



DRAFT

**APCD REEVALUATION PERMIT to OPERATE No. 7904-R8
and
PART 70 *Renewal* OPERATING PERMIT No. 7904-R8**

**VENOCO – ELLWOOD
ELLWOOD ONSHORE FACILITY**

**7979 HOLLISTER AVENUE
GOLETA, CA 93117**

OPERATOR

Venoco, Inc.

OWNERSHIP

Venoco, Inc.

**Santa Barbara County
Air Pollution Control District**

December, 2008

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ABBREVIATIONS/ACRONYMS

AP-42	USEPA's <i>Compilation of Emission Factors</i>
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
bpd	barrels per day (1 barrel = 42 gallons)
CAM	compliance assurance monitoring
CEMS	continuous emissions monitoring
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
DRE	Destruction Removal Efficiency
dscf	dry standard cubic foot
EOF	Ellwood Onshore Facility
EU	emission unit
°F	degree Fahrenheit
GAC	Granulated Activated Carbon
gal	gallon
gr	grain
HAP	hazardous air pollutant (as defined by CAAA, Section 112(b))
HHV	Higher Heating Value
H ₂ S	hydrogen sulfide
IC	Internal Combustion
I&M	inspection & maintenance
k	kilo (thousand)
l	liter
lb	pound
lbs/day	pounds per day
lbs/hr	pounds per hour
LACT	Lease Automatic Custody Transfer
LHV	Lower Heating Value
LPG	liquid petroleum gas
M	thousand
MACT	Maximum Achievable Control Technology
MM	million
MMR	monitoring, recordkeeping and reporting
MOAS	Modified Odor Abatement System
MW	molecular weight
NEI	net emissions increase
NG	natural gas
NOV	Notice of Violation
NO _x	Oxides of Nitrogen
NSPS	New Source Performance Standards
O ₂	oxygen
OAS	Odor Abatement System
OCS	outer continental shelf
PM	Particulate Matter
PM ₁₀	Particulate Matter less than 10 microns in diameter
ppbd	parts per billion dry
ppm(vd or w)	parts per million (volume dry or weight)
PUC gas	Natural gas meeting the specifications of the Public Utilities Commission and having an 80 ppmv or less Total Sulfur Content, and 4 ppmv or less H ₂ S under standard conditions

psia	pounds per square inch absolute
psig	pounds per square inch gauge
PRD	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	standard cubic feet per day
SCFM	standard cubic feet per minute
SIP	State Implementation Plan
SOx	Sulfur Oxides
STP	standard temperature (60°F) and pressure (29.92 inches of mercury)
THC	Total hydrocarbons
tpy, TPY	tons per year
TRS	Total Reduced Sulfur
TVP	true vapor pressure
VOC	Volatile Organic Compound
VRU	vapor recovery unit

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 combined permitting action covers both the Federal Part 70 permit (*Part 70 Operating Permit No. 7904*) as well as the State Operating Permit (*Permit to Operate No. 7904*).

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 PM₁₀ ambient air quality standard.

Part 70 Permitting. This is the third renewal of the Ellwood Onshore Facility's (EOF) Part 70 operating permit and satisfies the permit issuance requirements of the APCD's Part 70 operating permit program. The APCD triennial permit reevaluation has been combined with this Part 70 Permit renewal. The EOF is a part of the Venoco – Ellwood stationary source, which is a major source for VOC¹, NO_x and CO. 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 Facility Overview

1.2.1 General: Venoco, Inc. (Venoco) is the sole owner and operator of the EOF. The EOF is located approximately 14 miles west of downtown Santa Barbara and south of US Highway 101. For APCD regulatory purposes, the facility is located in the Southern Zone² of Santa Barbara County. Figure 1.1 shows the relative location of the facility within the county.

¹ 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.

² APCD Rule 102, Definition: "Southern Zone"
DRAFT Part 70/APCD Permit to Operate No. 7904-R8
Santa Barbara County APCD

Figure 1.1 Location Map for the Ellwood Onshore Facility



The EOF was constructed by the Atlantic Richfield Oil Company (ARCO) in the early 1970s, was sold to the Mobil Oil Corporation in the early 1990s, and was then sold to Venoco Inc. in 1997.

The Ellwood Onshore Facility consists of the following primary emission systems and processes:

- Crude oil receiving system
- Crude oil processing system
- Crude oil and other HC liquid storage and transfer system
- Gas receiving system
- Gas processing/delivery system, sulfur removal including dehydration, sweetening and CO₂ removal
- Gas compression/low temperature system including LPG/NGL recovery
- Loading rack for LPG and NGL and other HC liquid trucks
- Vapor/flare gas collection and incineration system
- Produced and waste water system
- Pipeline and equipment components with fugitive emissions
- Support system including process heater

The *Venoco – Ellwood* stationary source (SSID = 1063) consists of the following four facilities:

- Platform Holly (FID= 3105)
- Ellwood Onshore Facility (FID= 0028)
- Beachfront Lease (FID= 3035)
- Seep Containment Device (FID= 1065)

1.2.2 Facility Operations Overview: The EOF is designed to receive oil, water and gas from Platform Holly and the Seep Containment Devices located on State Coastal Lease 3242. Crude oil emulsion and sour gas containing hydrogen sulfide (H₂S) from Platform Holly and gas from the Seep Containment Devices are separately transported via sub-sea pipelines to the EOF. At the EOF, gas and water are separated from the crude oil and the sour gas is processed to sales gas quality.

Oil: Crude oil emulsion is heated in heat exchanger banks and heater treaters. The heating plus chemical and electrical treatment of the emulsion results in separation of entrained water. Dry crude from the heater treaters is stripped to reduce its hydrogen sulfide content and then piped to one of two stock tanks for storage. From the stock tanks, the crude is sent to a Lease Automated Custody Transfer (LACT) unit to be metered and sent to the Ellwood Marine Terminal, where it is shipped by ocean-going barge to refining facilities.

The water and residual oil separated from the crude emulsion in the heater treaters are piped to a wash tank to separate the water and the oil. In the tank, oil is skimmed from the top and recycled back into the oil processing system. Bottom water is pumped off and injected into an on-site disposal well.

Gas: Sour field gas from Platform Holly is chilled to separate entrained liquids, and scrubbed to reduce its hydrogen sulfide content to Public Utility Commission (PUC) natural gas standards. Gas from the Seep devices is sent to iron sponge vessels, which contain either iron sponge

material or Sulfa-Treat to remove sulfur compounds. Both gas streams are then combined, compressed to about 1,000 psig and sent through a membrane separator to reduce the carbon dioxide content. The PUC quality natural gas is then metered into the sales gas pipeline via a sales gas handling system.

The EOF also produces liquefied petroleum gas (LPG), natural gas liquids (NGLs) and elemental sulfur. The LPG and NGL are trucked out of the EOF via onsite loading racks EOF. Elemental sulfur is removed from the site by trucks.

The EOF was permitted in 1982 (PTO 4970) to operate a Stretford unit to lower the high hydrogen sulfide levels in the field gas and to operate an odor abatement system (OAS). Installations at the EOF included a thermal oxidizer unit in 1982; also a Grace unit was installed in 1992 (ATC 8262) for CO₂ removal that replaced the existing Fluor unit. In 1995, the heater treaters at the EOF were de-rated (ATC 9218) and the process heater modified (ATC 9217); and, in 1997 (ATC 9473) the EOF was re-configured to remove the OAS and route organic sulfide gases to an existing thermal oxidizer (H-205) for incineration.

The design processing capacity of the EOF is 20,000 barrels/day (bpd) of crude oil-emulsion and 20 million standard cubic feet/day (MMSCFD) of incoming gas that includes up to 17% of CO₂. It is currently APCD-permitted to produce 13,000 bpd of dry oil, 13 MMSCFD of gas, 10 million gallons/yr of LPG and 5 million gallons/yr of NGL. Sulfur production is limited to 9.8 long tons/day (21,952 lbs/day). Current oil true vapor pressure (TVP) is 2.8 psia and API gravity is approximately 21°.

1.2.3 Facility Permits Overview: The EOF operates under a combined Federal Part 70 Operating Permit No. 7904 and APCD Permit to Operate (PTO) 7904, both issued by the APCD.

1.2.3.1 Pre-1979, Pre-APCD-NSR-Delegation Period - ARCO Ellwood Onshore Facility submitted a number of permit (ATC and PTO) applications for equipment to the newly formed APCD during 1971 and 1972. These included ATC/PTO application #'s 21/22 (12/28/71), 171, 172, 173, 174, 175 and 176 (5/30/72); all applications except #171 were denied because of the listed high sulfur content in the in-plant fuel gas. As to ATC/PTO #171, which listed a heater treater (10' dia. x 50' high), two 2,000-bbl crude oil storage tanks, a LACT unit and a sales and lift gas conditioning/compressing facility (these devices were in use at the EOF site), no action was taken on the application. Following this, ARCO obtained a long-term variance from the APCD Hearing Board to operate all equipment listed in ATC/PTO's 171/172/174/175 until March 1977. ARCO submitted ATC/PTO applications 340/383 in mid-1973. The equipment items in #340 were subsequently de-activated; and, the other application was cancelled to facilitate a modified application for the same unit (Stretford unit). Application #982 to install an iron sponge unit (for removing H₂S) and a GAC carbon canister (for removing ROCs) was submitted in 11/76; PTO 2164 for the two equipment were issued in 11/76. ARCO submitted applications 1194, 1195 and 1196 on July 11, 1977 addressing permits for increased production at the crude oil sweetening unit, the Stretford unit and the Fluor CO₂ removal unit respectively. An NSR Application 1196 was also submitted to the USEPA by ARCO [Reference: *Atlantic Richfield - NSR 01196*] on 12/12/77 for increased sour crude processing (heater treater dehydration, sweetening and transport to marine terminal) from 4,000 to 20,000 barrels/day and increased gas stream processing (sweetening, compression, LPG recovery and CO₂ removal) from 4 to 20 MMSCFD. The APCD denied ATC 1195 application; but, issued ATC 1196 covering all the equipment and process rates listed above, on 1/23/78. Finally, ARCO submitted an ATC/PTO application 1198

for a flare gas incinerator (8' high x 20' dia.) in 8/77 and obtained APCD PTO #2166 for the device (H-205) in 8/77.

1.2.3.2 Post-1979, Post-APCD-NSR-Delegation Period - ARCO submitted ATC/PTO applications 4342 and 4450 for a vacuum truck exhaust scrubber and a vapor recovery unit (VRU) cooler in 8/81. The APCD issued an ATC for the VRU cooler in 8/81 and a PTO 4342 for the scrubber in 8/82. Later, in 11/81, the APCD and ARCO reached a settlement on the Stretford unit, and a revised PTO 5076 was issued in 1982 addressing modified operations of this unit. Application 4578 for an incinerator (14.5' diameter x 30' high) was submitted on 1/82 and an ATC/PTO was issued for it (H-206) in 1/82. Other pre-construction permits issued are, as follows:

ATC 7234 (9/1988) — implemented a fugitive hydrocarbon inspection & maintenance (I&M) program; ATC 8262 (12/1991) — installed the Grace CO₂ removal unit to replace the existing 'Fluor' unit; ATC 9217 (9/1994) — modified the existing process heater (H-204) to reduce its NO_x emissions to APCD Rule 342 compliance limits; ATC 9218 (2/1996) — de-rated the three heater treaters (H-201, H-202 & H-203) by burner modifications and limiting fuel type and hourly fuel use; ATC 9473 (11/1997) — modified the existing odor abatement system (OAS) by modifying the existing thermal oxidizer H-205 and associated OAS process flow lines and odor abatement equipment. ATC 9218-01 (5/1996) modified all burners and further de-rated H-202.

The EOF operator proposed in October 1988, the modification of the 'Stretford' solution operation to a 'LO-Cat' solution operation for the sulfur recovery unit. In March 1989, the Stretford unit was modified to a 'LO-Cat' unit. This modification was considered 'de minimis' under the APCD rules. However, the OAS modification in 1997 described earlier (ATC 9473), required piping additions and increased fugitive gas emissions. The APCD concludes that the 1988 modification triggered the federal NSPS, 40 CFR Part 60, Subpart LLL (Onshore Natural Gas Processing: SO₂ Emissions) promulgated in 1985. The facility also obtained an ATC/PTO 1537 to operate a gasoline-fueling pump in 1991. *Note: All conditions in (a) the NSR-01196 and (b) all post-1979 ATCs are federally enforceable.*

1.2.3.3 Post-Sept 1998 Part 70 Permit Issuance - Since the issuance of the initial Part 70 Operating Permit on September 25, 1998, there have been the following permit actions:

ATC Mod 9473-06: Minor modification to the permit conditions for H-205 to relax residence time and increase combustion temperature to reflect applicable BACT ROC control standards. This permit was issued on 5/24/1999.

ATC/PTO 10022: For conversion of an exempt Therminol storage tank into a ROC containing emulsion breaker storage tank. This permit was issued on 12/3/1998.

PTO Mod 7904-01: APCD and Minor Part 70 modification to incorporate ATC 9473-6 and ATC/PTO 10022 requirements. This permit was issued on 12/16/1999.

ATC/PTO Mod 7904-02: Combined ATC/PTO to document Abatement Order 99-6(A) required installation of GSF Odor Station and Met, DAS, and H₂S Fence line monitors at the EOF. Also includes Handheld H₂S meter for APCD. This permit was issued on 4/21/2000.

ATC 10749. For addition of fugitive emissions components (valves and connections) in conjunction with upgrading the York Compressor. ATC 10749 was incorporated into PT70-APCD PTO 7904-R7.

ATC/PTO 10941: ATC 10941 was issued on 27 January 2003 addressing the Grace Unit modification required to meet newer PUC specifications for CO₂ content in the sales gas. The PTO was issued on 24 August 2004.

ATC/PTO 11106: The combined ATC/PTO 11106 was issued on 7 September 2004 to address the frequency changes in pigging events between EOF and Platform Holly.

ATC/PTO 11169: ATC 11169 was issued on 2 September 2004 to address an annual increase of heat input to H-205 unit along with establishing a revised planned flaring volume limit excluding CO₂ from gas streams flared in H-205, H-206 and H-207. PTO 11169 was issued on 25 February 2005.

Since PT70-APCD PTO 7904-R7 was issued in December 2005 the following permits have been issued:

ATC/PTO 11579: ATC 11579 was issued on September 15, 2005 the addition of four permeate tubes to the first stage of the grace CO₂ removal unit and the installation of a two tube second stage. PTO 11579 was issued on May 27, 2008.

PTO Mod 7904 02: PTO Mod 7904 02 was issued June 26, 2008 to increase the permitted CO₂ fraction of the gas entering the EOF and decrease the permitted flaring volume to ensure compliance with Rule 359.

ATC/PTO 12839: ATC/PTO 12839 was issued August 11, 2008 to decrease the permitted NO_x emission factor for H-205. The permitted emissions were reduced concurrently with the issuance of ATC 12804 for a new crane engine on Platform Holly in order to keep the stationary source NEI below the offset thresholds.

ATC/PTO 12886: ATC/PTO 12886, issued concurrently with this permit reevaluation to add fugitive components from various small projects to the permit. This ATC/PTO was applied for in response to NOV 8814 for exceeding the de minimis limit of 24.00 lb/day. The addition of the fugitive components contributes to the NEI of the stationary source.

1.3 Emission Sources

The emissions from the Ellwood Onshore Facility come from combustion sources (process heater, heater treaters, and thermal oxidizers), oil storage tanks, a reject oil tank, LPG/NGL and emulsion breaker loading racks, vacuum truck exhaust, oil/gas separators and process sumps, pig receivers and a launcher, gas sweetening unit, Glycol dehydration unit, diesel fuel pump and fugitive emission components such as valves and flanges. Section 4 of the permit provides the APCD's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit and also lists the potential emissions from non-permitted emission units.

Specifically, the emission sources include:

- One (1) diesel-fired IC engine used to drive an emergency firewater pump.
- One (1) diesel-fired IC engine emergency backup electrical generator to power the VRU compressors, and other essential equipment (e.g., general lighting, computers, alarms, and shutdown systems, etc.).
- Three (3) in-plant fuel gas-fired heater treaters;
- One (1) gas-fired process heater unit, using in-plant fuel gas plus permeate gas;
- Two (2) older thermal oxidizers, one (1) modified thermal oxidizer;
- Three (3) crude oil storage tanks (two stock tanks and one LACT tank), one (1) emulsion breaker liquid tank;
- One (1) oil pipeline pig receiver, one (1) gas pipeline pig receiver, one (1) gas pipeline launcher, one (1) utility gas pipeline receiver;
- One (1) process sump;
- One (1) wash tank for water settling;
- One (1) loading rack to handle LPG and NGL
- One (1) rack to handle emulsion-breaker HC liquid;
- One(1) diesel fuel pump with one dispensing nozzle;
- Fugitive emission components in oil & gas service.

Lists of all permitted and exempt equipment are provided in Sections 10.5 and 10.6.

1.4 Emission Control Overview

Air quality emission controls are utilized at the Ellwood Onshore Facility for a number of emission units. The emission controls employed at the facility include:

- ☞ An Inspection & Maintenance (I&M) program for detecting and repairing leaks of hydrocarbons from fugitive emissions components, consistent with the requirements of Rule 331, to reduce ROC emissions by approximately 80 percent; an I&M program is also required, per the emission reduction credit agreement with the APCD, per ATC 7234.
- ☞ Compliance with APCD Rule 325 is achieved through using a VRU to collect reactive organic vapors from the pig receivers/launcher, oil storage tanks, wash tank, reject oil tank, process sump, the vent tank and the flash tank.
- ☞ Use of balance type vapor recovery for the LPG/NGL rack.
- ☞ Use of vapor recovery on all applicable sump tanks/vessels.
- ☞ Implementation of a petroleum storage tank-degassing plan pursuant to the requirements of APCD Rule 343.
- ☞ Compliance with APCD Rule 311 (fuel sulfur content) to maintain low-level SO₂ emissions.
- ☞ A NO_x emission reduction system, e.g., flue-gas re-circulation (FGR) system and low-NO_x burner, installed on the process heater; also compliance with APCD Rule 342 limits for NO_x.

- ☞ A modified odor abatement system (MOAS) to capture air streams from the Lo-Cat solution regeneration process and send them to thermal oxidizer H-205 to reduce the concentration of odorous contaminants by at least 98.5%.
- ☞ A thermal oxidizer system for planned flaring activities; a flare gas minimization and monitoring plan, consistent with the APCD Rule 359, to minimize total flare emissions.

In addition, the housings of the electrically driven gas compressors are sealed and all combustion equipment units are fired with in-plant fuel gas, to reduce emissions.

1.5 Offsets/Emission Reduction Credit Overview

Offsets: The EOF does not require emission offsets.

Emission Reduction Credits: The EOF provides ROC emission reduction credits to The Point Arguello Project. This was documented via the APCD’s issuance of ATC 7234 on September 6, 1988. This ATC required a fugitive hydrocarbon inspection and maintenance (I&M) program to reduce emissions from facility piping, valves and flanges. PTO 7234, incorporating the ATC 7234 provisions, was issued in May 1990. The ROC ERCs generated under this PTO and dedicated to The Point Arguello Project is 101.12 tons/year.

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 these requirements are enforceable by the public under CAAA. (*See Tables 3.1 and 3.2 for a list of federally-enforceable requirements*).
- 1.6.2. Insignificant Emissions Units: Insignificant emission units are defined under APCD Rule 1301 as any regulated air pollutant emitted from the unit, excluding Hazardous Air Pollutants (HAPs), that are less than 2 tons per year based on the unit’s potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit’s potential to emit. Insignificant activities must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to insignificant units. (See Attachment 10.6 for the Insignificant Emissions Unit list)
- 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 51.66 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 granted indiscriminately with respect to all federal requirements. Venoco has not made a request for a permit shield.

- 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. Venoco 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 semi-annually on or before March 1st and September 1st, as specified in the permit. Each certification is signed by a “responsible official” of the owner/operator company whose name and address is listed prominently in the Part 70 permit. (*See Section 1.6. 10 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.
- 1.6.8. MACT/Hazardous Air Pollutants (HAPs): 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 and 5*).
- 1.6.9. Compliance Assurance Monitoring (CAM): The CAM rule became effective on April 22, 1998. This rule affects emission units at the source subject to a federally-enforceable emission limit or standard that uses a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds. Sources subject to CAM Rule must submit a CAM Rule Compliance Plan along with their Part 70 operating permit renewal applications. (*See Section 4.9.3*). The APCD has determined that no emissions unit at this facility is subject to CAM Rule.
- 1.6.10 Responsible Official: The designated responsible official and their mailing address are:

Ed O'Donnell, Senior Vice President
Venoco, Inc.
6267 Carpinteria Ave., Suite 100
Carpinteria, CA 93013-1423

2.0 Process Description

2.1 Process Summary

Crude oil emulsion from Platform Holly is received at the Ellwood Onshore Facility (EOF) via sub-sea pipelines. The emulsion is preheated in heat exchangers and treated in heater treaters to remove gases and water. Dry crude is stripped of H₂S in stripper columns and sent to a surge tank. Gas from the heater treaters is sent to gas treatment units at the EOF; and produced water from the treaters is filtered and injected into an on-site disposal well. Crude oil from the EOF is sent, via a LACT unit, to the Ellwood Marine Terminal where it is shipped by barge to refineries elsewhere.

Sour field gas from Platform Holly and the Seep Containment Device is received at the EOF via separate sub-sea pipelines. Platform Holly gas is mixed with the gas from the heater treaters and scrubbed to remove entrained liquids. The gas is then de-sulfurized to a level not exceeding 4 ppm H₂S in the LO-Cat unit. The de-sulfurized gas from Platform Holly is commingled with sweetened Seep Containment Device gases and compressed. The combined gas is then dehydrated and chilled to remove liquefied petroleum gases (LPG). Next, the gas is compressed (to about 1,000 psig), and passed through the Grace membrane unit to reduce the CO₂ fraction before it is delivered to the sales pipeline. H₂S recovered from the Platform Holly gas during the sweetening process is converted to elemental sulfur.

Natural gas liquids (NGLs), LPG and elemental sulfur produced at the EOF are initially stored on-site and later transported out by tanker trucks to market.

2.1.1 Crude Oil Receiving System: Crude-oil/water emulsion at about 85°F is received at the EOF via a 6-inch offshore pipeline.

2.1.2 Crude Oil Processing System: The pressurized emulsion is pre-heated using two sets of heat exchangers. The first set (E-201A, B, C and D) uses hot crude oil from the EOF surge tank (TK-203) as the heating agent. Hot Therminol pumped from the process heater (H-204) is the heating agent in the second exchanger (E-102). From the heat exchangers, the emulsion flows into one of three heater treaters (H-201, H-202 and H-203) where it may be further heated and treated chemically and electrically to separate water from the crude oil. The separation of oil and water takes place at a pressure of approximately 40 psig and a temperature of about 150°F. Off-gas from the heater treaters is sent to the vapor recovery unit compressors (VRU # 2 or VRU #4). The H-202 unit is rated at 2.464 MMBtu/hr; and both H-201 and H-203 are rated at 4.400 MMBtu/hr each. The heater treaters are fired with in-plant fuel gas to minimize SO₂ and PM₁₀ emissions.

The dry crude oil from the heater treaters is passed through one of two H₂S strippers (V-201 & V-202, one is standby), where it is contacted counter-currently with in-plant fuel gas. The in-plant fuel gas strips H₂S from the crude oil to a concentration of less than 70 ppm. The stripper off-gas containing H₂S is sent to the VRU compressors (VRU # 2 or VRU #4).

2.1.3 Crude Oil Storage and Transfer System: After stripping, the crude oil is sent to a tank farm, which consists of three (3) 2,000-barrel stock tanks (TK-202, 203 and 204). From oil surge tank TK-203 the hot crude oil is pumped by transfer pumps P-217A & B to emulsion/crude heat exchangers E-201A and B to transfer heat to the incoming crude oil-water/emulsion. Cooled oil

is then sent to 2,000-barrel lease automated custody transfer (LACT) oil shipping tank TK-202, and from there it is delivered, via a 10-inch pipeline, to the Ellwood Marine Terminal for sale to refineries. Any reject oil is recycled to 2,000-barrel reject oil tank TK-204.

Emission Control for oil tanks — the tanks for the hot crude oil are blanketed with in-plant fuel gas and connected to the VRU.

- 2.1.4 Gas Receiving System: Sour field gas originating from Platform Holly and gas originating from the Seep Containment Device located on State Lease 3242 is sent to the EOF, each via a separate 6-inch diameter pipeline.
- 2.1.5 Gas dehydration and sweetening: The sour gas from the platform is mixed with the gas from the VRU and chilled and scrubbed to remove entrained water and NGL. The NGL is then directed to NGL storage on site. The scrubbed field gas is then processed by the LO-Cat unit for sulfur removal. The gas from the seep device is commingled with the sour platform gas and sweetened by the LO-Cat system. If the LO-Cat system is not operating the seep gas is sent to the iron sponge vessels (V-114, V-115, V-116) for sweetening (H₂S removal). V-114 is currently out of service. After sweetening, the gases are sent to the compression units. If the H₂S content of the seep gas is low enough, it bypasses the iron sponge vessels and is sent directly to the gas compressors. The iron sponge vessels typically contain an iron sponge material, which is used to remove H₂S. Sulfa-Treat reactant may be used in the vessels in place of the iron sponge material.

The LO-Cat unit uses a solution designed to convert H₂S into elemental sulfur. The elemental sulfur is stored in tanks on-site prior to its removal by tanker trucks. The iron sponges remove the low levels of H₂S present in the sour gas stream from the Seep by reacting with it to form solid iron sulfide, a spent material. The spent iron sulfide is removed for recycling and replaced by fresh iron sponges, as required. The sweetened gas from the LO-Cat unit contains less than 4 ppm by volume of H₂S.

- 2.1.6 Gas dehydration, LPG/NGL recovery, and CO₂ removal: The sweetened gas is compressed to about 450 psig using two stages of electrically-driven compressors. It is then dehydrated by a glycol unit and chilled using a refrigeration unit where liquefied petroleum gases (LPG) in the stream are separated from the process gas. A third stage compression (about 1,000 psig) sends the process gas to the Grace unit for CO₂ removal. The Grace unit uses semi-permeable membranes to remove the excess CO₂ fraction in the gas. Following this operation, the processed natural gas is delivered to the sales pipeline. The LPG is stored in tanks on-site and ultimately transported to market by trucks.

Grace Unit Process Details: The Grace Membrane Unit separates CO₂ from the sales gas. The first stage permeate, which is high CO₂ low Btu gas, is sent to the following locations based on plant operating needs: the second stage grace unit for further separation, or sent to the in-plant fuel gas header for use at the facility, or sent through the relief header to be flared. The second stage permeate, which has very low Btu content and very high CO₂ content is sent through the relief header to be flared.

- 2.1.7 Loading Rack: A grade level loading rack connected to the balance type vapor recovery system operates intermittently at the EOF to load LPG and NGL into highway tanker trucks.

- 2.1.8 Vapor/Flare Gas Collection and Incineration System: This system consists of a vapor recovery unit (VRU), a modified odor abatement system (MOAS) and a thermal oxidizer system.

Vapor Recovery Unit — The VRU collects low pressure hydrocarbon vapors from oil storage, surge, reject, vent and flash tanks, sumps and separators and waste water tanks. The collected vapors are compressed by two electrically-driven compressors first stage (VRU-1 or VRU-3) at 75 hp and second stage (VRU-2 or VRU-4) at 200 hp. The compressed gas is then mixed with the inlet sour gas from Platform Holly for processing in the LO-Cat sulfur recovery unit. During periods when the LO-Cat unit is down, the first stage VRU may divert flow through the iron sponge unit to the relief system for incineration. A backup electrical generator powered by a diesel IC engine is used to power the vapor recovery compressors during times of power loss.

Modified Odor Abatement System —The MOAS collects organic vapors from the LO-Cat unit and routes them to thermal oxidizer (H-205). The oxidizer incinerates the vapors with a destruction removal efficiency (DRE) exceeding 98.5 percent by mass. If the H-205 oxidizer unit is down, the LO-Cat unit shuts down simultaneously; this may trigger gas plant shutdown.

Flare System — The flare system consists of three thermal oxidizers (H-205, H-206 and H-207). The permeate gas from the Grace CO₂ removal unit is collected and routed to the fuel system for the process heater (H-204). The gas volume in excess of the process heater firing demand is incinerated in one of the three thermal oxidizers listed above.

- 2.1.9 Produced and Waste Water System: The liquids (water and residual oil) separated in the heater treaters are piped to a 3,000 barrel settling tank (T-201) for gravitational separation of residual oil. The tank is equipped with a skimming nozzle to collect residual oil off the top of the water surface and recycle it back to the oil processing system. The tank is blanketed with in-plant fuel gas and connected to the VRU. From the settling tank, the water is injected into an on-site water disposal well.
- 2.1.10 Pipeline and Equipment Components with Fugitive Emissions: Fugitive hydrocarbon emissions at the EOF from valves, flanges and connectors and fittings not directly associated with other permitted equipment items. The total number of component-leak paths is documented in Table 5.1-1.

