifications at the POPCO Gas Plant (or the Santa Ynez Unit stationary source) that result in an emissions increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Any additional increases of ROC, NO_x, SO_x, PM or PM_{10} require emission offsets at the source or elsewhere so that there is a net air quality benefit for Santa Barbara County. These offset threshold levels for these pollutants (55 lbs/day for all non-attainment pollutants except PM_{10} for which the level is 80 lbs/day) already are exceeded.

7.2 Clean Air Plan

Santa Barbara County has historically violated both the federal (0.12 ppm) and state (0.09 ppm) one-hour ambient air quality standards for ozone. On December 10, 1997, USEPA issued a final action finding that the County had not attained the federal one-hour ozone standard by the statutory attainment date of November 15, 1996. This action reclassified the County to a "serious" nonattainment area and mandated the development of the 1998 Clean Air Plan (1998 CAP) to demonstrate Rate-of-Progress and compliance with the federal one-hour ozone standard by November 15, 1999. The APCD submitted the 1998 CAP (Final, December 17, 1998) to the USEPA through the California Air Resources Board. The 1998 CAP, if approved by the USEPA, will be incorporated into the California State Implementation Plan (SIP). The 1998 CAP demonstrates Rate-of-Progress and that the county will attain the federal one-hour ozone standard by 1999 through the application of all feasible emission control measures. The 1998 CAP also provides a three-year update for the state one-hour ozone standard under the California Clean Air Act.

Ambient air quality data collected during 1997 through 1999 show that Santa Barbara County attained the federal one-hour ozone standard by the November 15, 1999 attainment date for "serious" areas. The APCD is currently developing a 2000 Clean Air Plan (2000 CAP) to demonstrate that the County will maintain the federal standard and should be re-designated to an attainment area for federal purposes. The 2000 CAP will also provide a three-year update for the state one-hour ozone standard under the California Clean Air Act.

7.3 Offset Requirements

7.3.1 <u>NEI Offsets</u>: Under APCD rules, POPCO is required to provide offsets for the project's operational net emission increase for NO_x, ROC, PM, PM_{10} and SO_2. In order to demonstrate a net air quality benefit, offsets have been adjusted to account for the distance between the project source and the offset source.

The *Exxon - SYU Project* stationary source requires emission offsets. Offsets are required for all permitted emissions at the onshore LFC processing plant and for all NEI increases that occurred at the POPCO Gas Plant and the three OCS platforms. The specific offset requirements for the POPCO Gas Plant are detailed in Tables 7.1 for NO_x, Table 7.2 for ROC, Table 7.3 for SO_x and Table 7.4 for PM/PM_{10}.

7.4 Emission Reduction Credits

7.4.1 The POPCO Gas Plant does not generate or provide emission reduction credits.

Table 7.1 - NO_x Project Emissions and Offsets

Table 7.2 - ROC Project Emissions and Offsets

Table 7.3 - SO_x Project Emissions and Offsets

Table 7.4 - PM/PM10 Project Emissions and Offsets

8.0 Lead Agency Permit Consistency

8.1 Prior Lead Agency Action

A Final Development Plan ("FDP") for the POPCO Gas Plant Expansion project was approved by the Santa Barbara County Planning Commission on November 4, 1994. The approved Plan contains a number of provisions that relate to the air quality aspects of the proposed project. The following is a summary of major conditions and their relationship to the APCD's evaluation and final decision on the project.

FDP Condition E-2: Requirement for ATC prior to construction.

The issuance of ATC 9047 permit fulfills this requirement of the FDP.

FDP Condition E-3: Construction Plan: Prior to issuance of the land use permit, POPCO shall submit to the Planning and Development Department a plan, approved by the APCD, which includes measure to reduce NO_x , ROC, SO_x , and PM_{10} emissions produced during expansion construction activities.

The subject plan was jointly reviewed and approved by the APCD and Planning and Development.

FDP Condition E-4: Fugitive ROC Emissions.

This FDP condition required fugitive emissions related to new components to be fully offset if the new components generated more than 25 lb/day of ROC emissions. In addition, if the entire project's ROC net emission increases triggered emission offsets, those offsets were also to be secured to comply with this condition.

Because the proposed expansion actually decreased emissions from that of the existing facility's ROC emissions, none of the offset triggers specified in this condition were triggered.

FDP Condition E-5: Sulfur Recovery Unit Failure.

POPCO is required to install a system or operation procedure that mitigates to the extent feasible any predicted violation of the SO_2 ambient air quality standard which may occur during a SRU failure. POPCO has performed an AQIA to model the modified SRU unit failure. It has also proposed a SRU failure mitigation system that eliminates excess SRU acid gas venting to the flare (see discussion in the AQIA section of this permit). The installation and operations of this system are specified as a condition of this permit.

FDP Conditions E-7: Facility Shall Emit No Detectable Odor.

POPCO's agreement to continue to operate an odor monitoring station outside the POPCO facility but inside the Exxon property, and expected operations of the POPCO facility in compliance with Rule 310 - Odorous Organic Sulfides should ensure that operations of the expanded facility comply with this condition of the FDP.

FDP Condition A-23: Throughput Limitations.

This permit has been issued with the maximum authorized offshore-to-onshore sour gas pipeline rate, POPCO plant sour gas input rate and characteristics, molten sulfur production limits, and maximum sales gas production rates consistent with the FDP.

8.2 Lead Agency Actions for PTO 8092

Pursuant CEQA Guidelines Section 15300.4 and Appendix A (*APCD List of Exempt Projects*) of the APCD's *Environmental Review Guidelines* document (10/95), the issuance of this Permit to Operate is exempt from CEQA.

9.0 Permit Conditions

This section lists the applicable permit conditions for the POPCO Gas Plant. Section 9 contains the permit's enforceable requirements.

Section 9.A lists the standard administrative conditions. Section 9.B lists 'generic' permit conditions, including emission standards, for all equipment in this permit. Section 9.C lists conditions affecting specific equipment. Section 9.D lists non-federally enforceable (i.e., APCD only) permit conditions. Conditions listed in Sections A, B and C are enforceable by the USEPA, the APCD, the State of California and the public. Conditions listed in Section D are enforceable only by the APCD and the State of California. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable.

Number	Title
A.1	Condition Acceptance
A.2	Grounds for Revocation
A.3	Defense of Permit
A.4	Reimbursement of Costs
A.5	Access to Records and Facilities
A.6	*reserved for future use*
A.7	Compliance
A.8	Consistency with Analysis
A.9	Consistency with State and Local Permits
A.10	Equipment Maintenance
A.11	Conflict Between Permits
A.12	Complaint Response
A.13	Compliance with Permit Conditions
A.14	Severability
A.15	Emergency Provisions
A.16	Right of Entry
A.17	Severability
A.18	Permit Life
A.19	Payment of Fees
A.20	Prompt Reporting of Deviations
A.21	Reporting Requirements/Compliance Certification
A.22	Federally Enforceable Conditions
A.23	Recordkeeping Requirements
A.24	Conditions for Permit Reopening
A.25	Credible Evidence
A.26	Risk Management Plan – Section 112r
B.1	Circumvention (Rule 301)
B.2	Visible Emissions (Rule 302)

Number	Title
B.3	Nuisance (Rule 303)
B.4	PM Concentration - South Zone (Rule 305)
B.5	Specific Contaminants (Rule 309)
B.6	Odorous Organic Sulfides (Rule 310)
B.7	Sulfur Content of Fuels (Rule 311)
B.8	Organic Solvents (Rule 317)
B.9	Solvent Cleaning Operations (Rule 321)
B.10	Metal Surface Coating Thinner and Reducer (Rule 322)
B.11	Architectural Coatings (Rule 323)
B.12	Disposal and Evaporation of Solvents (Rule 324)
B.13	Continuous Emission Emissions Monitoring (Rule 328)
B.14	Polyester Resin Operations (Rule 349)
B.15	Natural Gas-Fired Fan Type Central Furnaces and Residential Water Heaters (Rule 352)
B.16	Adhesives and Sealants (Rule 353)
B.17	CARB Registered Portable Equipment
B.18	Oil and Natural Gas Production MACT
C.1	External Combustion
C.2	Thermal Oxidizer
C.3	Fugitive Hydrocarbon Emissions Components
C.4	Pigging Equipment
C.5	Tanks
C.6	Solvent Usage
C.7	Sulfur Recovery Unit/Stretford Tailgas Unit
C.8	Facility Throughput Limitations
C.9	Recordkeeping
C.10	Compliance Verification Reports
C.11	BACT
C.12	Continuous Emission Monitoring (“CEM”)
C.13	Data Telemetry
C.14	Central Data Acquisition System
C.15	Central Data Acquisition System Operation and Maintenance Fee
C.16	Ambient Air Quality and Odor Monitoring Program
C.17	Offsets and Consistency with the Clean Air Plan
C.18	Source Testing
C.19	Process Stream Sampling and Analysis
C.20	Process Monitoring Systems - Operation and Maintenance
C.21	Fuel Gas Sulfur and HHV Reporting Plan
C.22	Abrasive Blasting Equipment
C.23	Vacuum Truck Use
C.24	Emergency Firewater Pump/Electrical Generator IC Engines
C.25	Produced Gas and Purging of Vessels
C.27	PDS/TDS/SDS/Pig Receiver Eductor Vapor Recovery System
C.28	*reserved for future use*

Number	Title
C.29	Fuel Gas Sampling
C.30	Cold Facility Startup
C.31	Diesel IC Engines - Particulate Matter Emissions
C.32	Mass Emission Limitations
C.33	Permitted Equipment
C.34	Operational Increment Fee
C.35	Emergency Episode Plan
C.36	Emission Factor Revisions
C.37	As-Built Drawings
C.38	Documents Incorporated by Reference
C.39	Thermal Oxidizer Variance
D.1	Thermal Oxidizer Variance

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9.A Standard Administrative Conditions

A.1 **Condition Acceptance.** Acceptance of this operating permit by POPCO shall be considered as acceptance of all terms, conditions, and limits of this permit. [*Re: ATC 9047]*

A.2 **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit shall constitute grounds for revocation pursuant to California Health & Safety Code Section 42307 *et seq*. [*Re: ATC 9047]*

A.3 **Defense of Permit.** POPCO agrees, as a condition of the issuance and use of this permit, to defend at its sole expense any action brought against the APCD because of issuance of this permit. POPCO shall reimburse the APCD for any and all costs including, but not limited to, court costs and attorney's fees which the APCD may be required by a court to pay as a result of such action. The APCD may, at its sole discretion, participate in the defense of any such action, but such participation shall not relieve POPCO of its obligation under this condition. The APCD shall bear its own expenses for its participation in the action. [*Re: ATC 9047]*

A.4 **Reimbursement of Costs**. All reasonable expenses, as defined in APCD Rule 210, incurred by the APCD, APCD contractors, and legal counsel for the activities listed below that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by POPCO as required by Rule 210. Reimbursable activities include work involving: Part 70 Federal Operating permit program, CEMS, modeling/AQIA, ambient air monitoring, DAS and data telemetry. Not withstanding the above, DAS system operation and maintenance shall be assessed fees based on a fee schedule consistent with Section 9.C of this permit. [*Re: ATC 9047, PTO 8092, PTO 9215, ATC 9693]*

A.5 **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the APCD or its agents, POPCO shall make such records available or provide access to such facilities upon notice from the APCD. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. [*Re: ATC 9047]*

A.6 *reserved for future use*

A.7 **Compliance.** Nothing contained within this permit shall be construed to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment. [*Re: ATC 9047, PTO 8092, PTO 9215, ATC/PTO 9471, ATC 9471-1, ATC 9487, ATC 9675]*

A.8 **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the APCD's project file) and the APCD's analyses under which this permit is issued. [*Re: ATC 9047, PTO 8092, ATC/PTO 9471, ATC 9471-1, ATC 9487, ATC 9675, ATC 9693]*

A.9 **Consistency with State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the project by the County of Santa Barbara in the POPCO Project Final Development Plan No. 93-FDP-015 and any subsequent modifications. [*Re: ATC 9047]*

A.10 **Equipment Maintenance.** All equipment permitted herein shall be properly maintained and kept in good working condition in accordance with the equipment manufacturer specifications at all times. [*Re: ATC 9047, PTO 9215, ATC 9693]*

A.11 **Conflict Between Permits.** The requirements or limits that are more restrictive from an air quality stand point shall apply if any conflict arises between the requirements and limits of this permit and any other individual permit(s) issued by the APCD for the POPCO facility. [*Re: ATC 9047]*

A.12 **Complaint Response.** POPCO shall provide the APCD with the current name and position, address and 24-hour phone number of a contact person who shall be available to respond to complaints from the public concerning nuisance or odors. This contact person shall aid the APCD staff, as requested by the APCD, in the investigation of any complaints received, POPCO shall take corrective action, to correct the facility activity which is reasonably believed to have caused the complaint. [*Re: ATC 9047]*

A.13 **Compliance with Permit Conditions.**

(a) The permittee shall comply with all permit conditions in Sections 9.A, 9.B and 9.C.

(b) This permit does not convey property rights or exclusive privilege of any sort.

(c) Any permit noncompliance with sections 9.A, 9.B, or 9.C constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application.

(d) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(e) A pending permit action or notification of anticipated noncompliance does not stay any permit condition.

(f) Within a reasonable time period, the permittee shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:

(i) compliance with the permit, or
(ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.

(g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible.

[*Re: ATC 9047, 40 CFR Part 70.6.(a)(6), APCD Rule 1303.D.1]*

A.14 **Emergency Provisions.** The permittee shall comply with the requirements of the APCD, Rule 505 (Upset/Breakdown rule) and/or APCD Rule 1303.F, whichever is applicable to the emergency

situation. In order to maintain an affirmative defense under Rule 1303.F, the permittee shall provide the APCD, in writing, a "notice of emergency" within 2 working days of the emergency. The "notice of emergency" shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F. [*Re: 40 CFR 70.6(g), APCD Rule 1303.F*]

A.15 **Compliance Plans.**

(a) The permittee shall comply with all federally enforceable requirements that become applicable during the permit term in a timely manner.

(b) For all applicable equipment, the permittee shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards.

[*Re: APCD Rule 1302.D.2*]

A.16 **Right of Entry.** The Regional Administrator of USEPA, the Control Officer, or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises where a Part 70 Source is located or where records must be kept:

(a) To inspect the stationary source, including monitoring and control equipment, work practices, operations, and emission-related activity;

(b) To inspect and duplicate, at reasonable times, records required by this Permit to Operate;

(c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times. Monitoring of emissions can include source testing.

[*Re: APCD Rule 1303.D.2*]

A.17 **Severability.** The provisions of this Permit to Operate are severable and if any provision of this Permit to Operate is held invalid, the remainder of this Permit to Operate shall not be affected thereby. [*Re: APCD Rules 103 and 1303.D.1, ATC 9047, PTO 8092, PTO 9215, ATC/PTO 9471, ATC 9471-1, ATC 9487, ATC 9675, ATC 9693*]

A.18 **Permit Life.** The Part 70 permit shall become invalid five years from the date of issuance unless a timely and complete renewal application is submitted to the APCD. Any operation of the source to which this Part 70 permit is issued beyond the expiration date of this Part 70 permit and without a valid Part 70 operating permit (or a complete Part 70 permit renewal application) shall be a violation of the CAAA, § 502(a) and 503(d) and of the APCD rules.

The permittee shall apply for renewal of the Part 70 permit no earlier than 18 months and not later than 6 months before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. [*Re: APCD Rule 1304.D.1*]

A.19 **Payment of Fees.** The permittee shall reimburse the APCD for all its Part 70 permit processing and compliance expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to

potential enforcement action by the APCD and the USEPA pursuant to section 502(a) of the Clean Air Act. [*Re: APCD Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7*)]

A.20 **Prompt Reporting of Deviations.** The permittee shall submit a written report to the APCD documenting each and every deviation from the requirements of this permit or any applicable federal requirements within 7 days after discovery of the violation, but not later than 6 months after the date of occurrence. The report shall clearly document 1) the probable cause and extent of the deviation, 2) equipment involved, 3) the quantity of excess pollutant emissions, if any, and 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to APCD in accordance with Rule 505, Breakdown Conditions, or Rule 1303.F Emergency Provisions. [*APCD Rule 1303.D.1, 40 CFR 70.6(a) (3)*]

A.21 **Reporting Requirements/Compliance Certification.** The permittee shall submit compliance certification reports to the USEPA and the Control Officer every six months. These reports shall be submitted on APCD approved forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by August 15 and February 15, respectively, each year. Supporting monitoring data shall be submitted in accordance with the "Semi-Annual Compliance Verification Report" condition in Section 9.C. The permittee shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [*Re: APCD Rules 1303.D.1, 1302.D.3, 1303.2.c*]

A.22 **Federally Enforceable Conditions.** Each federally enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the APCD-only enforceable section of this permit are federally enforceable or subject to the public/USEPA review. [*Re: CAAA § 502(b)(6), 40 CFR 70.6(b*)]

A.23 **Recordkeeping Requirements**. The permittee shall maintain records of required monitoring information that include the following:

(a) The date, place as defined in the permit, and time of sampling or measurements;
(b) The date(s) analyses were performed;
(c) The company or entity that performed the analyses;
(d) The analytical techniques or methods used;
(e) The results of such analyses; and
(f) The operating conditions as existing at the time of sampling or measurement;

The records (electronic or hard copy), as well as all supporting information including calibration and maintenance records, shall be maintained for a minimum of five (5) years from date of initial entry by the permittee and shall be made available to the APCD upon request. [*Re: APCD Rule 1303.D.1.f, 40 CFR 70.6(a)(3)*]

A.24 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:

(a) Additional Requirements: If additional applicable requirements (e.g., NSPS or MACT) become applicable to the source which has an unexpired permit term of three (3) or more years, the permit shall be reopened. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. However, no such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended. All such re-openings shall be initiated only after a 30 day notice of intent to reopen the permit has been provided to the permittee, except that a shorter notice may be given in case of an emergency.

(b) Inaccurate Permit Provisions: If the APCD or the USEPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of the permit, the permit shall be reopened. Such re-openings shall be made as soon as practicable.

(c) Applicable Requirement: If the APCD or the USEPA determines that the permit must be revised or revoked to assure compliance with any applicable requirement including a federally enforceable requirement, the permit shall be reopened. Such re-openings shall be made as soon as practicable.

Administrative procedures to reopen a permit shall follow the same procedures as apply to initial permit issuance. Re-openings shall affect only those parts of the permit for which cause to reopen exists.

If a permit is reopened, the expiration date does not change. Thus, if the permit is reopened, and revised, then it will be reissued with the expiration date applicable to the re-opened permit. [*Re: 40 CFR 70.7(f), 40 CFR 70.6(a)*]

A.25 **Credible Evidence.** Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee, including but not limited to, any challenge to the Credible Evidence Rule (see 62 Fed. Reg. 8314, Feb. 24, 1997), in the context of any future proceeding. [*Re: 40 CFR 52.12(c)*]

A.26 **Risk Management Plan – Section 112r.** POPCO shall comply with the requirements of 40 CFR 68 on chemical accident prevention provisions. The annual compliance certification must include a statement regarding compliance with this part, including the registration and submission of the risk management plan (RMP). [*Re: 40 CFR 68*]

9.B Generic Conditions

The generic conditions listed below apply to all emission units, regardless of their category or emission rates. These conditions are federally enforceable. These rules apply to the equipment and operations at the POPCO facility as they currently exist. Compliance with these requirements is discussed in Section 3.4.2. In the case of a discrepancy between the wording of a condition and the applicable APCD rule, the wording of the rule shall control.

B.1 **Circumvention (Rule 301).** A person shall not build, erect, install, or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Division 26 (Air Resources) of the Health and Safety Code of the State of California or of these Rules and Regulations. This Rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California, or of APCD Rule 303. [*Re: APCD Rule 301*]

B.2 **Visible Emissions (Rule 302).** POPCO shall not discharge into the atmosphere from any single source of emission any air contaminants for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection B.2.(a) above.

POPCO staff certified in visual emission evaluations (VEE) shall determine compliance with this Condition/Rule and Condition A.21. POPCO shall perform a VEE under the following circumstances:

- *Thermal Oxidizer*. The following requirements apply whenever there is flow to thermal oxidizer. If visible emissions are present, then a VEE shall be performed and record of the VEE shall be logged. If there are no visible emissions, then record in the log that there were no visible emissions.

- *All Combustion Sources*. At least once per day, POPCO shall check all combustion sources for compliance with this rule. If visible emissions are present, then a VEE shall be performed and record of the VEE shall be logged. If there are no visible emissions, then record in the log that there were no visible emissions.

POPCO shall obtain APCD approval of the Visible Emissions Log required by this condition. All VEE sheets and records shall be maintained consistent with the recordkeeping condition of this permit. To allow time to train POPCO personnel, the effective date for POPCO to implement the VEE requirements of this condition is December 31, 2000. [*Re: APCD Rule 302*]

B.3 **Nuisance (Rule 303).** No pollutant emissions from any source at POPCO shall create nuisance conditions. No operations shall endanger health, safety or comfort, nor shall they damage any property or business. [*Re: APCD Rule 303*]

B.4 **PM Concentration - South Zone (Rule 305).** POPCO shall not discharge into the atmosphere, from any source, particulate matter in excess of the concentrations listed in Table 305(a) of Rule 305. [*Re: APCD Rule 305*]

B.5 **Specific Contaminants (Rule 309).** POPCO shall not discharge into the atmosphere from any single source sulfur compounds, hydrogen sulfide, combustion contaminants and carbon monoxide in excess of the standards listed in Sections A, B and G of Rule 309. POPCO shall not discharge into the atmosphere from any fuel burning equipment unit, sulfur compounds, nitrogen oxides or combustion contaminants in excess of the standards listed in Section E and F of Rule 309. [*Re: APCD Rule 309*]

B.6 **Odorous Organic Sulfides (Rule 310).** POPCO shall not discharge into atmosphere H_2S and organic sulfides that result in a ground level impact beyond the ExxonMobil property boundary in excess of either 0.06 ppmv averaged over 3 minutes and 0.03 ppmv averaged over 1 hour. Compliance shall be based on data gathered from the *LFC Odor* monitoring station. For the purposes of compliance with this rule, this odor monitoring station shall be assumed to be located at ExxonMobil's property boundary. [*Re: APCD Rule 310*]

B.7 **Sulfur Content of Fuels (Rule 311).** POPCO shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 239 ppmvd or 15 gr/100scf (calculated as H_2S) for gaseous fuels. Compliance with this condition shall be based on continuous monitoring of the fuel gas with H_2S analyzers, daily sorbent tube samples, quarterly total sulfur content measurements of the fuel gas using ASTM or other APCD-approved methods and diesel fuel billing records or other data showing the certified sulfur content for each shipment. [*Re: APCD Rule 311*]

B.8 **Organic Solvents (Rule 317).** POPCO shall comply with the emission standards listed in Section B of Rule 317. Compliance with this condition shall be based on POPCO's compliance with the *Solvent Usage* condition in this permit. [*Re: APCD Rule 317*]

B.9 **Solvent Cleaning Operations (Rule 321).** POPCO shall comply with the operating requirement, equipment requirements and emission control requirements for all solvent cleaners subject to this Rule. Compliance shall be based on APCD inspection of the existing cold solvent cleaner and a thorough ATC application review for future solvent cleaners (if any). [*Re: APCD Rule 321*]

B.10 **Metal Surface Coating Thinner and Reducer (Rule 322).** The use of photochemically reactive solvents as thinners or reducers in metal surface coatings is prohibited. Compliance with this condition shall be based on the *Solvent Usage* condition in this permit and facility inspections. [*Re: APCD Rule 322*]

B.11 **Architectural Coatings (Rule 323).** POPCO shall comply with the emission standards listed in Section D of Rule 323 as well as the Administrative requirements listed in Section F of Rule 323. Compliance with this condition shall be based on the *Solvent Usage* condition in this permit and facility inspections. [*Re: APCD Rule 323*]

B.12 **Disposal and Evaporation of Solvents (Rule 324).** POPCO shall not dispose through atmospheric evaporation more than one and a half gallons of any photochemically reactive solvent per day. Compliance with this condition shall be based on the *Solvent Usage* condition in this permit and facility inspections. [*Re: APCD Rule 324*]

B.13 **Continuous Emissions Monitoring (Rule 328).** POPCO shall comply with the requirements of Section C, F, G, H and I of Rule 328. Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit as well as on-site inspections. [*Re: APCD Rule 328*]

B.14 **Polyester Resin Operations (Rule 349).** POPCO shall comply with the requirements of Section D of Rule 352. Compliance shall be based on the monitoring requirements of Sections E and F and on-site inspections. [*Re: APCD Rule 349*]

B.15 **Natural Gas-Fired Fan Type Central Furnaces and Residential Water Heaters (Rule 352).** POPCO shall comply with the requirements of Section D and E and of Rule 352. Compliance shall be based on the monitoring requirements of Section F and on-site inspections. [*Re: APCD Rule 352*]

B.16 **Adhesives and Sealants (Rule 353).** The permittee shall not use adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers, unless the permittee complies with the following:

A) Such materials used are purchased or supplied by the manufacturer or suppliers in containers of 16 fluid ounces or less; or alternately

B) When the permittee uses such materials from containers larger than 16 fluid ounces and the materials are not exempt by Rule 353, Section B.1, the total reactive organic compound emissions from the use of such material shall not exceed 200 pounds per year unless the substances used and the operational methods comply with Sections D, E, F, G, and H of Rule 353. Compliance shall be demonstrated by recordkeeping in accordance with Section B.2 and/or Section O of Rule 353.

[Re: APCD Rule 353]

B.17 **CARB Registered Portable Equipment.** State registered portable equipment shall comply with State registration requirements. A copy of the State registration shall be readily available whenever the equipment is at the facility. [*Re: APCD Rule 202*]

B.18 **Oil and Natural Gas Production MACT.** By no later than June 17, 2000, POPCO shall submit for APCD review an *Initial Notification of Applicability* for the National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage (promulgated June 17, 1999). If the facility is subject to the MACT, POPCO shall modify this Part 70 Operating Permit to include the specific requirements that are applicable and full compliance shall be achieved by no later than June 17, 2002. [*Re:* 40 CFR 63, Subpart HH]

9.C Requirements and Equipment Specific Conditions

C.1 **External Combustion.** The following equipment is included in this emissions unit category:

EQ No.	Name
1-1	Utility Boiler B-801A (41 MMBtu/hr)
1-2	Utility Boiler B-801B (41 MMBtu/hr), with steam injection
1-3	TEG Reboiler E-251 (2.1 MMBtu/hr)
1-4	TEG Reboiler E-121 (1.2 MMBtu/hr)
1-5	Forced Air Furnace (0.5 MMBtu/hr)

(a) Emission Limits: The mass emissions from the Utility Boilers shall not exceed the limits listed in Tables 5.3 and 5.4. Compliance shall be based on sliding one-hour readings of 15-minute averages (or less) through the use of process monitors (e.g., fuel use meters), source testing and CEMS; and the monitoring, recordkeeping and reporting conditions of this permit. For pollutants without CEMS monitors, compliance with the mass emission rates shall be determined through source testing and the permitted emission factors in Table 5.2. In addition, the following specific emission limits apply:

(i) *NO_x and CO Limits* – Except during periods of startup (defined as the time period within 2 hours after a continuous period in which fuel flow to unit is shut off for 30 minutes or longer), the emissions from the Utility Boilers shall not exceed the limits listed below. Compliance shall be based on annual source testing for all pollutants. For NO_x, compliance shall also be based on a continuous basis using CEMS {based on 15-minute clock average (or less)}, which shall be logged.

Operating Mode	NO_x (as NO_2)	CO
Utility Boiler B-801A	30 ppmvd at 3% O_2 or 0.036 lb/MMBtu	100 ppmvd at 3% O_2 or 0.073 lb/MMBtu
Utility Boiler B-801B	30 ppmvd at 3% O_2 or 0.036 lb/MMBtu	100 ppmvd at 3% O_2 or 0.073 lb/MMBtu

Compliance with the NO_x and CO concentration limits shall take into account dilution of the boiler stack gases with TGU off gas according to the following formulae:

a) Adjusted Stack ppmv = Raw Stack ppmv * Stack Flow/(Stack Flow - Off gas Flow)

b) Adjusted Stack % O_2 = Raw Stack %O_2 * Stack Flow/(Stack Flow - Off gas Flow)

c) ppmv (@3% O_2) = Adjusted Stack ppmv * (20.95-3.0)/(20.95- Adjusted Stack %O_2)

All heat content data shall be higher heating value (HHV) based.

POPCO shall install an oxygen analyzer in each boiler stack and update the CEMS/DAS systems consistent with Tables 4.4 and 9.2 within 18 months of the issuance of this permit. If it is determined that the POPCO/Exxon LFC Synergy Project is no longer a viable project, then the above modifications shall occur within 120 days of written notification from the APCD.

(b) Operational Limits: The following operational limits apply to the external combustion equipment as specified:

(i) *Utility Boiler Fuel Gas Sulfur Limit* - POPCO shall use boiler fuel gas [f] at all times for the Utility Boilers. The boiler fuel gas shall not contain total sulfur compounds in concentrations exceeding 24 ppmvd (calculated as H_2S at standard conditions). Compliance with this condition shall be based on monitoring, recordkeeping and reporting requirements of this permit.

(ii) *TEG Reboiler/Air Furnace Fuel Gas Sulfur Limit* - POPCO shall use sales gas [g] at all times for the TEG Reboilers and the Air Furnace. The natural gas shall meet the following: (a) hydrogen sulfide shall not contain more than 0.25 grains per hundred standard cubic feet (4 ppmvd as H_2S); (b) total sulfur shall not contain more than 5 grains per hundred standard cubic feet (80 ppmvd calculated as H_2S). Compliance with this condition shall be based on monitoring, recordkeeping and reporting requirements of this permit.

(iii) *Utility Boiler - Fuel Gas Usage Limits* - POPCO shall comply with the following usage limits (HHV based):

- Utility Boiler B-801A: 41.000 MMBtu/hr; 984 MMBtu/day; 89,790 MMBtu/quarter; 359,160 MMBtu/year

- Utility Boiler B-801B: 41.000 MMBtu/hr; 984 MMBtu/day; 89,790 MMBtu/quarter; 359,160 MMBtu/year

Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit. POPCO shall use the most recent heating value analysis in conjunction with the fuel gas meter reading to calculate the heat input to each boiler.