2.2 Support Systems

- 2.2.1 Process Heater: The heating system uses a 25 million Btu/hour process heater unit (H-204), fired by a mix of the Grace permeate gas and PUC-quality in-plant fuel gas. The unit heats the Therminol (fluid) heating medium used by the heat exchangers.

Emission Control for the process heater — The 25 million Btu/hr process heater is equipped with flue gas re-circulation (FGR), flue gas oxygen trim control and a low-NO_x burner to reduce NO_x emissions to below 0.036 lb/MMBtu.

- 2.2.2 Refrigeration Unit (York skid): Refrigeration to chill the compressed gases and recover the NGLs is provided by a skid-mounted York unit, equipped with a five-stage compressor (K-202). A 1,750 hp electric motor drives the compressor that feeds two chiller units, one for the VRU and sour gas from the platform and the other for sales gas processing.

2.2.3 Diesel-Service Station (permit-exempt): An on-site diesel-service station with a single fuel pump and nozzle provides fuel to the facility cars and trucks.

2.3 Maintenance/Degreasing Activities

2.3.1 Paints and Coatings: On occasion, a painting program is implemented at the EOF. Pollution prevention measures are in effect; tarps are used to help create a more controlled environment and all solvents are recycled or properly disposed of.

2.3.2 Solvent Usage: Solvents not used for surface coating thinning may be used at the EOF for daily operations. Usage includes cold solvent degreasing and wipe cleaning with rags.

2.4 Planned Process Turnarounds

Process turnarounds on the permitted equipment are scheduled to occur when the Ellwood Onshore Facility or Platform Holly is shut down for maintenance. Major pieces of equipment such as storage tanks, process units, compressors and pumps have maintenance schedules specified by the manufacturer. These equipment items are removed from service, inspected, and maintained. Maintenance of critical components is carried out according to the requirements of Rule 331 (*Fugitive Emissions Inspection and Maintenance*). If required, the storage tanks are degassed. Venoco has not listed any emissions from planned process turnarounds to be permitted.

2.5 Other Processes

2.5.1 Pigging: Three pig receivers are employed to keep the emulsion, gas, and utility pipelines from Platform Holly clean. One pig launcher is used to keep the pipeline from the Seep Containment device clean. Each receiver is connected to both the VRU and the process hydrocarbon drain system.

2.5.2 Sumps: A process sump tank (S-202) serves as the accumulation point for the process hydrocarbon drain system. The 80-barrel capacity tank has a diameter of 6.5' and is 14' long. The tank is connected to the VRU. Several other small sumps (e.g., S-203, -205, -207) store non-emitting material and have no potential to emit criteria pollutants.

2.5.3 Vacuum Truck Exhaust Scrubbing: The EOF employs a portable vacuum truck exhaust scrubbing system to address the exhaust from vacuum truck operations. The emissions from the vacuum truck operations are controlled consistent with an APCD-approved Vacuum Truck Control Plan.

2.5.4 Hydrocarbon Laboratory: The laboratory at the EOF has a fume hood to collect all ROC vapors generated within the laboratory. These vapors are passed through a carbon adsorber with 11,000 pounds capacity and equipped with GAC beds.

2.5.5 Emulsion-breaker Fluid Storage/Handling: A 402-bbl storage tank (T-101) with a diameter of 12' and a height of 14' is used to store emulsion breaker HC liquid. The tank is not connected to the VRU. The tank is bottom-loaded via a hose from tanker trucks. The emulsion breaker fluid currently used at the EOF has a TVP of 0.08 psia. TVP data is on file at the APCD.

2.5.6 Stand-by Equipment: Standby equipment units used at the EOF are, as follows:

- Iron Sponge vessels – Iron sponge vessels (V-114, V-115, and V-116) are used to scrub VRU gas streams and/or seep gas when the LO-Cat system is not operating.
- Gas Compressors — Two 3-stage compressors (K-205 & K-206), each driven by a 600 hp electric motor, operate as stand-by units in case of any main sales gas compressor(s) failures.

2.6 Detailed Process Equipment Listing

Refer to Attachment 10.5 for a complete listing of all permitted equipment.

3.0 Regulatory Review

3.1 Rule Exemptions Claimed

- APCD Rule 202 (Exemptions to Rule 201): Venoco has requested a number of exemptions under this rule. An exemption from permit, however, does not necessarily grant relief from any applicable prohibitory rule. The following exemptions were approved by the APCD:
 - Section D.6 (*De Minimis*). As of August 29, 2008, Venoco has documented the total de minimis emissions increase at EOF to be 7.54 lbs/day for ROC. Therefore, the total de minimis emissions from the stationary source are $7.54 + 10.41 = 17.95$ lbs/day of ROC; there are no de minimis increases at the Beachfront or Seeps. Detailed records of the de minimis emissions changes can be viewed at the APCD's office.
 - Section V.8 for four LPG storage tanks (V-218, V-219, V-227 and V-228)
- APCD Rule 331 (Fugitive Emissions Inspection and Maintenance): The following exemptions were applied for and approved by the APCD:
 - Section B.2(c) for one-half inch and less stainless steel tubing fittings.
 - Section B.3(c) for PRDs vented to a closed system.
 - Section B.3(c) for components totally enclosed or contained.
 - Section B.2.b for components buried below the ground.
 - Section B.3.b for components handling liquids or gases with ROC concentrations less than 10 percent by weight.
 - Sections F.1, F.2 and F.7 for 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
- APCD Rule 333 (Control of Emissions from Reciprocating IC Engines): There are two diesel-fired IC engines at EOF. Each engine is an emergency standby engine, as defined by 17 CCR, 93115. Therefore, each engine is exempt from Rule 333 per Section B.1.d.
- APCD Rule 344 (Petroleum Sumps, Pits and Well Cellars): The process sump is in secondary service and has a surface areas less than 1000 sq. ft., and thus is exempt from this rule, per Section B.4 of the rule.

- APCD Rule 346 (Loading of Organic Liquid Cargo Vessels): Section B.4 of the Rule exempts the transfer of LPG and NGLs from the requirements of this Rule.
- APCD Rule 361 (Small Boilers, Steam Generators, and Process Heaters): This rule applies to boilers, steam generators, and process heaters rated greater than 2 MMBtu/hr and less than 5 MMBtu/hr. The rule applies to H-201, H-202 and H-203 but these are existing units so the provisions of the rule do not apply until March 15, 2016.

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 Ellwood Onshore Facility was constructed and permitted in the early 1970s prior to the applicability of these regulations. However, since then this major source has undergone one major EOF modification and several minor modifications. These modifications were permitted under new source review Authority to Construct (ATC) permits issued by the Santa Barbara APCD. Compliance with APCD Regulation VIII (New Source Review) ensures that future modifications to the facility will comply with 40 CFR 51 and 52.
- 3.2.2 40 CFR Part 60 {New Source Performance Standards}: The Lo-Cat unit, which has a permitted sulfur production rate of 9.8 long tons/day, underwent modifications in 1997, which resulted in an emissions increase. Therefore, this is an affected facility and the provisions of Subpart LLL (Onshore Gas Plant; SO₂ Emissions) apply. The facility has a design capacity of less than 2 long tons/day of H₂S (expressed as sulfur) in acid gas, therefore the facility is not required to comply with the emission standards, testing, or monitoring requirements of the Subpart. The facility is required to keep, for the life of the facility, an analysis demonstrating that the facility's design capacity is less than 2 long tons/day of H₂S expressed as sulfur.

The modification also triggered Subpart KKK (Equipment Leaks of VOC from Onshore Gas Plants); and the provisions of this Subpart are included in the permit conditions listed for the fugitive components at the EOF.

- 3.2.3 40 CFR Part 61 {National Emission Standards for Hazardous Air Pollutants (NESHAP)}: This facility is not currently subject to the provisions of this Subpart.
- 3.2.4 CFR Part 63 {MACT}:
- 3.2.4.1 Subpart HH: On June 17, 1999, EPA promulgated Subpart HH, a NESHAPS for Oil and Natural Gas Production and Natural Gas Transmission and Storage. Venoco submitted for APCD review an *Initial Notification of Applicability* on June 16, 2000 in which they indicated that the Subpart HH requirements applied to this facility. The APCD then determined that this MACT applies to the in-plant fuel gas processing plant at EOF. While Venoco has documented a "black oil" exemption, this does not apply to the gas processing plant. The APCD has reviewed additional information submitted by Venoco in May 2002 to claim exemption from certain standard provisions of this MACT. The APCD concurs with Venoco's claim (*Ref: APCD's 7/31/2002 letter to Venoco*) that the EOF is not subject to this MACT's standards due to the following reasons:

1. The Glycol Dehydration unit is not subject to the MACT's 'process vents' standard;
2. The Ancillary Equipment and Compressors are deemed not to be 'in VHAP service'; and,

3. None of the storage tanks at the facility meet the MACT's definition of 'a storage vessel with flash potentials.'

Venoco must maintain monitoring records to document the findings in Items 1 and 2 above.

Subpart ZZZZ: On June 15, 2004, EPA promulgated Subpart ZZZZ, a NESHAPS for stationary reciprocating internal combustion engines (RICE). This MACT applies to any RICE engine with a rating of '500 hp or more' operating at a 'major' HAP source. However, the 509-hp "emergency generator RICE" at the Venoco EOF is exempt under § 63.6590 (b)(3) (*emergency use*) of Subpart ZZZZ.

- 3.2.5 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998. This rule affects emission units at the source subject to a federally-enforceable emission limit or standard that uses a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds. Compliance with this rule was evaluated and it was determined that no emission units at this facility are currently subject to Compliance Assurance Monitoring (CAM). See section 4.10.4 for further information on CAM.
- 3.2.6 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to the EOF. Table 3.1 lists the federally-enforceable APCD-promulgated rules that are "generic" and apply to the EOF. Table 3.2 lists the federally-enforceable APCD-promulgated rules that are "unit-specific" that apply to the EOF. These tables are based on data available from the APCD's administrative files and from Venoco's Part 70 Operating Permit application No. 9553 filed in May 1996 and their renewal applications submitted on April 17, 2001 and on May 10, 2005. Table 3.4 includes the adoption dates of these rules.

In its Part 70 permit application, Venoco certified compliance with all existing APCD rules and permit conditions. This certification is also required of Venoco semi-annually. Issuance of this permit and compliance with all its terms and conditions will ensure that Venoco 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 and will be enforced by the APCD. These provisions are APCD-enforceable only.
- 3.3.2 California Code of Regulations, Title 17, Sub-Chapter 6, Sections 92000 through 92530: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at the EOF are required to conform to these standards. Compliance will be assessed through onsite inspections. These standards are APCD-enforceable only. However, CAC Title 17 does not preempt enforcement of any SIP-approved rule that may be applicable to abrasive blasting activities.
- 3.3.3 California Code of Regulations, title 17, section 93115: This section specifies airborne toxic control measure (ATCM) to reduce diesel particulate matter (PM) and criteria pollutant emissions from stationary diesel-fueled compression ignition (CI) engines. Its provisions apply to any stationary, industrial CI engine operated in California with a rated brake horsepower greater than 50. Portable, off-road, or marine vessel IC engines are exempt from this ATCM.

- 3.3.4 California Code of Regulations, title 17, section 93116: The provisions of this ATCM apply to any portable diesel-fired CI engines with a rated brake horsepower greater than 50.

3.4 Compliance with Applicable Local Rules and Regulations

- 3.4.1 Applicability Tables: Tables 3.1 and 3.2 list the federally enforceable APCD rules that apply to the EOF. Table 3.3 lists the non-federally-enforceable APCD rules that apply to the EOF. Table 3.4 lists the adoption date of all rules that apply to the EOF.

- 3.4.2 Rules Requiring Further Discussion:

The following is a rule-by-rule evaluation of compliance for the Ellwood Onshore Facility:

Rule 210 - Fees: Pursuant to Section I.B.2, APCD permits are reevaluated every three years. The fees for this facility are based on the APCD Rule 210, Fee Schedule A. Attachment 10.3 presents the fee calculations for the reevaluated permit. The fees for this reevaluation are calculated per Section I.B.2.

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 APCD rules and regulations. To the best of the APCD's knowledge, Venoco is operating in compliance with this rule.

Rule 302 - Visible Emissions: This rule prohibits the discharge from any single source any air contaminants for which 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 oxidizers and all diesel-fired piston internal combustion engines. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules, and through visible emissions monitoring requirements in Condition 9.B.2. Rule 359 addresses the need for the thermal oxidizers to operate in a smokeless fashion.

Rule 303 - Nuisance: This rule prohibits the EOF from causing a public nuisance due to the discharge of air contaminants. This facility has a documented history of public nuisance complaints. In early 90's, Venoco was required to implement an *Odor Abatement Agreement* between the APCD and Venoco (March 1995) and the subsequent *Complaint Response Plan* (May 1995); the plan required Venoco to route the LO-Cat System vapors to a carbon canister. In 1999, Venoco was required to implement process changes due to the APCD Hearing Board's Abatement Order No. 99-6(A) that stipulated routing the LO-Cat vapors to H-205. The APCD will investigate and require Venoco to implement appropriate mitigations for any documented occurrences of public nuisance. This permit has incorporated federally-enforceable conditions to minimize the potential for additional nuisances, such as operation limits and monitoring, to ensure compliance with this rule.

Rule 305 - Particulate Matter, Southern Zone: The EOF 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 oxidizers, heater treaters, process heater and all diesel-fired piston internal combustion engines. 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 according to the APCD-approved *IC Engine Particulate Matter Operation and Maintenance Plan* (see Section 9.C.16) and any subsequent APCD-approved updates.

Rule 309 - Specific Contaminants: Under Section A, no source may discharge sulfur compounds and combustion contaminants in excess of 0.2 percent as SO₂ (by volume) and 0.3 gr/scf (at 12% CO₂) respectively. Sulfur emissions due to the combustion of flare gases in the thermal oxidizers should comply with the SO₂ limit due to stoichiometric combustion requirements. 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 H₂S 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. The EOF is equipped with six fence line H₂S monitors and an offsite TRS/ H₂S odor monitoring station, which telemeter data to the APCD's Data Acquisition System (DAS). These monitors were sited as part of the Abatement Order No. 99-6(A), and were not specifically sited for Rule 310 compliance.

In lieu of a requirement for a more sophisticated TRS/ H₂S odor monitoring station at the property boundary, Venoco committed to relocating three H₂S sensors to locations determined by the APCD to address both Rule 310 compliance and the tracing of odorous releases that could impact the public. The three relocated sensors are now connected to APCD's Data Acquisition System (DAS), and are set for an alarm at 0.3 ppmv. An instantaneous alarm at any of these non-fence line locations is treated, conditionally, as a Rule 310 violation. Venoco shall comply with the APCD-approved *Fence Line Monitoring Plan* (see Section 9.C.16) and any subsequent APCD-approved updates.

Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted at the EOF to 0.5 percent (by weight) for liquids fuels and 15gr/100 scf (calculated as H₂S, equivalent to 239 ppmvd) for gaseous fuels. All piston IC engines at the EOF are expected to comply with the liquid fuel limit as determined by fuel analysis documentation. All gas-fired equipment at EOF is expected to comply with the gaseous fuel limits.

Rule 317 - Organic Solvents: This rule sets specific prohibitions against the discharge of emissions of both photochemically and non-photochemically reactive organic solvents (40 lb/day and 3,000 lb/day respectively). Solvents may be used at the EOF 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. Venoco will be required to maintain records to ensure compliance with this rule.

Rule 321 - Solvent Cleaning Operations: This rule sets equipment and operational standards for degreasers using organic solvents. Venoco states that there are no cold solvent cleaning units at the EOF. Compliance will be determined through APCD inspections of the facility.

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. Venoco will be required to maintain records during maintenance operations to ensure compliance with this rule.

Rule 323 - Architectural Coatings: This rule sets standards for the application of surface coatings. The primary coating standard that will apply to the EOF is for Industrial Maintenance Coatings that have a limit of 250 gram ROC per liter of coating, as applied. Venoco is required to comply with the Administrative requirements under Section F for each container at the EOF.

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 to the atmosphere. Venoco will be 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, processing, separation, gathering, and storage of oil and gas prior to custody transfer. The primary requirements of this rule are under Sections D and E. Section D requires the use of vapor recovery systems on all tanks and vessels, including waste water tanks, oil/water separators and sump tanks. Section E requires that all produced gas to be sold, used as fuel, injected underground, flared, or recovered by a system with a control efficiency of at least 90 percent. The crude oil, produced water and the wastewater tanks are subject to Section D.1 and D.2 and the produced gas handling equipment are subject to Section E.1.

Caustic tank TK-1905 and chelate tanks TK-1906 and TK-1907 are not subject to Rule 325 because they do not store hydrocarbon-containing liquids. The tanks are controlled in order to prevent nuisance odors.

Rule 328 - Continuous Emissions Monitoring: This rule details the applicability and standards for the use of continuous emission monitoring (CEM) systems. Per Section B.2, the *Venoco – Ellwood* stationary source emits to the atmosphere more than 5 lb/hr of non-methane hydrocarbons, oxides of nitrogen and sulfur oxides and more than 10 lb/hr of particulate matter, thereby triggering the Section C.2 requirement that the need and application of CEMs be evaluated. CEMs are not required for the EOF at this time.

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. It is not anticipated that Venoco will trigger the requirements of this rule. Compliance shall be based on site inspections and records maintained by Venoco.

Rule 331 - Fugitive Emissions Inspection and Maintenance: This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production fields. Venoco shall comply with its APCD-approved *Fugitive Inspection and Maintenance Plan* (see Section 9.C.16) and any subsequent APCD-approved updates. Ongoing compliance with the many provisions of this rule will also be assessed via facility inspection by APCD personnel using an organic or total vapor analyzer meeting the requirements of EPA Method 21 and through analysis of operator records. The EOF does not perform any routine venting of hydrocarbons to the atmosphere.

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 and that are subject to APCD permit. This rule applies to the diesel-fired IC engines at the facility. Both diesel-fired IC engines are emergency standby engines; therefore, they are exempt from the requirements of Rule 333 per section B.1.d.

Rule 342 - Control of Oxides of Nitrogen from Boilers, Steam Generators and Process Heaters: This rule sets emission standards for external combustion units with a rated heat input greater than 5.0 MMBtu/hr. The 25 MMBtu/hr, gas-fired process heater was modified in 1994 (APCD ATC 9217) to comply with this Rule. Venoco is required to demonstrate compliance with the Rule-stipulated emission limits through annual source testing for all mixes of in-plant fuel gas and Grace Unit permeate gas. Source testing has indicated the process heater to be in compliance when firing a mixture of in-plant fuel gas and permeate gas that does not exceed 40% in-plant fuel gas. Fuel composition to the process heater is restricted by this permit to contain not more than 40 percent in-plant fuel gas until compliance can be demonstrated for a higher ratio mix.

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. The stock, surge and reject storage tanks T-201 through T-204 are subject to the provisions of this Rule. Venoco has an approved *Rule 343 Degassing Compliance Plan*, as required under Section G of this Rule. Venoco shall comply with this Plan (see Section 9.C.16) and any subsequent APCD-approved updates.

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. The provisions of this rule do not apply to the loading of LPG and NGL per Section B.4 of the rule.

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 and records maintained by Venoco.

Rule 359 - Flares and Thermal Oxidizers: This rule applies to flares and thermal oxidizers at oil and gas production sources. Three thermal oxidizers (H-205, H-206, and H-207) at EOF are subject to this rule. The following provisions of Rule 359 apply:

§ 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 H₂S at standard conditions. Treated produced gas from the EOF is used for pilot gas (a planned flaring category) that is within the limits of this rule. Venoco samples the H₂S concentration of the pilot gas at least weekly with sulfur detection tubes or a V-Rae, or equivalent. Unplanned flaring is exempt from the sulfur standards of this rule. Venoco maintains and operates a continuous H₂S analyzer to monitor planned and emergency flaring of thermal oxidizer gas streams and to determine total sulfur oxides (SO_x) emissions from the thermal oxidizers.

§ D.2 - Technology Based Standard: Requires all flares/thermal oxidizers to be smokeless and sets pilot flame requirements. The thermal oxidizers at the EOF are in compliance with this section.

§ D.3.a - Flare Minimization Plan: This section requires sources to submit a flare minimization plan. Venoco has submitted and implemented an APCD-approved *Flare Minimization Plan*.

§ D.3.b – *Flare Minimization*: This section limits total planned flaring volumes to no more than 5 percent of monthly gas processed. This permit limits total planned flaring volume to 5 percent of the EOF capacity. Since the gas burned at EOF has a high CO₂ content, and the purpose of Rule 359 is to reduce combustion of produced or natural gas, the CO₂ portion of the gas burned in the flares is not counted toward the 5% limit. EOF is permitted to receive 13 MMscf of gas per day (4,745 MMscf/year) with a CO₂ content of up to 17%. Therefore the Rule 359 monthly flaring limit is:

$$4,745 \text{ MMscf/year} * (1-17\%) * 5\% / 12 \text{ months/year}$$
$$= 16,410,000 \text{ scf/month}$$

The CO₂ portion of the flared gas does not count against this limit.

§ D.5.c - This section specifies NO_x and ROC emission standards for thermal oxidizers permitted to process more than 120,000 scf/day of planned continuous flaring of gas. Only the H-205 unit is subject to this section of the rule. The other two thermal oxidizers H-206 and H-207 are limited to no more than 120,000 scf/day of planned continuous flaring (of produced gas), and are exempt from the emission standards and emission source testing.

§ G - This section requires monitoring and recordkeeping of all gas burned in flares subject to the flare minimization plan. The permit contains monitoring and recordkeeping provisions, as required by the rule.

Rule 361-Small Boilers, Steam Generators, and Process Heaters: On January 17, 2008, the APCD Board of Directors adopted Rule 361 that includes requirements for process heaters rated between 2.0 MMBtu/hr 5.0 MMBtu/hr. Units installed prior to January 17, 2008 are designated as existing units per Rule 361. Heater treaters (H-201, H-202, H-203) are existing units, and are subject to future control requirements as specified in condition 9.C.1.

Rule 505 - Breakdown Conditions: This rule describes the procedures that Venoco must follow when a breakdown condition occurs to any emissions unit associated with the EOF. A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment that 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. Venoco submitted such a plan in July 1994 and updated it on 03/15/2002. The Plan was approved in August 2002.

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 The following variances were granted by the Hearing Board since April 2004:

Interim Variance 44-07-I granted on January 3, 2008 and the follow up 90 day Variance with Hearing Board Case No. 45-07-N granted on February 6, 2008 granted relief from the inlet gas CO₂ content limit of 15%. PTO Mod 7904 02 modified the permit to raise the inlet gas CO₂ content limit to 17%.

- 3.5.2 Violations: Since April 2004, five (5) Notices of Violation (NOVs), two (2) Minor Infraction Notices (MINs), and one (1) Notice to Comply (NTC) were issued to EOF:

1. MIN 8561: Issued 06/14/2006. Exceeded the permitted ROC lb/hr and lb/MMBtu limits for H-205 during source testing.
2. NOV 8562: Issued 06/14/2006. Exceeded permitted emission limits for H-205, H-206, and H-207 due to operator improperly depressurizing compressor K-201.
3. MIN 8894: Issued 05/31/2007. Found an open container containing approximately 1/3 gallon of hardened Carbothane two-part epoxy coating. VOC content 247 g/l as applied.
4. NTC 8798: Issued 07/19/2007. Failure to perform weekly analyses for flare gas HHV and CO₂ content, and for implant fuel gas HHV during the 4th week of August and 1st week of Sept. 2006.
5. NOV 8805: Issued 11/07/2007. Fenceline monitor #23 indicated >0.3 ppmv H₂S for 13 sec starting at 11:54 am, 10/29/07.
6. NOV 8806: Issued 11/07/2007. Venting of LPG vessel V-219 at 11:54 am, on 10/29/07.
7. NOV 8915: Issued 11/27/2007. Venting through the PVRV hatches of EOF tanks 201 and 202. The APCD received four odor complaints and the SB Co. Fire Department received two additional odor complaints attributable to the facility and the release. Following the release, the EOF was immediately shut down in accordance with the conditions of APCD Abatement order 99-06A.
8. NOV 8814: Issued 07/24/2008. De minimis emissions from the stationary source exceeded 24 lb/day, thereby losing the Rule 202.D.6 exemption. Venoco has submitted an application for ATC/PTO 12886 to correct this violation.

3.5.3 Historical Hearing Board Actions: The actions taken by the APCD and the Hearing Board in 1998 and 1999 resulted in the issuance of Abatement Order No. 99-6(A) to Venoco in April of 1999. This Order made findings that air emissions from Platform Holly, the Ellwood Onshore Facility and the Barge Jovalan resulted in several public complaints. Condition 11.b of the Order was modified in 2001 to clarify that the Safety, Inspection, Maintenance, and Quality Assurance Plan (SIMQAP) for Platform Holly may only be modified with approval of the Control Officer. The scheduled annual revision of the Plan for 2005 is complete. The Hearing Board ordered Venoco to:

1. Perform a safety audit of Platform Holly, the Ellwood Onshore Facility, Lease 421 (aka the Beachfront Lease), the Marine Terminal and Line 96. Venoco was required to comply with the recommendations of these audits.
2. Prepare and implement a SIMQAP Plan for all its Ellwood stationary source facilities. The Plan is reviewed by the County’s System Safety and Reliability Review Committee (SSRRC) every two years and is updated as needed.
3. Suspend any production and drilling operations immediately in the event of any defined shutdown trigger events.
4. Install a permanent flare system on Platform Holly.
5. Implement several facility improvements to address odors while loading crude oil at the Barge Jovalan.
6. Implement a number of hydrogen sulfide monitoring procedures, including fence-line monitoring for H₂S at Venoco EOF sites.
7. Install an emergency backup electrical generator at the Ellwood onshore facility.
8. Comply with the County-approved Emergency Action Plan for the Project.

Abatement Order measures applicable to Venoco’s EOF have been incorporated in the permit conditions of this permit.

Table 3.1 - Generic Federally-Enforceable APCD Rules

Generic Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 101</u> : Compliance by Existing Installations	All emission units	Emission of pollutants
<u>RULE 102</u> : Definitions	All emission units	Emission of pollutants
<u>RULE 103</u> : Severability	All emission units	Emission of pollutants
<u>RULE 201</u> : Permits Required	All emission units	Emission of pollutants
<u>RULE 202</u> : Exemptions to Rule 201	Applicable emission units, as listed in Part 70 renewal	Insignificant activities/emissions, per size/rating/function

Generic Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 203</u> : Transfer	All emission units	Change of ownership
<u>RULE 204</u> : Applications	All emission units	Addition of new equipment or modification to existing equipment.
<u>RULE 205</u> : Standards for Granting Permits	All emission units	Emission of pollutants
<u>RULE 206</u> : Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
<u>RULE 207</u> : Denial of Applications	All emission units	Applicability of relevant Rules
<u>RULE 208</u> : Action on Applications - Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment or modification to existing equipment.
<u>RULE 212</u> : Emission Statements	All emission units	Administrative
<u>RULE 301</u> : Circumvention	All emission units	Any pollutant emission
<u>RULE 302</u> : Visible Emissions	All emission units	Particulate matter emissions
<u>RULE 303</u> : Nuisance	All emission units	Emissions that can injure, damage or offend.
<u>RULE 305</u> : PM Concentration - South Zone	Each PM source	Emission of PM in effluent gas
<u>RULE 309</u> : Specific Contaminants	All emission units	Combustion contaminant emission
<u>RULE 311</u> : Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur
<u>RULE 317</u> : Organic Solvents	Emission units using solvents	Solvent used in process operations.
<u>RULE 318</u> : Vacuum Producing Devices – Southern Zone	All systems working under vacuum	Operating pressure
<u>RULE 321</u> : Solvent Cleaning Operations	Emission units using solvents	Solvent used in process operations.
<u>RULE 322</u> : Metal Surface Coating Thinner and Reducer	Emission units using solvents	Solvent used in process operations.
<u>RULE 323</u> : Architectural Coatings	Paints used in maintenance and surface coating activities	Application of architectural coatings.
<u>RULE 324</u> : Disposal and Evaporation of Solvents	Emission units using solvents	Solvent used in process operations.
<u>RULE 353</u> : Adhesives and Sealants	Emission units using adhesives and sealants	Adhesives and sealants use.
<u>RULE 505.A, B1, D</u> : Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.

Generic Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 603</u> : Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	Venoco – Ellwood is a major source.
<u>REGULATION VIII</u> : New Source Review	All emission units	Addition of new equipment of modification to existing equipment. Applications to generate ERC Certificates.
<u>REGULATION XIII (RULES 1301-1305)</u> : Part 70 Operating Permits	All emission units	Venoco – Ellwood is a major source.

Table 3.2 - Unit-Specific Federally-enforceable APCD Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 316</u> : Storage and Transfer of Gasoline	The gasoline supply pump	Storage and supply of gasoline
<u>RULE 325</u> : Crude Oil Production and Separation	Tanks, Sumps, Vessels: APCD ID# 9327, 106004, 9330 283, 6477, 284 and 8002	All pre-custody production and processing emission units
<u>RULE 330</u> : Surface Coating of Metal Parts & Products	All surface coating used for any metal coating operations	Metal surfaces.
<u>RULE 331</u> : Fugitive Emissions Inspection & Maintenance	All components (valves, flanges, seals, compressors and pumps) used to handle oil and gas : APCD ID# 297, 310, 9118, 300, 312, 9120-23 and 9125,	Components emit fugitive ROCs.
<u>RULE 342</u> : Control of NOx from Boilers, Steam Generators etc.	Process Heater: APCD ID# 285, and 289-291	Rated at above 5 MMBtu/hr.
<u>RULE 343</u> : Petroleum Storage Tank Degassing	Oil storage tanks: APCD ID# 283, 284 and 6477	2,000 bbl. tank used in storage of organic liquids with vapor pressure > 2.6 psia.
<u>RULE 359</u> : Flares and Thermal Oxidizers	Thermal Oxidizers; APCD ID# 286 - 288	Thermal Oxidizers above 1.7 MMBtu/hr.
<u>RULE 361</u> : <u>Small Boilers, Steam Generators, and Process Heaters</u>	Heater Treaters: APCD ID# 289-291	Process heaters rated between 2 and 5 MMBtu/hr.

Table 3.3 - Non-Federally-Enforceable APCD Rules

Requirement	Affected Emission Units	Basis for Applicability
<u>RULE 210</u> : Fees	All emission units	Administrative
<u>RULE 310</u> : <u>Organic Sulfides</u>	Process units with emissions	Odorous sulfide emissions
<u>RULES 501-504</u> : Variance Rules	All emission units	Administrative

<u>RULE 505.B2, B3, C, E, F, G:</u> Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
<u>RULES 506-519:</u> 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	June 19, 2008
Rule 103	Severability	October 23, 1978
Rule 201	Permits Required	April 17, 1997
Rule 202	Exemptions to Rule 201	June 19, 2008
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 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	November 15, 2001

Rule No.	Rule Name	Adoption Date
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	July 19, 2001
Rule 326	Storage of Reactive Organic Compound Liquids	January 18, 2001
Rule 328	Continuous Emissions Monitoring	June 27, 1977
Rule 330	Surface Coating of Metal Parts and Products	January 20, 2000
Rule 331	Fugitive Emissions Inspection and Maintenance	December 10, 1991
Rule 333	Control of Emissions from Reciprocating Internal Combustion Engines	June 19, 2008
Rule 342	Control of Oxides of Nitrogen (NO _x) 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 346	Loading of Organic Liquid Cargo Vessels	October 13, 1992
Rule 353	Adhesives and Sealants	August 19, 1999
Rule 359	Flares and Thermal Oxidizers	June 28, 1994
Rule 361	Small Boilers, Steam Generators, and Process Heaters	January 17, 2008
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 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 808	New Source Review for Major Sources of Hazardous Air Pollutants	May 20, 1999
Rule 901	New Source Performance Standards (NSPS)	May 16, 1996
Rule 1301	General Information	September 18, 1997
Rule 1302	Permit Application	November 9, 1993
Rule 1303	Permits	November 9, 1993

Rule No.	Rule Name	Adoption Date
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, MACT)
- ☞ emission source testing, sampling, CEMs, CAM
- ☞ process monitors needed to ensure compliance

Unless noted otherwise, default ROC/Total Hydrocarbon Concentration (THC) reactivity profiles from the APCD's document titled "*VOC/ROC Emission Factors and Reactivities for Common Source Types*" dated 3/12/01 (version 1.2) was used to determine non-methane, non-ethane fraction of THC.

4.2 Process Heaters and Heater Treaters

- 4.2.1 General: There is one process heater (rated at 25.00 MMBtu/hr) and three heater treaters (each de-rated to below 5 MMBtu/hr) at the EOF. The process heater (H-204) is fired with a mix of permeate gas from the Grace carbon dioxide removal unit and in-plant fuel gas. The heater treaters are comprised of two 4.4 MMBtu/hr Natco in-plant fuel gas-fired units (H-201 & H-203) and one unspecified 2.464 MMBtu/hr in-plant fuel gas-fired unit (H-202). The heater treaters are subject to APCD Rule 361 since they are rated between 2 and 5 MMBtu/hr.
- 4.2.2 Emission Controls: The process heater (H-204) meets the APCD Rule 342 NO_x and CO emission limits using flue gas recirculation (FGR) controls including oxygen trim controls and low-NO_x burners. There are no emission controls on the heater treaters.
- 4.2.3 Emission Factors: Emission factors for the heaters treaters are based on a small uncontrolled boiler (<100 MMBtu/hr) per Table 1.4-1 and Table 1.4-2 of USEPA AP-42 (7/98) for all criteria pollutants except for SO_x, which is based on mass balance techniques using the APCD's guideline titled "Gaseous Fuel SO_x Emission Factor (1/97)". For the process heater, NO_x and CO emission factors are based on Rule 342 limits (0.036 lb/MMBtu and 0.297 lb/MMBtu respectively), ROC and PM are based on Table 1.4-2 of AP-42 (7/98) and SO_x is based on mass balance techniques. Due to the use of gaseous fuel, the PM₁₀/PM ratio is assumed to 1.0. All lb/MMBtu emission factors are higher heating value based.
- 4.2.4 Calculations: The following calculation methodology is similar for all combustion units:

$$ER = [EF \times Q]$$

where: ER = Emission rate (lb/period)
EF = Pollutant specific emission factor (lb/MMBtu, HHV based)
Q = heat input to the unit (BTU/period)

- 4.2.5 Monitoring: The process heater and each of the heater treaters are equipped with non-resettable fuel flow meters (pressure corrected). For the process heater, each flow stream (i.e., in-plant fuel gas, permeate gas) is metered separately. The process heater's FGR settings and the oxygen trim

levels are also monitored. Source testing is required annually for the process heater. The uncontrolled emissions from each of these units are below the CAM review threshold.

4.3 Stationary Internal Combustion Sources

4.3.1 General: Stationary internal combustion sources associated with the EOF consist of two reciprocating Diesel-fired IC Engines (DICE). The EOF operates a 509 bhp emergency backup electrical generator engine that is used to power the VRU and other essential equipment in cases of power interruptions. Per Abatement Order 99-6(A), this emergency backup electrical generator engine is required to be operational at all times to ensure that an adequate backup power supply exists for the VRU and other critical electrical equipment. The emergency backup electrical generator is rated at 400 KW and is powered by a Detroit Diesel 16V-71N diesel IC engine rated at 509 hp. EOF also operates an emergency firewater pump powered by a 292 bhp Detroit Diesel 7084-7010 diesel IC engine. Besides any emergency uses the emergency backup electrical generator is limited to 20 hours of testing and maintenance operations, and the emergency firewater pump is limited to the number of hours necessary to comply with the testing requirements of the current National Fire Protection Association (NFPA) 25. All diesel IC engine particulate matter emissions are regulated under California's DICE-ATCM (also see Section 3.3.3 and 4.13 of this PTO for details of DICE-ATCM requirements).

4.3.2 Emission Controls: The engines do not have emission controls at this time.

4.3.3 Emission Factors: Emission factors for the emergency generator are based on Table 3.3-1 of USEPA AP-42 (10/96) for all criteria pollutants except for SO_x, which is based on mass balance techniques. Mass emissions are not calculated for the firewater pump because it must be operated to comply with NFPA 25. See Section 4.14 for more information.

4.3.4 Calculations: Mass emission estimates are based on an assumed two hours per day and 20 hours per year of operation for maintenance and testing. Emissions are determined by the following equations:

$$\begin{aligned} E1, \text{ lb/day} &= \text{Engine Rating (bhp)} * \text{EF (g/bhp-hr)} * \text{Daily Hours (hr/day)} * (\text{lb}/453.6 \text{ g}) \\ E2, \text{ tpy} &= \text{Engine Rating (bhp)} * \text{EF (g/bhp-hr)} * \text{Annual Hours (hr/yr)} * (\text{lb}/453.6 \text{ g}) * (\text{ton}/2000 \text{ lb}) \end{aligned}$$

4.3.5 Monitoring: The emergency backup electrical generator engine is equipped with non-resettable hour meter. The actual engine usage is logged each time the engine is fired. Emissions are calculated using total elapsed run time, the maximum rated engine bhp rating and BSFC data.

4.4 Thermal Oxidizers

4.4.1 General: Venoco operates a flare gas collection and incineration system that also serves the modified odor abatement system (MOAS). The flare gas is collected at various points and scrubbed at a relief scrubber (V-221). The gases are then sent to three thermal oxidizers (H-205, H-206 and H-207), with rated heat inputs of 140 MMBtu/hr, 220 MMBtu/hr, and 9.5 MMBtu/hr, respectively. The pilot gas for the oxidizers is in-plant fuel gas.

4.4.2 Emission Controls: Thermal oxidizer H-205 is required (per BACT) to meet a ROC destruction rate efficiency of 98.5 percent (mass basis). Operating the unit at a minimum residence time and a pre-set combustion temperature attains this BACT requirement. The following engineering review provides a design check:

RESIDENCE TIME. To attain the required ROC DRE of 98.5 percent, a minimum residence time of 0.62 seconds is required. H-205 primarily incinerates LO-Cat Oxidizer exhaust air. Operations under this permit are based on a maximum thermal oxidizer inlet LO-Cat Oxidizer exhaust flow rate of 4,500 SCFM (plus stoichiometric air flow of 6,310 SCFM and an additional 8,410 SCFM of supplemental air provided by the H-205 combustion air blower). Using the combustion chamber design volume of 709 cubic feet, and a minimum pre-set design temperature of 1400°F, the calculated residence time is 0.62 seconds. Refer to Section 10.2 for detailed design check calculations.

THERMAL OXIDIZER OPERATING TEMPERATURE. A few techniques are available to estimate the appropriate temperature to destroy specific ROC compounds. Benzene is one of the primary components of concern in LO-Cat Oxidizer exhaust, and is also considered one of the more difficult of the ROCs in this stream to fully destroy via incineration in a dilute air stream. A predictive model by *Lee, Morgan, Hansen and Whipple* in 1982 yields a 99 percent rated mass destruction efficiency temperature ("T₉₉"; assumed equivalent to the specified 98.5 percent destruction efficiency of this permit) of 1361°F (with a standard deviation of 20°F). The minimum operating temperature of 1400°F with the 0.62 second combustion chamber residence time was verified in an emissions source test of the H-205 unit in April 1999. Refer to Section 10.2 for detailed design check calculations.

An additional incineration temperature model run was done for a typical organic sulfur species found in the LO-Cat Oxidizer exhaust, ethyl mercaptan. The results of this model run indicate that a 709°F incineration temperature is required to destroy this odorous organic sulfide by 99 percent. This result indicates that the minimum incineration temperature of 1400°F appears to be adequate to incinerate odorous organic sulfide species, such as other low molecular weight mercaptans similar to ethyl mercaptan.

4.4.3 Emission Factors: Emission factors are provided for each of the three thermal oxidizers for *Planned – Pilot, Planned – Continuous* and *Planned – Intermittent* flaring categories. Emission factors for *Unplanned* flaring are not presented because the facility is prohibited from any unplanned flaring events. The emissions factors for all planned flaring for H-205 and the planned pilot for H-206 and H-207 are based on ATC 9473 and ATC/PTO 12839. The remaining emission factors are based on an uncontrolled boiler per Table 1.4-1 and Table 1.4-2 of USEPA AP-42 (7/98) for all criteria pollutants (except for SO_x). All SO_x emission factors are based on mass balance techniques using the APCD’s guideline titled “Gaseous Fuel SO_x Emission Factor (1/97)”. Because these flares combust gaseous fuel the PM₁₀/PM ratio is assumed to 1.0. All lb/MMBtu emission factors are higher heating value based.

4.4.4 Calculations: The emissions for flaring events are calculated using the calculation methodology below:

$$ER = [EF \times Q]$$

where: ER = Emission rate (lb/period)
 EF = Pollutant specific emission factor (lb/MMBtu, HHV based)
 Q = heat input to the unit (BTU/period)

- 4.4.5 Thermal Oxidizer Planned Operations (Pilot Emissions): The pilot rate is presumed to occur at the maximum permitted flow 24 hours per day. Any fuel combusted in the thermal oxidizers is limited to 205 ppmvd total sulfur.
- 4.4.6 Thermal Oxidizer Planned Operations: H-206 and H-207 are limited to 120,000 scf/day of planned continuous flaring. This was done in mid-1995 to avoid the emission limits of Rule 359. All of the thermal oxidizers are limited to hourly and daily heat inputs below their maximum design levels. All fuel combusted in the thermal oxidizers is limited to 205 ppmvd total sulfur.
- 4.4.7 Thermal Oxidizer - Unplanned Operations: Venoco is not permitted to combust any flare gases due to unplanned flaring scenarios. Any unplanned flaring activity is considered a violation of this permit unless relief from enforcement action is obtained via Rule 505 (Breakdown Conditions) and/or a variance (if necessary) from the APCD Hearing Board.
- 4.4.8 H-205 Monitoring: H-205 must be monitored monthly to determine compliance with the lb/MMBtu emission limit. The monitored ppmv emission concentrations are converted to a lb/MMBtu factor by the following methodology:

Table 4.1

In Plant Fuel Gas Flow measured daily, HHV and F-Factor per weekly samples			
Measured flow from FR-081=	69 MSCFD		ref 1
HHV from weekly sample=	970 Btu/scf		ref 2
F-Factor from weekly sample=	8658 dscf/MMBtu		ref 3
1 st Stage Permeate Gas Flow measured daily, HHV and F-Factor per weekly samples			
Measured flow from FR-567=	363 MSCFD		ref 4
HHV from weekly sample=	612 Btu/scf		ref 5
F-Factor from weekly sample=	9021 dscf/MMBtu		ref 6
2 nd Stage Permeate gas flow measured daily, HHV and F-Factor per weekly samples			
Measured flow from FR-563=	172 MSCFD		ref 7
HHV from weekly sample=	638 Btu/scf		ref 8
F-Factor from weekly sample=	8963 dscf/MMBtu		ref 9
Combined Permeate HHV and F-Factor			
Flare gas flow measured by FR-080=	559 MSCFD		ref 14
Combined Permeate Flow = ref 4 + ref 7=	535 MSCFD		ref 15
HHV = (ref 4*ref 5 + ref 7*ref 8)/ref 15=	620 Btu/scf		ref 16
F-Factor = (ref 4*ref 6 + ref 7*ref 9)/ref 15=	9002 dscf/MMBtu		ref 17
Combined HHV and F-Factor			
Combined Flow to H-205 = ref 1 + ref 14=	628 MSCFD		ref 18
HHV = (ref 1*ref 2 + ref 14*ref 16)/ref 18=	658 Btu/scf		ref 16
F-Factor = (ref 1*ref 3 + ref 14*ref 17)/ref 18=	8964 dscf/MMBtu		ref 17

$$NO_x \text{ ppmv} \times \frac{1 \text{ lb} - \text{mol}}{379.5 \text{ scf}} \times \frac{46 \text{ lb } NO_x}{1 \text{ lb} - \text{mol}} \times F - \text{Factor} \frac{\text{dscf}}{\text{MMBtu}} \times \frac{20.9}{20.9 - O_2\%} \div 1,000,000 = NO_x \text{ lb/MMBtu}$$

Note that the molar volume used in the calculation above is based on a standard temperature of 60 deg F. The F-factor calculated for each gas stream must be calculated at 60 deg F as well.

4.4.9 Thermal Oxidizer Flow Volume Limits: Venoco EOF receives a maximum of 13 MMscf/day of gases from Platform Holly and the Seep device; these gases contain an average of 17% CO₂ by volume. Therefore, the non-CO₂ organic compound gases received at EOF amount to 10.79 MMscf/day. Based on Rule 359.D.3.b, the maximum monthly planned gas flaring is limited to 10.79 MMscf/day (gases received) * 5 % (Rule limit) * 365 (days/year) = 196.918 MMscf/year. This limit translates to a 16,410,000 scf/month limit for the entire EOF. Venoco's most current *Flare Minimization Plan* reflects these limits. Daily maximum 'planned continuous' flaring at H-206 and at H-207 is 120,000 scf each.

4.5 **Fugitive Hydrocarbon Sources**

4.5.1 General: Fugitive hydrocarbon emissions occur from leaks in process components such as valves, connections, pumps, compressors and pressure relief devices. Each component may have several potential leak paths. 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. Also, the 'de minimis' fugitive components must remain inventoried at all times.

4.5.2 Emission Controls: A fugitive emissions control program is used to minimize potential leaks from the process components. Emission reductions are expected because of Venoco's implementation of an Inspection and Maintenance (I&M) program. 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 VRU, use of dual mechanical seals on pumps in light liquid service, venting of pressure relief devices to the thermal oxidizer 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. An emission control efficiency of 80 percent is credited to all accessible and inaccessible components that are safe to monitor (as defined per Rule 331) due to the implementation of an APCD-approved Inspection and Maintenance program for leak detection and repair consistent with Rule 331 requirements. Unsafe to monitor components are not eligible for I&M control credit. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

4.5.3 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 and oil/emulsion service. The component-leak path was counted consistent with P&P 6100.061. This leak path count is not the same as the component count required by APCD Rule 331.

4.5.4 Calculations: The clp counts are based on the updated fugitive component count for the facility submitted with the application for PTO 11579. The total number of oil/emulsion component leak paths and gas/light-liquid component leak paths at the EOF are documented in Table 5.1-1. 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-leak-path (clp)
 CE = control efficiency
 HPP = operating hours per time period (hrs/period)

4.5.5 **Monitoring:** 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. Venoco’s I&M program is consistent with the requirements of APCD Rule 331. Venoco’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. The ‘de minimis’ components contribute to exempt emissions.

4.6 Tanks/Vessels/Sumps/Separators

4.6.1 **Crude Oil Storage Tanks:** Venoco operates the following fixed-roof tanks at the EOF (all tanks are connected to the VRU system with the exception of the emulsion-breaker liquid storage tank T-101):

- Oil Shipping Tank T-202 (2,000-bbl storage tanks, 30’ diameter x 16’ height);
- Oil Surge Tank T-203 (2,000-bbl storage tanks, 30’ diameter x 16’ height);
- Oil Reject Tank T-204 (2,000-bbl storage, 30’ diameter x 16’ height); and
- Emulsion Breaker Tank T-101 (402 bbl storage, 12’ diameter x 20’ height).

ROC emissions from these tanks are calculated using USEPA AP-42, Chapter 7 - Liquid Storage Tanks (9/97). Section 10.2 contains emission spreadsheets showing the detailed calculations for these tanks. The APCD assumes that properly designed and operated VRU achieves a minimum 95 percent control efficiency (mass basis).

4.6.2 **Sumps and Wastewater Separators:** Venoco operates an 80-bbl, process sump tank (S-202), 6.5’ diameter x 14’ height and one 3,000-bbl settling (wash) tank (T-201), 30’ diameter x 24’ height. Both units are hooked up to the VRU (APCD assumed 95 percent control efficiency). Emissions from the sump and the wastewater separator are estimated based APCD P&P 6100.060 (*Calculation of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities by the CARB/KVB Method - Modified for the Revised ROC Definition*). Both units are classified as being in secondary heavy oil service.

The calculation methodology is:

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

where: ER = emission rate (lb/period)
 EF = ROC emission factor (lb/ft²-day)
 SAREA = unit surface area (ft²)
 CE = control efficiency
 HPP = operating hours per time period (hrs/period)

4.6.3 Process Fluid/Products Storage Tanks: Besides crude oil and produced water, Venoco also stores various process fluids and products in fixed roof tanks and pressurized tanks. These include the following:

- one 80-bbl, process fluid surge tank (V-213), 6' diameter x 16' long, connected to VRU;
- one 2.5-bbl, glycol flash tank (V-211), 20" diameter x 6' height, connected to the VRU;
- one accumulated condensed vapor vent tank (V-220), 2' diameter x 10' height, connected to VRU;
- one caustic solution storage tank (TK-1905);
- Two chelate tanks (TK-1906, 1907);
- two sulfur slurry tanks (12-3102 and 12-3103), equipped with two agitators each;
- one sulfur balance tank (12-3101); and, four high-pressure LPG/NGL storage tanks (V-218, V-219, V-227 and V-228).

ROC emissions from these process fluid and products storage tanks are very low and are assumed to be less than 0.01 tpy.

4.7 **Other Emission Sources**

4.7.1 Pigging Equipment: Oil, gas and utility pipeline pigging operations occur on the facility. The equipment consist of: (a) an oil pig receiver used for pigging the 6-inch oil pipeline connected to Platform Holly; (b) a gas pig receiver used for pigging the 6-inch gas pipeline connected to Platform Holly, (c) a utility pig receiver for pigging the 4-inch utility (gas or water emulsion) line to Platform Holly; and (d) a 4-inch pig launcher for the Seep Containment device. All the pig receiver chambers are connected to the VRU via the process hydrocarbon drain system.

The pigging frequencies are:

- Oil pig receiver – five launches per day and 960 launches per year;
- Utility pig receiver – ten launches per day and 120 launches per year;
- Gas pig receiver – ten launches per day and 120 launches per year, and;
- Seep pig launcher – one launch per day and 104 launches per year.

After each operation, the pig receiver chambers are evacuated to the backpressure levels of the VRU, before the pig is recovered. This remaining pressure is about 1 psig. The small amount of vapor remaining in the chamber is vented to the atmosphere. The calculation per time period is:

$$ER = [V_1 \times \rho \times wt \% \times EPP]$$

$V_1 =$	volume of vessel (ft ³)
$\rho =$	density of vapor at actual conditions (lb/ft ³)
wt % =	weight percent ROC/TOC
EPP =	pigging events per time period (events/period)

4.7.2 LPG/NGL Loading Rack: The grade level loading rack is used to load liquefied petroleum gases (LPG) or natural gas liquids (NGL) into tanker trucks. The tank trucks are loaded using a submerged fill vapor balance system. Uncontrolled emissions from tanker truck loading are 0.48 lb ROC/1,000 gallons of LPG loaded. (Reference: USEPA, Air Chief (version 4.0), July 1995, Fire/SCC Code/4-04-002-50/) The permitted throughput for this permit is 10 MMgallons/year of LPG. Therefore, only the annual emissions are computed for the permitted throughput, assuming an ROC removal efficiency of 95 percent attained by the VRU unit.

- 4.7.3 Emulsion-Breaker Loading Rack: A loading rack is used to unload emulsion-breaker from tanker trucks into a 402-barrel storage tank. Submerged fill loading is used. Emissions are estimated using Equation 1 from Section 5.2 (*Transportation and Marketing of Petroleum Products*) USEPA AP-42 (1/95):

$$L_L = (12.46 S P M) / (T)$$

where: L_L = loading loss (lb/1000 gallons)
 S = saturation factor (0.6 for submerged fill, dedicated service)
 P = vapor pressure (0.775 psia, per files)
 M = molecular weight (109 lb/lb-mol, per files)
 T = temperature of bulk liquid (assume 527 R, per files)

A control efficiency of 10% is assumed for this specific type of operation.

- 4.7.4 Produced Gas Sweetening Unit (LO-Cat unit): Gas produced at Platform Holly and treated at the EOF is sweetened at the LO-Cat unit and sent to the gas compressors. The LO-Cat unit uses a similar aqueous chemistry method as the Stretford Unit it replaced in March 1989, except it employs a LO-Cat solution in place of the Stretford solution. The flash drums holding the rich LO-Cat solution release hydrocarbon gas, which is sent to the H-205 thermal oxidizer for incineration or the VRU. The oxidizers in the LO-Cat unit use air to float the sulfur to the surface for collection. Dissolved hydrocarbons and sulfides join the air stream. This air stream is routed to the H-205 thermal oxidizer for incineration (with sulfur compound not exceeding 205 ppmv). Emission factors for the controlled emissions are specified under the H-205 thermal oxidizer operating conditions and emission limits.
- 4.7.5 Vacuum Truck Exhaust Scrubbing: Venoco employs a portable vacuum truck exhaust scrubbing system to address the exhaust from vacuum truck operations. The emissions from the vacuum truck operations are to be controlled consistent with the “*Degassing / Vacuum Truck Control Plan*”.
- 4.7.6 Hydrocarbon Laboratory: A fume hood collects the ROC emissions inside the laboratory and exhausts the gases through an 11,000-pound GAC-bed carbon canister. The emissions from this unit are small (assumed to be less than 0.01 tpy ROC) if the control is properly operated and maintained.
- 4.7.7 General Solvent Cleaning/Degreasing: Solvent usage (not used as thinners for surface coating) may occur at the facility as part of normal daily operations. The usage includes cold solvent degreasing. Mass balance emission calculations are used assuming all the solvent used evaporates to the atmosphere.
- 4.7.8 Surface Coating: Surface coating operations typically include normal touch up activities. Entire facility painting programs are also performed. Emissions are determined based on mass balance calculations assuming all solvents evaporate into the atmosphere. Emissions of PM/PM₁₀ from paint over-spray are not calculated due to the lack of established calculation techniques.
- 4.7.9 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 0.01 pound PM per pound of abrasive is used (SCAQMD - Permit

Processing Manual, 1989) to estimate emissions of PM and PM₁₀ when needed for compliance evaluations. A PM/PM₁₀ ratio of 1.0 is assumed.

- 4.7.10 Diesel-Service Station: The emissions from diesel tank loading and vehicle loading operations assumed negligible, due to the very low TVP of diesel fuel.

4.8 Vapor Recovery/Control Systems

- 4.8.1 Vapor Recovery Unit: The vapor recovery unit (VRU) located at this facility consists of: (a) first stage 75-hp compressors (VRU-1 or VRU-3), and (b) second stage 200-hp compressors (VRU-2 or VRU-4). The compressors recover vapors with an efficiency of 95 percent (minimum) from the stock, surge and reject tanks for oil, the process sump tank, the process water tank, the separator blow downs, the oil/gas separators, the flash tank and the vent tank. Two gas condensate scrubbers (V-235 and V-236) are used to scrub the compressor gases. The blanket gas system providing 'blanket produced gas' to the facility is also connected to the VRU system.
- 4.8.2 CO₂ Removal (Grace) Unit: The Grace Membrane Unit, First stage skid holds 12 membrane tubes arranged in three vertical stacks of four tubes each. All 12 membrane tubes are piped in parallel, each connected to three main headers: inlet, sales gas and permeate. CO₂ rejection membrane elements in each membrane tube preferentially separate CO₂ from the inlet stream, producing a high pressure, low CO₂ content, sales gas stream, and a low pressure, high CO₂ content, permeate stream. The sales gas stream is delivered via pipeline to the Gas Company. The permeate stream is used to: (a) provide heat needed for operating the Process Heater H-204 and the Thermal Oxidizers H-205/206/207; and (b) serve as in-plant fuel gas in combination with (i) gas from sales gas compressor third-stage suction inlet, and (ii) gas from Stabilizer Overhead and buy back PUC- quality natural gas. Some of the permeate stream is recycled through the second stage skid after re-compression by compressors K-205/206. The Second stage skid holds two new membrane tubes arranged in a vertical stack. It receives First stage skid permeate gases, after they are re-compressed. Its major output of high pressure low CO₂ concentration gas is recycled to the first stage skid. A smaller output of low pressure, high CO₂ concentration gas is fed to the Thermal Oxidizers H-205/206/207 via the Flare Relief Scrubber V-221. The membrane tubes at the Grace Unit operate in the nominal pressure range of 900-1000 psig at the inlet and nominal temperature range of 90-150° F at the inlet.

The Grace Unit skids also contain pretreatment sections. Gases coming to the skids are pressed through Polishing Filters F-211/215/216/218 and Guard Beds F-210/217 before being passed through the membrane tubes of the skids. The pretreatment sections remove contaminants such as traces of water or oil in the inlet gas that would otherwise degrade the membrane element performance.

A block flow diagram of the modified operations of the Grace Unit is presented below.

exempt from the control requirements of LLL because the facility does not produce acid gas, and therefore has a design capacity of less than 2 LT/D of H₂S (expressed as sulfur) in the acid gas. No NESHAP apply to the facility at this time.

The monitoring, recordkeeping, and recording requirements of NSPS Subpart KKK triggered by unit modifications at LO-Cat and H-205 units in 1997 are included in Section 9.C.3.

As discussed in Section 3.2.4 of this permit, the gas plant at EOF is not subject to MACT provisions prescribed under 40 CFR 63, Subpart HH. Any MACT requirements that become applicable will be incorporated into this permit.