(iv) *Utility Boiler –TGU Off Gas Input Limits* - POPCO shall comply with the following usage limits (HHV based):

- TGU Off Gas to Boilers B-801A/B: 5.620 MMBtu/hr; 135 MMBtu/day; 12,308 MMBtu/quarter; 49,231 MMBtu/year

Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit. POPCO shall use the most recent heating value analysis in conjunction with the TGU off gas meter readings to calculate the heat input to the boilers.

(v) *Steam Injection Operating Limits* – If steam injection into the Utility Boiler B-801B flame zone is required to comply with the emission limits of this permit, the following conditions shall apply:

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[f] Where used in this permit, boiler fuel gas shall have the same meaning as plant fuel gas.
[g] Where used in this permit, sales gas shall have the same meaning as PUC Quality natural gas (General Order 58-A).

- Injection of 50 psig steam shall be limited to no more than 650 lb/hr, as verified by an equivalent steam delivery pressure to the Utility Boiler burner steam injection wand of no more than 10 psig;

- POPCO shall implement the APCD-approved *Steam Injection Operating and Monitoring Plan* (approved 20/20/97) for the life of the project.

(vi) *Fuel Restriction* - POPCO may only use PUC Quality natural gas as fuel for TEG Reboilers and the Forced Air Furnace. Further, only boiler fuel gas may be used in the utility boilers.

(c) Monitoring: The Utility Boilers in this section are subject to all the monitoring requirements listed in Table 4.4 and APCD Rule 342.E, G and I. The source test methods In Rule 342.H shall be used. In addition, POPCO shall:

(i) *Utility Boiler Fuel Meters* – The amount of fuel gas combusted in each Utility Boiler shall be measured using a permanently installed APCD-approved in-line fuel meter. POPCO shall maintain the boiler fuel meter configuration identified in POPCO's January 19, 1996 dated letter, titled: "Boiler Low NOx Burner Project, ATC 9215-01, Condition 10". POPCO shall obtain written APCD-approval prior to implementing any changes to this meter configuration.

(ii) *TGU Off Gas Meters* – The volume of TGU off gas directed to each Utility Boiler shall be metered using APCD-approved meters.

(iii) *Source* Testing – POPCO shall source test the Utility Boilers according to the *Source Testing* condition in this permit. More frequent testing may be required, as determined by the APCD, if full operating loads have not been achieved.

(iv) *CEMS* – POPCO shall monitor the emission and process parameters listed in Tables 4.3 and 4.4 for the life of the project POPCO and shall maintain and operate continuous in stack monitoring equipment for the Utility Boilers for emissions of nitrogen oxides (as NO_2) and sulfur oxides (as SO_2) consistent with APCD Rule 328, the APCD-approved CEMS Plan for the POPCO facility and Tables 4.3 and 4.4.

(v) *Boiler Fuel Gas Data* – POPCO shall monitor the total sulfur content of the boiler fuel gas used in the Utility Boilers by (a) daily sorbent tube (or equivalent APCD-approved) readings of hydrogen sulfide, and (b) quarterly gas samples for third part lab analyses for hydrogen sulfide, total reduced sulfur compounds and higher heating value (HHV). The readings from the daily sorbent tubes shall be adjusted upward to take into account the non-hydrogen sulfide reduced sulfur compounds in the fuel gas from the last analysis. The APCD may require more frequent lab analyses upon request. POPCO shall utilize the APCD-approved *Fuel Gas Sulfur and HHV Reporting Plan* (conditionally approved 10/29/98).

(vi) *Sales (PUC Quality) Fuel Gas Data* – POPCO shall continuously monitor the hydrogen sulfide content (as H_2S) of the sales (PUC Quality) fuel gas used in the TEG Reboilers and Forced Air Furnace using two APCD-approved monitors. These monitors shall adhere to the APCD's CEMS Protocol document and APCD Rule 328 requirements regarding CEMS. On a quarterly basis, POPCO shall take gas samples for third part lab analyses for: hydrogen sulfide content, total reduced sulfur compounds and the higher heating value (HHV). The APCD may require more frequent lab analyses upon request. POPCO shall utilize the APCD-approved *Fuel Gas Sulfur and HHV Reporting Plan* (conditionally approved 10/29/98).

(vii) *TGU Off Gas Data* – POPCO shall monitor the higher heating value of the TGU off gas combusted in the Utility Boilers by taking quarterly gas samples for third part lab analyses for the higher heating value (HHV). The APCD may require more frequent lab analyses upon request. POPCO shall utilize the APCD-approved *Fuel Gas Sulfur and HHV Reporting Plan* (conditionally approved 10/29/98).

(vii) *Steam Injection* – POPCO shall monitor the steam delivery pressure to the Utility Boiler B-801B burner steam injection wand using a dedicated pressure gage.

(d) Recordkeeping: The Utility Boilers listed in this section are subject to the recordkeeping requirements listed in Table 4.4 and Rule 342.I. POPCO shall record the emission and process parameters listed in Table 4.4. In addition, POPCO shall:

(i) *Utility Boiler Fuel Gas Use* - The total amount of boiler fuel gas combusted in each Utility Boiler shall be recorded on a daily, quarterly and annual basis in units of standard cubic feet and million BTUs (x.xxx format).

(ii) *TGU Off Gas Input* - The total amount of TGU off gas combusted in each Utility Boiler shall be recorded on a daily, quarterly and annual basis in units of standard cubic feet and million BTUs (x.xxx format).

(iii) *Boiler Fuel Gas Data* - A logbook shall be maintained that records the daily sorbent tube readings and the quarterly lab analysis results. The logbook shall also store as backup documentation, a photocopy picture of each sorbent tube and the laboratory reports, including chain of custody forms.

(iv) *Sales (PUC Quality) Fuel Gas Data* - A logbook shall be maintained that records the highest weekly H_2S analyzer readings and the quarterly lab analysis results. The logbook shall also store as backup documentation, a copy of the analyzer data and the laboratory reports, including chain of custody forms.

(v) *TGU Off Gas Data* – A logbook shall be maintained that records the quarterly lab analysis results. The logbook shall also store as backup documentation, a copy of the laboratory reports, including chain of custody forms.

(vi) *Maintenance and Calibration Logs* – A logbook shall be kept that documents all maintenance and calibration performed for the boilers, emission control systems, fuel flow meters and other associated monitoring equipment.

(vii) *CEMS Data* – CEMS records as required by APCD Rule 328, the APCD-approved CEMS Plan for the POPCO facility and Tables 4.3 and 4.4.

(e) Reporting: The equipment listed in this section are subject to all the reporting requirements listed in APCD Rule 342.J. On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit.

[*Re: ATC 9047, PTO 8092, PTO 9215, ATC 9693]*

C.2 **Thermal Oxidizer.** The following equipment is included in this emissions unit category:

EQ No.	Name
2-1	Thermal Oxidizer (5,045 MMBtu/hr)

(a) Emission Limits: Mass emissions from the flare relief system listed above shall not exceed the limits listed in Tables 5.3 and 5.4. Notwithstanding the above and consistent with APCD P&P 6100.004, the short-term emission limits for *Planned - Other* and *Unplanned - Other* flaring categories in Table 5.3 shall not be considered as enforceable limits. Compliance with this condition shall be based on the monitoring, recordkeeping and reporting conditions in this permit.

Continuous planned flaring emissions are permitted for the hydrocarbon flare header at levels above the minimum detection limit of the hydrocarbon flare meter due to baseline system leakage. Continuous planned flaring is permitted for the Acid Gas flare header at levels greater than one-half the minimum detection limit for the acid gas flare header, but less than the detection limit of that meter, due to compressor seal leakage and baseline system leakage. Other than flare purge and pilot, this is the only continuous flaring allowed under this permit.

(b) Operational Limits:

(i) *Flaring Volumes* - Flaring volumes from the purge, pilot, continuous, planned other and unplanned other events shall not exceed the following volumes:

Flare Category	**Hourly** (10^3 scf)	**Daily** (10^3 scf)	**Quarterly** (10^6 scf)	**Annual** (10^6 scf)
Purge	0.200	4.800	0.438	1.752

Flare Category	Hourly (10^3 scf)	Daily (10^3 scf)	Quarterly (10^6 scf)	Annual (10^6 scf)
Pilot	2.000	48.000	4.380	17.520
Continuous – HC/AG Header, Baseline System Leakage [h]	0.600	14.400	1.314	5.256
Continuous – AG Header Compressor Seal Leakage [i]	0.311	7.464	0.681	2.724
Planned Other [j]			32.680	130.720
Unplanned Other [k]			0.00148	0.00148

The hourly limits shall be enforced on an hourly basis and the daily limits shall be enforced on a daily basis.

(ii) *Flare Purge/Pilot Fuel Gas Sulfur Limits* - The pilot fuel gas combusted in the thermal oxidizer shall not exceed a total sulfur content of 24 ppmv. The purge fuel gas combusted in the thermal oxidizer shall meet the following: (a) hydrogen sulfide shall not contain more than 0.25 grains per hundred standard cubic feet (4 ppmvd as H_2S); (b) total sulfur shall not contain more than 5 grains per hundred standard cubic feet (80 ppmvd calculated as H_2S). Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit.

(iii) *Planned Continuous Flaring Sulfur Limits* - The sulfur content of all gas burned as continuous flaring in the hydrocarbon flare header (i.e., baseline system leakage) shall not exceed 239 ppmv total sulfur. The sulfur content of all gas burned as continuous flaring in the acid gas flare header (i.e., compressor seal leakage and baseline system leakage) shall not exceed 239 ppmv total sulfur. Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit.

(iv) *Rule 359 Technology Based Standards* - POPCO shall comply with the technology based standards of Section D.2 of Rule 359. Compliance shall be based on monitoring and recordkeeping requirements of this permit as well as APCD inspections.

(v) *Flaring Modes* - POPCO shall operate the thermal oxidizer consistent with APCD P&P 6100.004 (*Planned and Unplanned Flaring Events*). Section 4.5.2 of this permit defines each of the modes and flare categories and is specific to this facility. If

[h] *Baseline System Leakage* shall be measured and calculated for each flare header using APCD-approved methods using the following calculations: (i) HC Flare Header: BSL_{HC} = (total aggregate HC flare flow) – (HC header purge flow) – (HC flare event flow); (ii) AG Flare Header: BSL_{AG} = (total aggregate AG flare flow) – (AG header purge flow) – (compressor seal leakage flow) - (AG flare event flow).
[i] *Compressor Seal Leakage* shall be measured and calculated using APCD-approved methods.
[j] *Planned – Other* flaring only includes startup and maintenance events. This category does not include maintenance activities (and associated startups) due to equipment failure, breakdown or other non-planned event or activity.
[k] *Unplanned – Other* flaring only includes emergency SRU failures (1480 scf/event).

POPCO is unable to comply with the infrequent planned flaring limit of 4 events per year from the same processing unit or equipment type, then an ATC permit application shall be submitted to incorporate those emissions in the short-term (hourly and daily) emissions of Table 5.3.

(vi) *Rule 359 Planned Flaring Target Volume Limit* - Pursuant to Rule 359, POPCO shall not flare more than 18.20 million standard cubic feet per month during planned flaring events.

(vii) *Rule 359 Flare Minimization Plan* - POPCO shall implement the requirements of the APCD-approved Rule 359 Flare Minimization Plan (limited approval 1/5/96)

(viii) *BACT* – For increases in Planned Flaring due to baseline system leakage, compressor seal leakage and purge gas, POPCO shall: (1) use purge gas that meets sales gas quality; (2) properly maintain the thermal oxidizer combustors; (3) use sales gas quality gas in the compressors; and, (4) limit the sulfur content of the purge gas to 80 ppmv (as H_2S) and the hydrogen sulfide content to 4 ppmv. POPCO shall implement the APCD-approved *Thermal Oxidizer Combustor Maintenance Plan* (approved 9/5/2000) to the APCD documenting the maintenance procedures and schedules used comply with item (2) above. The Plan shall be implemented for the life of the POPCO facility. The APCD-approved Plan shall become an enforceable part of this permit.

(ix) *Planned Flaring Hourly Limit* – No planned flaring activity in any one-hour shall exceed a rate of 0.76 MMSCF, or generate the equivalent of 900 MMBtu of gross heat release in the flare. The 0.76 MMSCF volume limit may only be exceeded in any hour if the 900 MMBtu gross heat release limit is not also exceeded. The flared gas heating value for each hour of planned flaring shall be obtained by POPCO, using an APCD-approved analytic technique, to utilize the 900 MMBtu limitation. Further, planned flaring activities for startups and shut downs shall not exceed a continuous uninterrupted duration of 24 hours.

(x) *Unplanned Flaring Requirements* – POPCO shall obtain breakdown and/or variance relief pursuant to Regulation V for all Unplanned (i.e., emergency) flaring events (note: the requirements of Regulation V must be fully satisfied to obtain this relief). The above requirement shall not apply to *SRU –Failures* that meet the *Unplanned Other* volume limits in 9.C.2(b)(i) above and the permitted mass emission limits in Table 5.3 and 5.4.

In addition, emergency flaring (Item #166, A-803 and Exhibit C-2 to POPCO's PTO application dated October, 1983) shall not occur for more than one continuous hour nor more than a total of two hours in any 24-hour period and the worst case emergency flare event shall not exceed 2.49 MMSCF/hr.

(xi) The flare and all associated relief systems shall be properly operated and maintained to minimize emissions to the maximum extent feasible. Flaring operations due in whole or in part to the lack of equipment repair or maintenance is prohibited. Except as expressly provided above, the operation of the flare shall comply with the Flaring

Analysis of October 1983 (revised 7/84). In addition, flare operations shall comply with all applicable District Rules and Regulations.

(xii) *deleted*

(c) Monitoring: The equipment in this section is subject to all the monitoring requirements listed in Table 4.4 and APCD Rule 359.G. The test methods In Rule 359.E. shall be used. POPCO shall monitor the emission and process parameters listed in Table 4.4 for the life of the project. In addition, the following monitoring requirements apply to the flare relief system:

(i) *Flare Volumes* - The volumes of gas flared during each event shall be monitored by use of APCD-approved flare header flow meters. The meters shall be calibrated and operated consistent with POPCO's *Process Monitor Calibration and Maintenance Plan* (approved 5/26/98). An event is defined as an hourly average flow rate in excess of the event threshold listed below. An event is determined on a clock-hour basis. During a flaring episode, any subsequent flows recorded by the flare header flow meter within 5 minutes after the flow rate drops below the minimum detection level of the meter shall be considered as part of the event.

FLARE HEADER	EVENT THRESHOLD (scfh)	METER MINIMUM DETECTION LEVEL (scfh)
Hydrocarbon	500	45
Acid Gas	500	490

All flaring not classified as an event pursuant to the above definition shall be aggregated as a single hourly, daily, quarterly and annual volume and recorded in the *Continuous – HC/AG Header, Baseline System Leakage* flaring category. Continuous flaring greater than the event thresholds listed above is prohibited for any flaring category

(ii) *Purge/Pilot Gas* - POPCO shall monitor the total sulfur and hydrogen sulfide content of the sales gas used in the thermal oxidizer as purge and pilot gas by (a) on a in-line continuous hydrogen sulfide analyzer for the POPCO sales, and (b) quarterly gas samples for third part lab analyses for hydrogen sulfide, total reduced sulfur compounds and higher heating value (HHV). The readings from the analyzer shall be adjusted upward to take into account the average non-hydrogen sulfide reduced sulfur compounds in the fuel gas from the last analysis. The APCD may require more frequent lab analyses upon request. POPCO shall utilize the APCD-approved *Fuel Gas Sulfur and HHV Reporting Plan*. (conditionally approved 10/29/98).

(iv) *Pilot Gas Flow Meter* - POPCO shall continuously monitor the combined pilot gas flow to the thermal oxidizer using an APCD-approved meter.

By no later than May 31, 2001, POPCO may utilize a temporary flow meter that does

not continuously monitor the pilot gas flow. POPCO shall take readings from the temporary meter on a monthly basis and provide those reading to the APCD in writing within 14-days. POPCO shall also provide readings from the temporary meter system upon request of the APCD inspector.

(v) *Hydrocarbon and Acid Gas Meters* – POPCO shall continuously monitor the flare gas volumes in the hydrocarbon and acid gas flare headers using the APCD-approved *Flare Volume Metering System* meters (Re: ATC 9487). All the Hydrocarbon and Acid Gas flow metering system outputs will be tied into the facility's Distributed Control System ("DCS") control/monitoring system. The DCS will be capable of tracking instantaneous flows, as well as recording cumulative flows measured by the above-specified meters. Six-minute average instantaneous flow rates (in units of scfh) and one-hour average flow rates shall be telemetered to the APCD's DAS.

(vi) *Meter Calibrations* – All four (4) Flare Volume Meters shall be calibrated and maintained in accordance with the meter manufacturer's procedures and frequency. All meters shall be calibrated at least once every six-calendar months, not to exceed seven calendar months between calibrations.

(vii) *Compressor Seal Meters* – POPCO shall operate the APCD-approved gas flow meters for measuring compressor seal leakage flow rates.

(viii) *Purge Gas Flow Meters* – POPCO shall operate the APCD-approved flow indicator meters for measuring all purge gas flow to the hydrocarbon and acid gas flare headers.

(ix) *Pilot Pressures* – The gas pressure regulators serving the LRGO, ZTOF and acid gas flare pilots shall be monitored at all times using APCD-approved pressure indicators (PI-880 and PI-886).

(x) *Data for Acid Gas Header Flaring Events* – During any flare event in the Acid Gas flare header system, measurement of the hydrogen sulfide content of the flared acid gas shall be measured by sorbent tube (or other APCD-approved method) within one hour of flare event initiation, and hourly thereafter for extended flaring events. For each flare event, a record of the date, start time, duration, hydrogen sulfide content(s), assumed flared gas high heating value in Btu/scf and the reason for the Acid Gas flaring event shall be kept.

(xi) *Data for Hydrocarbon Header Flaring Events* – During any flare event in the Hydrocarbon flare header system measurement of the hydrogen sulfide content of the flared hydrocarbon gas shall be measured by sorbent tube (or other APCD-approved method) within one hour of flare event initiation, and hourly thereafter for extended flaring events. For each flare event, a record of the date, start time, duration, hydrogen sulfide content(s), assumed flared gas high heating value in Btu/scf and the reason for the hydrocarbon-flaring event shall be kept.

(xii) *Flaring Sulfur Content Correction* – During non-flaring events, POPCO shall sample, on a weekly basis, the hydrocarbon and acid gas flare headers to determine the hydrogen sulfide content using sorbent tubes. On an annual basis, gas samples from each flare header, for third part lab analyses for hydrogen sulfide and total reduced sulfur compounds shall be obtained. To correct for the total sulfur content, POPCO shall add the prior year's non-hydrogen sulfide reduced sulfur compounds analysis result to the sorbent tube readings. This data shall be used to determine SO_x emissions associated with non-event flaring. POPCO shall perform additional testing of the sulfur content and hydrogen sulfide content, using approved test methods, as requested by the APCD.

(d) Recordkeeping: The equipment listed in this section is subject to all the recordkeeping requirements listed in Table 4.4 and Rule 359.H. POPCO shall record the emission and process parameters listed in Table 4.4. In addition, the following recordkeeping conditions apply to the thermal oxidizer:

(i) *Flare Event Logs* - All flaring events shall be recorded in a log. The log shall include: date; duration of flaring events (including start and stop times); quantity of gas flared; total sulfur content; hydrogen sulfide content; high heating value; reason for each flaring event, including the processing unit or equipment type involved; the total heat input (MMBtu) per event; the type of event (i.e., Planned – Other and Unplanned – Other); and, the APCD Breakdown and/or Variance number for each Unplanned Flaring event. The volumes of gas combusted and resulting mass emissions of all criteria pollutants for each type of event shall also be summarized for a cumulative summary for each day, quarter and year.

(ii) *Pilot Gas Volumes/Mass Emissions* - The gas pressure to each pilot header (ZTOF/Acid Gas and LRGO) and the total volume of pilot fuel gas and resulting mass emissions of all criteria pollutants combusted in the thermal oxidizer shall be recorded on a daily, weekly, quarterly and annual basis. After one year from the issuance date of this permit, POPCO may petition the APCD to eliminate the requirement for daily recordkeeping. The petition shall include all daily records from the prior year and POPCO's analyses showing that weekly records provide an equivalent method of determining compliance with the daily volume limits. Upon approval of the petition by the APCD, the weekly data shall be used be used to record and report daily gas volumes and emissions.

(iii) *Purge Gas Volumes/Mass Emissions* - The volume of purge fuel gas and resulting mass emissions of all criteria pollutants combusted in the thermal oxidizer shall be recorded on a daily, weekly, quarterly and annual basis. After one year from the issuance date of this permit, POPCO may petition the APCD to eliminate the requirement for daily recordkeeping. The petition shall include all daily records from the prior year and POPCO's analyses showing that weekly records provide an equivalent method of determining compliance with the daily volume limits. Upon approval of the petition by the APCD, the weekly data shall be used be used to record and report daily gas volumes and emissions.

(iv) *Compressor Seal Leakage Gas Volumes/Mass Emissions* - The volume of compressor seal leakage and resulting mass emissions of all criteria pollutants combusted in the thermal oxidizer shall be recorded on a daily, weekly, quarterly and annual basis. After one year from the issuance date of this permit, POPCO may petition the APCD to eliminate the requirement for daily recordkeeping. The petition shall include all daily records from the prior year and POPCO's analyses showing that weekly records provide an equivalent method of determining compliance with the daily volume limits. Upon approval of the petition by the APCD, the weekly data shall be used be used to record and report daily gas volumes and emissions.

(v) *Baseline System Leakage Gas Volumes/Mass Emissions* - The volume of baseline system leakage [1] gas in both the hydrocarbon and acid gas headers and resulting mass emissions of all criteria pollutants combusted in the thermal oxidizer shall be recorded on a daily, quarterly and annual basis. POPCO shall use APCD-approved methods to measure and calculate the baseline system leakage in each flare header. The basis for each baseline system leakage volume calculation shall be clearly documented.

(vi) *Infrequent Flaring Events* - POPCO shall track and log the number of planned and unplanned infrequent flaring events (as defined by APCD P&P 6100.004) from each processing unit or equipment type in a manner approved by the APCD.

(vii) *Hydrocarbon and Acid Gas Meters (Telemetered Data)* – POPCO shall telemeter both 6-minute average instantaneous and clock-hour average instantaneous flow rates (in units of scfh) to the APCD's DAS.

(viii) *Maintenance and Calibration Logs* – Maintenance and calibration logs of all the Flare Volume Metering system meters shall be kept on site by the permittee and made available for APCD inspection upon request.

(ix) *Rule 359 Planned Monthly Volumes* – POPCO shall record in a log the total planned flaring volumes for each month.

(e) Reporting: The equipment listed in this section are subject to all the reporting requirements listed in APCD Rule 359.H. On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit.

(*Re: APCD Rules 359 and 1303, PTO 8092, ATC 9047, ATC 9487, ATC 9047-4, 40 CFR 70.6*)

C.3 **Fugitive Hydrocarbon Emissions Components.** The following equipment is included in this emissions unit category:

[1] As defined in §9.C.2.(b)(i)

EQ No.	Name
	Gas/Light Liquid Service Components
3-1	Valves – Bellows Seal
3-2	Valves - LEV Accessible
3-3	Valves – Accessible
3-4	Valves - LEV Unsafe
3-5	Valves – Unsafe
3-6	Flanges/Connections
3-7	Flanges/Connections – E500
3-8	Flanges/Connections – E100
3-9	Flanges/Connections – Unsafe
3-10	Relief Valves to Atm.
3-11	Relief Valves to Atm. – Unsafe
3-12	Compressor Seals – To VRU
3-13	Pump Seals – Tandem
3-14	Pump Seals – Single

(a) Emission Limits: Mass emissions from the gas/light liquid service (sub-total) components listed above shall not exceed the limits listed in Tables 5.3 and 5.4. Compliance with this condition shall be based on actual component-leakpath counts as documented through the monitoring, recordkeeping and reporting conditions in this permit.

(b) Operational Limits: Operation of the equipment listed in this section shall conform to the requirements listed in APCD Rule 331.D and E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition POPCO shall meet the following requirements:

(i) *VRS Use* - The vapor recovery and gas collection (VR & GC) systems at the POPCO Gas Plant shall be in operation when equipment connected to these systems are in use. These systems include piping, valves, and flanges associated with the VR & GC systems. The VR & GC systems shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.

(ii) *I&M Program* - The APCD-approved I&M Plan for POPCO{*POPCO I&M Manual for Control of Reactive Organic Compound Emissions* (submitted 9/18/98 and approved 8/7/2000)} shall be implemented for the life of the project. The *I&M Plan* shall be consistent with the provisions of Tables 4.1, 4.1a, 4.2-1 and 4.2-2 of this permit, APCD Rule 331, BACT requirements and NSPS Subpart KKK (*Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants*). Furthermore, POPCO shall implement a BACT component identification system, including the use of component tagging, recordkeeping and reporting. The *I&M Plan*, and any subsequent APCD approved revision, is incorporated by reference as an enforceable part of this permit.

(iii) *Leakpath Count* - The total component-leakpath count listed in POPCO's most recent I&M component-leakpath inventory shall not exceed the total component-leakpath count listed in Table 5.1 by more than five percent. This five percent range is to allow for minor differences due to component counting methods and does not constitute allowable emissions growth due to the addition of new equipment.

(iv) *Venting* - All routine venting of hydrocarbons shall be routed to either a compressor, vapor recovery, flare header or other APCD-approved control device.

(v) *BACT* - POPCO shall apply BACT, as defined in Tables 4.1, 4.2.1 and 4.2-2, to those component-leakpaths in hydrocarbon service installed pursuant to ATC 9047, ATC 9675, ATC 9047-2 and ATC 9047-4 for the life of the project. This requirement applies to components subject to the *de minimis* exemption of Rule 202 as well as projects that do not trigger the BACT threshold of Rule 802 and equivalent routine replacements.

(vi) *Rule 331 BACT* - The component-leakpaths in hydrocarbon service listed in Table 4.1b are subject to BACT requirements pursuant to Rule 331. BACT, as defined in Table 4.1b, shall be implemented for the life of the project.

(vii) *NSPS KKK* - For all permitted and future component-leakpaths in hydrocarbon service, POPCO shall comply with the emission standard requirements of 40 CFR 60.632, as applicable.

(viii) *E500 Requirements* – Flange/connection component-leakpaths classified as emitters less than 500 ppmv ("E500") shall achieve a mass emission control efficiency of 85 percent. E500s are defined as component-leakpaths associated with closed vent systems (e.g., vapor recovery systems) for which screening values are maintained at or below 500 ppmv as methane, monitored per EPA Reference Method 21. For such E500s, screening values above 500 ppmv shall trigger the Rule 331 repair process per the minor leak schedule.

(ix) *E100 Requirements* - Flange/connection component-leakpaths classified as emitters less than 100 ppmv ("E100") shall achieve a mass emission control efficiency of 90 percent. E100s are defined as component-leakpaths subject to the BACT standards and for which screening values are maintained at or below 100 ppmv as methane, monitored per EPA Reference Method 21. For such E100s, screening values above 100 ppmv shall trigger the Rule 331 repair process per the minor leak schedule.

(x) *Fugitive Emission Component BARCT Requirements* – In addition to the requirements specified in ATC 9047 to retrofit existing valves and connections during the expansion construction window, POPCO shall accomplish the following *Best Available Retrofit Control Technology* program to reduce and minimize fugitive hydrocarbon emissions from existing valves and connections that were permitted and/or were in service prior to the issuance of ATC 9047:

- Monitor all existing safe-to-monitor valves locations (whether retrofit to LEP or remaining a standard type valve) to a 500 ppmv minor leak threshold. Rule 331 protocol for repairing, removing from service or replacing minor leakers shall apply at this 500 ppmv threshold;

- If a leaking standard-type valve cannot be repaired to less than 500 ppmv, or is removed from service pursuant to Rule 331 protocols, that valve shall be irrevocably subject to LEP retrofit. The LEP retrofit shall be accomplished within one year from the date the repair does not restore the standard valve to less than 500 ppmv leakage; and,

- All Rule 331 BACT triggers apply to any valve not reduced to below 1000 ppmv leakage.

(xi) *Pump Seals* – Any pump installed in hydrocarbon service shall be equipped with a double mechanical seal.

(c) Monitoring: The equipment listed in this section are subject to all the monitoring requirements listed in APCD Rule 331.F and NSPS Subpart KKK. The test methods in Rule 331.H and NSPS Subpart KKK shall be used, when applicable.

(d) Recordkeeping: The equipment listed in this section is subject to all the recordkeeping requirements listed in APCD Rule 331.G and NSPS Subpart KKK. In addition, POPCO shall:

(i) *I&M Log* - POPCO shall record in a log the following: a record of leaking components found (including name, location, type of component, date of leak detection, the ppmv or drop-per-minute reading, date of repair attempts, method of detection, date of re-inspection and ppmv or drop-per-minute reading following repair); a record of the total components inspected and the total number and percentage found leaking by component type; a record of leaks from critical components; a record of leaks from components that incur five repair actions within a continuous 12-month period; and, a record of component repair actions including dates of component re-inspections.

For the purpose of the above paragraph, a leaking component is any component that exceeds the applicable limit (e.g., greater than or equal to 1,000 ppmv for minor leaks under Rule 331; greater than or equal to 100 ppmv for components subject to current BACT standards (E100); greater than 500 ppmv for E500 components).

(ii) *BARCT* – POPCO shall record in a log all components that have been retrofit with BARCT per the requirements of 9.C.3.b(x) above.

(e) Reporting: The equipment listed in this section are subject to all the reporting requirements listed in APCD Rule 331.G and NSPS KKK. On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit.

[*Re: ATC 9047, ATC 9047-4, ATC 9047-2, ATC/PTO 9471, ATC 9471-1, ATC 9487, ATC 9675 PTO 8092]*

C.4 **Pigging Equipment.** The following equipment is included in this emissions category:

EQ No.	Name
4-1	Gas Pig Receiver

(a) Emission Limits: With the exception of fugitive emissions from valves and connections, there are no permitted emissions allowed due to the opening and closing of the pig receiver. Compliance shall be based on the operational and monitoring limits of this permit.

(b) Operational Limits: Operation of the equipment listed in this section shall conform to the requirements listed in APCD Rule 325.E. In addition POPCO shall meet the following requirement:

(i) *Pig Openings* - Access openings to the pig receiver shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the receiver. Prior to opening the pig receiver, POPCO shall completely purge the vessel with nitrogen to eliminate ROC compounds. Purged gases shall be sent to the gas plant's vapor recovery system.