4.10 CEMS/Process Monitoring/Compliance Assurance Monitoring

4.10.1 CEMs: There are no CEMs at this facility.

4.10.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the used of process monitoring systems. Examples of these monitors include engine hour meters, fuel usage meters, gas or oil volume flow meters, thermal oxidizer 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:

- ☞ Meters recording volume of emulsion (oil and water), and gas received at EOF inlet from Platform Holly and from the SEEP Device; these meters include meter 'FR-508' and other meters recording volume of gases received at EOF inlet.
- ☞ Monitoring unit providing vapor recovery unit's (suction side) pressure alarm.
- ☞ Meters recording use of in-plant fuel gas at all combustion devices.
- ☞ Recorder for thermal oxidizer process parameters (e.g., temperature).
- ☞ Meters recording volume of gas sent to each thermal oxidizer; including 'FR-080' and 'FR-080A' measuring flare gas to H-205, 'FR-529' measuring flare gas to H-206, 'FR-350' measuring flare gas to H-207, and 'FR-081' measuring in-plant fuel gas to H-205.
- ☞ Meters recording the in-plant fuel gas flow to heater treaters H-201, H-202, and H-203; meters 'FR-730' and 'FR-731' recording in-plant fuel gas and Grace Unit permeate gas flows to process heater H-204
- ☞ Meters recording hourly IC engine use for each of the diesel IC engines
- ☞ Meter providing inlet pressure and exhaust flow data for blower at the LO-Cat oxidizer
- ☞ Meter 'FR-500' which measures the quantity of Lo-Cat air sent to H-205

The monitors are calibrated and maintained per the *Process Monitor Calibration and Maintenance Plan*.

4.10.3 Thermal Oxidizer Monitoring: All three thermal oxidizers shall be equipped for flow monitoring and recording devices for each stream entering the thermal oxidizers. This system includes meters to monitor the flow of gas from each of the following input streams:

- H-205 Pilot Gas
- H-206 Pilot Gas
- H-207 Pilot Gas
- H-205 Planned Continuous events (separate meter for each inlet stream)
- H-206 Planned Continuous events (separate meter for each inlet stream)
- H-207 Planned Continuous events (separate meter for each inlet stream)

- H-205 Planned/unplanned intermittent events (single meter for combined inlet stream)
- H-206 Planned/unplanned intermittent events (single meter for combined inlet stream)
- H-207 Planned/unplanned intermittent events (single meter for combined inlet stream)
- LO-Cat Exhaust to H-205

Other meters may be required by the APCD to ensure compliance with conditions of this permit.

The flow meters for each thermal oxidizer are identified by Venoco in their APCD-approved *Flare Gas Monitoring Plan*. The specifications for each meter (make, model, manufacturer, ID #, operational flow range, minimum detection point, type of meter, ½ meter detection level, diameter size of line in which the meter is placed, etc.) are listed in the *Process Monitor Calibration and Maintenance Plan* (see Section 4.10.2).

The data from the meters listed in Condition 9.C.19 are also required to continuously transmit its data output to the APCD Central Data Acquisition System (DAS).

The H₂S in the pilot gas is monitored daily via sulfur detection tube or V-Rae, or equivalent. Monitoring Conditions in Section 9.C.2.c of this permit define the requirements for sampling and analysis for sulfur content and heating value as well as for source testing.

4.10.4 Compliance Assurance Monitoring: A review of the equipment associated with the EOF indicates that there are no emission units or activities that are subject to the rule. This rule affects emission units at the source subject to a federally-enforceable emission limit or standard that uses a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds.

4.11 Testing/Sampling

Source testing and sampling are required in order to ensure compliance with permitted emission limits, prohibitory rules, control measures and the assumptions that form the basis of this operating permit. Venoco shall prepare and submit a source test plan consistent with the APCD’s *Source Test Procedures Manual (May 24, 1990 and all updates)*. The following emission units are required to be source tested:

- The process heater is subject to annual source testing, depending on the test results (*biennial, upon written approval from the APCD*)
- Thermal oxidizer H-205 is subject to annual source testing.

At a minimum, the process streams as identified in Table 4-1 below are required to be sampled and analyzed as indicated. Duplicate samples are required (except for sulfur detection tubes).

Table 4-2 Process Stream Sampling Requirements

Process Stream	Parameter	Location	Methods	Frequency	Comment
Inlet Gas	H ₂ S TRS	See <i>Process Stream Sampling Plan</i> (10/8/04)	S detection tube TRS: EPA 16	Daily Annual	Daily samples to verify <2% H ₂ S
Inlet Crude Emulsion	H ₂ S TRS	Platform Holly LACT outlet (Outlet # 1)	USEPA Method 16	Monthly Annual	
Inlet Gas	CO ₂	See <i>Process Stream Sampling Plan</i> (10/8/04)	D 1945/D 3588	Monthly	Inlet gas from Holly
Waste Water Tank (oil) and sumps (TK-	Reid vapor pr., API Gravity	See <i>Process Stream Sampling Plan</i> (10/8/04)	D 323 D 287	Annually	RVP → TVP per CARB

101, S-202)					
Produced Oil (TK-202, 203, 204)	True vapor pr., API Gravity	See <i>Process Stream Sampling Plan</i> (10/8/04)	D 323-5B & API Bulletin 2519	Annually	RVP → TVP per CARB
Heater Treater (H-201, 202, 203) In-plant Fuel gas*	H ₂ S HHV, CO ₂ TRS	See <i>Process Stream Sampling Plan</i> (10/8/04)	S detection tube D 1945/D 3588 EPA 16	Daily Monthly Semi-annually	
Process Heater (H-204): In-plant Fuel gas*	H ₂ S HHV, CO ₂ TRS	See <i>Process Stream Sampling Plan</i> (10/8/04)	S detection tube D 1945/D 3588 EPA 16	Daily Monthly Semi-annually	
Process Heater: Permeate gas	H ₂ S HHV, CO ₂ TRS	See <i>Process Stream Sampling Plan</i> (10/8/04)	S detection tube D 1945/D 3588 EPA 16	Daily Monthly Semi-annually	Note: Ensure high CO ₂ does not interfere
Thermal Oxidizer: First and Second Stage Permeate, In-Plant Fuel Gas	H ₂ S HHV, CO ₂ TRS	See <i>Process Stream Sampling Plan</i> (10/8/04) and (7/8/05)	Meter D1945/D 3588 EPA 16	Continuously Weekly Semi-annually	CO ₂ to be measured per 7/8/05 Plan
Thermal Oxidizer: Pilot Gas	H ₂ S HHV, CO ₂ TRS	See <i>Process Stream Sampling Plan</i> (10/8/04)	S detection tube D1945/D 3588 EPA 16	Daily Weekly Semi-annually	
Diluent	API Gravity TVP	See <i>Process Stream Sampling Plan</i> (10/8/04)	Vendor certification	Each Delivery	
Degassing	ROC H ₂ S	See <i>Process Stream Sampling Plan</i> (10/8/04)	ROC: See <i>Degassing Plan</i> H ₂ S: S detection tube	H ₂ S: To be checked Per Degassing event	
LO-Cat Exhaust	H ₂ S TRS	See <i>Process Stream Sampling Plan</i> (10/8/04)	S detection tube EPA 16: also see Sect. 9.C.2.c	Semi-annual samples for H ₂ S and TRS	H ₂ S: Weekly → Semi-annual

Periodic sampling and analysis of the (a) incoming gases to the EOF and (b) processed gases flowing to the thermal oxidizers are required to assess (i) CO₂ volume content of these gases and (ii) the HHV content of the gas stream to the thermal oxidizers. Only such sampling and testing can ensure compliance with permitted flow and heat input limits and conformance with the assumptions that form the basis of this permit. Venoco's 7/8/05 addendum to the 10/7/04 *Process Stream Sampling Plan* was approved by the APCD (see Section 9.C.16) and reflects the sampling locations, the sampling mechanism, and the collection and analysis methods for (a) the CO₂ content of the incoming gases to the EOF and (b) both HHV and CO₂ content of the process stream to the thermal oxidizers.

NOTE: The true vapor pressure (TVP) at the maximum expected temperature of the crude oil in each storage tank shall be measured by using ASTM method D 323, (if API gravity is equal to or greater than 20 degrees) or the HOST Method (if API gravity is under 20 degrees), and recorded. Sampling of crude oil for the vapor pressure measurement shall be from an active flow line upstream of the tank. If ASTM D323 applies, the TVP at the maximum expected temperature shall be calculated from the Reid vapor pressure in accordance with API Bulletin 2518, or equivalent Reid/true vapor pressure correlation. The calculated true vapor pressure shall be based on the maximum expected operating temperature for each crude oil storage tank.

4.12 Part 70 Engineering Review: Hazardous Air Pollutant Emissions

Hazardous air pollutant emissions from the different categories of emission units at the EOF 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 EOF are listed in Section 5. The HAP emission factor basis is detailed in Table 10.1-4 in Section 10.1.

4.13 Emergency/Standby Diesel IC Engine (E/S - DICE)

The emergency/ standby diesel-fired IC engine (E/S - DICE) currently permitted at this facility is a 509 hp Detroit Diesel stationary engine. The DICE provides electrical backup power in times of emergencies only. This engine was previously permit exempt. However, the March 17, 2005 revision to APCD Rule 202 {*Exemptions to Rule 201*} resulted in the removal of the diesel engine permit exemption for units rated over 50 brake horsepower (bhp). The exemption was removed to allow the APCD to implement the State’s Airborne Toxic Control Measure (ATCM) for DICE. The State’s *Airborne Toxics Control Measure for Stationary Compression Ignition Engines* (ATCM, CCR Section 93115, Title 17) limits annual generator maintenance and testing hours to 20 per year with no limitation for emergency use. Definitions of the terms “maintenance and testing” and “emergency use” are found in Section (d) of the ATCM.

In-Use Stationary DICE powering electricity supply generators are subject to the requirements of Table 2 of the ATCM. By limiting annual maintenance and testing hours to 20 hours or less, these engines are not required to meet any new emission standards (i.e., engine retrofits are not required). The ATCM does require that the hours of operation be monitored with a non-resettable hour meter that CARB Diesel Fuel (or approved alternative) is used and that detailed records of use be recorded and reported.

4.14 Emergency Firewater Pump

This permit includes a diesel engine that provides electrical power to a firewater pump in times of emergencies as defined by the State’s *Airborne Toxics Control Measure for Stationary Compression Ignition Engines* (ATCM). It is subject to permit due to the March 17, 2005 revision to APCD Rule 202 (*Exemptions to Rule 201*) that resulted in the removal of the permit exemption for compression ignition engines rated over 50 brake horsepower (bhp). That exemption was removed to allow the APCD to implement the State’s Airborne Toxic Control Measure for Stationary Compression Ignition Engines (DICE ATCM). This ATCM (CCR Section 93115, Title 17) limits annual engine maintenance and testing hours (as listed for each engine in the equipment list) with no limitation for emergency use. Definitions of the terms “maintenance and testing” and “emergency use” are found in Section (d) of the ATCM.

The ATCM requires that the hours of operation be monitored with a non-resettable hour meter, that CARB Diesel Fuel be used (or approved alternative) and that detailed records of use be recorded and reported.

PTO 7904-R7 contained statements that implied there were two diesel engines powering emergency firewater pumps at the facility. There is only one diesel engine powering an emergency firewater pump at the facility; there is a second emergency firewater pump driven by an electric motor.

Emissions: The firewater pump engine identified in this permit must comply with NFPA 25. Since the NFPA 25 does not specify an upper limit on the hours to comply with the maintenance and testing requirements, in-use firewater pumps will not have a defined potential to emit restricting their operation.

5.0 Emissions

5.1 General

Emissions calculations are divided into "permitted" and "exempt" categories. Permit exempt equipment is determined by APCD Rule 202. The permitted emissions for each emissions unit are 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 for the EOF. Section 5.6 provides the estimated emissions from permit exempt equipment and also serves as the Part 70 list of insignificant emission. 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 10.4 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)³
- ⇒ Reactive Organic Compounds (ROC)
- ⇒ Carbon Monoxide (CO)
- ⇒ Sulfur Oxides (SO_x)⁴
- ⇒ Particulate Matter (PM)⁵
- ⇒ Particulate Matter less than 10 microns in diameter (PM₁₀)

Permitted emissions are calculated for both short term (hourly and daily) and long term (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 may be found in Section 4 and Attachment 10.1. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Table 5.1-3 shows the permitted short-term emissions for each unit or operation. Table 5.1-4 shows the permitted long-term emissions for each unit or operation. In the table, 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 (and are not enforceable by APCD or public) are indicated by the symbol "N/A".

³ Calculated and reported as nitrogen dioxide (NO₂)

⁴ Calculated and reported as sulfur dioxide (SO₂)

⁵ 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 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 5.1-1 for each emission unit are assumed. Table 5.2 shows the total permitted emissions for the facility.

NOTE: Emissions from the emergency DICE fire pump are not included at this time in the Table 5 series.

Daily Scenario:

- ☞ Three heater treaters
- ☞ One process heater
- ☞ Three thermal oxidizers
- ☞ Three crude oil tanks
- ☞ One emulsion-breaker tank
- ☞ Three pig receivers, one pig launcher
- ☞ Two sump/wastewater tanks
- ☞ Process line fugitive emission components
- ☞ One emergency DICE generator
- ☞ One DICE powered fire pump

Annual Scenario:

- ☞ Three heater treaters
- ☞ One process heater
- ☞ Three thermal oxidizers
- ☞ Three crude oil tanks
- ☞ One emulsion-breaker tank
- ☞ Three pig receivers, one pig launcher
- ☞ Two sump/wastewater tanks
- ☞ Process line fugitive emission components
- ☞ One emergency DICE generator
- ☞ One DICE powered fire pump

5.4 **Part 70: Federal potential to emit for the Facility**

Table 5.3 lists the federal Part 70 potential to emit. All project emissions, except fugitive emissions, are counted in the federal definition of potential to emit. However, fugitives are counted in the federal PTE if, as of August 7, 1980, the facility was subject to any applicable NSPS or NESHAP requirement. The EOF is subject to NSPS Subpart KKK, which was adopted June 24, 1985, and Subpart LLL, which was adopted October 1, 1985, therefore fugitives from this facility are not included in the Federal potential to emit calculations.

5.6 **Exempt Emission Sources/Part 70 Insignificant Emissions**

Equipment/activities exempt from APCD permits pursuant to Rule 202 include:

- Maintenance operations involving surface coating (painting operations)

Insignificant emission units are defined under APCD Rule 1301 as any regulated

air pollutant emitted from the unit, excluding HAPs, that are less than 2 tons per year based on the unit's potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit's potential to emit. The following emission units are exempt from permit per Rule 202, but are not considered insignificant emission units, since these exceed the insignificant emissions threshold:

- Solvents/Surface coating operations used during maintenance operations.

Table 5.4 presents the estimated annual emissions from these exempt equipment items, including those exempt items not considered insignificant. This permit covers the Solvents/Surface coating operations during maintenance operations (see Section 9.C).

5.7 Net Emissions Increase Calculation

This facility's net emissions increases since November 15, 1990 (the day the federal Clean Air Act Amendments was adopted in 1990) are based on the permitting actions summarized below:

NSR Permit Type	Number	Date	Reason
ATC	8262	12/91	Grace unit replacing Fluor unit
ATC	9217-01	09/94	Modifications to the H-204 unit
ATC	9218	02/96	De-rating of 3 heater treaters
ATC	9473-06	04/99	Modifications to the OAS
ATC	10022	12/98	Installation of Emulsion-breaker Tank
ATC/PTO	10537	05/99	Gas Station installation
ATC	10749	11/02	Added fugitive components on York Compressor
ATC	10941	01/03	Add membrane tubes to Grace Unit
ATC	11106	09/04	Change pigging frequencies at EOF
ATC	11169	09/04	Process Modifications at EOF
ATC	11579	07/05	Add membrane tubes to Grace Unit
PTO Mod	7904 02	06/08	Decrease H-205 flaring
ATC/PTO	12839	07/08	Decrease H-205 emission limit
ATC/PTO	12886	Tbd	Add fugitive components to permit in response to NOV 8814

Refer to Table 10.2-4 for the EOF's detailed NEI summary for each pollutant. The Venoco Ellwood Stationary Source's NEI is shown on Table 10.2-5.

This emissions history is relevant for any future modifications to the EOF and the *Venoco – Ellwood* stationary source as a whole.

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Table 5.1-1
Venoco Ellwood Oil&Gas Facility: PTT0-APCD PTO 7904-R8
Operating Equipment Description
Page 1 of 8

Equipment Category	Emissions Unit	APCD ID# Equipment No.	Device Specifications	Usage Data			Maximum Load Schedule			Reference
				Capacity	Units	Load	hr	day	year	
Combustion - External	Heater Treater: H-201	290	NG	4,399 MMBtu/hr	1.0	1	24	2190	8760	A
	Heater Treater: H-202	289	NG	2,464 MMBtu/hr	1.0	1	24	2190	8760	
	Heater Treater: H-203	291	NG	4,399 MMBtu/hr	1.0	1	24	2190	8760	
Combustion- Flare/TO	Process Heater: H-204	285	NG/Graze	25,000 MMBtu/hr	1.0	1	24	2190	8760	B
	Thermal Oxidizer: H-205	288	NG/Waste *	140,000 MMBtu/hr	--	--	--	--	--	
	Thermal Oxidizer: H-206	287	NG/Waste *	220,000 MMBtu/hr	--	--	--	--	--	
IC Engines	Thermal Oxidizer: H-207	286	NG/Waste *	9,500 MMBtu/hr	--	--	--	--	--	See page 2 of 8 for details.
	Emergency Standby DICE	9010	Diesel	509 bhp	1.0	1	2	5	20	
Oil Storage Tank	Oil Tank T-202	283	RVP	35'd x 16'h feet	--	--	--	--	--	C
	Oil Tank T-203	6477	Oil	35'd x 16'h feet	6500	bb/day	--	--	--	
	Oil Tank T-204	284	Oil	30'd x 24'h feet	6500	bb/day	--	--	--	
	EB Tank T-101	8002	HC	12'd x 20'h feet	1000	bb/day	--	--	--	
Pigging Equipment	Receiver: Oil emulsion	9200	Oil	0.33'd x 4.5'l feet	1.13	acft*	5	5	240	960
	Receiver: Utility	9200	Gas or oil	0.33'd x 4.5'l feet	1.13	acft*	10	10	30	120
	Receiver: Produced Gas	9200	Gas	0.33'd x 4.5'l feet	1.13	acft*	10	10	30	120
	Launcher: Sleep Gas	9337	Gas	0.33'd x 4.5'l feet	1.13	acft*	1	1	26	104
Sump/Wastewater Tanks	Sump Tank: S-202	9327	Service	6.5' dia feet	33.18	sq ft	1	24	2190	8760
	Wash Tank: TK-201	106004	w/w sec/VRS	30'0' dia feet	706.86	sq ft	1	24	2190	8760
	Oil Sump S-203	9330	oil	7' dia feet	38.48	sq ft	1	24	2190	8760
Loading Rack	Rack - LPG/INGL	8003	LPG	127 psia	20,000	1000 gal/hr	1	6	250	1000
	Rack - Emulsion Breaker	8002	HC Lq	403 bb/day	672	1000 gal/hr	1	3	4	14
Fugitive Components Gas/Light Liquid Service	Valves: Accessible	287	Gas/Liq	3,607 comp-IP	3,607	comp-IP	1	24	2190	8760
	Valves: Inaccessible	310	Gas/Liq	4 comp-IP	4	comp-IP	1	24	2190	8760
	Valves: Unsafe	9118	Gas/Liq	6 comp-IP	6	comp-IP	1	24	2190	8760
	Connections: Accessible	300	Gas/Liq	19,737 comp-IP	19,737	comp-IP	1	24	2190	8760
	Connections: Inaccessible	312	Gas/Liq	2,327 comp-IP	2,327	comp-IP	1	24	2190	8760
	Connections: Unsafe	9120	Gas/Liq	78 comp-IP	78	comp-IP	1	24	2190	8760
	Compressor Seal	9121	Gas/Liq	20 comp-IP	20	comp-IP	1	24	2190	8760
	Pres. Relief Valve: Accessible	9122	Gas/Liq	74 comp-IP	74	comp-IP	1	24	2190	8760
	Pres. Relief Valve: Inaccessible	9123	Gas/Liq	2 comp-IP	2	comp-IP	1	24	2190	8760
	Pressure Relief Valve: Unsafe	N/A	Gas/Liq	10 comp-IP	10	comp-IP	1	24	2190	8760
	Pump Seal	9125	Gas/Liq	10 comp-IP	10	comp-IP	1	24	2190	8760
	Oil Service	Valves: Accessible	288	Oil	25,885 comp-IP	25,885	comp-IP	1	24	2190
Connections: Accessible		301	Oil	458 comp-IP	458	comp-IP	1	24	2190	8760
Connections: Unsafe		N/A	Oil	2,428 comp-IP	2,428	comp-IP	1	24	2190	8760
Pres. Relief Valve: Accessible		9127	Oil	7 comp-IP	7	comp-IP	1	24	2190	8760
Pump Seal		9128	Oil	7 comp-IP	7	comp-IP	1	24	2190	8760
Solvent/coatings Usage	Cleaning/Degreasing*	9521	solvent/coating	1,500 [†] gal/yr	125	gal/month	1	8	2190	8760
	* -- The usage of solvent/coating is estimated			sub-total = 2,893	sub-total = 2,893					

Table 5.1-1
 Venoco Ellwood Oil&Gas Facility, PT70-APCD PTO 7904-R8
 Operating Equipment Description
 Page 2 of 8

Equipment Category	Emissions Unit	APCD IDS Equipment No.	Device Specifications		Usage Data				Maximum Load Schedule				Reference	
			Fuel	Parameter	Size	Units	Capacity	Units	Load	hr	day	qtr		year
Combustion - Flare/TO	Planned - Pilot Gas Planned Unplanned	***	Gas	ppmv	0.060	MMBtu/hr	0.060	MMBtu/hr	--	1	24	2190	8760	B
		***	PUC	205	34,000	MMBtu/hr	34,000	MMBtu/hr	--	1	24	1540	6161	
		***	Various	15,000	140,000	MMBtu/hr	140,000	MMBtu/hr	--	0	0	0	0	
H-206 ¹	Planned - Pilot Gas Planned Unplanned	***	PUC	205	0.340	MMBtu/hr	0.340	MMBtu/hr	--	1	24	2190	8760	B
		***	Various	205	20,320	MMBtu/hr	20,320	MMBtu/hr	--	1	24	2190	8760	
		***	Various	15,000	220,000	MMBtu/hr	220,000	MMBtu/hr	--	0	0	0	0	
H-207 ¹	Planned - Pilot Gas Planned Unplanned	***	PUC	205	1,000	MMBtu/hr	1,000	MMBtu/hr	--	1	24	2190	8760	B
		***	Various	205	8,500	MMBtu/hr	8,500	MMBtu/hr	--	1	24	2190	8760	
		***	Various	15,000	9,500	MMBtu/hr	9,500	MMBtu/hr	--	0	0	0	0	
Combined Units: H-205/206/207	Planned - Pilot Gas Planned Unplanned	***	PUC	205	1,400	MMBtu/hr	1,400	MMBtu/hr	--	1	24	2190	8760	B
		***	Various	205	34,000	MMBtu/hr	34,000	MMBtu/hr	--	1	24	1540	6161	
		***	Various	15,000	369,500	MMBtu/hr	369,500	MMBtu/hr	--	0	0	0	0	

1. These thermal oxidizers are not permitted to incinerate Lo-Cat System exhaust.
 * -- The annual hours listed do not constitute any hourly operational limits; the numbers are merely used to compute annual emissions
 -- Annual hours of operation for H-205 are based on a total heat input of 215,354 MMBtu/year for all planned flaring.
 -- Annual hours of operation for the combined units is based on a total heat input of 227,082 MMBtu/year for all planned flaring.

Table 5.1-2
Venoco Elwood Oil&Gas Facility PTT0-APCD PTO 7904-R8
Equipment Emission Factors
Page 3 of 8

Equipment Category	Emissions Unit	Emission Factors							Reference	
		APCD: IDS Equipment No.	NOx	RO2	CO	SOx	PM	PM10		Units
Combustion - External	Heater Treater: H-201	290	0.098	0.005	0.082	0.012	0.007	0.007	lb/MMBtu	
	Heater Treater: H-202	289	0.098	0.005	0.082	0.012	0.007	0.007	lb/MMBtu	
	Heater Treater: H-203	291	0.098	0.005	0.082	0.012	0.007	0.007	lb/MMBtu	
	Process Heater: H-204	285	0.036	0.005	0.297	0.037	0.007	0.007	lb/MMBtu	
Combustion- Flare/TO	Thermal Oxidizer: H-205	288	See page 4 of 8 for details.							lb/MMBtu
	Thermal Oxidizer: H-206	287	See page 4 of 8 for details.							lb/MMBtu
	Thermal Oxidizer: H-207	286	See page 4 of 8 for details.							lb/MMBtu
IC Engines	Emergency Standby DICE	9010	14-100	1-120	3-000	0-006	1-000	1-000	g/bhp-hr	
Oil Storage Tank	Oil Tank: T-202	283	See spreadsheets in Section 10.2 in APCD/Part 70 PTO 7904-R7							bb/yr
	Oil Tank: T-203	6477	See spreadsheets in Section 10.2 in APCD/Part 70 PTO 7904-R7							bb/yr
	Oil Tank: T-204	284	See spreadsheets in Section 10.2 in APCD/Part 70 PTO 7904-R7							bb/yr
	EB Tank: T-101	8002	See spreadsheets in Section 10.2 in APCD/Part 70 PTO 7904-R7							bb/yr
Pigging Equipmt.	Receiver: Oil emulsion	9200	-	0.0759	-	-	-	-	lb ROC/act-event	
	Receiver: Utility	9200	-	0.0759	-	-	-	-	lb ROC/act-event	
	Receiver: Produced Gas	9200	-	0.0192	-	-	-	-	lb ROC/act-event	
	Launcher: Seep Gas	9337	-	0.0192	-	-	-	-	lb ROC/act-event	
Sump/Wastewater Tanks	Sump Tank: S-202	9327	-	0.001	-	-	-	-	lb/rf2 - day	
	Wash Tank: TK-201	106004	-	0.001	-	-	-	-	lb/rf2 - day	
	Oil Sump S-203	9330	-	0.018	-	-	-	-	lb/rf2 - day	
Loading Rack	Rack - LPG/INGL	8003	-	0.024	-	-	-	-	lb/1000 gallons	
	Rack - Emulsion Breaker	8002	-	1.079	-	-	-	-	lb/1000 gallons	
Fugitive Components Gas/Light/Liquid Service	Valves: Accessible	287	-	0.080	-	-	-	-	lb/cip-day	
	Valves: Inaccessible	310	-	0.080	-	-	-	-	lb/cip-day	
	Valves: Unsafe	9118	-	0.402	-	-	-	-	lb/cip-day	
	Connections: Accessible	300	-	0.005	-	-	-	-	lb/cip-day	
	Connections: Inaccessible	312	-	0.005	-	-	-	-	lb/cip-day	
	Connections: Unsafe	9120	-	0.025	-	-	-	-	lb/cip-day	
	Compressor Seal	9121	-	0.432	-	-	-	-	lb/cip-day	
	Pres. Relief Valve: Accessible	9122	-	0.139	-	-	-	-	lb/cip-day	
	Pres. Relief Valve: Inaccessible	9123	-	0.139	-	-	-	-	lb/cip-day	
	Pressure Relief Valve: Unsafe	N/A	-	0.696	-	-	-	-	lb/cip-day	
	Pump Seal	9125	-	0.521	-	-	-	-	lb/cip-day	
	Valves: Accessible	288	-	0.028	-	-	-	-	lb/cip-day	
	Connections: Accessible	301	-	0.005	-	-	-	-	lb/cip-day	
Connections: Unsafe	N/A	-	0.023	-	-	-	-	lb/cip-day		
Pres. Relief Valve: Accessible	9127	-	0.115	-	-	-	-	lb/cip-day		
Pump Seal	9128	-	0.086	-	-	-	-	lb/cip-day		
Solvent/coatings Usage	Cleaning/Degreasing	9521	-	250	-	-	-	-	g/l	

Table 5.1-2
 Venoco Ellwood Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Equipment Emission Factors
 Page 4 of 8

Equipment Category	Emissions Unit	Emission Factors										Reference
		APCD IDS Equipment No.	NOx	ROc	CO	SOx	PM	PM10	Units			
Combustion - Flare/TO H-205	Planned - Pilot Gas	***	0.0680	0.0027	0.4530	0.0307	0.0140	0.0140	0.0140	lb/MMBtu	B	
	Planned	***	0.0680	0.0027	0.4530	0.0307	0.0140	0.0140	0.0140	lb/MMBtu		
	Unplanned	***								lb/MMBtu		
H-206	Planned - Pilot Gas	***	0.0700	0.0030	0.4530	0.0307	0.0140	0.0140	0.0140	lb/MMBtu	B	
	Planned	***	0.0980	0.0054	0.4530	0.0307	0.0140	0.0140	0.0140	lb/MMBtu		
	Unplanned	***								lb/MMBtu		
H-207	Planned - Pilot Gas	***	0.0700	0.0030	0.4530	0.0307	0.0140	0.0140	0.0140	lb/MMBtu	B	
	Planned	***	0.0980	0.0054	0.4530	0.0307	0.0075	0.0075	0.0075	lb/MMBtu		
	Unplanned	***								lb/MMBtu		
Combined Units:	Planned - Pilot Gas	***								lb/MMBtu	B	
	Planned	***								lb/MMBtu		
	Unplanned	***								lb/MMBtu		

Table 5.1-3
 Venoco Ellwood Oil&Gas Facility, PT70-APCD PTO 7904-R8
 Hourly and Daily Emissions
 Page 5 of 8

Equipment Category	Emissions Unit	APCD IDS Equipment No.	NOx		ROC		CO		SOx		PM		Federal Enforceability	
			lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day		
Combustion - External	Heater Treater: H-201	290	0.43	10.35	0.02	0.57	0.36	8.69	0.05	1.27	0.03	0.79	FE	
	Heater Treater: H-202	289	0.24	5.80	0.01	0.32	0.20	4.87	0.03	0.71	0.02	0.44	FE	
	Heater Treater: H-203	291	0.43	10.35	0.02	0.57	0.36	8.69	0.05	1.27	0.03	0.79	FE	
	Process Heater: H-204	285	0.90	21.60	0.13	3.24	7.43	178.20	0.93	22.20	0.19	4.47	FE	
Combustion- Flare/TO	Thermal Oxidizer: H-205	288											FE	
	Thermal Oxidizer: H-206	287											FE	
	Thermal Oxidizer: H-207	286											FE	
IC Engines	Emergency Standby/DICE	9010	15.82	31.64	1.26	3.37	6.73	0.01	0.01	1.12	2.24	2.24		
Oil Storage Tank	Oil Tank: T-202	283	-	-	0.27	6.50	-	-	-	-	-	-	A	
	Oil Tank: T-203	6477	-	-	0.27	6.50	-	-	-	-	-	-	A	
	Oil Tank: T-204	284	-	-	0.09	2.22	-	-	-	-	-	-	A	
	EB Tank: T-101	8002	-	sub-total =	0.63	15.22	-	-	-	-	-	-	A	
				-	0.05	1.29	-	-	-	-	-	-	FE	
See page 6 of 8 for details.														
Pigging Equipmt.	Receiver: Oil emulsion	9200	-	-	0.43	0.43	-	-	-	-	-	-	A	
	Receiver: Utility	9200	-	-	0.85	0.85	-	-	-	-	-	-	A	
	Receiver: Produced Gas	9200	-	-	0.22	0.22	-	-	-	-	-	-	A	
	Launcher: Seep Gas	9337	-	-	0.02	0.02	-	-	-	-	-	-	A	
				-	-	-	-	-	-	-	-	-	-	
Sump/Wastewater Tanks	Sump Tank: S-202	9327	-	-	0.00	0.03	-	-	-	-	-	-	A	
	Wash Tank: TK-201	166004	-	-	0.03	0.64	-	-	-	-	-	-	A	
	Oil Sump S-203	9330	-	-	0.03	0.69	-	-	-	-	-	-	A	
Loading Rack	Rack - LPG/INGL	8003	-	-	0.48	2.88	-	-	-	-	-	-	A	
	Rack - Emulsion Breaker	8002	-	-	7.25	21.75	-	-	-	-	-	-	FE	
Fugitive Components	Gas/Light Liquid Service													
	Valves: Accessible	297	-	-	12.08	290.03	-	-	-	-	-	-	A	
	Valves: Inaccessible	310	-	-	0.01	0.32	-	-	-	-	-	-	A	
	Valves: Unsafe	9118	-	-	0.10	2.41	-	-	-	-	-	-	A	
	Connections: Accessible	300	-	-	4.10	98.45	-	-	-	-	-	-	A	
	Connections: Inaccessible	312	-	-	0.48	11.61	-	-	-	-	-	-	A	
	Connections: Unsafe	9120	-	-	0.08	1.95	-	-	-	-	-	-	A	
	Pres. Relief Valve: Accessible	9121	-	-	0.36	8.64	-	-	-	-	-	-	A	
	Pres. Relief Valve: Inaccessible	9122	-	-	0.43	10.31	-	-	-	-	-	-	A	
	Pressure Relief Valve: Inaccessible	9123	-	-	0.01	0.28	-	-	-	-	-	-	A	
	Pressure Relief Valve: Unsafe	N/A	-	-	0.00	0.00	-	-	-	-	-	-	A	
	Pump Seal	9125	-	-	0.22	5.21	-	-	-	-	-	-	A	
				-	sub-total =	17.88	429.20	-	-	-	-	-	A	
	Oil Service													
	Valves: Accessible	298	-	-	0.54	13.02	-	-	-	-	-	-	A	
Connections: Accessible	301	-	-	0.46	11.12	-	-	-	-	-	-	A		
Pres. Relief Valve: Accessible	N/A	-	-	0.00	0.00	-	-	-	-	-	-	A		
Pressure Relief Valve: Accessible	9127	-	-	0.00	0.00	-	-	-	-	-	-	A		
Pump Seal	9128	-	-	0.03	0.60	-	-	-	-	-	-	A		
			-	sub-total =	1.03	24.74	-	-	-	-	-	A		
Solvent/coatings Usage*	Cleaning/Degreasing*	9521	-	-	1.09	8.68	-	-	-	-	-	-	N/A	

* -- Indicates this is an estimate of emissions and not a limit

Table 5.1-3
 Venoco Ellwood Oil&Gas Facility, PTT0-APCD PTO 7904-R8
 Hourly and Daily Emissions
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Equipment Category	Emissions Unit	APCD DS Equipment No.	NOx lbs/hr	NOx lbs/day	ROC lbs/hr	ROC lbs/day	CO lbs/hr	CO lbs/day	SOx lbs/hr	SOx lbs/day	PM lbs/hr	PM lbs/day	PM10 lbs/hr	PM10 lbs/day	Federal Enforceability
Combustion - Flare/TO H-205	Planned - Pilot Gas	***	0.00	0.10	0.00	0.00	0.03	0.85	0.00	0.04	0.00	0.02	0.00	0.02	FE
	Planned	***	2.31	55.49	0.09	2.20	15.40	369.65	1.04	25.05	0.48	11.42	0.48	11.42	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
H-206	Planned - Pilot Gas	***	0.02	0.57	0.00	0.02	0.15	3.70	0.01	0.25	0.00	0.11	0.00	0.11	FE
	Planned	***	1.99	47.81	0.11	2.63	9.20	220.92	0.62	14.97	0.28	6.83	0.28	6.83	FE
H-207	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
	Planned - Pilot Gas	***	0.07	1.68	0.00	0.07	0.45	10.87	0.03	0.74	0.01	0.34	0.01	0.34	FE
Combined Units: H-205/206/207	Planned	***	0.83	20.00	0.05	1.10	3.85	92.41	0.26	6.26	0.06	1.52	0.06	1.52	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
Worst-Case Flaring Scenario	Planned - Pilot Gas	***	0.10	2.28	0.00	0.09	0.63	15.22	0.04	1.03	0.02	0.47	0.02	0.47	FE
	Planned	***	2.31	55.49	0.09	2.20	15.40	369.65	1.04	25.05	0.48	11.42	0.48	11.42	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
			2.41	57.77	0.10	2.29	16.04	384.87	1.09	26.08	0.50	11.89	0.50	11.89	FE

Notes:
 - FE means federally enforceable
 - A means APCD enforceable only
 - NE means not enforceable

Table 5.1-4
 Venoco Ellwood Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Annual Emissions
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Equipment Category	Emissions Unit	APCD IDS Equipment No.	NOx tpy	ROC tpy	CO tpy	SOx tpy	PM tpy	PM10 tpy	Federal Enforceability	
Combustion - External	Heater Treater: H-201	290	1.89	0.10	1.59	0.23	0.14	0.14	FE	
	Heater Treater: H-202	289	1.06	0.06	0.89	0.13	0.08	0.08	FE	
	Heater Treater: H-203	291	1.89	0.10	1.59	0.23	0.14	0.14	FE	
	Process Heater: H-204	285	3.94	0.59	32.52	4.05	0.82	0.82	FE	
Combustion- Flare/TO	Thermal Oxidizer: H-205	288							FE	
	Thermal Oxidizer: H-206	287							FE	
	Thermal Oxidizer: H-207	286							FE	
IC Engines	Emergency Standby DICE	9010	0.16	0.01	0.03	0.00	0.01	0.01		
Oil Storage Tank	Oil Tank: T-202	283	-	1.19	-	-	-	-	A	
	Oil Tank: T-203	6477	-	1.19	-	-	-	-	A	
	Oil Tank: T-204	284	-	0.41	-	-	-	-	A	
	EB Tank: T-101	8002	-	2.79	-	-	-	-	A	
Pigging Equipmt.	Receiver: Oil emulsion	9200	-	0.04	-	-	-	-	A	
	Receiver: Utility	9200	-	0.01	-	-	-	-	A	
	Receiver: Produced Gas	9200	-	0.00	-	-	-	-	A	
	Launcher: Seep Gas	9337	-	0.00	-	-	-	-	A	
Sump/Wastewater Tanks	Sump Tank: S-202	9327	-	0.01	-	-	-	-	A	
	Wash Tank: TK-201	106004	-	0.12	-	-	-	-	A	
	Oil Sump S-203	9330	-	0.13	-	-	-	-	A	
Loading Rack	Rack - LPG/MGL	8003	-	0.24	-	-	-	-	A	
	Rack - Emulsion Breaker	8002	-	0.05	-	-	-	-	FE	
Fugitive Components Gas/Light Liquid Service	Valves: Accessible	297	-	52.93	-	-	-	-	A	
	Valves: Inaccessible	310	-	0.06	-	-	-	-	A	
	Valves: Unsafe	9118	-	0.44	-	-	-	-	A	
	Connections: Accessible	300	-	17.97	-	-	-	-	A	
	Connections: Inaccessible	312	-	2.12	-	-	-	-	A	
	Connections: Unsafe	9120	-	0.36	-	-	-	-	A	
	Pres. Relief Valve: Accessible	9121	-	1.58	-	-	-	-	A	
	Pres. Relief Valve: Inaccessible	9122	-	1.88	-	-	-	-	A	
	Pressure Relief Valve: Inaccessible	9123	-	0.05	-	-	-	-	A	
	Pressure Relief Valve: Unsafe	N/A	-	0.00	-	-	-	-	A	
	Pump Seal	9125	-	0.95	-	-	-	-	A	
		sub-total =			78.33					A
	Oil Service	Valves: Accessible	288	-	2.38	-	-	-	-	A
		Connections: Accessible	301	-	2.03	-	-	-	-	A
		Pres. Relief Valve: Accessible	N/A	-	0.00	-	-	-	-	A
	Pressure Relief Valve: Accessible	9127	-	0.00	-	-	-	-	A	
	Pump Seal	9128	-	0.11	-	-	-	-	A	
	sub-total =			4.52					A	
Solvent/coatings Usage*	Cleaning/Degreasing	9521	-	1.56	-	-	-	-	N/A	

See page 8 of 8 for details.

*-- indicates this is an estimate of emissions and not a limit

Table 5.1-4
 Venoco Ellwood Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Annual Emissions
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Equipment Category	Emissions Unit	APCD IDS Equipment No.	NOx tpy	ROC tpy	CO tpy	SOx tpy	PM tpy	PM10 tpy	Federal Enforceability
Combustion - Flare/TO H-205	Planned - Pilot Gas	***	0.02	0.00	0.12	0.01	0.00	0.00	FE
	Planned	***	7.12	0.28	47.45	3.22	1.47	1.47	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
H-206	Planned - Pilot Gas	***	0.10	0.00	0.67	0.05	0.02	0.02	FE
	Planned	***	8.73	0.48	40.32	2.73	1.25	1.25	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
H-207	Planned - Pilot Gas	***	0.31	0.01	1.98	0.13	0.06	0.06	FE
	Planned	***	3.65	0.20	16.87	1.14	0.28	0.28	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
Combined Units: H-205/206/207	Planned - Pilot Gas	***	0.42	0.02	2.78	0.19	0.09	0.09	FE
	Planned	***	7.12	0.28	47.45	3.22	1.47	1.47	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
	Worst-Case Flaring Scenario	***	7.54	0.30	50.23	3.40	1.55	1.55	FE

Notes:
 - FE means federally enforceable
 - A means APCD enforceable only

Table 5.2
 Venoco Ellwood Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Total Permitted Facility Emissions

A. HOURLY (lb/hr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	2.00	0.20	8.35	1.06	0.27	0.27
Combustion - Flare/TO	2.41	0.10	16.04	1.09	0.50	0.50
IC Engines	15.82	1.26	3.37	0.01	1.12	1.12
Oil Storage Tank	-	0.68	-	-	-	-
Pigging Equipment	-	1.52	-	-	-	-
Sumps/W-W Tanks	-	0.06	-	-	-	-
Loading Rack	-	7.73	-	-	-	-
Fug.Comp. -- Gas Service	-	17.88	-	-	-	-
Fug. Comp. -- Oil Service	-	1.03	-	-	-	-
solvent/coating	-	1.09	-	-	-	-
Totals =	20.23	31.53	27.76	2.15	1.89	1.89

B. DAILY (lb/day)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	48.10	4.69	200.46	25.44	6.48	6.48
Combustion - Flare/TO	57.77	2.29	384.87	26.08	11.89	11.89
IC Engines	31.64	2.51	6.73	0.01	2.24	2.24
Oil Storage Tank	-	16.51	-	-	-	-
Pigging Equipment	-	1.52	-	-	-	-
Sumps/W-W Tanks	-	0.37	-	-	-	-
Loading Rack	-	24.63	-	-	-	-
Fug.Comp. -- Gas Service	-	429.20	-	-	-	-
Fug. Comp. -- Oil Service	-	24.74	-	-	-	-
solvent/coating	-	8.68	-	-	-	-
Totals =	137.52	515.15	592.06	51.54	20.62	20.62

C. ANNUAL (ton/yr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	8.78	0.86	36.58	4.64	1.18	1.18
Combustion - Flare/TO	7.54	0.30	50.23	3.40	1.55	1.55
IC Engines	0.16	0.01	0.03	0.00	0.01	0.01
Oil Storage Tank	-	3.03	-	-	-	-
Pigging Equipment	-	0.05	-	-	-	-
Sumps/W-W Tanks	-	0.25	-	-	-	-
Loading Rack	-	0.29	-	-	-	-
Fug.Comp. -- Gas Service	-	78.33	-	-	-	-
Fug. Comp. -- Oil Service	-	4.52	-	-	-	-
solvent/coating	-	1.56	-	-	-	-
Totals =	16.48	89.19	86.84	8.05	2.75	2.75

Table 5.3
 Venoco Ellwood Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Federal Potential to Emit Information

A. HOURLY (lb/hr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	2.00	0.20	8.35	1.06	0.27	0.27
Combustion - Flare/TO	2.41	0.10	16.04	1.09	0.50	0.50
IC Engines	15.82	1.26	3.37	0.01	1.12	1.12
Oil Storage Tank	-	0.68	-	-	-	-
Pigging Equipment	-	0.00	-	-	-	-
Sumps/W-W Tanks	-	0.00	-	-	-	-
Loading Rack	-	7.73	-	-	-	-
Fug.Comp. -- Gas Service	-	-	-	-	-	-
Fug. Comp. -- Oil Service	-	-	-	-	-	-
solvent/coating	-	<u>0.00</u>	-	-	-	-
Totals =	20.23	9.96	27.76	2.15	1.89	1.89

B. DAILY (lb/day)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	48.10	4.69	200.46	25.44	6.48	6.48
Combustion - Flare/TO	57.77	2.29	384.87	26.08	11.89	11.89
IC Engines	31.64	2.51	6.73	0.01	2.24	2.24
Oil Storage Tank	-	16.51	-	-	-	-
Pigging Equipment	-	0.00	-	-	-	-
Sumps/W-W Tanks	-	0.00	-	-	-	-
Loading Rack	-	24.63	-	-	-	-
Fug.Comp. -- Gas Service	-	-	-	-	-	-
Fug. Comp. -- Oil Service	-	-	-	-	-	-
solvent/coating	-	<u>0.00</u>	-	-	-	-
Totals =	137.52	50.64	592.06	51.54	20.62	20.62

C. ANNUAL (ton/yr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	8.78	0.86	36.58	4.64	1.18	1.18
Combustion - Flare/TO	7.54	0.30	50.23	3.40	1.55	1.55
IC Engines	0.16	0.01	0.03	0.00	0.01	0.01
Oil Storage Tank	-	3.03	-	-	-	-
Pigging Equipment	-	0.00	-	-	-	-
Sumps/W-W Tanks	-	0.00	-	-	-	-
Loading Rack	-	0.29	-	-	-	-
Fug.Comp. -- Gas Service	-	-	-	-	-	-
Fug. Comp. -- Oil Service	-	-	-	-	-	-
solvent/coating	-	<u>0.00</u>	-	-	-	-
Totals =	16.48	4.49	86.84	8.05	2.75	2.75

6.0 Air Quality Impact Analyses

6.1 Modeling

An Air Quality Impact Analysis (AQIA) of the potential total reduced sulfur compound (TRS) impacts was performed in the past to determine compliance with APCD Rule 310 (*Odorous Organic Sulfides*). Based on this analysis, modifications to the Odor Abatement System were required (see Section 4.4 for current configuration). Subsequent modeling was also performed to site H₂S sensors for Rule 310 compliance (see Section 3.4.2, Rule 310 discussion)

6.2 Increments

An air quality increment analysis has not been required for this stationary source.

6.3 Monitoring

Pursuant to Abatement Order 99-6(A), Venoco shall install and maintain two ambient air monitoring stations, approved by the APCD, located as described below to monitor meteorological and odorous organic sulfide concentrations in the vicinity of the Ellwood Onshore Facility. The monitoring stations shall be equipped to continuously monitor and telemeter the data identified in Tables A-2 and A-3 in Section 9.C to the APCD in a manner consistent with the APCD's *Ambient Air Monitoring Protocol*. Venoco shall connect all ambient and meteorological parameters to the APCD central data acquisition system (DAS) as documented in Tables A-2 and A-3.

6.4 Health Risk Assessment

The *Venoco – Ellwood* stationary source is subject to the Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588). In April 2005, the APCD conducted air toxics Health Risk Assessment (HRA) for the Venoco Ellwood Oil & Gas Facility, using the Hotspots Analysis and Reporting Program (HARP) software, Version 1.1 (Build 23.02.10). Cancer risk and chronic and acute non-cancer Hazard Index (HI) risk values were calculated and compared to significance thresholds for cancer and chronic and acute non-cancer risk adopted by the APCD’s Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>Venoco Ellwood Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	23.6 /million	≥10/million
Chronic non-cancer risk:	0.0522	≥ 1
Acute non-cancer risk:	0.9574	≥ 1

Based on the 2002 toxic emissions inventory, Venoco Ellwood has reduced their facility’s risk to the public. The acute hazard index is 0.957 and the chronic hazard index is 0.052, which are below the APCD’s thresholds of 1.0. The cancer risk extends slightly off the property boundary but is not considered significant because it occurs within the facility’s easement, which is an area that the public does not have access to.

The cancer risk is primarily due to particulate matter emissions from diesel engines. Diesel exhaust is emitted from two diesel internal combustion engines: one engine used

to drive an emergency firewater pump and one engine used to drive an emergency backup electrical generator.

The cancer risk extends off the property boundary approximately 45 meters (see attached aerial photo with cancer risk footprint). However, the cancer risk isopleth is within their easement and the public does not have access to this area. In addition, the isopleth is in a rugged vegetation area that the public can not easily access even if they tried entry. As part of the Risk Reduction Audit and Plan, Venoco has agreed to post signs along the easement to ensure the public is kept out of the exposed area. In addition, Venoco began using a diesel fuel additive in 2005 to reduce the diesel particulate matter emissions following identification of those emissions as a risk factor.

Historically, the cancer risk was driven from polycyclic aromatic hydrocarbons (PAH) and the acute and chronic non-cancer risks were driven by hydrogen sulfide. The cancer risk identified from PAH in the 1998 HRA was reduced below APCD's significance threshold. In addition, the acute and chronic non-cancer risks were reduced below APCD's significance levels. The calculated risk values for inventory year 1998 were as follows:

	<u>Venoco Ellwood Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	90.06 /million	≥ 10 /million
Chronic non-cancer risk:	1.97	≥ 1
Acute non-cancer risk:	21.96	≥ 1

VENOCO ELLWOOD ONSHORE FACILITY



10 in a million Cancer Risk Footprint for Reporting Year 2002

Legend:

- Red Line (*thick black line*) = property boundary of Venoco Ellwood Oil & Gas Facility
- Orange Line (*thin white line*) = 10 in a million cancer footprint

7.0 CAP Consistency, Offset Requirements and ERCs

7.1 General

Based on APCD Rules, the *Venoco – Ellwood* stationary source is located in an ozone nonattainment area. Santa Barbara County has not attained the state ozone ambient air quality standards. The County also does not meet the state PM₁₀ ambient air quality standards. 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 toward attainment of federal and state ambient air quality standards. Under APCD regulations, any modifications at the *Venoco – Ellwood* source that result in an emissions increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Additional increases may trigger offsets at the source or elsewhere so that there is a net air quality benefit for Santa Barbara County (note: the NO_x emission offset threshold is already triggered). These offset threshold levels are 55 lbs/day for all non-attainment pollutants except PM₁₀ for which the level is 80 lbs/day.

7.2 Clean Air Plan

Santa Barbara County's air quality has historically violated both the state and federal ozone standards. Since 1999, however, local air quality data show that every monitoring location in the County complied with the federal one-hour ambient air quality standard for ozone. The Santa Barbara County Air Pollution Control District adopted the 2001 Clean Air Plan (2001 CAP) that demonstrated attainment of the federal one-hour ozone standard and continued maintenance of that standard through 2015. Consequently, on August 8, 2003, the United States Environmental Protection Agency (USEPA) designated Santa Barbara County as an attainment area for the federal one-hour ozone standard.

On June 15, 2004, USEPA replaced the federal one-hour ozone standard with an eight-hour ozone standard for Santa Barbara County and most parts of the country. This eight-hour ozone standard, originally promulgated by USEPA on July 18, 1997, is set at 0.08 parts per million measured over eight hours and is more protective of public health and more stringent than the federal one-hour standard. For the purposes of the federal eight-hour ozone standard, Santa Barbara County has been designated attainment.

On August 16, 2007, the APCD Board adopted the 2007 Clean Air Plan to chart a course of action that will provide for ongoing maintenance of the federal eight-hour ozone standard through the year 2014 as well as the expeditious attainment of the state one-hour ozone standard. These plans have been developed for Santa Barbara County as required by both the 1998 California Clean Air Act and the 1990 Federal Clean Air Act Amendments.

7.3 Offset Requirements

The *Venoco – Ellwood* stationary source does not currently require emission offsets.

7.4 Emission Reduction Credits

The EOF provides ROC emission reduction credits to The Pt. Arguello Project (currently operated by Arguello, Inc.) as required by the APCD ATC 5704 issued to Chevron. In 1988, a fugitive hydrocarbon inspection and maintenance (I&M) program was implemented at the EOF (Reference: APCD ATC #7234, 6/9/88) to generate ROC ERC's for use by The Point Arguello Project. This program pre-dates the APCD's SIP-approved I&M Rule 331, adopted in December 1991. The implementation of the I&M program was verified by the APCD on 6/21/89. The I&M program generated 180 tons/year of ROC emission reduction credits. The agreement leasing these emission reduction credits was signed by ARCO and Chevron and approved by the APCD on 6/30/89. The APCD issued PTO 7234 to ARCO on 5/10/90 formalizing the ATC 7234, after a final count of the fugitive emission components was obtained and verifiable baseline fugitive emissions levels for ROC were established.

ROC Emission Reduction Credits — Emission reductions due to the ATC 7234's I&M Program was factored in an informal I&M program in place at the EOF. The informal I&M Program was in place at the EOF in response to odor complaints and the issuance of County Ordinance 2919 in 1977, much earlier than the formal 1989 program; however, the effective level of control of this informal program had not been assessed or quantified previously. The baseline ROC emissions at the EOF were adjusted to account for the informal I&M program as described below:

Uncontrolled ROC emissions from components were calculated using the same emission factors as were applied to the Chevron Gaviota facility that needed the ERC's. The constituents of the informal program such as inspection frequency, leak definition and repair deadlines were compared to an existing BACT level I&M program to quantify this program's control efficiency. Some feasibility considerations were also made regarding the actual implementation of the formal program and were factored into the formal program's control efficiency (these factors are listed in PTO 7234). Based on all factors and considerations, the baseline control efficiency of the informal program was assumed to be 38 percent, and baseline ROC's were reduced accordingly.

Control efficiencies associated with the APCD-approved I&M program were assumed to meet the same levels as other APCD-approved 1989 programs with the same features, e.g., Chevron Carpinteria Plant I&M Program. These efficiencies ranged from 69 percent for connector fugitive emissions to 79 percent for valve fugitive emissions. Open-ended lines, which were capped off, were zeroed out of any ROC emissions (100 percent efficiency). These controls, applied to the adjusted baseline, resulted in an estimated emission reduction of 180 tons/year or 45 tons/quarter.

The 1989 I&M Plan submitted to the APCD comprises of the document titled *Final Ellwood Onshore Processing Facility Fugitive Hydrocarbon Inspection & Maintenance Plan: ATC No. 7234* (June 23, 1989). Details of the ATC/PTO 7234 ERC's, as generated by the Plan, are presented in Section 10 of this permit.

In May 1993, ATC 5704-11 was issued to Chevron Pt. Arguello Project lowering the amount of ERC's required to be leased by the Project from Mobil EOF. PTO 7234 issued to Mobil in August, 1993 did not reflect this change; however, PTO 7234 issued to Mobil in December,

1996 reduced the available ROC emission reductions from the EOF to 141.5 tons/year and the available ERC's to 108.1 tons/year. The amount of ERC's used by The Point Arguello Project was further reduced in 2001 to 101.1 tpy ROC (re: ATC 10439, issued 5/24/01 to Arguello, Inc.).

Venoco (or any prior owner or operator of the EOF) has not generated ERC's in the form of an ERC Certificate pursuant to Rule 806.

8.0 Lead Agency Permit Consistency

Except as discussed below, to the best of the APCD's knowledge, no other governmental agency's permit requires air quality mitigation.

Venoco Ellwood Onshore Facility operates under a Santa Barbara County zoning restriction (Ordinance 2919, dated 12/77) that restricts total ROC emissions from the storage tanks and from the tanker operations at the adjacent Ellwood Marine Terminal to 140 lbs/day. A 1996 update to this Ordinance stipulates the Ellwood Onshore Facility operate to conform to the provisions of APCD permit ATC 9473. Santa Barbara APCD is entrusted with enforcing these restrictions.

The APCD is the lead agency for this project. Pursuant to Appendix "A" of the *Environmental Review Guidelines for the Santa Barbara County Air Pollution Control District*, operating permits are exempt from CEQA review. A description of the EOF's operations is provided in Section 2 of this permit.

9.0 Permit Conditions

This section lists the applicable permit conditions for the Ellwood Onshore Facility (EOF). Section A lists the standard administrative conditions. Section B lists 'generic' permit conditions, including emission standards, for all equipment in this permit. Section C lists conditions affecting specific equipment. Section 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 condition contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, the part of the permit referred to is federally enforceable. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), the wording of the rule shall control.

For the purposes of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this permit, nothing in the permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed.

9.A Standard Administrative Conditions

The following federally-enforceable administrative permit conditions apply to the EOF:

A.1 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: 40 CFR Part 70.6.(a)(6), APCD Rules 1303.D.1]

- A.2 **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.9 [Re: 40 CFR 70.6(g), APCD Rule 1303.F]
- A.3 **Compliance Plan.**
- (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.4 **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.5 **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]
- A.6 **Permit Life.** The Part 70 permit shall become invalid three 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 submit an application for renewal of the Part 70 permit 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.7 **Payment of Fees.** The permittee shall reimburse the APCD for all its Part 70 permit processing and compliance expenses, including expenses associated with implementation of permit conditions incorporated pursuant to Abatement Order 99-6A, 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), AO 99-6A]

- A.8 **Deviation from Permit Requirements.** 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 180 days 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*. [Re: APCD Rule 1303.D.1, 40 CFR 70.6(a) (3)]
- A.9 **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.10 **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 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 (excluding emergency upsets) 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 September 1 and March 1, 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.11 **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, 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)(ii)(A)]

- A.12 **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 that 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 causes to reopen exist. If the permit is reopened, and revised, it will be reissued with the expiration date that was listed in the permit before the re-opening. [Re: 40 CFR 70.7(f), 40 CFR 70.6(a)]

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. Compliance with these requirements is discussed in Section 3. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), 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): Venoco 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.

Venoco shall determine compliance with the requirements of this Rule in accordance with the monitoring and compliance recordkeeping procedures in Condition 9.C.25. [Re: APCD Rule 302].