(ii) *Vapor Recovery Use Required* – No pigging receiver gases shall be vented to the atmosphere, for combustion in the Utility Boilers B-801A/B or for combustion in the thermal oxidizer. All pigging receiver gases shall be vented either to the POPCO gas plant gas processing system, or to the PDS vapor recovery system.

(iii) *Blowdown Rate* – The rate in which gas from the pigging receiver can be blown down to the PDS vapor recovery system shall not exceed 10 SCF/min.

(c) Monitoring: POPCO shall monitor the blowdown rate from the pigging receiver using an APCD-approved flow meter. POPCO shall install the APCD-approved flow meter by no later than May 31, 2001.

(d) Recordkeeping: For each pigging event, POPCO shall record in a log the date, time, duration of the event, the blowdown rate and where the pigging and purge gases were directed.

(e) Reporting: none.

[*Re: ATC/PTO 9471, ATC 9471-1, ATC 9047]*

C.5 **Tanks.** The following equipment is included in this emissions category:

EQ No.	Name	
GROUP A UNITS		
5-1	Methanol Tank (T-111) 10,500 gallon capacity	
5-2	Wastewater Tank (T-807) 36,700 gallon capacity	
5-3	Wastewater Tank (T-601) 92,000 gallon capacity	

(a) Emission Limits: Mass emissions from the methanol storage tank shall not exceed the limits listed in Tables 5.3 and 5.4. No emissions of ROC are permitted from the wastewater tanks. Compliance with this condition shall be based on the monitoring, recordkeeping and reporting conditions in this permit. Emissions from the methanol tank shall be determined using the emission factor in Table 5.2 and actual throughput data.

(b) Operational Limits: The methanol tank listed in this section shall meet the requirements of APCD Rule 326, Sections D.1a and , D.2.a. The wastewater tanks shall meet the requirements of APCD Rule 325, Section H. In addition, POPCO shall:

(i) *Throughput and Vapor Pressure Limits* – The following tank throughput and vapor pressure limits shall not be exceeded:

Tank Name	**Daily** (gal/day)	**Quarterly** (gal/qtr)	**Annual** (gal/yr)	**TVP** (psia)
Methanol Tank	10,500	10,500	10,500	1.9

Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.

(ii) *Wastewater Tank Carbon Canisters* – The date that carbon was last replaced in each carbon canister shall be visibly marked on the canister. The carbon shall be replaced: (a) within 24-hours when there are indications that the carbon it is not performing as designed (defined as any indication of sulfur compounds emanating from the canister vents), or (b) within one year of the last carbon replacement, whichever is sooner.

(c) Monitoring: POPCO shall:

(i) On a per shipment basis, monitor the amount and vapor pressure of methanol loaded into the tank.

(ii) On a weekly basis, POPCO shall monitor the carbon canister vents for any indication of sulfur compounds emanating from the canister vents.

(iii) Pursuant to Rule 325.F.2, POPCO shall provide the APCD, every 12 months, lab results justifying the exemption of the wastewater tanks from the provisions of

Sections D.1 and D.2 of Rule 325. All lab tests shall be performed according to the methods in Section G of Rule 325.

(d) Recordkeeping: The methanol tank listed in this section shall meet the requirements of APCD Rule 326, Sections I.3, J and K. The wastewater tanks shall meet the requirements of APCD Rule 325, Section F. In addition, POPCO shall maintain hardcopy records for the information listed below:

(i) For each methanol shipment log: the date of shipment, the product name and supplier, amount of methanol loaded.

(ii) Maintain a copy of each manufacturer's MSDS sheet that document's the vapor pressure of the product. Log all changes in supplier and keep a copy of the MSDS sheet with the log.

(iii) For each carbon canister adsorber, the date of carbon change-out and the quantity and type of carbon recharged to the canister shall be recorded monthly in a log.

(e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit.

[*Re: PTO 8092]*

C.6 **Solvent Usage.** The following equipment is included in this emissions unit category:

EQ No.	Name
6-1	Cleaning/Degreasing

(a) Emission Limits: Mass emissions from the solvent usage shall not exceed the limits listed in Tables 5.3 and 5.4. Compliance shall be based on the recordkeeping and reporting requirements of this permit. For short-term emissions, compliance shall be based on monthly averages.

(b) Operational Limits: Use of solvents for cleaning, degreasing, thinning and reducing shall conform to the requirements of APCD Rules 317 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit and facility inspections. In addition, POPCO shall comply with the following:

(i) *Containers* - Vessels or containers used for storing materials containing organic solvents shall be kept closed unless adding to or removing material from the vessel or container.

(ii) *Materials* - All materials that have been soaked with cleanup solvents shall be stored, when not in use, in closed containers that are equipped with tight seals.

(iii) *Solvent Leaks* - Solvent leaks shall be minimized to the maximum extent feasible or the solvent shall be removed to a sealed container and the equipment taken out of service until repaired. A solvent leak is defined as either the flow of three liquid drops per minute or a discernable continuous flow of solvent.

(iv) *Reclamation Plan* - POPCO may submit a Plan to the APCD for the disposal of any reclaimed solvent. If the Plan is approved by the ACPD, all solvent disposed of pursuant to the Plan will not be assumed to have evaporated as emissions into the air and, therefore, will not be counted as emissions from the source. POPCO shall obtain APCD approval of the procedures used for such a Reclamation Plan. The Plan shall detail all procedures used for collecting, storing and transporting the reclaimed solvent. Further, the ultimate fate of these reclaimed solvents must be stated in the Plan.

(v) *BACT* – POPCO shall implement the following BACT measures for solvent use at the facility: Use of Low-VOC or water-based solvents, where feasible. POPCO shall provide the APCD a list of all solvents (both BACT and non-BACT) used at the facility, the properties and general equipment and/or processes the solvents are used on. At the request of the APCD, POPCO shall provide the APCD the reason why it is not feasible to use BACT defined solvents for specific situations. This solvent list is hereby incorporated by reference as an enforceable part of this permit.

(c) Monitoring: none

(d) Recordkeeping: POPCO shall record in a log the following on a monthly basis for each solvent used: amount used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed for APCD-approved disposal according to the APCD-approved Solvent Reclamation Plan, if such a plan is submitted by POPCO; whether the solvent is photochemically reactive; and, the resulting emissions of ROC to the atmosphere in units of pounds per month and the resulting emissions of photochemically reactive solvents to the atmosphere in units of pounds per month. Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location at LFC.

(e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit.

[Re: ATC 9047-4]

C.7 **Sulfur Recovery Unit/Stretford Tailgas Unit.** The following equipment is included in this emissions unit category:

EQ No.	Name
7-1	Sulfur Recovery Unit (Claus/Beavon)
7-2	Tailgas Unit (Stretford)

(a) Emission Limits: Except for startup and shutdown operations as defined in Table 4.2-3, mass emissions from the Sulfur Recovery Plant ("SRU") and Tailgas Unit shall not exceed the limits specified in Tables 5.3, 5.4 and 5.5. During startup and shutdown operations, the emissions of SO_x (as SO_2) from the SRU listed as Item 4b (*Combined B-801 A/B Stack Emissions)* shall not exceed the limits as listed in Table 5.5. Compliance shall be based on sliding-one hour readings of 15-minute averages (or less) through the use of process monitors (e.g., fuel use meters) and CEMS; and the monitoring, recordkeeping and reporting condition of this permit. For pollutants without CEMS monitors, the permitted emission factors in Table 5.2 shall be used. In addition, the following specific emission limits apply:

(i) *BACT* – Except during startup and shutdown operations as defined in Table 4.2-3, the emissions, after control, from the SRU shall not exceed the BACT limits listed below and in Table 4.2-3 (*BACT. Sulfur Recovery Unit (SRU)*). Compliance shall be based on the use of process monitors, analyzers and CEMS as detailed in Table 4.2-3 and Table 4.3 as well as annual source testing for all pollutants. Compliance with the efficiency limit shall be based on a daily basis; compliance with the concentration limits shall be determined via the DAS on a six-minute basis.

BACT for the Removal of H_2S through the SRU	
OPERATIONAL MODE	REMOVAL EFFICIENCY (% BY MASS AS H_2S)
All SRU Inlet Feed Rates to 60 LTD [m]	✓ The more stringent of: i) 99.9% H_2S by mass across SRU; or ii) 100 ppmvd residual H_2S in Stretford Tailgas;
	and
	✓ No more than 2.89 lb/hr H_2S in Stretford Tailgas [n] (5.44 lb/hr SO_2 equivalent emissions @ boiler stacks)

(ii) *NSPS Subpart LLL* – Per 40 CFR 60.642(b), POPCO shall comply with the SO_2 emission reduction efficiencies as listed below and in Table 2 of the Subpart. Compliance with this Subpart shall be based on the monitoring, recordkeeping and reporting requirements of this permit and NSPS Subpart LLL. Ongoing compliance requirements with this NSPS are summarized in Table 4.7. The Subpart LLL efficiency limits are enforced on a daily basis.

[m] Expressed as long tons per day ("LTD") of total elemental sulfur mass based on H_2S (only) in the acid gas feed to the SRU. This is a calculated value using the POPCO sour gas inlet feed gas H_2S analyzer (AI-172) and the sour gas feed volume meter (FIC-1). All plant inlet H_2S is assumed to be fed to the SRU.

[n] As measured by the calibrated Stretford Tailgas H_2S analyzer (AI-405) and Tailgas volumetric flow meter (FI-405).

NSPS LLL for the Removal of Total Reduced Sulfur Removal by SRU	
OPERATIONAL MODE	REMOVAL EFFICIENCY (% BY MASS TOTAL SULFUR) [o]
≤ 20 LTD [p]	✓ 98.0
>20 LTD to 60 LTD [o]	✓ 99.9
Or	
At any SRU throughput	✓ No more than 5.67 lb/hr SO_2 emissions from Combined B-801A&B Stacks [q]

(b) Operational Limits: All process operations from the equipment listed in this section shall meet the requirements of APCD Rule 311.A.2, the BACT requirements listed in Tables 4.2-3 and 4.2-4, and the requirements of NSPS Subpart LLL. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition, POPCO shall:

(i) TGU Off Gas Input Limits – POPCO shall comply with the following usage limits (HHV based):

- TGU Off Gas to Boilers B-801A/B: 5.620 MMBtu/hr; 135 MMBtu/day; 12,308 MMBtu/quarter; 49,231 MMBtu/year

Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit. POPCO shall use the most recent heating value analysis in conjunction with the TGU off gas meter readings to calculate the heat input to the boilers.

(ii) *Sulfur Removal Unit Failure Mitigation System* –To comply with the POPCO expansion FDP, Condition E-5, and to eliminate the potential localized violation of the SO_2 ambient air quality standard which could occur from flaring acid gas generated during a SRU shutdown event, POPCO shall permanently install and operate an automatic shutdown system into the V-204 Sulfinol Stripper to prevent flared acid gas volumes in excess of 1480 SCF. This automatic shutdown system, and required equipment is fully described in POPCO's July 15, 1996 letter to the APCD, "Final Unplanned Flaring SO2 Impact Modeling Report and Mitigation; ATC Permit Application #9047", and which is included in this PTO as Attachment 10.6.

To ensure the effectiveness of this system, POPCO shall implement the APCD-approved *SRU Failure Mitigation System Test Plan* for the life of the project. The Plan identifies and documents the procedures and testing protocol of this mitigation

[o] TRS removal efficiency across SRU is defined as the percent reduction of the plant inlet elemental sulfur in LTD (based on H2S only) from the elemental sulfur emitted to the atmosphere as measured by the boiler stack SOx CEMS.
[p] See footnote "l" above.
[q] SO_2 emissions in combined boiler stacks (including incineration fuel sulfur) as measured by the boiler stack SO_x CEM system.

system, such that the test confirms, in the event of an actual SRU failure, no excess acid gas releases to the ZTOF shall occur at or below the maximum design SRU acid gas feed rate of 60 LTD of H2S. Any SRU failure that activates this shutdown system shall be documented according to the reporting requirements of this permit (*SRU Shutdown Report*). The performance of this system shall be jointly evaluated by the APCD and POPCO after each incident of its use, or other APCD-specified frequency.

(iii) *Minimum Boiler Incineration Temperature* – The average hourly temperature (daily average of 15-minute readings or less) of the gas leaving the boiler's combustion zone when tailgas is being incinerated shall be at or above 919 °F at all times. Compliance shall be based on continuous monitoring of the combustion zone temperature and telemetry of that data to the APCD's DAS.

POPCO may request that the minimum incinerator temperature be reestablished by conducting new performance tests under §60.8 of 40 CFR 60.

(c) Monitoring: POPCO shall monitor the emission and process parameters listed in Tables 4.3 and 4.4 for the life of the project. POPCO shall perform annual source testing of the SRU consistent with the requirements listed in Table 4.5 and the source testing permit condition below. In addition, POPCO shall:

(i) *Process Monitors* – POPCO shall install and maintain in-plant process monitors as shown in Figure 4-1 and Table 4.3 for the life of the project.

(ii) *Stretford Unit Oxidizer Tanks* – To ensure that hydrocarbon emissions associated with carry-under of hydrocarbons from the Beavon Tailgas into the Stretford unit oxidizers are within permitted limits, POPCO shall source test the tanks on an annual basis. The source test plan for this test shall include, but not necessarily be limited to the following parameters:

- Stretford oxidation air flow rates (i.e., inlet air to oxidation tanks);
- Bag samples of representative air flow emanating from the oxidizer tanks;
- Analysis of bag samples for reactive hydrocarbon speciation to C6+;
- A calculation of the apparent mass of reactive hydrocarbons emitted to the atmosphere from the oxidation tanks (lb/hr and tons/yr);
- Data on the Stretford solution and Beavon Tailgas temperatures where the solution contacts Beavon Tailgas; and
- The total Stretford Tailgas flow rate to the Utility Boilers.

(d) Recordkeeping: POPCO shall record the emission and process parameters listed in Table 4.3 and 4.4. In addition, POPCO shall maintain the following:

(i) *Recovery Unit/Tailgas Unit Report*– On a daily basis through the DAS: i) the percent H_2S reduction across the SRU; ii) the maximum H_2S mass flow rate (lb/hr) in the Stretford

tailgas; iii) the maximum Stretford tailgas H_2S concentration; iv) the percent total sulfur reduction across the SRU; v) the maximum peak SO_2 emission rate (lb/hr) from the combined Process Boiler stacks; and vi) the total SO_2 emissions (in lb/day) from the combined Process Boiler stacks.

(ii) *Production Report* – On a daily basis through the DAS: i) inlet sour gas volume treated; ii) amount of H_2S processed (LTD) through SRU; iii) the maximum H_2S concentration in sour gas inlet to the plant; and through written records: iv) the amount of sulfur production (LTD) (both Stretford and molten elemental sulfur production).

(e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit.