- B.3 **Nuisance (Rule 303).** No pollutant emissions from any source at Venoco 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).** Venoco 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).** Venoco shall not discharge into the atmosphere from any single source sulfur compounds, carbon monoxide and combustion contaminants in excess of the applicable standards listed in Sections A, E and G of Rule 309. [Re: APCD Rule 309].
- B.6 **Sulfur Content of Fuels (Rule 311).** Venoco shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 239 ppmvd or 15 gr/100 scf (calculated as H₂S) for gaseous fuel (most gaseous fuel burning equipment at EOF is subject to more stringent sulfur content limits). Compliance with the requirements pertaining to gaseous fuels shall be based on measurements of the in-plant fuel gas using continuous analyzers, sulfur detection tubes, ASTM, or other APCD-approved methods; and, compliance with the requirements pertaining to liquid fuels shall be based on diesel fuel billing records or other data showing the certified sulfur content for each shipment. [Re: APCD Rule 311]
- B.7 **Organic Solvents (Rule 317).** Venoco shall comply with the emission standards listed in Section B of Rule 317. Compliance with this condition shall be based on Venoco's compliance with the Solvent Usage condition of this permit. [Re: APCD Rule 317]
- B.8 **Vacuum Producing Devices or Systems – Southern Zone (Rule 318).** Venoco shall not discharge into the atmosphere more than 3 pounds of organic materials in any one hour from any vacuum producing devices or systems, including hot wells and accumulators, unless said discharge has been reduced by at least 90 percent. [Re: APCD Rule 318]
- B.9 **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 Venoco's compliance with the Solvent Usage condition of this permit and facility inspections. [Re: APCD Rule 322]
- B.10 **Architectural Coatings (Rule 323).** Venoco 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 Venoco's compliance with the Solvent Usage condition of this permit and facility inspections. [Re: APCD Rules 323]
- B.11 **Disposal and Evaporation of Solvents (Rule 324).** Venoco shall not dispose through atmospheric evaporation of more than one and a half gallons of any photochemically reactive solvent per day. Compliance with this condition shall be based on Venoco's compliance with the Solvent Usage condition of this permit and facility inspections. [Re: APCD Rule 324]

- B.12 **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.13 **Oil and Natural Gas Production MACT.** Venoco shall comply with the requirements of 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), *including any applicable MACT recordkeeping and reporting requirements.* [Re: 40 CFR 63, Subpart HH]

- B.14 **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]

9.C Equipment-Specific Conditions

Federally enforceable conditions, including emissions and operations limits, monitoring, recordkeeping and reporting are included in this section for each specific group of equipment as well as other non-generic requirements.

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

APCD ID No.	Venoco Equipment ID No.	Name
000290	H-201	Heater Treater, H-201 (4.399 MMBtu/hr)
000289	H-202	Heater Treater, H-202 (2.464 MMBtu/hr)
000291	H-203	Heater Treater, H-203 (4.399 MMBtu/hr)
000285	H-204	Process Heater, H-204 (25.000 MMBtu/hr)

- (a) Emission Limits: The following equipment-specific emission limits apply to the external combustion units listed above:
- (i) *Mass Emission Rate Limits* - Mass emission rates resulting from the operation of the equipment listed above shall not exceed the corresponding values listed for each unit in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on the fuel usage, the sulfur content of the fuel and flare gas, and through the monitoring, recordkeeping and reporting conditions listed below. The monthly fuel heat content

analyses shall be used in conjunction with the fuel and flare gas flow rate data for determining compliance.

- (ii) *Oxides of Nitrogen (NO_x) and Carbon Monoxide (CO) Concentration Emission Limits* - For Process Heater H-204, stack emissions shall not exceed:
 - NO_x (as NO₂): 30 ppmvd at 3% O₂ or 0.036 lb/MMBtu heat input (HHV based)
 - CO 400 ppmvd at 3% O₂.

Compliance shall be based on source testing/monitoring requirement specified in 9.C.1(c).

- (b) Operation Limits: Operation of the equipment listed above shall be conducted in compliance with all data, specifications and assumptions included with the ATC applications (and supplements thereof) as documented in the APCD project files and in the APCD’s engineering analyses under which this permit is issued. As it relates to emissions, the equipment listed above must be properly maintained in accordance with the equipment manufacturer’s maintenance manual.

The following additional operational limits apply to Units H-201, H-202, H-203 and H-204:

- (i) *Heat Input Limits* - The hourly, daily, and annual heat input to the heater treaters and the process heater shall not exceed the values listed in Table 9-1 below. These limits are based on the design rating of the equipment and the annual heat input values as listed in the permit applications from the permittee and the APCD’s engineering analyses. Compliance with this condition shall be based on fuel and permeate gas usage data and in-plant fuel gas analysis data for heat content. The monthly fuel heat content analyses shall be used in conjunction with the fuel and permeate gas flow rate data for determining compliance.

Table 9-1 Heater Treater and Process Heater Heat Input Limits

Unit	No.	Fuel	HEAT INPUT LIMITS		
			MMBtu/hr	MMBtu/day	MMBtu/yr
Heater Treater	H-201	PUC In-plant fuel gas	4.399	105.6	38,535
Heater Treater	H-202	PUC In-plant fuel gas	2.464	59.2	21,585
Heater Treater	H-203	PUC In-plant fuel gas	4.399	105.6	38,535
Process Heater	H-204	In-plant Fuel/ Grace Unit Permeate Gas	25.000	600.0	219,000

- (ii) *Heater Treater Fuel Sulfur Limit* - Heater treaters H-201, H-202 and H-203 shall be fired on PUC quality in-plant fuel gas only. The total sulfur and the hydrogen sulfide (H₂S) content (calculated as H₂S at standard conditions, 60°F and 14.7 psia) of the PUC quality in-plant fuel gas shall not exceed 80 ppmv and 4 ppmv, respectively.
- (iii) *Process Heater Fuel Sulfur Limit* - Process heater H-204 shall be fired solely on in-plant fuel gas with a total sulfur and hydrogen sulfide (H₂S) content (calculated as H₂S at standard conditions, 60°F and 14.7 psia) not exceeding 80 ppmv and 4 ppmv, respectively, or on a combination of in-plant fuel gas and grace unit permeate with a total

sulfur content (calculated as H₂S at standard conditions, 60°F and 14.7 psia) not exceeding 239 ppmv.

- (iv) *Fuel Usage Metering* - Each heater treater shall be equipped with an operational recording fuel use meter and a line pressure gauge. Fuel delivery pressure to each heater treater unit H-201/202/203 listed in this section shall not exceed 8.0 psig. The fuel use meters shall be capable of measuring fuel consumption in units of standard cubic feet and be accurate to within ± 5 percent of its full-scale reading at any flow reading. Also, the clock speed for any circular chart used by the fuel use recorder shall be set to no more than eight days for each chart cycle. The process heater unit H-204 shall be equipped with dedicated operational fuel meters for both the in-plant fuel gas and the permeate gas lines to that unit.
- (v) *Re-Name Plating Heater Treaters* - Heater treaters H-201, H-202, and H-203 shall each have a revised nameplate permanently affixed and visible at all times. The nameplate shall specify the de-rated gross heat input rating, associated parameters (e.g., rated fuel consumption at 8.0 psig delivery pressure) and burner specifications that correlate to each heater's de-rated configuration.
- (vi) *Rule 361 Compliance for H-201, H-202 and H-203* – The owner or operator of any unit requesting the low use exemption in Section D.2 shall comply with the requirement to submit a Rule 361 Compliance Plan for APCD review and approval prior to March 15, 2016. Fuel meters installed pursuant to the approved Rule 361 Compliance Plan shall be installed prior to December 31, 2016.

On or before January 20, 2019, the owner or operator of any existing unit shall:

- i. For units subject to Section D.1 emission standards, apply for an Authority to Construct permit.
- ii. For units subject to the Section D.2 low use provision, provide the annual fuel heat input data for years 2017 and 2018.

(c) Monitoring:

- (i) *Process Heater (H-204) –Source Testing* - The permittee shall conduct annual stack emissions testing of H-204 emissions and process parameters listed in Table 9-2 below. Venoco may perform source testing on a biennial basis upon written approval of the APCD.

The permittee shall submit a written source test plan to the APCD for approval 30 days prior to the anniversary date of the last source test. The anniversary source test date shall be January 1st or other date approved in advance by the APCD. The source test plan shall be prepared consistent with the APCD's "*Source Test Procedures Manual*" (revised May 24, 1990 and updates thereof). The permittee shall obtain written APCD approval of the source test plan prior to 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.

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 prior authorization, except in the case of an emergency, shall constitute a violation of this permit. If a test is postponed due to an emergency, written documentation of the emergency event shall be submitted to the APCD by the close of the business day following the scheduled test day.

Table 9-2 Source Test Requirements: Process Heater H-204

<u>Emission Points</u>	<u>Pollutants/ Parameters</u>	<u>Test Methods</u> ^{(a), (c), (d)}
Heater Stack	NO _x - ppmv & lb/hr ^(b)	EPA Method 7E
	CO - ppmv & lb/hr ^(b)	EPA Method 10
	ROC - ppmv & lb/hr ^(b)	EPA Method 18
	Sampling Point Dtr	EPA Method 1
	Stack Gas Flow Rate	EPA Method 2
	O ₂ , CO ₂ , Dry Mol Wt	EPA Method 3
	Moisture Content	EPA Method 4
Gas Lines	PUC NG Fuel Gas Flow	EOF Gas Meter
	Permeate gas Flow	EOF Gas Meter
	Higher Heating Value	ASTM D 1826-88
	Total Sulfur Content	ASTM D 1072

Site Specific Requirements

- a. Alternative methods may be acceptable on a case-by-case basis.
- b. This test is required to characterize the maximum hourly “potential to emit” when fired on Grace Unit permeate gas, or a combination of permeate gas and PUC quality in-plant fuel gas, for NO_x, CO and ROC in both units of ppmvd (at standard conditions and 3% O₂) and pounds per hour. The test shall be performed at the maximum attainable firing rate allowed by this permit, or the maximum sustainable firing rate that satisfies unit heat load requirements at the time of testing.
- c. The emission rates shall be based on EPA Methods 2 and 4, or Method 19 along with the heat input rate.
- d. For NO_x, CO and O₂ a minimum of three 40-minute runs shall be obtained during each test. An ROC sample for each run shall be taken over a minimum of 5 minutes in accordance with the sampling protocol defined in the source test plan.
- e. Separate HHV and total sulfur content samples shall be taken for the PUC NG and permeate gas lines.
- f. If a Method 2 stack traverse is performed, only one permeate gas sample for HHV and TRS needs to be taken over one of the 40 minute test runs. If the Method 2 traverse is not performed, a sample must be taken over each of the three 40 minute test runs.

Table Notes

- ROC = reactive organic compounds per APCD Rule 102
- Dtr = determination
- NG = natural gas

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. Venoco may request additional time to submit the results in writing at least 3 days prior to the submittal deadline. The APCD may approve an extension for good cause. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests for H-204 unit shall be recovered per Rule 210.

Any APCD certified source test result that indicates the applicable Rule 342 or permit emission limitations have been exceeded shall constitute a violation of Rule 342 and/or the permit.

- (ii) *Heater Treaters – In-plant fuel gas Flow Monitoring* - The total volume (in units of standard cubic feet) of the in-plant fuel gas consumed by each heater treater shall be measured on an hourly, daily and annual basis. Each fuel use recorder shall be calibrated for fuel specific gravity (specific gravity of air = 1.0), delivery pressure and temperature, as well as in accordance with the manufacturer’s specifications.
- (iii) *Process Heater (H-204) – In-plant Fuel Gas Flow Monitoring* - The total volume (in units of standard cubic feet) of the in-plant fuel gas consumed by the process heater shall be measured on an hourly, daily and annual basis. The dedicated fuel use meter shall be calibrated in accordance with the manufacturer’s specifications.
- (iv) *Process Heater (H-204) – Grace Unit Permeate Gas Flow Monitoring* - The total volume (in units of standard cubic feet) of the Grace Unit permeate gas consumed by the process heater shall be measured on an hourly, daily and annual basis. The dedicated fuel use meter shall be calibrated in accordance with the manufacturer’s specifications.
- (v) *Sulfur Content of In-plant Gas* – Venoco shall monitor the hydrogen sulfide (H₂S) content of the in-plant fuel gas to H-204 on a daily basis using APCD-approved methods. Once every six-month, Venoco shall sample and analyze the fuel to determine the total sulfur (TRS) content. The samples shall be analyzed in accordance with ASTM-D1072 or an APCD approved equivalent method. The semi-annual analyses shall be used to determine the non-H₂S fraction of the gas. The non-H₂S fraction shall be added to the daily H₂S readings for daily compliance determinations.
- (vi) *Sulfur Content of Grace Unit Permeate Gas* – Venoco shall monitor the hydrogen sulfide (H₂S) content of the permeate gas on a daily basis using APCD-approved methods. Once every six-month, Venoco shall sample and analyze the fuel to determine the total sulfur content. The samples shall be analyzed in accordance ASTM-D1072 or an APCD approved equivalent method. Upon written notification from the APCD, Venoco may be required to perform more frequent sampling and analyses or may be required to install a process monitor to provide semi-continuous monitoring. The semi-annual analyses shall be used to determine the non-H₂S fraction of the gas. The non-H₂S fraction shall be added to the daily H₂S readings for daily compliance determinations.

- (vii) *Heat Value Content of In-plant Fuel Gas* – Venoco shall measure the higher heating value of the in-plant fuel gas on a monthly basis using ASTM-D3588 or an APCD approved equivalent method.
 - (viii) *Heat Value Content of Grace Unit Permeate Gas* – Venoco shall measure the higher heating value of the permeate gas on a monthly basis using ASTM-D3588 or an APCD approved equivalent method.
- (d) Recordkeeping: The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request:
- (i) Volume of in-plant fuel gas consumed and the corresponding heat input to each heater treater for each day and cumulatively for the entire year in units of standard cubic feet and million BTUs, respectively.
 - (ii) Volume of in-plant fuel gas and the volume of permeate gas consumed and the corresponding heat inputs to the process heater for each day and cumulatively for the entire year in units of standard cubic feet and million BTUs, respectively. In addition, provide the combined heat input to the process heater for each day and cumulatively for the entire year in units of million BTUs.
 - (iii) The daily H₂S and semi-annual total sulfur analyses results. Copies of daily analysis sample results and semi-annual lab analyses reports shall be maintained.
 - (iv) The monthly higher heat value lab analyses.
 - (v) Documentation showing how the gas flow and HHV data was used to determine the heat input to each heater treater and the process heater.
 - (vi) Documentation showing how the non-H₂S fractions of the semi-annual total sulfur analyses were determined and how these values were used to adjust the daily H₂S sampling results to ascertain daily total sulfur values.
 - (vii) Results of all compliance source testing performed.
 - (viii) Maintenance logs for the process heater, its emission control system and fuel flow meter; maintenance and calibration logs for each heater treater and its fuel flow meter.
 - (ix) The fuel consumption circular charts for each heater treater.
- (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 *Semi-Annual Compliance Verification Reports* condition of this permit.
[Re: APCD Rules 342, and 1303, ATC 9217/9217-01, ATC 9218/9218-01 and, 40 CFR 0.6.a.(iii)]

C.2 **Combustion: Thermal Oxidizers.** The following equipment is included in this emission category:

APCD ID No.	Venoco Equipment ID No.	Name
000288	H-205	Thermal Oxidizer, H-205 (140 MMBtu/hr)
000287	H-206	Thermal Oxidizer, H-206 (220 MMBtu/hr)
000286	H-207	Thermal Oxidizer, H-207 (9.5 MMBtu/hr)

- (a) **Emission Limits:** The following equipment-specific emission limits apply to the thermal oxidizer units listed above:
- (i) *Mass Emission Rate Limits* - Mass emission rates resulting from the operation the equipment listed above shall not exceed the corresponding values listed in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on gas flow rates and gas analyses, as specified in conditions 9.C.2(c)(ii), (iii), (iv), (v), and (vi).
 - (ii) *Oxides of Nitrogen (NO_x) Mass Emission Rate Limit* - Emissions of NO_x (as NO₂) from the H-205 thermal oxidizer (at any load or in any operating condition) shall not exceed 0.068 lb/MMBtu. Compliance with this condition shall be based on source testing and on monthly analyzer monitoring as specified in condition 9.C.2(c)(x).
 - (iii) *Reactive Organic Compound (ROC) Mass Emission Rate Limit* - Emissions of ROC from the H-205 thermal oxidizer (at any load or in any operating condition) shall not exceed 0.0030 lb/MMBtu. Compliance with this condition shall be based on source testing.
- (b) **Operation Limits:** Operation of the equipment listed above shall be conducted in compliance with all data, specifications and assumptions included with the applications (and supplements thereof) as documented in the APCD project files and in the APCD's engineering analyses under which this permit is issued. As it relates to emissions, the equipment listed above shall be properly maintained in accordance with the equipment manufacturer's maintenance manual.

The following specific operational limits also apply to Units H-205, H-206 and H-207:

- (i) *Hourly Heat Input Limits* – The maximum permitted hourly heat input to each thermal oxidizer, including heat input from the pilot gas, is listed below:

Thermal Oxidizer	Pilot heat input limit (MMBtu/hr)	Flare gas heat input limit (MMBtu/hr)
H-205	0.06	34.00
H-206	0.34	20.32
H-207	1.00	8.50

Compliance with these limits shall be based on the manufacturer's rating of each flare, and the volume and HHV of gas combusted.

- (ii) *Annual Heat Input Limit* – The annual heat input to all three flares combined, including heat input from the pilot gas, shall not exceed 221,749 MMBtu. Compliance with this limit shall be based on the volume and HHV of gas combusted.

- (iii) *Flare Gas Volume Limits* – Planned continuous flaring in H-206 and H-207 shall not exceed 120,000 scf/day each. Planned flaring (continuous plus intermittent) from all flares at the facility combined shall not exceed 16,410,000 scf/month.

The CO₂ portion of the flare gas and the volume of LO-Cat exhaust air burned in H-205 is not counted against these limits.

- (iv) *Planned/Unplanned Operations* - The definition of the words planned, unplanned, and emergency in this permit condition are based upon the definitions in Rule 359. The following operating limits shall apply to the equipment and operations described by this permit:
- a. Except for operations under condition 9.C.2.(b).(iv).c. below, the LO-Cat sulfur removal process shall not process sour gas feedstock unless the H-205 thermal oxidizer and the LO-Cat VRU (*referred to as MOAS in Section 1.4*) are operating to fully incinerate all LO-Cat Oxidizer exhaust.
 - b. No more than 4,950 SCFM (basis: 10 percent more than the 4,500 SCFM nominal anticipated flow) of MOAS exhaust air may be delivered to the H-205 thermal oxidizer for incineration.
 - c. During any sour gas processing by the LO-Cat sulfur removal process, if the H-205 thermal oxidizer or the Lo Cat VRU (*referred to as MOAS in Section 1.4*) shut down or are not operating properly for any reason, the LO-Cat sulfur removal process shall also be shut down (i.e., cease sour gas processing) simultaneously. Further, Venoco shall at no time vent LO-Cat exhaust air (or other LO-Cat emission streams) directly to the atmosphere.
 - d. With the exception of pilot-gas heat duties as described in Table 5.1-1 of this permit, the H-206 and H-207 thermal oxidizers shall not be operated in any other "*Planned*" continuous operating mode, unless: 1) the H-205 unit is out-of-service or fired on pilot gas only; and, 2) the LO-Cat sulfur removal process is also simultaneously not operating.
 - e. Only in-plant fuel gas and gas from V-221 that does not exceed 205 ppmv total sulfur content (calculated as H₂S at standard conditions) may be incinerated in the H-205, H-206, and H-207 units for any "*Planned*" operating modes. Examples of fuel from V-221 may include, Grace Unit permeate gases, LO-Cat Vacuum Flash gases, Seep Collection gases, VRU gas from the iron sponge, and any blend thereof.
 - f. Unplanned flaring is not permitted in any thermal oxidizer.
- (v) *BACT Operations* - The permittee shall apply emission control and design measures that represent Best Available Control Technology (BACT) for ROC emissions to the operation of the modified odor abatement system (MOAS) utilizing the H-205 unit. BACT measures to control ROC emissions from this unit must be in place and operational at all times for the life of the project. BACT for this project is defined as:
- a. The incineration of LO-Cat unit Oxidizer exhaust by the H-205 unit thermal oxidizer, whenever the LO-Cat unit is operating. This shall be verified through

operational parameters monitoring and process parameter monitoring alarms specified in Section 9.C.2.(c) of this permit.

- b. Thermal oxidation shall destroy the ROC and benzene contents of all entering air and fuel streams by a minimum 98.5 percent minimum mass destruction efficiency across the thermal oxidizer. This performance specification shall be verified through ROC and benzene emissions source testing as specified in the source testing condition listed below for the H-205 unit, and incineration at the minimum specified temperature of 1400°F using a temperature set point control.
- c. The H-205 thermal oxidizer, when incinerating LO-Cat oxidation air, shall be operated at a temperature no less than the controlled temperature demonstrated to comply with the ROC and benzene destruction efficiency source tests specified in the paragraph above. In no event shall the H-205 set-point temperature be less than 1400 °F. The actual temperature in the thermal oxidizer shall not be less than 5 percent of the applicable set-point temperature for a continuous period exceeding ten (10) minutes duration. The residence time of the combustion gas mixture inside the H-205 unit shall be a minimum of 0.62 seconds any time LO-Cat oxidation air is processed. These performance specifications shall be verified pursuant to process parameter monitoring requirements listed in Section 9.C.2.(c) and during the ROC/benzene emissions source testing required under the same section.

- (vi) *Flare Gas Sulfur Limit* - The total sulfur content (calculated as H₂S at standard conditions, 60° F and 14.7 psia) of any gas combusted in each of the thermal oxidizers shall not exceed 205 ppmv.

(c) Monitoring: The following monitoring conditions shall apply to this permit:

- (i) *Source Testing* - The permittee shall conduct stack emissions compliance source testing of the air emissions and process parameters listed in Table 9-4 below annually, or upon written request from APCD. The permittee shall submit a written source test plan for to the APCD 30 days prior to the source test date. The anniversary source test date shall be January 1st or other date approved by the APCD. The source test plan shall be prepared consistent with the APCD's "*Source Test Procedures Manual*" (revised May 24, 1990 and updates thereof). The permittee shall obtain written APCD approval of the source test plan prior to 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.

Table 9-4 H-205 Source Test Requirements

Device & Test Point	Pollutant or Parameter	Emission Limits or Parameter Units	Test Method ^(f)
H-205 Thermal Oxidizer Stack	ROC	Raw ppmvd; lb/hr; ROC DRE ^(a)	EPA: M-18 ^(d) , M-2 or M-19
	Benzene	Raw ppmvd; lb/hr; Benzene DRE ^(b)	EPA: M-18 ^(d) , M-2
	NO _x , raw O ₂	lb/MMBtu @ higher heating value; lb/hr	CARB: M-100
	CO, raw O ₂	Verify Table 5.1-2, H-205 <i>planned</i> use emission factor	CARB: M-100
	Oxidizer Fuel, CO ₂	Flow Rate (SCFH); ROC Content; Benzene Content	Calibrated Fuel Meter; EPA: M-25, M-18
	Stack Flow Rate	SCFH	EPA: M-2 or M-19
H-205 Thermal Oxidizer Inlet Air	ROC	Raw ppmvd, lb/hr	EPA: M-18 ^(d) , plant flowmeter
	Benzene	Raw ppmvd, lb/hr	EPA: M-18 ^(d) , plant flowmeter

Table Notes:

- (a) $ROC\ DRE = (lb/hr\ ROC_{in} - lb/hr\ ROC_{out}) / (lb/hr\ ROC_{in}) * 100\%$
- (b) $Benzene\ DRE = (lb/hr\ Benzene_{in} - lb/hr\ Benzene_{out}) / (lb/hr\ Benzene_{in}) * 100\%$
- (c) M-*** refers to applicable EPA or CARB reference test method number (refer to *APCD Source Test Procedures Manual*).
- (d) The M-18 analysis shall consist of three sequential bag samples, each drawn over a twenty-minute period simultaneously on the inlet and outlet of H-205. For ROC, analysis of the C₁ to C₆₊, and benzene shall be done by gas chromatography. CO₂ analysis shall be based on the updated 'Process Stream Sampling Plan' (see Condition 9.C.16) and any subsequent APCD-approved updates.
- (e) $TRS\ DRE = (lb/hr\ TRS_{in} - lb/hr\ TRS_{out}) / (lb/hr\ TRS_{in}) * 100\%$
- (f) Alternate test methods may be accepted by the APCD on a case-by-case basis.
- (g) If M-19 (F-factor) is used to derive stack flow rate, then higher heating value and flow rate of each gas stream) into H-205 shall be measured.

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 prior authorization, except in the case of an emergency, shall constitute a violation of this permit. If a test is postponed due to an emergency, written documentation of the emergency event shall be submitted to the APCD by the close of the business day following the scheduled test day.

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. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be recovered in accordance with the provisions of Rule 210. The APCD may extend any of the timelines listed above for good cause upon written request from Venoco at least three days prior to the due date.

- (ii) *Flare Gas Flow Metering* - Each thermal oxidizer shall be equipped with flare gas flow meters (see detailed diagram in Section 2.1) to measure hourly flow volumes of (a) Flare gases (Reference: # FR-080) and (b) in-plant fuel gas (Reference: # FR-081). Venoco shall record any and all flare events in accordance with APCD Rule 359.G requirements. The flare gas flow metering system shall be designed such that Venoco can measure the hourly and daily flow rate of 'flare gas' to each oxidizer, and in-plant fuel gas to H-205. Venoco shall categorize each 'flow to the oxidizer' event into one of the following categories: "Planned" (includes "Planned – Pilot Gas" and "Planned – Continuous" and "Planned – Intermittent") and "Unplanned".

All meters shall be calibrated for fuel specific gravity (sp. gravity of air = 1.0), delivery pressure and temperature, as well as in accordance with the manufacturer's specifications every six calendar months, not to exceed seven months between calibrations. All meters shall be capable of measuring instantaneous fuel consumption in units of MSCF/day, and be installed and maintained in accordance with ANSI/API 2530 and provide an overall accuracy of ± 5 percent. The clock speed for any circular-chart fuel measurement hardcopy recording device shall be set to no more than 24 hours for one chart cycle. The H-205 unit's flow metering system shall be able to measure, during its continuous operations between the equivalent of 5.0 and 40.0 MMBtu/hr, a gas flow rate that is within 10 to 90 percent of the meter's full scale reading.

The volumetric flow of LO-Cat Oxidizer exhaust airflow delivered to the H-205 unit, traceable to any hour of operation of the LO-Cat Oxidizer, shall be metered separately. Venoco shall comply with the APCD-approved *Flare Volume Minimization and Monitoring Plan* (see Condition 9.C.16) and any subsequent APCD-approved updates.

- (iii) *Flare Gas Sampling* - The higher heating values (HHVs) and F-factors of the first stage permeate (Reference: FR-567), second stage permeate (Reference: FR-563), and the in-plant fuel gas (Reference: FR-081) delivered to the H-205, H-206 and H-207 flare system (i.e., pilot gas, planned flare events, and unplanned flare events) shall be analyzed and recorded separately on a calendar weekly basis. The combined permeate higher heating value shall be calculated as described in Table 5 of the *Flare Gas Monitoring Plan*. The weekly analyses requirement may be waived for any calendar week during which all three thermal oxidizers, including pilots, are completely shutdown and not operating. Also, the

weekly analyses requirement may be reduced to a monthly requirement, solely at the discretion of the APCD, if Venoco can demonstrate that the weekly HHV values obtained do not vary by: (a) more than 5 percent from each other during each month, and (b) by 10 percent from each other, at a maximum, during the last six months. The heating value obtained shall also be computationally adjusted to reflect a heating value (Btu/scf) minus the CO₂ content as described in the *Flare Gas Monitoring Plan*.

- (iv) *Planned Continuous Flare Gas Sulfur Content* – LO-Cat exhaust shall be monitored for hydrogen sulfide on a semi-annual basis by taking measurements using sulfur detection tubes. Venoco shall add the most recent analysis results for the non-H₂S fraction of total sulfur compounds to derive the total sulfur content.
- (v) *Intermittent Flare Event Sulfur Content* - The sulfur content of flare gas during all intermittent flaring events (either planned or emergency events) shall be continuously monitored for hydrogen sulfide at V-221 with an H₂S monitor and permanent recording device, per its “Continuous Flare Gas H₂S Monitoring Plan” (see Condition 9.C.16) and any subsequent APCD-approved updates. Venoco shall add the most recent analysis results for the non-H₂S fraction of total sulfur compounds to derive the total sulfur content.
- (vi) *Total Sulfur Content* - The total sulfur content of gas combusted during flaring events and for pilot and LO-Cat Oxidizer Exhaust gas, shall be measured on a semi-annual basis using APCD-approved ASTM methods. The purpose of these semi-annual analyses is to determine the non-H₂S fraction of total sulfur compounds present these gases and to use these values to correct the hydrogen sulfide values measured using sulfur detection tubes. Venoco shall take the results of the testing and add it to the hydrogen sulfide test results for the subsequent 6-months to obtain an estimate of the total sulfur content of these gases. Venoco shall submit the lab analyses reports to the APCD with the Compliance Verification Reports.
- (vii) *Process Parameter Monitoring and Alarm System Operations* - The permittee shall operate and properly maintain all the process monitors and alarms listed in Table 9-5 below, and for the VRU low pressure monitor and alarm listed in the Table in Section D.23.