[*Re: ATC 9047,ATC 9047-2, ATC 9047-4, PTO 8092]*

C.8 **Facility Throughput Limitations.** The POPCO gas processing facility shall be limited to the following processing limits:

(i) *60 MMSCFD Throughput Limit*: The volume of inlet sour gas to the plant containing a maximum of 26,700 ppmv (2.67%) H_2S shall not exceed 60 million standard cubic feet per calendar day. Compliance shall be based on the use of CEMS/DAS (6-minute average), process meters, lab analyses and field measurements;

(ii) *75 MMSCFD Throughput Limit*: The volume of inlet sour gas to the plant containing a maximum of 7,000 ppmv (0.7%) H_2S shall not exceed 75 million standard cubic feet per calendar day. Compliance shall be based on the use of CEMS/DAS (6-minute average), process meters, lab analyses and field measurements;

(iii) *Molten Sulfur Production Limit*: Maximum production of 60 long tons of molten sulfur on any given day;

(iv) *Inlet Sour Gas H_2S Limits*: At no time shall the concentration of H_2S in the inlet sour gas to the plant exceed 26,700 ppmv (2.67%). In addition, when the inlet sour gas *rate* to the plant exceeds 60 MMSCFD, the concentration of H_2S in the inlet sour gas to the plant shall not exceed 7,000 ppmv (0.7%). Compliance shall be based on use of CEMS/DAS (6-minute average), process meters, lab analyses and field measurements. The *gas rate* applies on a 6-minute average; and

(v) *Sour Gas Pipeline Throughput Limit*: The offshore-to-onshore sour gas pipeline shall be limited to a maximum throughput of 90 MMSCFD; 75 MMSCFD of sour gas can processed at the POPCO facility and 15 MMSCFD of sour gas can processed at Exxon's Striping Gas Treating Plan (after being transported via the sour gas pipeline interconnect).

POPCO shall track in a log, on a daily basis, the actual usage data of the parameters limited by this condition (using an APCD-approved format).

[*Re: ATC 9047, ATC 9047-2, ATC 9047-5, PTO 8092]*

C.9 **Recordkeeping.** All records and logs required by this permit and any applicable APCD, state or federal rule or regulation shall be maintained for a minimum of five calendar years from the date of information collection and log entry at the POPCO facility. These records or logs shall be readily accessible and be made available to the APCD upon request. During this five year period, and pursuant to California Health & Safety Code Sections 42303 and 42304, such data shall be available to the APCD at the POPCO facility within a reasonable time period after request by the APCD. This requirement applies to data required by this permit and archived by POPCO's data-storage systems including but not limited to charts and manual logs. With the exception of CEMS data, prior to archiving any required data from the data-storage system, POPCO shall prepare written reports and maintain these reports in 3-ring binders at the POPCO facility. CEMS data shall be kept consistent with the requirements of POPCO's APCD-approved CEMS Plan. Failure to make such data available within the noted period shall be a violation of this condition. Further, retrieval of historical or archived data shall not jeopardize the logging of current data. [*Re: ATC 9047, PTO 9047]*

C.10 **Compliance Verification Reports.** Twice a year, POPCO shall submit a compliance verification report to the APCD. Each report shall document compliance with all permit, rule or other statutory requirements during the prior two calendar quarters. The first report shall cover calendar quarters 1 and 2 (January through June) and the second report shall cover calendar quarters 3 and 4 (July through December). The reports shall be submitted within 45 days of the end of the second and fourth quarters respectively. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit and shall document compliance separately for each calendar quarter. These reports shall be in a format approved by the APCD. Compliance with all limitations shall be documented in the submittals. All logs and other basic source data not included in the report shall be made available to the APCD upon request. The second report shall also include an annual report for the prior four quarters. Pursuant to Rule 212, the annual report shall include a completed *APCD Annual Emissions Inventory* questionnaire. POPCO may use the Compliance Verification Report in lieu of the Emissions Inventory questionnaire if the format of the CVR is acceptable to the APCD's Emissions Inventory Group and if POPCO submits a statement signed by a responsible official stating that the information and calculations of quantifies of emissions of air pollutants presented in the CVR are accurate and complete to best knowledge of the individual certifying the statement. The report shall include the following information:

(a) *External Combustion.*

(1) The Boiler Fuel Gas Usage: For each utility boiler, the daily, quarterly and annual fuel use in units of million Btu and standard cubic feet. In addition, the five highest hourly heat input rates per month in units of million Btu/hr for each utility boiler.

(2) TGU Off Gas Usage: For each utility boiler, the daily, quarterly and annual amount of TGU off gas combusted in the boiler in units of million Btu and standard cubic feet. In addition, the five highest hourly heat input rates per month in units of million Btu/hr.

(3) Boiler Fuel Gas Data: Results of the daily sorbent tube readings of H_2S and the quarterly analyses of H_2S, total sulfur compounds and high heating value. Include copies of the quarterly lab analyses.

(4) Sales Fuel Gas Data: Results of the highest weekly reading observed from the H_2S analyzers and the quarterly analyses of H_2S, total sulfur compounds and high heating value. Include copies of the quarterly lab analyses.

(5) TGU Off Gas Data: Results of the quarterly analyses of high heating value. Include copies of the quarterly lab analyses.

(6) Source Testing: Summary results of all compliance emission source testing performed.

(7) Maintenance and Calibration: Summary of all maintenance and calibration activities/logs performed on the utility boilers, emission control systems, process meters, H_2S analyzers and CEMS.

(8) Steam Injection: Records on steam injection use as required by the *Steam Injection Operating and Monitoring Plan*.

(9) Any other information required by APCD Rule 342.J and Table 4.4.

(b) *Thermal Oxidizer*.

(1) Volumes/Mass Emissions: The volumes of gas combusted and resultant mass emissions for each flare category (i.e., Purge; Pilot; Continuous – HC/AG Header Baseline System Leakage; Continuous – AG Header Compressor Seal Leakage; Planned Other; and, Unplanned Other) shall be presented as a cumulative summary for each day, quarter and year. The report shall clearly indicate the basis for each data point presented, including supporting data for the baseline system leakage calculations.

(2) Volumes/Mass Emissions - Unplanned: The volumes of gas combusted and resultant mass emissions for each Unplanned Other flaring event. Include: the date, start time, duration, volume, H_2S and total sulfur content, HHV, specific reason/cause for flaring and the APCD Rule 505 breakdown number and/or Variance Order number. The report shall clearly indicate the basis for each data point presented.

(3) Infrequent Flaring: A listing of all infrequent flaring events that exceed 4 events per year from the same cause from the same processing unit or equipment type.

(4) The highest total sulfur content and hydrogen sulfide content observed each week in the HC header, Acid Gas header, Sale Gas line and Boiler Fuel Gas line.

(5) A copy of Flare Event Log for the reporting period.

(6) A copy of the Infrequent Flaring Events Log for the reporting period.

(7) Maintenance and Calibration: Summary of all maintenance and calibration activities performed on the thermal oxidizer and process meters.

(8) Monthly Volumes Flared: A summary of the total amount of gas flared at the facility for each month for all planned flaring (event and non-events).

(9) Any other information required by APCD Rule 359.H.

(c) *Fugitive Hydrocarbons*. Rule 331/Enhanced Monitoring fugitive hydrocarbon I&M program data (on a quarterly basis):

(1) Inspection summary.

(2) Record of leaking components (including name, location, type of component, date of leak detection, the ppmv or drop-per-minute reading, date of repair attempts, method of detection, date of re-inspection and ppmv or drop-per-minute reading following repair). The report shall clearly identify the corresponding leak thresholds for each component category (i.e., E100, E500)

(3) A record of the total components inspected and the total number and percentage found leaking by component type.

(3) Record of leaks from critical components.

(4) Record of leaks from components that incur five repair actions within a continuous 12-month period.

(5) Record of component repair actions including dates of component re-inspections.

(6) An updated FHC I&M inventory due to change in component list or diagrams.

(7) Listing of components installed as BACT under Rule 331 or the BACT requirement of Condition C.3, as approved by the APCD.

(8) For valves monitored monthly, provide as a separate and identifiable part of the Leak Summary Table, records that the valves were monitored monthly and the following: plant, P&ID number, tag number, component, measured emission rates (ppmv and drop-per-minute), date inspected, date of repair, days to repair, and re-inspection data and results.

(9) The log all components that have been retrofit with BARCT per the requirements of 9.C.3.b(x). Record of leaking standard valves which continue to leak above 500 ppmv after repairs per Rule 331 requirements are completed (deferred BARCT candidates)

(10) Any other information required by APCD Rule 331.G and NSPS Subpart KKK.

(e) *Pigging*. The number of pigging events per quarter and per year along with a copy of the pigging log.

(f) *Tanks*.

(1) For each methanol shipment log: the date of shipment, the product name and supplier, amount of methanol loaded.

(2) A copy of each manufacturer's MSDS sheet that document's the vapor pressure of the product.

(3) The frequency of carbon change-out and the quantity and type of carbon recharged to the adsorbers.

(g) *Solvent Usage*. On a monthly basis: the amount of solvent used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed; whether the solvent is photochemically reactive; and, the resulting emissions of ROC and photochemically reactive solvents to the atmosphere in units of pounds per month.

(h) *Sulfur Recovery Unit/Stretford Tailgas Unit*.

(1) Production Report (on a daily basis): Through the DAS: i) inlet sour gas volume treated; ii) amount of H_2S processed (LTD) through SRU; iii) the maximum H_2S concentration in sour gas inlet to the plant; and through written records: iv) the amount of sulfur production (LTD) (both Stretford and molten elemental sulfur production).

(2) Recovery Unit/Tailgas Unit report: Through the DAS: i) the percent H_2S reduction across the SRU; ii) the maximum H_2S mass flow rate (lb/hr) in the Stretford tailgas; iii) the maximum Stretford tailgas H_2S concentration; iv) the percent total sulfur reduction across the SRU; v) the maximum peak SO_2 emission rate (lb/hr) from the combined Utility Boiler stacks; and vi) the total SO_2 emissions (in lb/month) from the combined Utility Boiler stacks.

(3) SRU shutdown report (for any unplanned shutdowns include the date, shutdown time start, cause for shutdown, and estimated SRU acid gas volumes sent to the flare).

(4) Any other information required by NSPS Subpart LLL.

(i) *Ambient Monitoring*. Reports as required by POPCO's *Odor Monitoring Plan*.

(j) *Facility Throughput Data*.

(1) The inlet rate of sour gas to the gas plant per day in units of million standard cubic feet.

(2) The highest recorded hydrogen sulfide content (ppmv) and carbon dioxide content (ppmv) of the inlet sour gas on a daily basis.

(3) The amount of molten sulfur produced on a daily basis.

(4) The annual average value of inlet sour gas to the gas plant in units of million standard cubic feet.

(5) The amount of sour gas transported in the offshore-to-onshore sour gas pipeline on a daily basis in units of million standard cubic feet.

(k) *General Reporting Requirements*.

(1) On quarterly basis, the emissions from each permitted emission unit for each criteria pollutant (along with the appropriate supporting data). The fourth quarter report shall include tons per year totals for all pollutants, by each emission unit and totaled.

(2) On quarterly basis, the emissions from each exempt emission unit for each criteria pollutant (along with the appropriate supporting data). The fourth quarter report shall include tons per year totals for all pollutants, by each emission unit and totaled.

(3) On quarterly basis, POPCO shall submit data for CEM downtime and CEM detected excess emissions in a format approved by the APCD. This report shall be submitted each quarter in accordance with the requirements of Rule 328.

(4) POPCO shall submit with each required semi-annual report two quarterly CEMS Reports. The CEMS Reports shall follow the format and provide the information detailed in the APCD-approved CEMS Plan.

(5) A summary of each and every occurrence of non-compliance with the provisions of this permit, APCD rules, NSPS and any other applicable air quality requirement with the excess emissions that accompanied each occurrence.

(8) Information as required under the Standards of Performance for New Stationary Sources (40 CFR, Part 60).

(9) Information as required by the APCD-approved *Fuel Gas and HHV Reporting Plan*.

(9) Process stream analyses report (for Section 4.12.2 requirements).

(10) Process Monitors Calibration Report.

(11) The monthly summary of the total volume (e.g., gallons) of NGL transferred from POPCO to the Exxon facility shall be recorded and reported to the APCD

(12) The volume of process wastewater transported offsite each month and the number of days that water was produced.

(13) For each vacuum truckload transported offsite, the date of use, the quantity (bbl or gal) and type of fluid handled.

(14) A summary of each use of CARB Certified equipment used at the facility. List the type of equipment used, CARB Registration Number, first date of use and duration of use and an estimate of the emissions generated.

(15) A copy of the Rule 202 De Minimis Log for the stationary source.

[*Re: PTO 8092, ATC 9047ATC 9047-4, PTO 9215, ATC/PTO 9471, ATC 9487, ATC 9675, ATC 9693]*

C.11 **BACT.** POPCO shall apply emission control and plant design measures which represent Best Available Control Technology (BACT), to the operation of the POPCO Gas Plant facilities as described in Section 4.10 and Tables 4.1, 4.2-1, 4.2-2, 4.2-3, 4.3-4, 4.2-5 and 4.2-6 of this permit, as well as permit conditions C.2, C.3, C.6 and C.7 herein. BACT measures shall be in place and in operational at all times for the life of the project. [*Re: ATC 9047, ATC 9047-4]*

C.12 **Continuous Emission Monitoring ("CEM").** POPCO shall implement a CEM program for emissions and process parameters as specified in Section 4.11 and Tables 4.3 and 4.4 of this permit. POPCO shall implement the APCD-approved CEM Plan (conditionally approved March 21, 2000). The CEM monitors shall be in place and functional for the life of the project. The APCD shall use the CEM data alone or in combination with other data, to verify and enforce project conditions. Excess emissions indicated by the CEM systems shall be considered a violation of the applicable emission limits.

The monitoring devices shall meet the requirements set forth in APCD Rule 328 and 40 CFR 51 and 40 CFR 60. Monitors must be installed, maintained, and operated in accordance with APCD and EPA requirements, as specified in the CFR and the APCD-approved CEM Plan and with manufacturer's specifications.

Performance certification (relative accuracy testing and seven day calibration drift test) of the boiler SO_x & NO_x, inlet feed H_2S and Stretford Tailgas H_2S analyzers shall occur at least once per year, or more often if determined necessary by the APCD. POPCO shall perform quarterly quality assurance audits as per 40 CFR 60, Appendix F on these analyzers. Additional continuous monitors or redundant systems may be required by the APCD if problems with the facility or the continuous monitors develop which warrant additional monitoring.

The required data will be consolidated and submitted to the APCD within forty-five (45) days after the close of each calendar quarter. More frequent reporting may be required if deemed necessary by the APCD. Minimum data reporting requirements shall be consistent with APCD Rule 328 and the approved CEM Plans and (as a minimum) must include the following:

- Data summaries for each parameter as per the APCD-approved CEM plan
- Monitor downtime summary, including explanation and corrective action
- Report on compliance with permit requirements, including any corrective action being taken

In addition, operator log entries, strip charts, magnetic tapes, computer printouts, circular charts or diskettes, whichever is applicable, shall be provided upon request to the APCD.

Pursuant to California HS&C §42706, POPCO shall report all emission exceedances detected by the CEMS to the APCD within 96 hours of each occurrence.
[*Re: PTO 8092, ATC 9047, PTO 9215]*

C.13 **Data Telemetry.** POPCO shall telemeter monitoring data to the APCD as specified by Conditions C.12 (*Continuous Emission Monitoring*) and C.16 (*Ambient Air Quality and Odor Monitoring Program*) of this permit. The data telemetry equipment shall be in place and functional for the life of the project consistent with the above-specified conditions. This telemetry equipment shall be compatible with the APCD's Central Data Acquisition System. Table 9.2 (*CEMs Parameters To Be Telemetered To The Data Acquisition System (DAS*)), defines the parameters required to be telemetered to the DAS (excluding Ambient Air Quality and Odor Monitoring Program data). [*Re: PTO 8092, PTO 9215]*

C.14 **Central Data Acquisition System.** This system shall receive and analyze continuous emissions data from POPCO CEMs (as specified in Condition C.12), and odor monitoring (as specified in Condition C.16) and any other data necessary to evaluate observed and potential air quality impacts either site-specific or regional.

POPCO shall provide a pro rata share of the costs for the operation and maintenance of the Central Data Acquisition System referred to in this condition. In addition, POPCO shall pay its pro rata share (6.41 percent as of January 21, 1998) of the one-time only final acceptance cost for the design, purchase and installation of the DAS. These funds shall be provided to the APCD or a designated agent within thirty (30) days after receipt of a request.
[*Re: ATC 9047, PTO 8092, PTO 9215, ATC 9047-3]*

C.15 **Central Data Acquisition System Operation and Maintenance Fee.** By permit conditions C.12 and C.16, POPCO shall connect certain Continuous Emission Monitors (CEM) and all ambient, meteorological, and odor parameters to the APCD central data acquisition system (DAS). In addition, POPCO shall reimburse the APCD for the cost of operating and maintaining the DAS. POCPCO shall be assessed an annual fee, based on the APCD's fiscal year, collected semi-annually.

Pursuant to Rule 210 III.A, POPCO shall pay fees specified in Table 9.1. The APCD shall use these fees to operate, maintain, and upgrade the DAS in proper running order. Fees shall be due and payable pursuant to governing provisions of Rule 210, including CPI adjustments.

All ongoing costs and anticipated future capital upgrades will be APCD's responsibility and will be accomplished within the above stated DAS fee. This fee is intended to cover the annual

operating budget and upgrades of the DAS and is intended to gradually phase APCD into a share of the DAS costs {as outlined in the APCD's March 27, 1998 letter (*Fixed Fee Proposal for Monitoring and DAS Costs*)}. In the event that the assumptions used to establish this fee change substantially, the APCD may revisit and adjust the fee based on documentation of the cost of services. Adjusted fees will be implemented by transmitting a revised Table 9.1.

The fees prescribed in this condition shall expire if and when the Board adopts a Data Acquisition System Operation and Maintenance Fee schedule and such fee becomes effective. [*Re: ATC 9047-3, PTO 8092-1]*

C.16 **Ambient Air Quality and Odor Monitoring Program.** POPCO shall implement the following requirements:

(i) *Odor Monitoring Plan* – Implement the APCD-approved *Odor Monitoring Plan* (approved 9/13/93) for ambient odor monitoring and human olfactory verification programs for the life of the POPCO project.

(ii) *Odor Monitoring Station* – Operate an odor the monitoring station as listed in Sections 4.14 and 6.6 and Table 4.6 of this permit to continuously monitor ambient hydrogen sulfide (H_2S) concentrations to ensure that H_2S emissions emanating from the facility are in compliance with State and local ambient air quality standards and not causing a public nuisance. This station shall be located at the property boundary of the ExxonMobil LFC facility at a site approved by the APCD. For the purpose of compliance with APCD Rule 310 and the applicable ambient air standards, this odor monitoring station shall be assumed to be located at POPCO's property boundary. POPCO shall take over the maintenance and operation of the *LFC - Odor* station in the event ExxonMobil abandons or ceases to operate it. All monitoring equipment (H_2S and meteorological) shall be operated and maintained according to the *Air Quality and Meteorological Monitoring Protocol for Santa Barbara County*, dated October 1990, and all subsequent revisions. POPCO shall monitor and report the parameters listed in Table 4.6 in accordance with their APCD-approved Odor Monitoring Plan (approved 9/13/93) and any APCD-approved updates to this plan. All ambient monitoring data and records shall be submitted to the Air Pollution Control APCD in a form approved by the Air Pollution Control Officer. All data specified in Table 4.6 shall be telemetered to the APCD's Data Acquisition System on a real-time basis. Other odor-related pollutant-specific equipment may be added to the station, if deemed necessary by the APCD. POPCO shall reimburse the APCD's costs for the review and audit of the station's data in accordance with the cost reimbursement provisions of Rule 210.

Up to two additional monitors may be required of POPCO to monitor odorous emissions emanating from the Las Flores Canyon facilities and offshore operations if the APCD determines that odor thresholds are being exceeded.

[*Re: PTO 8092, ATC 9047, ATC 9047-3]*

C.17 **Offsets and Consistency with the Clean Air Plan.** POPCO shall comply with all the procedures and requirements specified in Section 7 of this document including all requirements for offsets, source testing and reporting (if applicable). POPCO shall provide the following offsets:

(i) POPCO shall offset the net emission increase (NEI) resulting from operation of the Las Flores Canyon facility as detailed in Section 7 and Tables 7.1, 7.2, 7.3 and 7.4.

(ii) If offsets are not in place as required by this permit, POPCO shall provide replacement offsets and shall obtain variance relief.

[*Re: ATC 9047-4]*

C.18 **Source Testing.** The following source testing provisions shall apply:

(i) POPCO shall conduct source testing of air emissions and process parameters listed in Section 4.13 and Table 4.5 of this permit. More frequent source testing may be required if the equipment does not comply with permitted limitations or if other compliance problems, as determined by the APCD, occur. Source testing shall be performed on an annual schedule (except as specifically noted) using May as the anniversary date for the utility boilers and August as the anniversary date for the SRU.

(ii) POPCO shall submit a written source test plan to the APCD for approval at least thirty (30) days prior to initiation of each source test. The source test plan shall be prepared consistent with the APCD's Source Test Procedures Manual (revised May 1990 and any subsequent revisions). POPCO shall obtain written APCD approval of the source test plan prior to commencement of source testing. The APCD shall be notified at least ten (10) calendar days prior to the start of source testing activity to arrange for a mutually agreeable source test date when APCD personnel may observe the test.

(iii) Source test results shall be submitted to the APCD within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results shall document POPCO's compliance status with BACT requirements, mass emission rates in Section 5 and applicable permit conditions, rules and NSPS. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by POPCO as provided for by APCD Rule 210.

(iv) A source test for an item of equipment shall be performed on the scheduled day of testing (the test day mutually agreed to) unless circumstances beyond the control of the operator prevent completion of the test on the scheduled day. Such circumstances include mechanical malfunction of the equipment to be tested, malfunction of the source test equipment, delays in source test contractor arrival and/or set-up, or unsafe conditions on site. Except in cases of an emergency, the operator shall seek and obtain APCD approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. Once the sample probe has been inserted into the exhaust stream of the equipment unit to be tested (or extraction of the sample has begun), the test shall proceed in

accordance with the approved source test plan. In no case shall a test run be aborted except in the case of an emergency or unless approval is first obtained from the APCD. If the test cannot be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the APCD. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without APCD's authorization shall constitute a violation of this permit.

[*Re: ATC 9047, PTO 9215, ATC 9693]*

C.19 **Process Stream Sampling and Analysis.** POPCO shall sample and analyze the process streams listed in Section 4.12.2 of this permit consistent with the requirements of that section. All process stream samples shall be taken according to APCD-approved ASTM methods/procedures and must be follow traceable chain of custody procedures. POPCO shall maintain logs and records documenting the results from all process stream analyses (in a format approved by the APCD). [*Re: ATC 9047]*

C.20 **Process Monitoring Systems - Operation and Maintenance.** All facility process monitoring devices listed in Section 4.11.2 of this permit shall be properly operated and maintained according to manufacturer recommended specifications. POPCO shall implement their *Process Monitor Calibration and Maintenance Plan* (approved 5/26/98) for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendation of comparable equipment manufacturers and good engineering judgment is utilized. [*Re: ATC 9047]*

C.21 **Fuel Gas Sulfur and HHV Reporting Plan.** POPCO shall implement their APCD-approved *Fuel Gas Sulfur and HHV Reporting Plan* (conditionally approved 10/29/98) for the life of the project. This Plan shall detail for each unique fuel supply: the monitoring equipment (and CEM protocol procedures if applicable), the adjustments to the hydrogen sulfide readings due to non-hydrogen sulfide reduced sulfur compounds and the reporting methods for compliance with the applicable limits. At a minimum, the non-H_2S total sulfur adjustment shall occur on a quarterly basis. POPCO shall maintain records of the daily fuel gas analyses in a log (using an APCD-approved format).

C.22 **Abrasive Blasting Equipment.** All abrasive blasting activities performed at the POPCO facility shall comply with the requirements of the California Administrative Code Title 17, Sub-Chapter 6, Sections 92000 through 92530. [*Re: ATC 9047]*

C.23 **Vacuum Truck Use.** During vacuum truck use, POPCO shall use an APCD-approved control device (i.e., carbon adsorption system or equivalent) to reduce emissions of reactive organic compounds (ROC) and odorous compounds from the vacuum truck vent. POPCO shall maintain a log of all vacuum truck operations. The log shall include for each use, the date, the location and equipment ID where vacuum truck operations occur, volume and description of material, reason for use, duration of the operation and any emission control maintenance activities. POPCO shall implement ExxonMobil's LFC APCD-approved Vacuum Truck Operation & Maintenance Procedures Plan (approved June 14, 1993 and subsequent APCD-approved updates). The APCD-approved Plan is an enforceable part of this permit. Except for non-hazardous wastewater, for each vacuum truckload transported offsite, the date of use, the quantity (bbl or gal) and type of fluid handled shall be recorded. [Re: ATC 9047-4, PTO 8092]

C.24 **Emergency Firewater Pump/Electrical Generator IC Engines.** Each firewater pump engine and electrical generator engine shall not operate more than 200 hours per year each. Each engine shall be equipped with a non-resettable hour meter. POPCO shall not test these emergency engines concurrently with the testing of any emergency engine at ExxonMobil's LFC oil and gas plant. POPCO shall maintain an operating log detailing for each use: the start and stop times, the duration of use, the reason for use, the aggregate number of hours each engine is operated annually. This log shall be available for APCD review. [*Re: Rule 202]*

C.25 **Produced Gas and Purging of Vessels.** POPCO shall direct all produced gases to the sales compressors, vapor recovery, the flare header or other permitted control device when de-gassing, purging or blowing down any tank, vessel or container that contains reactive organic compounds or reduced sulfur compounds due to activities that include, but are not limited to, process or equipment turnarounds, process upsets or agency ordered safety tests. [*Re: ATC 9047]*

C.26 **Natural Gas Liquids (NGL).**

(i) *NGL Loading Rack* – The NGL loading rack shall be equipped with a vapor return system. Such vapor return system shall be capable of returning all vapors generated during loading to the NGL storage tanks. In the event of a malfunction in the vapor return system, all vapors shall be sent to the emergency flare where they will be combusted before release to the atmosphere. Such malfunctions shall be reported to the APCD as a breakdown pursuant to APCD Rule 505 or variance relief shall be obtained.

(ii) *NGL Flowline* – POPCO shall transport NGLs from its gas plant to Exxon's Stripping Gas Treating plant via the NGL flowline in accordance with the requirements of Condition P-14 of the Santa Barbara County Final Development Plan 93-DP-015. A monthly summary of the total volume (e.g., gallons) of NGL transferred from POPCO to the Exxon facility shall be recorded and reported to the APCD.

(iii) *NGL Storage Tanks* – POPCO shall remove from NGL service two of the five NGL storage tanks. These units shall be locked out of service in a manner that is satisfactory to the Air Pollution Control Officer. POPCO shall provide the APCD, in writing, with the following information on the out of service tanks: a) the tank numbers; b) the contents (e.g., hydrocarbon, water, nitrogen) within each; and c) the method(s) by which each is prevented from being placed back into service.

[Re: ATC 9047, ATC 9675]

C.27 **PDS/TDS/SDS/Pig Receiver Eductor Vapor Recovery System.** The PDS/TDS/SDS eductor system shall be equipped with a high-pressure alarm set to alarm at 5.5 psig. Any high-pressure alarm indicated by this sensor shall be recorded by the plant Distributed Control System ("DCS"), and be reported to the APCD.

Lean-Sulfinol shall continually flow through eductor J-203 at all times when POPCO is processing sour gas and the PDS is operational. This shall be evidenced by the upstream and downstream lean-Sulfinol valves being configured to the open positions during the conditions described above

Maintenance logs of the eductor and pressure controller systems shall be kept on site by the permittee and made available for APCD inspection upon request. This permit requires no other recordkeeping, if the Operational Limitations of this permit are adhered to by the permittee at all times. [*Re: ATC/PTO 9471, ATC 9471-1]*

C.28 *reserved for future use*

C.29 **Fuel Gas Sampling**. POPCO shall provide means of sampling the fuel gas to any combustion equipment that vents to the atmosphere. Such sample access shall be compatible with a Draeger or Kitigawa-type gas detector. [*Re: PTO 8092]*

C.30 **Cold Facility Startup**. The APCD shall be provided reasonable advance notification of a cold facility startup following a planned facility shutdown. Such notification shall provide sufficient time to allow the APCD opportunity to schedule APCD staff or their designee to witness the startup activities. If the APCD determines that the advance notification does not provide sufficient time to schedule personnel to witness the startup activities, startup shall be postponed or delayed to provide the APCD the opportunity to observe and witness the startup. [*Re: PTO 8092]*

C.31 **Diesel IC Engines - Particulate Matter Emissions.** To ensure compliance with APCD Rules 205.A, 302, 305, 309 and the California Health and Safety Code Section 41701, POPCO shall implement manufacturer recommended operational and maintenance procedures to ensure that all project diesel-fired engines minimize particulate emissions. POPCO shall implement their APCD-approved *IC Engine Particulate Matter Operation and Maintenance Plan* (approved 3/13/98) for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules that POPCO will implement. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment shall be utilized. [*Re: ATC 9047]*

C.32 **Mass Emission Limitations**. Except as noted in Conditions 9.C.2 and 9.C.3, mass emissions for each equipment item (i.e., emissions unit) associated with the POPCO Gas Plant shall not exceed the limits listed in Tables 5.3 and 5.4. Emissions from the entire facility shall not exceed the total limits listed in Table 5.5. In addition, POPCO shall not exceed the device capacity specification values for each emission unit as listed in Table 5.1. Compliance with, and enforcement of the device-specific emission limits, and capacities listed in this permit shall be determined through the monitoring, reporting and recordkeeping requirements of this permit. [*Re: ATC 9047, PTO 8092, ATC/PTO 9471, ATC 9471-1, ATC 9487, ATC 9675]*

C.33 **Permitted Equipment.** Only those equipment items listed in Attachment 10.4 are covered by the requirements of this permit and APCD Rule 201.E. [*Re: ATC 9047]*

C.34 **Operational Increment Fee.** POPCO shall submit ROC increment fees on the following schedule:

May/2000	$1,411
May/2001	$1,234

May/2002	$1,058
May/2003	$ 882
May/2004	$ 705
May/2005	$ 529
May/2006	$ 352
May/2007	$ 176

[*Re: ATC 9047-2]*

C.35 **Emergency Episode Plan**. By no later than three months after the issuance of the permit, POPCO shall submit, for APCD approval, an *Emergency Episode Plan* for the POPCO Gas Plant. [*Re: Rule 603]*

C.36 **Emission Factor Revisions.** The APCD may update the emission factors for any calculation based on USEPA AP-42 or APCD P&P emission factors at the next permit modification or permit reevaluation to account for USEPA and/or APCD revisions to the underlying emission factors. Further, POPCO shall modify its permit via an ATC application if compliance data shows that an emission factor used to develop the permit's potential to emit is lower than that documented in the field. The ATC permit shall, at a minimum, adjust the emission factor to that documented by the compliance data consistent with applicable rules, regulations and requirements. [*Re: ATC 9047-4]*

C.37 **As-Built Drawings.** On a quarterly basis, POPCO shall provide the APCD with all updates to the final "as-built" drawings (P&IDs and PFDs) for the POPCO facility. In no case shall POPCO provide the APCD drawings of a lesser quality than those drawings possessed by POPCO. [*Re: ATC 9047]*

C.38 **Documents Incorporated by Reference.** The documents listed below, including any APCD-approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition for this operating permit. These documents shall be implemented for the life of the Project and shall be made available to APCD inspection staff upon request.