Table 9-5 Thermal Oxidizer Process Parameter Monitoring/Alarm Requirements

Equipment Item & Parameter	Monitored Units	Monitoring Method	Recording Method
THERMAL OXIDIZERS			
A. H-205 Combustion Chamber			
1. Temperature Controller Set point	°F	PLC/LED	Log Daily
2. Actual Temp.	°F	TC	Circular Chart ^(a)
3. Low Temp. Alarm	1400 °F	TC/Audible Alarm to alert aberrant condition	See "Actual Temp" Circular Chart specified above.
B. H-205/206/207			
1. Fuel Flows (205/206)	SCFD	Calibrated Flow Meter	Circular Chart ^(a)
2. Fuel Flow (207)	SCFD	Calibrated Flow Meter ^(b)	Circular Chart ^(a)
3. H ₂ S Concentration	H ₂ S ppmv	Continuous	Circular Chart ^(a)
LO-CAT OXIDIZER EXHAUST TO H-205 (DELIVERY LINE & SPENCER BLOWER)			
A. Blower Inlet (Suction) Pressure	Alarm Low @ -1.0 psig	PT/Audible Alarm	Circular Chart ^(a)
B. LO-Cat Exhaust Flow	SCFD	Calibrated Flow Meter	Circular Chart ^(a)
LO-CAT SULFUR REMOVAL UNIT			
A. Regeneration Air Blower Flows (Tanks 1902 & 1903)	Relative Flow Indicator	Annubar "Delta P" Indicators	Circular Chart ^(a)

Table Notes:

- TC = Thermocouple
- PLC = Programmable Logic Controller/Light emitting diode display panel value (or equivalent)
- PT = Pressure Transducer
- N/A = Not Applicable
- (a) = Or, equivalent APCD approved permanent recording method.
- (b) = New flow meter requirement for this device per ATC 9473-03.

(viii) *Flare Gas CO₂ Content* - The CO₂ content of gas combusted during flaring events shall be measured on a weekly basis using APCD-approved methods. Venoco shall implement the APCD-approved *Process Stream Sampling Plan* (See also Section 4.11 and Permit Condition 9.C.16) and any subsequent APCD-approved updates. The Plan, addresses the sampling locations, the sampling mechanism, and the collection and analysis methods for the CO₂ content and the HHV of the process stream to the thermal oxidizers. The weekly analyses are required to determine the CO₂ fraction present in these gases and to use these values to correct (a) the volume flow to the thermal oxidizers on a non-CO₂ basis, and (b) to assess the heating value of these gases on a non-CO₂ basis. Venoco shall use the results of the analysis to report (a) the non-CO₂ volume flow to the thermal oxidizers on hourly, daily and annual basis, and (b) the actual heat input to the thermal oxidizers on hourly, daily and annual basis. Venoco shall submit the lab analyses reports to the APCD with the Compliance Verification Reports.

The APCD may, at its discretion, require Venoco to install automated CO₂ samplers or require more frequent sampling if the CO₂ levels in any three of the samples obtained during any 6-month period fluctuate by more than 10 percent from the average CO₂ level during that period. Any sample obtained during source testing and showing a greater than 20 percent deviation from the average CO₂ level during this period shall trigger a detailed review and more frequent sampling, if necessary. Venoco shall submit an ‘automated sampler’ Sampling Plan update for APCD approval within 30 days of written notification from the APCD. Such automated sampling shall be implemented no later than six (6) months after APCD notification. The *Process Monitor Calibration and Maintenance Plan* shall also be updated to include the calibration and maintenance schedule for any automated CO₂ sampler required by the APCD. Such an update shall be provided to the APCD no later than six (6) months after the APCD notification for the sampler.

- (ix) *Inlet Gas CO₂ Content* - The CO₂ content of gas incoming to the EOF from Platform Holly and the Seep Device shall be measured on a monthly basis using an APCD-approved method. (See also Permit Condition 9.C.11) This method is based on the APCD-approved *Process Stream Sampling Plan* (see Condition 9.C.16). The Plan (see also Section 4.11) includes listing of the sampling locations, the sampling mechanism, and the collection and analysis methods for the CO₂ content of the incoming streams to the EOF. The purpose of the monthly analyses is (a) to determine the CO₂ fraction present in these gases, and (b) to ensure the CO₂ content of the incoming streams does not exceed 17% on a monthly basis.
- (x) *H-205 NO_x and CO Emissions* – The exhaust concentration (ppmv) of NO_x, CO, and O₂ from H-205 shall be measured with a District-approved portable analyzer once every month. The analyzer shall be calibrated per ASTM Test Method D-6522-00 (reapproved 2005) prior to each use. Analyzer readings shall be taken pursuant to ASTM Test Method D-6522-00 (reapproved 2005). The hourly flow rate of flare gas and in-plant fuel gas shall be recorded during monitoring in accordance with the approved *Flare Gas Monitoring Plan*. The NO_x and CO emission factor (lb/MMBtu) shall be calculated per Attachment B of this permit. Any NO_x emission factor exceeding the 0.068 lb/MMBtu limit constitutes a violation of this permit unless compliance is demonstrated within 15 days of the initial reading.
- (d) **Recordkeeping:** The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request:
 - (i) *Flare Event Volumes* - All flaring events shall be recorded in an APCD-approved flare log. The log shall include: date; the thermal oxidizer used (H-205, H-206, H-207); duration of flaring events (start and stop times); quantity of gas flared in units of standard cubic feet; cumulative total volume flared for all events to date through the year (by category); the H₂S content of the gas flared; reason/cause for the flaring event; whether there were visible emissions; and, the type of event (e.g., planned continuous, planned intermittent or unplanned intermittent). This log shall include all unplanned and planned flaring events.

- (ii) *Pilot Volume* - The volume (standard cubic feet) of pilot gas consumed each day and month by each thermal oxidizer shall be recorded in an APCD-approved log.
- (iii) *Flare Event Heat Input*. The heat input (Btu/hr, Btu/day, Btu/year) to each thermal oxidizer based on the flow volume and higher heating value of the flare gas shall be recorded in an APCD-approved log.
- (iv) *LO-Cat Oxidizer Exhaust Gas Volumes* - The volume (standard cubic feet) of LO-Cat Oxidizer Exhaust gases consumed each day and each month shall be recorded in an APCD-approved log.
- (v) *Flare Gas Heating Values* – The weekly heating value lab analysis results for the gases combusted in the thermal oxidizers shall be recorded. Include copies of the lab’s analysis sheets, as obtained separately for the streams at FR-081, FR-563, and FR-567; and the computed higher heating value of the gas at FR-080. Venoco shall record (a) the HHV of the samples obtained and (b) the HHV of the non-CO₂ constituents of the samples (Refer to the *Flare Gas Monitoring Plan* for methodology details).
- (vi) *Sulfur Content of Continuous Flare Gas Streams* - The daily H₂S sulfur detection tube readings from continuous streams (e.g., pilot, Grace Permeate gas), and semi-annually measured sulfur content data for the LO-Cat exhaust stream shall be recorded in an APCD-approved log.
- (vii) *Sulfur Content of Intermittent Flaring Events* - The data (ppmv H₂S) from the continuous H₂S monitoring system at V-221 unit shall be recorded in an APCD-approved log.
- (viii) *Total Sulfur Content Analyses* - The results of the semi-annual analyses for the H₂S and total sulfur content of gas combusted during flaring events and pilot and LO-Cat Oxidizer Exhaust gas, along with a calculation of the non-H₂S fraction of the total sulfur compounds that is used to correct the sulfur detection tube and continuous H₂S monitor readings to estimate the total sulfur of these gases for the subsequent year shall be recorded. Include copies of the lab’s analysis sheets.
- (ix) *CO₂ Content of Flare Gases* – (a) All monthly-obtained CO₂ content data for gases incoming to the EOF from Platform Holly and the Seep device and (b) all weekly-obtained data for CO₂ and HHV of the flare gases to the thermal oxidizers, shall be logged by Venoco for the purpose of demonstrating compliance with (a) MMscf/year limit in Table 9-3, and (b) the heat input limits specified in Section 9.C.2.(b).
- (x) A log of all Breakdown Reports and Deviation Reports filed with the APCD for any equipment described by this permit. This log shall document the information required by APCD Rule 505.
- (xi) Results of all source testing for the thermal oxidizers for the reporting period shall be recorded.

(xii) Maintenance and calibration records of all flow metering, process controllers and process alarms required by this permit.

(xiii) Results of the monthly H-205 NO_x and CO monitoring, calibration records for each monitoring event, the heat input rate of flare gas and in-plant fuel gas, and calculated NO_x and CO emission factors for each monitoring event.

(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 *Semi-Annual Compliance Verification Reports* condition of this permit.
 [Reference: APCD Rules 359 and 1303, ATC 9473-05, ATC 9473-06, ATC/PTO’s 10941 and 11169, and 40 CFR 70.6.(c)]

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

APCD ID No.	Venoco Equipment No.	Equipment
		<i>Gas/Light Liquid Service Components and associated leak paths</i>
000297	N/A	Valves: Accessible – <i>component leak path = 3607</i>
000310	N/A	Valves: Inaccessible – <i>component leak path = 4</i>
009118	N/A	Valves: Unsafe – <i>component leak path = 7</i>
000300	N/A	Connections: Accessible – <i>component leak path = 19737</i>
000312	N/A	Connections: Inaccessible – <i>component leak path = 2327</i>
009120	N/A	Connections: Unsafe – <i>component leak path = 78</i>
009122	N/A	Pressure Relief Valves: Accessible – <i>component leak path = 74</i>
009123	N/A	Pressure Relief Valves: Inaccessible – <i>component leak path = 2</i>
107363	N/A	Pressure Relief Valves: Unsafe – <i>component leak path = 0</i>
009121	N/A	Compressor Seals: -- <i>component leak path = 20</i>
009125	N/A	Pump Seals: -- <i>component leak path = 10</i>
		<i>Oil Service Components and associated leak paths</i>
000298	N/A	Valves: Accessible – <i>component leak path = 458</i>
000301	N/A	Connections: Accessible – <i>component leak path = 2428</i>
107364	N/A	Connections: Unsafe – <i>component leak path = 0</i>
009127	N/A	Pressure Relief Valves: Accessible – <i>component leak path = 0</i>
009128	N/A	Pump Seals; -- <i>component leak path = 7</i>

(a) **Emission Limits:** Mass emissions from the gas/light liquid service and oil service components listed above shall not exceed the limits listed in Table 5.1-3 and Table 5.1-4.

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

- (i) *I&M Program* - The APCD-approved I&M Plan (see Condition 9.C.16) and any subsequent APCD-approved updates for the EOF shall be implemented for the life of the project. The Plan, and any subsequent APCD approved revisions, is incorporated by reference as an enforceable part of this permit.
- (ii) *Leak-Path Count* – Component and leak-path count inventory updates provided by Venoco shall not exceed the APCD approved totals 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. (Note: ‘de minimis’ component-leak-path count is not included in Table 5.1-1.)
- (iii) *Venting* - All routine venting of hydrocarbons shall be routed to either the VRU compressor, flare header or other APCD-approved control device.
- (iv) *VRU Use* - The VRU and gas collection (GC) systems at the EOF shall be in operation when equipment connected to these systems is in use. These systems include piping, valves, and flanges associated with the VRU & GC systems. The VRU & GC systems shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
- (v) *Emission Reduction Credits* - The emission reductions created by this permit are for the use as offsets by The Point Arguello Companies to meet the requirements under Permit to Operate 5704 (version 27 March 1996 or subsequent updates to that permit). Emission reduction measures implemented to create the required emission reductions shall be in place and maintained for the life of the Gaviota project. This permit does not authorize the dedication of these emission reductions to any other project without prior written approval by the APCD. The APCD will assess any such proposal in accordance with applicable APCD rules and regulations in effect at the time an application is determined to be complete by the APCD.
- (vi) *ERC Inspection & Maintenance (I&M) Program* - The permittee shall implement the ERC fugitive hydrocarbon inspection and maintenance program at the EOF. The inspection and maintenance program shall be consistent with APCD Rule 331 (Fugitive Emissions Inspection and Maintenance). However, the permittee shall also comply with other specified recordkeeping and reporting requirements as outlined in the *Fugitive Hydrocarbon Inspection and Maintenance Program Plan* as approved by the APCD and any subsequent APCD-approved updates.
- (vii) *Reimbursement of Costs* - All costs reasonably incurred by the APCD, including APCD consultants and Legal Counsel (but not attorney's fees in litigation) related to the implementation and enforcement of the ERC I&M Program shall be reimbursed by Venoco within thirty (30) calendar days of invoicing by the APCD. If, for any reason, the APCD is unable to obtain full reimbursement for all costs incurred, the APCD may revoke or suspend this permit until such a time that a complete application (including the payment of all outstanding invoices) for the reinstatement of the permit is received by the APCD.

- (c) Monitoring: The equipment listed in this section is subject to all the monitoring requirements listed in 40 CFR Part 60, Subpart KKK and APCD Rule 331.F. The test methods in Subpart KKK and Rule 331.H shall be used, when applicable. In addition, Venoco shall track the 'component-leak-path' (clp) counts for all categories of components at the EOF that are listed in the Section C.3 table above; and, log any 'clp' count changes, including de minimis changes, in a component-leak-path inventory maintained for the facility.
- (d) Recordkeeping: All inspection and repair records shall be retained at the source for a minimum of five years. The equipment listed in this section is subject to all the recordkeeping requirements listed in 40 CFR Part 60 Subpart KKK and APCD Rule 331.G and the APCD-approved I&M Plan (see Condition 9.C.16) and any subsequent updates. The permittee shall also do the following:
- (i) *I&M Log* - Venoco 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;
 - a record of component repair actions-including dates of component re-inspections; and,
 - A table showing clearly all changes in the 'clp' counts from the count shown in the Section C.3 Table above, for all categories of components including the 'de minimis' components at the facility.
- (ii) Venoco shall also maintain, on a quarterly basis, adequate records to verify that the 141.51 tons/yr ROC emission reductions required under this permit to provide adequate credits to Chevron's Pt. Arguello Project are actually being attained and are in compliance with the APCD Rules and Regulations. These records shall include all information required under the APCD-approved I&M Plan and any subsequent APCD-approved updates.
- (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 7234, ATC 9323, ATC 10022, 40 CFR 70.6(a)(3), Subpart KKK, APCD Rule 331]

C.4 **Oil and Emulsion Breaker Tanks.** The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
000283	T-202	Oil Shipping Tank T-202 - 2,000 barrel (D, 30-foot by H, 16-foot)
006477	T-203	Oil Surge Tank T-203 - 2,000 barrel (D, 30-foot by H, 16-foot)
000284	T-204	Reject Oil Tank T-204 - 2,000 barrel (D, 30-foot by H, 16-foot)
008002	T-101	Emulsion Breaker Tank T-101-403 barrel (D, 12-foot by H, 20-ft)

- (a) **Emission Limits:** The mass emissions from emulsion-breaker liquid storage tank T-101 shall not exceed the limits in Table 5.1-3 and Table 5.1-4. Compliance with this limit is determined based on the throughput of the emulsion-breaker liquid and on the equipment rating, ROC fraction in the liquid, and the USEPA tank equations. APCD-enforceable limits for the crude oil tanks are listed in Section 9.D.
- (b) **Operational Limits:** Federally-enforceable operational limits for these equipment items are as follows:
- (i) *Process Throughput* - Daily and annual truck unloading of the emulsion-breaker liquid is restricted to 403 bbls/day and 2,173 bbl/year, respectively. Compliance is based on monitoring and recordkeeping for the daily and annual throughputs.
 - (ii) *Oil Tank ROC Emissions Control* - The vapor recovery (VR) system shall be connected to each tank which stores, holds, or places petroleum products and operated during production, processing, or storage. The VR system shall meet the requirements of Rule 325. The VR system includes all associated piping, valves, and flanges. The VR system shall be maintained leak-free and operated properly.
 - (iii) *Degassing/Purging of Tanks Containing Sulfur Compounds* - The stationary tanks/vessels listed above are used to store organic liquids containing odorous sulfur compounds; hence, these vessels shall be purged or degassed in a manner consistent with APCD Rules 343 and the APCD-approved *Degassing Plan* for Venoco (see Condition 9.C.16) and any subsequent updates.
- (c) **Monitoring:** Monitoring requirements for the equipment listed above are:
- (i) *Crude Oil Emulsion Volume* - The volume of crude oil emulsion (in units of barrels) received by EOF shall be measured by using a calibrated flow meter or multiple meters, as specified in the Crude Oil Emulsion Metering Plan included in the *Process Monitor Calibration & Maintenance Plan* (see Condition 9.C.16). A copy of the latest calibration results for the flow meter(s) shall be kept at the EOF and made available to the APCD staff upon request.

- (ii) *Emulsion Breaker Volume* - The volume of emulsion breaker liquid delivered to the EOF shall be logged using tank strapping and determining the weight (and volume) of the tank liquid before and after delivery (in units of barrels).
 - (iii) *Operating Days* - The number of days that oil emulsion was processed at the EOF shall be logged.
 - (iv) *Crude Oil Analysis* - On an annual basis, the API gravity and true vapor pressure (TVP) at the maximum expected temperature of the crude oil in each storage tank shall be measured and recorded per Rule 325.G.2.
 - (v) *Diluent Use* - The total volume of diluents added to the oil shall be logged using calibrated flow meters (in units of barrels). For each type of diluent used, log the volume used and the type and physical properties (TVP, API gravity) of each diluent.
 - (vi) *Degassing* - For all degassing events subject to APCD Rule 343, monitor the volume purged, characteristics of the vapor purged and document the control device/method used.
 - (vii) *Tank Roofs* - Each tank roof, including its closures and seals, shall be completely inspected whenever the tank is emptied for non-operational reasons or at least every five years, whichever is earlier, and prompt corrective action taken to repair any items found to be in disrepair.
- (d) Recordkeeping: The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request.
- (i) *Crude Oil Emulsion Volume* - The volume of crude oil emulsion (wet) received at EOF each month and the number of days during that month that emulsion was received (in units of barrels).
 - (ii) *Emulsion Breaker Volume* - The volume of emulsion breaker liquid delivered to the EOF each month and the number of days during that month that oil was processed (in units of gallons).
 - (iv) *Crude Oil Analysis* - The API gravity and true vapor pressure (TVP) of the crude oil as determined by Condition 9.C.4.(c)(iv).
 - (v) *Diluent Use* - The total volume of diluents added to the oil each month (in units of barrels). Record the volume used each month and the type and physical properties (TVP, API gravity) of each type of diluents used.
 - (vi) *Degassing* - For all degassing events subject to APCD Rule 343, monitor the volume purged, characteristics of the vapor purged and document the control device/method used.
 - (vii) *Tank Roofs* - Each tank roof, including its closures and seals, shall be completely inspected whenever the tank is emptied for non-operational reasons or at least every five

years, whichever is earlier. Records shall be maintained indicating each date that the tank was empty, and the results of the nature of the inspection made, and the results of the inspection.

- (viii) The following records required to be maintained per APCD Rules 325 and 343, Section F (Recordkeeping):
 - a. The type of liquid in each tank
 - b. The maximum vapor pressure of the tank content under normal conditions
 - c. The date and the tanks degassed

- (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 *Semi-Annual Compliance Verification Reports* condition of this permit.

[Re: APCD Rule 325, APCD Rule 343, ATC 10022, ATC 1196 (NSR-01196), 40CFR 70.6.(a)(3)]

C.5 Pigging Equipment. The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name, Equipment Description
009200	N/A	Oil Pig Receiver, interfacing Holly
111633	N/A	Utility Pig Receiver, interfacing Holly
111634	N/A	Gas Pig Receiver, interfacing Holly
009337	N/A	Gas Launcher, interfacing Seep

- (a) **Emission Limits:** The mass emissions for the pig receivers and launcher shall not exceed the limits in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on the operational, 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 325.E. Compliance with these limits shall be assessed through the monitoring, recordkeeping and reporting conditions in this permit. In addition, Venoco shall meet the following requirements:
 - (i) *Pressure* - The pig receivers/launcher shall be depressurized to the VRU via the EOF closed drain system prior to each hatch opening to the maximum extent feasible. The pig launcher hatch shall not be opened when the pressure in the launcher is greater than 1 psig. Compliance shall be based on a pressure gauge or equivalent APCD-approved monitor installed to monitor the internal pressure of the receiver/launcher.
 - (ii) *Openings* - Access openings to the pig receiver/launcher shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the launcher, or during active maintenance operations. Prior to opening the pig receiver/launcher, Venoco shall purge the vessel with sweet in-plant fuel gas (not to exceed 4 ppm H₂S and 80 ppmv total sulfur content calculated as H₂S at standard conditions), nitrogen or water.

(iii) *Events* - The number of emulsion and gas pig operations (events) shall not exceed the maximum number listed in Table 5.1-1.

Other APCD-enforceable limits for these items are listed in Section 9.D.

- (c) Monitoring: Venoco shall monitor the pressure inside the pig receiver/launchers with an APCD-approved pressure gauge or equivalent APCD-approved device.
- (d) Recordkeeping: Venoco shall keep a log for each pig receiver and launcher listing the number of pigging events per day, quarter and year. Venoco shall also record in the same logs the name of the pig receiver/launcher used, the date of the pigging operation and the pressure inside the receiver/launcher prior to each opening.
- (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* conditions of this permit.
[Re: APCD Rules 325 and 1303, ATC/PTO 11106, 40 CFR 70.6]

C.6 **Wastewater Tanks, Sumps.** The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
009327	S-202	Sump Tank, S-202; 80 bbl., (D, 6.5-foot by L, 14-foot)
006478	TK-201	Wash Tank, TK-201; 3000 bbl.,(D, 30-foot by H, 24-foot)
009330	S-203	Oil Sump, S-203; 95 bbl.

- (a) Emission Limits: No federally-enforceable emission limits exist for these equipment items. APCD-enforceable limits for these items are listed in Section 9.D.
- (b) Operational Limits: All process operations from the equipment listed in this section shall meet the requirements of Sections D and E of APCD Rules 325 and 343, as applicable to the equipment. The tanks listed above shall be connected to vapor collection and removal device(s) prior to their operation, and the vapor removal efficiencies shall be no less than 90 percent. Compliance with these limits shall be assessed through the monitoring, recordkeeping and reporting conditions in this permit.

To comply with Rule 343.D, Venoco shall use a control device, approved in advance by the APCD, when degassing or purging any stationary tanks, vessels, or containers that process odorous sulfur compounds.

- (c) Monitoring: The equipment listed in this section is subject to all the monitoring requirements of APCD Rule 325.H. The test methods outlined in APCD Rule 325.G shall be used, when applicable. Venoco shall perform the following compliance monitoring:
 - (i) *Physical Data* - On an annual basis, the API gravity and true vapor pressure (TVP) at the maximum expected temperature of the product in each storage tank shall be measured and

recorded per Rule 325.G.2.b and c, using ASTM D 323-5B and API Bulletin 2519 (or an equivalent APCD-approved method).

- (ii) *Degassing* - For all degassing events subject to Rule 343, monitor the event consistent with requirements of Rule 343 and Venoco’s District APCD approved degassing plan (see Condition 9.C.16)
 - (iii) *Tank-201* - Each above ground tank roof, including its closures and seals, shall be completely inspected whenever the tank is emptied for non-operational reasons or at least every five years, whichever is earlier.
- (d) **Recordkeeping:** The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request. The equipment listed in this section is subject to all the recordkeeping requirements listed in Section F of APCD Rules 325 and 343. In addition, Venoco shall record the following:
- (i) *Physical Data* - On an annual basis, the API gravity and true vapor pressure (TVP) at the maximum expected temperature of the product in each storage tank shall be measured and recorded per Rule 325.G.2.
 - (ii) *Degassing* - For all degassing events subject to Rule 343, the volume purged, the physical properties of the vapor and characteristics of the vapor purged, and document the control device/method used.
 - (iii) *Tanks* - The detailed results of all above ground tank roof inspections.
 - (iv) *Tank Data* - The following data required to be obtained per APCD Rules 325 and 343, Section F (Recordkeeping):
 - a. The type of liquid in each tank
 - b. The maximum vapor pressure of the tank content under normal conditions
 - c. The date and the tanks degassed.
- (e) **Reporting:** The equipment units listed in this section are subject to all the reporting requirements listed in APCD Rules 325 and 343. 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.
 [Reference: APCD Rule 325, APCD Rule 343.F, 40 CFR 70.6.(a)(3), APCD Rule 1303.D]

C.7 Loading Racks. The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
008003	None	LPG/NGL Loading Rack (balanced VRS loading)
106339	None	Emulsion-Breaker Loading Rack (no VRS)

APCD-enforceable limits for the LPG/NGL loading rack are listed in Section 9.D.

- (a) **Emission Limits:** The ROC mass emission for the emulsion-breaker loading rack, shall not exceed the limits in Table 5.1-3 and Table 5.1-4. Compliance with this limit is determined based on the throughput of the emulsion-breaker and the ROC fraction in the emulsion breaker liquid along with the APCD-approved loading rack calculations used in this permit.
- (b) **Operational Limits:** Daily and annual truck unloading of the emulsion-breaker is restricted to 403 bbl/day and 2,173 bbl/year, respectively. Compliance is based on monitoring and recordkeeping for the daily and annual throughputs.
- (c) **Monitoring:** The permittee shall log, each day, the volume of each load of emulsion breaker unloaded through the loading rack.
- (d) **Recordkeeping:** Federally-enforceable recordkeeping requirements are as follows:
 - (i) Daily logs documenting the volume, in barrels, and dates of emulsion breaker shipments.
 - (ii) The total amount, in barrels, of emulsion breaker unloaded through the loading rack.
- (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.
[Reference: APCD ATC 10022]

C.8 **Produced Gas Sweetening and Sulfur Recovery (LO-Cat) unit.** The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
009345	F-2201/2202/2203	Gas Filters, three (3) in number;
009346	V-1201/1202:	Two (2) separation drums, each drum equipped with four gas/(LO-Cat) solution eductors for sweetening the gas;
009347	J-1101/1104/ 1105/1108	Four (4) gas/(LO-Cat) solution eductors; filter separator blow down line is connected to vapor recovery
009348	V-1203	Water Wash drum;
009349	V-1206	One (1) Flash Drum
009350	V-1207	One (1) knockout drum
009351	T-1901	2,750 bbl Reaction (stand-by holding)Tank; 29.75' dia x 22.3' ht.
009355	M-2404/2405/ 2407/2408	Agitators (4) for the holding tank; each with a 15 hp motor
009448	T-1902/1903	Two (2) oxidizer tanks (sulfur recovery unit) each with an air blower;
009352	BL-1801/1802	Two (2) Air blowers, each with a 300 hp electric motor;
106343	E-1701 A/B	Cooling Tower, equipped with two 5 hp electric fans (E-1701 A/B) -- <i>out-of-service</i>

- (a) Emission Limits: No federally-enforceable mass emission limits exist for this equipment.
- (b) Operational Limits:
- (i) No more than 9.8 long tons of sulfur shall be produced by the LO-Cat unit in any one day.
 - (ii) The LO-Cat sulfur removal process shall be controlled by the VRU at all times.
 - (iii) The LO-Cat sulfur removal process shall not process sour gas feedstock unless the H-205 thermal oxidizer and the LO-Cat VRU (*referred to as MOAS in Section 1.4*) are operating to fully incinerate all LO-Cat Oxidizer exhaust.
 - (iv) Lo-Cat components shall be maintained in a leak-free condition. A leak is defined as total hydrocarbon (THC) emissions exceeding 500 ppmv when measured using an Organic Vapor Analyzer (OVA) calibrated to methane. Any leaks shall not be a violation of this permit as long as the leak thresholds of Table 1 of Rule 331 are not exceeded and all leaks are repaired according to the timelines of Rule 331. Leaks between 500 and 1,000 ppmv shall be repaired according to the timeline for minor gas leaks in Rule 331.
 - (v) Venoco shall comply with the requirements of Rule 331 for all fugitive components associated with the Lo-Cat unit.
 - (vi) Venoco shall not produce acid gas.
- (c) Monitoring: Venoco shall monitor the following for the equipment listed above:
- (i) The daily mass of sulfur produced.
 - (ii) To ensure LO-Cat exhaust is not vented to the atmosphere due to leaks in the equipment, the following requirements shall apply:
 - 1. All LO-Cat Oxidation exhaust system vessels, piping, and the Spencer blower to the H-205 thermal oxidizer, shall be inspected for leaks within one hour of a LO-Cat system startup (planned) and once per quarter while the LO-Cat system is in operation.
 - 2. Venoco shall make similar inspections for pipes and blowers for all unplanned shutdowns involving the Spencer blower and the LO-Cat system, unless Venoco's leak inspection staff is absent from the facility. In such 'staff absent' situations, Venoco shall notify the APCD project manager during normal business hours by telephone within 15 minutes of such shutdown.
- (d) Recordkeeping: The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request.
- (i) For the life of the facility, an analysis demonstrating that the facility's design capacity is less than 2 long tons/day of H₂S, expressed as sulfur, in the acid gas.
 - (ii) Daily quantity of sulfur produced.
 - (iii) Records demonstrating that the facility does not produce acid gas.