(i) *1983 Flaring Analysis* (as revised July 1984)

(ii) *Vacuum Truck Plan* (ExxonMobil Plan approved June 14, 1993)

(iii) *CEM Plan* (conditionally approved March 21, 2000)

(iv) *The Odor Monitoring Plan* (approved September 1993)

(v) *Rule 359 Flare Minimization Plan* (limited approval on January 5, 1996)

(vi) *POPCO I&M Manual for Control of Reactive Organic Compound Emissions* (submitted 9/98 and approved August 7, 2000)

(vii) *Process Monitor and Calibration Maintenance Plan* (approved May 26, 1998)

(viii) *Fuel Gas Sulfur and HHV Reporting Plan* (conditionally approved October 29, 1998)

(ix) *Diesel IC Engine Particulate Matter Operation and Maintenance Plan* (approved March 13, 1998)

(x) *SRU Failure Mitigation System Test Plan* (approved March 13, 1998)

(xii) *POPCO's Breakdown Procedures Manual* (revised Plan approved September 5, 2000)

(xiii) *Emergency Episode Plan* (upon approval)

(xiv) *Solvent Reclamation Plan* (conditionally approved March 13, 2000)

(xv) *Thermal Oxidizer Combustor Maintenance Plan* (approved September 5, 2000)

(xvi) *Steam Injection Control Plan* (approved October 20, 1997)

[*Re: ATC 9047, ATC 9047-4]*

C.39 **Thermal Oxidizer Variance Order.** Pursuant to the APCD Hearing Board Regular Variance Order *H.B. Case No. 19-00R* issued on June 7, 2000, POPCO was granted a variance from certain provisions of Rule 359 (*Flares and Thermal Oxidizers*). Specifically, POPCO is in violation of District Rule Rules 359 D.2.b.2, 359 D.2.b.3 and Rule 206 due to the lack of continuous monitoring for the presence of a flame at the pilots installed in the facility's Thermal Oxidizer (Equipment ID No. A803). Rule 359 D.2.b.2 requires the presence of the flame in the pilot(s) of the Thermal Oxidizer to be continuously monitored using a thermocouple or an equivalent device that detects the presence of a flame, unless such device(s) can be demonstrated by POPCO to be infeasible, based on engineering, safety or cost constraints, and to the satisfaction of the Control Officer. Additionally, POPCO will be in violation of Rule 359 D.2.b.3 for recurrent failures of pilots installed in the Thermal Oxidizer unit. Rule 359 D.2.b.3 requires the flame (in the pilot) to be operating at all times when combustible gases are vented through the Thermal Oxidizer. POPCO will also be in violation of Rule 206, Condition 19 and 19.g of Authority to Construct permit 9047 and Condition 19.h of Authority to Construct permit 9047-04 due to necessity to perform planned flaring in association with the shutdown and depressurization of the facility to achieve compliance with the Rule 359 requirements above. Specifically, the requirement to install continuous monitors on the pilots of the Thermal Oxidizer will result in the shutdown and depressurization of the POPCO Gas Processing Plant. Condition 19 of these permits establishes the allowable volumes and total reduced sulfur concentrations for planned flaring activities. POPCO will not be able to comply with the total reduced sulfur content limits of 24 ppmv during the depressurization of the facility as the sulfur treating equipment will not be able to reduce the sulfur content of the processed gas at the low operating pressures experienced during the depressurization.

POPCO shall meet the following requirements by no later than May 31, 2001:

a. Petitioner shall not conduct any planned flaring activities in the Thermal Oxidizer at the POPCO facility during the period the variance is in effect unless all pilots are functioning properly. POPCO shall record in a log all planned flaring activities related to implementing this Variance that includes the information required for flaring activities listed in the Conditions of the District Permits issued to the Petitioner.

b. Within twenty-five (25) days of the granting of the Regular Variance POPCO shall complete the initial inspection and cleaning, repair or replacement (as necessary) of all pilots of the Thermal Oxidizer not continuously monitored by a thermocouple or equivalent device. During the period of this Variance, POPCO shall repeat this requirement for any pilot which experiences two or more failures since the initial cleaning to determine if more frequent cleaning, repair or replacement is warranted.

c. POPCO shall inspect and clean, repair or replace (if necessary) any pilot assembly within 24 hours of any pilot failure during the period this Variance is in effect. For LRGO pilot failures, POPCO shall immediately attempt to re-light the pilot using the automatic ignition system. If the LRGO pilot fails to ignite using this system, POPCO shall manually ignite the LRGO pilot within seven (7) days of the pilot failure.

d. POPCO shall report all pilot failures to the Hearing Board and to the District using the Breakdown Reporting format of Rule 505, including an estimate of the volume and mass emissions of unburned hydrocarbons and hydrogen sulfide including the assumptions used for each estimate. This information shall also include POPCO's findings as to the cause of each pilot failure. POPCO shall include an updated tabular summary of pilot failures in a format approved by the District with each reported pilot failure. This summary shall identify the Thermal Oxidizer header location number and the identification number of each pilot that experiences a failure during the period of this Variance.

e. Sixty (60) days prior to the scheduled shutdown of the POPCO Gas Processing Plant, POPCO shall submit a *Shutdown and Depressurization Plan* to the District for approval. The Plan shall detail the shutdown and depressurization procedures to be implemented by POPCO to reduce excess emissions to the maximum extent possible. The Plan shall also include an estimate of emissions to be incurred as a result of the shutdown and depressurization of the Plant.

f. POPCO shall begin implementation of, and update as necessary, the timeline for increments of progress submitted to the Hearing Board and the District by the Petitioner on June 5, 2000. The timeline shall identify possible actions to be taken by POPCO during the variance period to implement long-term continuous monitoring solutions, or identify alternate monitoring solutions to be proposed by POPCO to the District for approval. POPCO shall apply for and obtain District permit approval for any modifications to the Thermal Oxidizer for which a permit is required. Additionally, POPCO shall submit, and receive District approval of, a revised *Thermal Oxidizer Combustor Maintenance Plan* that details the modifications made by the Petitioner (if any) to the Thermal Oxidizer pilot monitoring and pilot flame systems to comply with the requirements of Rule 359 D.2.b.2 and Rule 359 D.2.b.3.

g. By not later than the 20th of each month, beginning June 20, 2000, POPCO shall submit a report to the Hearing Board and the District documenting the actions taken by POPCO to date to comply with the pilot continuous monitoring requirements of Rule 359 D.2.b.2.

h. POPCO shall visually inspect each pilot not continuously monitored twice daily (once per operating shift). Additionally, at the onset of a flaring event, as defined in the POPCO's variance application, POPCO shall dispatch an operator to visually inspect each pilot that is not continuously monitored. POPCO shall maintain a log of the visual monitoring pilot observations. The log shall include the date and time of the visual monitoring observation, the status of the pilots (operating with or without a flame present) at the time of the visual monitoring, the status of flaring activities at the time of the visual monitoring, and the initials of the observer.

i. At an appropriate date, within approximately six months of the granting HB Variance 19-00R, POPCO shall return to the Hearing Board and present a status report on the actions they have taken to date to comply with the requirements of this variance order. POPCO shall also identify remaining actions to be taken to comply with the requirements of this variance order along with estimated timeframes for completion.

Failure of POPCO to meet all dates specified above in (a) – (i) shall constitute a violation of this Permit Condition. POPCO shall be subject to all civil and criminal penalties, fines, sanctions and remedies provided by law. POPCO shall retain the obligation to comply with all other local, state and federal regulations not specifically referenced in this order. This Permit Condition expires on May 31, 2001. [*APCD Hearing Board Variance Order No. 19-00R*]

9.D APCD-Only Conditions

The following section lists permit conditions that are not enforceable by the USEPA or the public. However, these conditions are enforceable by the APCD and the State of California. These conditions are issued pursuant to APCD Rule 206 (*Conditional Approval of Authority to Construct or Permit to Operate*), which states that the Control Officer may issue an operating permit subject to specified conditions. Permit conditions have been determined as being necessary for this permit to ensure that operation of the facility complies with all applicable local and state air quality rules, regulations and laws. Failure to comply with any condition specified pursuant to the provisions of Rule 206 shall be a violation of that rule, this permit, as well as any applicable section of the California Health & Safety Code.

D.1 **Thermal Oxidizer Variance Order.** This permit condition (9.D.1) temporarily relieves POPCO of the requirement to comply with Rule 359 D.2.b.2, Rule 359 D.2.b.3, and Permit Condition 9.C.2.(b)(iv) until May 31, 2001. POPCO shall meet all the requirements of Permit Condition 9.C.39 by no later than May 31, 2001.

AIR POLLUTION CONTROL OFFICER

_____

September 5, 2000
Date

NOTES:

(a) Permit Reevaluation Due Date: December 2001

(b) Part 70 Operating Permit Expiration Date: September 2005

Table 9.1

FEES for DAS OPERATION and MAINTENANCE [(a) (b)]

FEE DESCRIPTION	FEE
DATA ACQUISITION SYSTEM OPERATION AND MAINTENANCE FEE	
Per CEM, ambient or meteorological parameter required by permit to be transmitted real-time to the APCD Central Data Acquisition System	$1,307 annually

(a) All fees shall be due and payable pursuant to the governing provisions of Rule 210, including CPI adjustments.

(b) The fees in this table are based on the APCD's March 27, 1998 letter (*Fixed Fee Proposal for Monitoring and DAS Costs*) and may be updated pursuant to Rule 210 and shall be effective when issued and shall not require a modification to this permit.

Table 9.2

CEMs PARAMETERS TO BE
TELEMETERED TO THE DATA ACQUISISTION SYSTEM (DAS)

DAS Variable	Parameter Monitored	Units	Alarm Level	Notes
ISFF	Sour Gas Inlet Flow Rate	MMSCFD	75.0	daily average
ISH2S	Mole % H2S in Sour Gas Feed	Mole %	2.67	6-minute average
SRH2S	H2S from Stretford Unit	ppmvd as H2S	100	6-minute average
SFLOW	Flow Volume from Stretford Unit to B-801A	scfh	none	6-minute average
SFLOW	Flow Volume from Stretford Unit to B-801B	scfh	none	6-minute average
ABSO2	Combined SOx Stack Emissions	lb/hr	5.67	hourly average
ANOX342	Boiler A NOx ppmv @ 3% O2 - Adjusted	ppmv @3% O2	30	6-minute average
BNOX342	Boiler B NOx ppmv @ 3% O2 - Adjusted	ppmv @3% O2	30	6-minute average
ATEMP	Boiler A Combustor Zone Temp	°F	919	hourly average
BTEMP	Boiler B Combustor Zone Temp	°F	919	hourly average
ANOXL	Boiler A NOx	lb/hr	1.48	hourly average
BNOXL	Boiler B NOx	lb/hr	1.48	hourly average
AFUEL	Fuel Flow to Boiler A	scfh	27,948	hourly average
BFUEL	Fuel Flow to Boiler B	scfh	27,948	hourly average
ACFLO	Acid Gas Flare Flow Rate	scfh	500	hourly average
HCFLO	HC Flare Flow Rate	kscfh	0.500	hourly average
1H2SS	Sales Gas H2S	ppmv	4	6-minute average
2H2SS	Sales Gas H2S	ppmv	4	6-minute average

Notes
1 NO_x as NO_2; SO_x as SO_2

2 ANOX342 and BNOX342 to be telemetered according to the schedule detailed in §9.C.1(a)(i).

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10.0 Attachments

10.1 Emission Calculation Documentation

10.2 *reserved for future use*

10.3 IDS Database Emission Tables

10.4 Equipment List

10.5 List of Insignificant Emission Units

10.6 Unplanned Flaring SO2 Mitigation Letter

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10.1 EMISSION CALCULATION DOCUMENTATION

POPCO Gas Plant

This attachment contains emission calculation spreadsheets and other supporting calculations used for the emission tables in Section 5 and permit conditions in Section 9. Refer to Section 4 for the general equations, assumptions and emission factor basis used.

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10.2 *reserved for future use*

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10.3 IDS DATABASE EMISSION TABLES

Table 10.3-1
Permitted Potential to Emit (PPTE)

	NO_X	ROC	CO	SO_X	PM	PM_{10}
PTO 8092 – POPCO Gas Plant						
lb/hour	3.33	30.12	6.44	5.71	0.79	0.75
lb/day	79.84	382.15	154.58	137.13	18.89	17.95
tons/qtr	7.57	19.28	14.03	6.33	1.13	1.09
tons/year	30.07	77.12	56.10	25.19	4.53	1.36

Table 10.3-2
Facility Potential to Emit (FPTE)

	NO_X	ROC	CO	SO_X	PM	PM_{10}
PTO 8092 – POPCO Gas Plant						
lb/hour	3.33	30.12	6.44	5.71	0.79	0.75
lb/day	79.84	382.15	154.58	137.13	18.89	17.95
tons/qtr	7.57	19.28	14.03	6.33	1.13	1.09
tons/year	30.07	77.12	56.10	25.19	4.53	1.36

Table 10.3-3
Facility Net Emission Increase Since 1990 (FNEI-90)

	NO_X	ROC	CO	SO_X	PM	PM_{10}
PTO 8092 – POPCO Gas Plant						
lb/hour	0.28	0.90	5.53	2.92	0.05	0.05
lb/day	6.98	21.30	132.77	70.22	1.32	1.26
tons/qtr	0.15	0.96	5.75	3.23	0.03	0.02
tons/year	0.64	3.85	22.98	12.92	0.08	0.08

Table 10.3-4
Facility Exempt Emissions (FXMT)

	NO_X	ROC	CO	SO_X	PM	PM_{10}
PTO 8092 – POPCO Gas Plant						
tons/year	4.23	0.29	0.91	0.48	0.30	0.30

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10.4 EQUIPMENT LIST

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10.5 LIST OF INSIGNIFICANT EMISSION UNITS

1. P-805, Diesel-fired internal combustion engine (420 bhp) driving an emergency firewater pump.

2. P-806, Diesel-fired internal combustion engine (420 bhp) driving an emergency firewater pump.

3. Diesel-fired internal combustion engine (111 bhp) driving an emergency electrical generator (for the instrument air compressor).

4. E-251, TEG Reboiler rated at 2.1 MMBtu/hr and fired exclusively on PUC quality natural gas.

5. E-121, TEG Reboiler rated at 1.2 MMBtu/hr and fired exclusively on PUC quality natural gas.

6. Forced Air Furnace rated at 50,000 Btu/hr and fired exclusively on PUC quality natural gas.

7. Portable Abrasive blasting equipment (does not include associated IC engine).

8. 5-Gallon batch tank and associated metering pump.

9. Single pieces of degreasing equipment that have a liquid surface area of less than one square foot and where the total aggregate liquid surface area of all such units at the stationary source is less than 10 square feet.

10. Diesel fuel storage tanks.

11. Lube oil storage tanks.

12. Refrigerant make-up tank (T-151), propane 10,000-gallon capacity

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10.6 UNPLANNED FLARING SO2 MITIGATION LETTER

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