- (iv) P&ID's associated with the Produced Gas Sweetening Unit and Sulfur Recovery (LO-Cat) Unit shall be kept on file at EOF and made available to the APCD upon request. Any modifications pertaining to acid gas production will require an ATC/PTO modification to this permit.
 - (v) A list of the leak-path components associated with the LO-Cat exhaust system to the H-205 thermal oxidizer.
 - (vi) A log indicating the results of each leak inspection, and records of both shutdown and routine leak inspections consistent with Rule 331, Section G.
- (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: Subpart LLL, 40 CFR 60.640, ATC 9473-05]

C.9 Grace Membrane Unit. The following equipment is included in this emission category:

APCD ID No.	Venoco Equipment ID No.	Name
009399	Bank A	Permeate Tubes – first stage skid – Bank A
106340	Bank C	Permeate Tubes – first stage skid – Bank C
106099	Bank B	Permeate Tubes – first stage skid – Bank B
111090	Second Stage	Permeate Tubes – second stage skid
009492	F-201	Filter Separator
009398	F-210	Guard Bed
009397	F-211	Polishing Filter
111091	F-215	Filter Separator
106100	F-216	Coalescing Filter
111092	F-217	Guard Bed
111093	F-218	Polishing Filter

- (a) **Operational Limits:** The following operational limits shall apply:
- (i) *Process Volumes* - The Grace Membrane Unit shall not treat more than 13 MMscf/day of gases for CO₂ separation. Any volume of gas recycled through the Grace Unit will not count toward this limit. (Re: ATC 10941)
 - (ii) *Permeate Gas Output* – The combined heat content of “permeate gas” supplied to: (a) Process Heater Unit H-204, plus (b) Relief Header for Relief Scrubber V-221, plus (c) In-plant Fuel Gas Header, shall not exceed 58 MMBtu/hr (Re: ATC 10941).
 NOTE: The hourly permeate gas volume flows shall be obtained by adding up (A) flow to H-204 as obtained at FIT-732 , plus (B) flow to V-221 as obtained from readings at FR-567 +FR-563, plus (C) flow to In-plant Fuel Gas Header as obtained from readings at FR-250 (see Block Flow Diagram in Figure 4.2). The heat content of the total flow shall be computed based on the HHV of weekly samples obtained at FR-564 and FR-563, or other locations approved by the APCD.

(iii) *Compressors K-205/K-206 Operations* – Compressors K-205 and K-206 shall be equipped and operated with a dedicated flow meter (i.e., FR-564), allowing the units to record the volumes of permeate gases processed by the compressors while servicing the Second stage skid.

(iv) *Heater Operation* - If the process heater H-204 is in operation, its total heat input requirement shall be met by the modified Grace Membrane Unit output, to the extent feasible. Only after meeting the full demand of the H-204 unit shall any excess flare gas produced by the Grace Unit be sent to the thermal oxidizer units H-205/206/207. This condition will be enforced through appropriate monitoring and recordkeeping.

(b) Monitoring: Venoco shall monitor the following:

(i) The hourly volume flow rate (in scf/hour) of: (a) gas inflow to the First-stage skid, as recorded by FR-560;

(ii) The hourly volume flow rate (in scf/hour) of: (A) First-stage permeate gas flow into H-204, as recorded by FIT-732, (B) First-stage permeate gas flow to the Relief Header for Relief Scrubber, as recorded by FR-567, (C) Second-stage permeate gas flow into the relief scrubber, as recorded by FR-563 and (D) first-stage permeate gas flow to In-plant Fuel Gas Header, as recorded by FR-250; and,

(iii) The weekly high heating value of first stage and second stage permeate streams. The high heating value of each stream shall be determined by lab analyses of samples taken at each of the following equipment unit locations: (a) FR-564, and (b) FR-563, or other locations approved by the APCD. Sampling at FR-564 does not need to be conducted if the first stage tubes are not in use during the week. Sampling at FR-563 does not need to be conducted if the second stage tubes are not in use during the week.

(c) Recordkeeping: Data from all monitoring activities listed in Condition 9.C.9.(b) above shall be recorded by Venoco. These records shall be kept for a minimum of five (5) years. All sampling and analysis data/results shall be submitted to the APCD in accordance with Permit Condition (d) below.

Grace Unit Output Heating Value Records – The weekly heating value (Btu/scf) lab analysis results for the Grace Unit output shall be compiled. Include copies of the lab's analysis sheets, obtained separately for the gas streams per Condition 9.C.9.(b)(iii); and the computed MMBtu/hr value of the Grace Unit output, based on the weekly high heating value analyses and hourly gas flow volume records.

(d) Reporting: Venoco shall submit the monitoring data recorded per Condition 9.C.9.(c) with each Semi-Annual Compliance Verification Report required per PTO 7904-R7.

C.10 **Solvent/Coating Use.** The following equipment is included in this emissions unit category:

APCD ID No.	Name
106341	<u>Solvents - Cleaning/Degreasing (as part of regular operations)</u>
009521	Surface Coating (<i>that also includes solvents as thinners</i>)

- (a) **Emission Limits:** The solvent emission limits outlined in APCD Rule 317.B are federally enforceable for the entire stationary source.
- (b) **Operational Limits:** Use of solvents for cleaning/degreasing and maintenance surface coating shall conform to the requirements of APCD Rules 317, 321, 322, 323 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit and facility inspections.
- (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.
 - (iv) *Reclamation Plan* - Venoco may submit a Plan to the APCD for the disposal of any reclaimed solvent. If the Plan is approved by the District, 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. Venoco shall obtain APCD approval of the procedures used for such a disposal 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.
- (c) **Recordkeeping:** Venoco shall record in a log the following on a monthly basis for each solvent and coating used: amount used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed for District-approved disposal; whether the solvent is photochemically reactive; and, the resulting emissions to the atmosphere in units of pounds per month and pounds per day. Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location at EOF.

- (d) **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 *Semi-Annual Compliance Verification Reports* condition of this permit.

[Re: APCD Rules 317, 321, 322, 323, 324, 1301 and 1303, 40 CFR 70.6]

- C.11 **CO₂ Content of EOF Inlet Gases.** For each month, the volume fraction of CO₂ in the mix of gases, from the Platform Holly and the Seep Device, coming to the EOF for additional processing/use shall not exceed 17% of the entire incoming monthly gas volume. Results of the monthly laboratory analyses for CO₂ in the incoming gases and the monthly inlet volume flows from Holly and Seep Device shall be used to verify compliance with this condition.
[Ref: ATC/PTO 10941]
- C.12 **Emergency Backup Electrical Generator.** Venoco shall use an emergency backup electrical generator to power the vapor recovery systems during time of power outages. [Re: Rule 303, Abatement Order 99-6(A)]
- C.13 **Semi-Annual Monitoring/Compliance Verification Reports.** Twice a year, Venoco shall submit a compliance verification report to the APCD. Each report shall be used to verify compliance with the prior two calendar quarters. The first report shall cover calendar quarters 1 and 2 (January through June) and shall be submitted no later than September 1. The second report shall cover calendar quarters 3 and 4 (July through December) and shall be submitted no later than March 1. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit (if applicable for that quarter). These reports shall be in a format approved by the APCD. All logs and other basic source data not included in the report shall be available to the APCD upon request. The second report shall also include an annual report for the prior four quarters. Pursuant to Rule 212, a completed *APCD Annual Emissions Inventory* questionnaire shall be included in the annual report or submitted electronically via the APCD website. The report shall include the following information:

(a) *External Combustion Equipment.*

- (i) Volume of PUC natural gas consumed and the corresponding heat input to each heater treater for each day and cumulatively for the entire year in units of standard cubic feet and million BTUs, respectively.
- (ii) Volume of PUC natural gas and the volume of permeate gas consumed and the corresponding heat inputs to the process heater for each day and cumulatively for the entire year in units of standard cubic feet and million BTUs, respectively. In addition, provide the combined heat input to the process heater for each day and cumulatively for the entire year in units of million BTUs.
- (iii) The daily H₂S and semi-annual total sulfur analyses results. Copies of daily analysis sample results (e.g., photocopies of absorbent tubes) and semi-annual lab analyses reports shall be maintained.
- (iv) The monthly higher heat value lab analyses.
- (v) Documentation showing how the gas flow and HHV data was used to determine the heat input to each heater treater and the process heater.

- (vi) Documentation showing how the non-H₂S fractions of the semi-annual total sulfur analyses were determined and how these values were used to adjust the daily H₂S sampling results to ascertain daily total sulfur values.
- (vii) Results of all compliance source testing performed.
- (viii) Maintenance logs for the process heater, its emission control system and fuel flow meter; maintenance and calibration logs for each heater treater and its fuel flow meter.

(b) *Thermal Oxidizer Systems.*

- (i) The daily volumes of gas combusted and resultant mass emissions for each flare category (i.e., *Pilot; Planned - Continuous; Planned - Intermittent; Unplanned*), shall be presented individually for each thermal oxidizer, and then totaled (for each subcategory and for all three thermal oxidizers combined). This data will further be summarized for each calendar month, as well as for the entire reporting period. The final report for the year will provide the totalized annual volumes for these parameters as well. If the *Planned - Continuous* flaring volumes include gases other than the LO-Cat Oxidizer Exhaust flows, then provide additional classification of the volumes that comprise this category.
- (ii) The heat input of gaseous fuel combusted by each thermal oxidizer shall be reported consistent with the recordkeeping requirements of this permit.
- (iii) The results of the semi-annual analyses for the total sulfur content of the planned continuous flare gas streams (e.g., pilot, LO-Cat Oxidizer Exhaust gas, etc.) along with a calculation of the non-H₂S fraction of the total sulfur compounds that is used to correct the sulfur detection tube H₂S readings to estimate the total sulfur of these gases. Also, provide a copy of all lab analyses.
- (iv) The semi-annual H₂S sulfur detection tube readings for pilot and LO-Cat exhaust gases (corrected with the total sulfur values from the gas analysis).
- (v) The average daily H₂S concentration and the highest H₂S concentration observed from the continuous H₂S monitor, corrected with the total sulfur values from the gas analysis for planned intermittent and unplanned intermittent flare events.
- (vi) The weekly lab analysis results for the heating values and CO₂ content of the gases combusted in the thermal oxidizers, and the monthly obtained CO₂ content analysis of gases coming to the EOF from Platform Holly and the Seep Device. Include copies of the lab's analysis sheets.
- (vii) A copy of the Breakdown Reports and Deviation Reports Log filed with the APCD for any equipment described by this permit. This log shall document the information required by APCD Rule 505.
- (viii) A copy of Flare Event Log for the reporting period.
- (ix) All source testing and monthly NO_x and CO sampling results for the thermal oxidizers during the reporting period.

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

- (i) Inspection summary.
- (ii) Record of leaking components.
- (iii) Record of leaks from critical components.

- (iv) Record of leaks from components that incur five repair actions within a continuous 12-month period.
 - (v) Record of component repair actions including dates of component re-inspections.
 - (vi) An updated FHC I&M inventory due to change in component list or diagrams.
 - (vii) Listing of components installed as BACT under APCD Rule 331 and/or Regulation VIII as approved by the APCD.
 - (viii) All records required to be reported pursuant to NSPS Subpart KKK.
- (d) *Oil Storage Tanks.*
- (i) *Emulsion Volume* - The volume of oil emulsion (wet) received at the EOF each month and the number of days during that month that oil emulsion was processed (in units of barrels).
 - (ii) *Emulsion Breaker Volume* - The volume of emulsion breaker liquid delivered to the EOF each month and the number of days during that month that oil was processed (in units of gallons).
 - (iii) *Physical Data of Crude Oils* - On an annual basis, the API gravity and true vapor pressure (TVP) at the maximum expected temperature of the crude oil in each storage tank shall be measured and recorded per Rule 325.G.2.
 - (iv) *Diluent Use* - The total volume of diluents added to the oil each month (in units of barrels). For each type of diluent used, note the volume used each month and the type and physical properties (TVP, API gravity) of each.
 - (v) *Degassing* - For all degassing events subject to APCD Rule 343, monitor the volume purged, characteristics of the vapor purged and document the control device/method used.
 - (vi) *Tank Roofs* - Each tank roof, including its closures and seals, shall be completely inspected whenever the tank is emptied for non-operational reasons or at least every five years, whichever is earlier.
 - (vii) The following records required to be maintained per APCD Rules 325 and 343, Section F (Recordkeeping):
 - a. The type of liquid in each tank
 - b. The maximum vapor pressure of the tank content under normal conditions
 - c. The date and the tanks degassed
- (e) *Pigging.* A copy of the EOF Pigging Log, including the date each pig receiver/launcher was used, the total of pigging events per day, per quarter and per year for each launcher/receiver, the pressure inside the receiver/launcher prior to each opening.
- (f) *Wastewater Tanks.*
- (i) The type of organic liquid in each tank.
 - (ii) The maximum vapor pressure of the liquid.
 - (iii) The results of the inspections required by Section H of this rule.
 - (iv) The American Petroleum Institute gravity of the oil in the tanks.

(g) *Loading Rack.*

- (i) The daily volume (in barrels) of emulsion breaker unloaded into Tank T-101;
- (ii) The total annual volume (in barrels) of emulsion breaker unloaded into Tank T-101.

(h) *Produced Gas Sweetening and Sulfur Recovery (LO-Cat) Unit.*

Leak Inspections:

- (i) The date and summary of each inspection, including whether the inspection was performed while the LO-Cat system was out of service.
- (ii) Record of leaking components found, including dates leaks were detected.
- (iii) Record of leaks from critical components.
- (iv) Record of leaks from components that incur five repair actions within a continuous 12-month period.
- (v) Record of component repair actions including dates of component re-inspections.
- (vi) An updated FHC I&M inventory due to change in component list or diagrams.
- (vii) Listing of components installed as BACT under APCD Rule 331 and/or Regulation VIII as approved by the APCD.
- (viii) A table showing clearly all changes in the 'clp' counts from the count shown in the Section C.3 Table of this PTO, for all categories of components including the 'de minimis' components at the facility.

(i) *Grace Unit.*

- (i) The hourly volume flow rate (in scf/hour) of gas inflow to the First-stage skid, as recorded by FR-560;
- (ii) The hourly volume flow rate (in scf/hour) of: (A) First-stage permeate gas flow into H-204, as recorded by FIT-732, (B) First-stage permeate gas flow to the Relief Header for Relief Scrubber, as recorded by FR-567, (C) Second-stage permeate gas flow into the relief scrubber, as recorded by FR-563 and (D) first-stage permeate gas flow to In-plant Fuel Gas Header, as recorded by FR-250; and,
- (iii) The weekly high heating value of first stage and second stage permeate streams. The high heating value of each stream shall be determined by lab analyses of samples taken at each of the following equipment unit locations: (a) FR-564, and (b) FR-563, or other locations approved by the APCD.
- (iv) The computed heat value of the permeate gas output from the Grace Unit in MMBtu/hr.

(j) *Solvent Usage.*

- (i) Solvent Cleaning Degreasing: 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.
- (ii) Surface Coating – Maintenance: On a monthly basis: the amount of solvent and coatings 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.

(iii) Information required by the Solvent Reclamation Plan, if any.

(k) *General Reporting Requirements.*

- (i) On quarterly and annual basis, the emissions from each permitted emission unit for each criteria pollutant. Also, include a quarterly and annual emissions summary for each criteria pollutant.
- (ii) On quarterly and annual basis, the emissions from each exempt emission unit for each criteria pollutant. Also, include a quarterly and annual emissions summary for each criteria pollutant.
- (iii) A copy of all completed APCD-10 forms (*IC Engine Timing Certification Form*), if used.
- (iv) A copy of the Rule 202 De Minimis Log for the stationary source.

See also Section 9.D.1 for additional APCD required reporting requirements.

[*Re: Rule 202, Rule 316, Rule 317, Rule 325, Rule 331, Rule 333, Rule 359, 40 CFR 70.6.(a)(3)*]

C.14 **Permitted Equipment.** Only those equipment items listed in Attachment 10.5 are covered by the requirements of this permit and APCD Rule 201.B. *Permit-exempt equipment units listed in Attachment 10.6 are subject to all applicable federal, State and APCD requirements.* [*Re: APCD Rule 1303*]

C.15 **Emergency Episode Plan.** As necessary, Venoco shall implement the Emergency Episode Plan for the EOF. Upon written request by the APCD, Venoco shall provide the APCD with an updated plan. [*Re: APCD Rule 603 and 1303*]

C.16 **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 Onshore Facility.

- (i) Fugitive Emissions Inspection and Maintenance (I&M) Plan (Rule 331) for the Ellwood Onshore Facility, (dated 05/28/2002 and approved by the APCD on 10/11/2002) and any subsequent APCD-approved updates.
- (ii) IC Engine Particulate Matter Operation and Maintenance Plan (dated and approved 3/20/2006) and any subsequent APCD-approved updates.
- (iii) Ellwood Onshore Facility Degassing Plan (Rule 343), (dated 05/21/2004 and approved by the APCD on 01/11/2005) and any subsequent APCD-approved updates.
- (iv) Flare Volume Minimization and Monitoring Plan (updated 3/18/2008 and approved by the APCD in June 2008) and any subsequent APCD-approved updates.
- (v) Emergency Episode Plan (Rule 603) (submitted on 3/15/02 and approved by the APCD on 8/02) and any subsequent APCD-approved updates.
- (vi) Complaint Response Plan (dated 05/30/2003 and approved on 04/15/2004) and any subsequent APCD-approved updates.

- (vii) Fence Line Monitor Plan (dated 12/16/2003 and approved on 12/24/2003) and any subsequent APCD-approved updates.
- (ix) Abatement Order: Odor Monitoring Implementation Plan (dated 05/21/2004 and approved on 01/11/2005) and any subsequent APCD-approved updates.
- (x) Process Monitor Calibration and Maintenance Plan (dated and approved January 20, 2006) and any subsequent APCD-approved updates.
- (xi) Flare Gas H₂S Continuous Monitoring Plan (dated 01/23/2004 and approved by the APCD on 03/08/2004) and any subsequent APCD-approved updates.
- (xii) Process Stream Sampling Plan (dated 10/07/2004 and approved on 10/11/2004 and 7/8/05 addendum).
[Re: APCD Rules 303, 317, 331, 333, 343, 359, ATC 10941, ATC 11169, Abatement Order 99-6(A)]

C.17 **Ambient Air Monitoring Stations.** Venoco shall install and maintain two ambient air monitoring stations, approved by the APCD, located as described below to monitor meteorological and odorous organic sulfide concentrations in the vicinity of the Ellwood Onshore Facility ("EOF"). The monitoring stations shall be equipped to continuously monitor and telemeter the data identified in Tables 9-6 and 9-7 below to the APCD in a manner consistent with the APCD's *Ambient Air Monitoring Protocol*. Venoco shall connect all ambient and meteorological parameters to the APCD's central *Data Acquisition System (DAS)* as documented in Tables 9-6 and 9-7 below.

Table 9-6 EOF-Located 10-Meter Meteorological Tower

Ambient Air Monitoring Station	Required Parameters
Ellwood Onshore Oil & Gas Processing Facility 7979 Hollister Avenue Goleta, CA 93117	<ul style="list-style-type: none"> ▪ Wind Speed Average ▪ Wind Direction Average ▪ Wind Speed Resultant ▪ Wind Direction Resultant ▪ Sigma Theta (Wind Variation) ▪ Ambient Temperature

Table 9-7 Goleta Storage Facility-Located 10-Meter Meteorological Tower

Ambient Air Monitoring Station	Required Parameters
Goleta Storage Facility 7760 Hollister Avenue Goleta, CA 93117 (location of station approved by APCD)	<ul style="list-style-type: none"> ▪ Hydrogen Sulfide ▪ Total Reduced Sulfur ▪ Horizontal Wind Speed ▪ Horizontal Wind Direction ▪ Vector Wind Speed ▪ Vector Wind Direction ▪ Sigma Theta (Wind Variation) ▪ Ambient Temperature

Venoco shall reimburse the APCD's costs for the review and audit of the stations' data in accordance with the cost reimbursement provisions of APCD Rule 210 and Condition 9.C.18, Table 9-99. [Re: ATC/PTO Mod 7904-02, Abatement Order 99-6(A)].

C.18 **Data Acquisition System Operation and Maintenance Fee.** This permit requires Venoco to connect certain parameters to the APCD DAS. In addition, Venoco shall reimburse the APCD for the cost of operating and maintaining the DAS. Venoco shall be assessed an annual fee, based on the District’s fiscal year, collected semi-annually.

Pursuant to Rule 210 III.A, Venoco shall pay fees specified in Table 9-8 below. 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 March 27, 1998, letter – *Fixed Fee Proposal for Monitoring and DAS Costs*). In the event that the assumptions used to establish this fee substantially increase or decrease, APCD may revisit and adjust the fee based on documentation of cost of services. Adjusted fees will be implemented by transmitting a revised Table 9-8, which will become an enforceable part of this permit.

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.

Table 9-8 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. (see Tables A-2, A-3, and A-6 in ATC/PTO Mod 7904-02)	\$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.

[Re: *ATC/PTO Mod 7904-02, Abatement Order 99-6(A)*]

C.19 **Ambient Monitoring Station Data Review and Audit Fee.** Venoco shall operate the ambient monitoring stations specified in Tables 9-6 and 9-7 and submit data to the APCD for quality assurance review and shall have the stations audited quarterly by APCD, or its contractor. In addition, Venoco shall reimburse the APCD for the cost of this service. Effective July 1, 1999, Venoco shall be assessed an annual fee, based on the District’s fiscal year, collected semi-annually.

Pursuant to Rule 210 III.A., Venoco shall pay fees specified below in Table 9-9. The APCD will use this fee to pay staff costs to review and quality-assure the monitoring data collected by Venoco and the contractor or staff costs to audit the monitoring equipment. This fee shall not

cover any APCD time necessary to issue or respond to any Notice of Violation, which will be billed on a reimbursable basis. Fees shall be due and payable pursuant to governing provisions of Rule 210, including CPI adjustments.

In the event that Venoco consistently requires services in excess of those assumed in the March 27, 1998 letter (*Fixed Fee Proposal for Monitoring and DAS Costs*), the Control Officer may move Venoco to a reimbursable method of payment, subject to provisions of Rule 210. In the event that the assumptions used to establish this fee substantially increase or decrease, APCD may revisit and adjust the fee based on documentation of cost of services. Adjusted fees will be implemented by transmitting a revised Table 9-9, which will become an enforceable part of this permit. The fees prescribed in this condition shall expire if and when the Board adopts an Ambient Monitoring Station Data Review and Audit Fee and such fee becomes effective.

Table 9-9 Fees for Data Review and Audit ^{(a) (b)}

FEE DESCRIPTION	FEE
Meteorological and/or Odor Monitoring Station Data Review and Audit Fee	Per Station
For data review and audit activities associated with data submitted from each monitoring station in Tables 9-6 and 9-7.	\$11,784 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 the requirements of this permit.

[Re: ATC/PTO Mod 7904-02, Abatement Order 99-6(A)]

C.20 **Data Acquisition System.** Venoco shall install, connect to the APCD's central Data Acquisition System (DAS) and maintain the process and alarm monitoring systems required under Abatement Order 6-99(A), approved by the APCD, and identified in Table 9-10 below.

Table 9-10 DAS Parameters

Facility Location	Required Parameters (by "bullet" item)
EOF	<ul style="list-style-type: none"> ▪ Tank 201 PRV Proximity Switch ▪ Tank 202 PRV Proximity Switch ▪ Tank 203 PRV Proximity Switch ▪ Tank 204 PRV Proximity Switch ▪ H-205 Fuel Flow Meter ▪ H-205 Combustion Temperature ▪ BL-1808 Flow (SCFM) ▪ BL-1808 Suction Pressure/Vacuum ▪ Combined BL-1801 & BL-1802 Flows ▪ Eight – In-Plant-Zone H₂S Detectors (8 parameters) ▪ Six – Fence Line H₂S Detectors

[Re: ATC/PTO Mod 7904-02, Abatement Order 99-6(A)]

- C.21 **Fence Line H₂S Detectors.** Venoco shall operate, calibrate and maintain six (6), fence line H₂S detectors per an APCD-approved *Fence Line Monitoring Plan* (see Condition 9.C.16) and any subsequent APCD-approved updates. These sensors shall be connected to the DAS and operated for the life of the project.
[Re: ATC/PTO 7904-2, Abatement Order 99-6(A), Rule 303]
- C.22 **Process Monitor Calibration and Maintenance Plan.** Venoco shall operate, maintain, calibrate and test the Process Monitors listed in Tables 9-5 and 9-8, the Portable H₂S Monitor, the VRU low suction pressure alarm and the meters discussed in Section 4.10.2 of this permit in accordance with manufacturer's recommended specifications and an approved APCD *Process Monitor Calibration and Maintenance Plan*. [Re: Rule 303, ATC/PTO 7904-2, Abatement Order 99-6(A)]
- C.23 **Process Stream Sampling and Analysis.** Venoco shall sample and analyze the process streams consistent with its *Process Stream Sampling Plan* (see Condition 9.C.16) and any subsequent APCD-approved updates. The APCD may require Venoco to sample additional process streams, or take more frequent samples as may be necessary for the APCD to confirm compliance with this permit. All process stream samples shall be taken according to APCD-approved ASTM methods and must follow traceable chain of custody procedures.
- C.24 **IC Engine Particulate Matter Operation & Maintenance Plan.** To ensure compliance with District Rules 205.A, 302, 304, 309 and the California Health and Safety Code Section 41701 by all its diesel IC engines, Venoco shall implement its APCD-approved *IC Engine Particulate Matter Operation and Maintenance Plan*. [Re: APCD Rules 205.A, 302, 304, 309]
- C.25 **Visible Emissions:** Venoco shall not discharge any visible emissions into the atmosphere from the emission sources below for a period or periods aggregating more than three minutes in any one hour.
- a) Monitoring Frequency:
- (i) Planned-Intermittent Flaring (Thermal Oxidizers H-205, H206, H-207): Venoco shall perform a visible emissions observation for a six-minute period once per quarter during a planned intermittent flaring event. If a planned-intermittent flaring event does not occur during the calendar quarter, no monitoring is required. For each unplanned flaring event greater than six-minutes in duration, a visible emissions observation for a six-minute period shall be performed. Visible emission observations shall be documented using a District-approved Visible Emissions Recordkeeping Log. If no visible emissions are detected during the six-minute observation period, no further monitoring for that event is required. If visible emissions are detected during the six-minute period, then the visible emission observations shall continue in accordance with the "Monitoring Procedure" below.
- (ii) Planned-Continuous Flaring (Thermal Oxidizers H-205, H-206, H-207): Once per calendar quarter Venoco shall perform a visible emissions observation for a six - minute period on the thermal oxidizer. Visible emission observations shall be documented using a District-approved Visible Emissions Recordkeeping Log. If no visible emissions are detected during the six-minute observation period, no further

monitoring is required. If visible emissions are detected during the six-minute period, then the visible emission inspection shall continue in accordance with the "Monitoring Procedure" below.

(iii) Diesel-fueled IC Engine(s). Once per calendar quarter, Venoco shall perform a visible emissions observation for a six-minute period on each permitted and exempt engine when operating. If an engine does not operate during a calendar quarter, no monitoring is required. Visible emission observations shall be documented using a District-approved Visible Emissions Recordkeeping Log. If no visible emissions are detected during the six-minute observation period, no further monitoring is required. If visible emissions are detected during the six-minute period, then the visible emission inspection shall continue in accordance with the "Monitoring Procedure" below.

b) Monitoring Procedure: Venoco shall conduct visible emissions observations every 15 seconds (using a stop-watch) and record the observation as either "0" (no visible emissions) or "E" (visible emissions) on a Visible Emissions Recordkeeping Log. Any time visible emissions are observed at the end of a 15-second interval, it shall be assumed that the visible emissions occurred for the entire 15 seconds preceding the reading. The start time and end time of the visible emission observations shall be recorded together with the date of the observation and name of the observer. Venoco shall conduct a visible emissions observation for the length of time necessary to document three continuous minutes of no visible emissions or the presence of visible emissions for more than the aggregation of three minutes during any hour, whichever occurs first.

c) Compliance: Venoco shall be deemed in compliance with this condition if no visible emissions are observed during the initial six-minute period. If any visible emissions are observed during the initial six-minute period, Venoco shall continue with the visible emissions observation. Venoco shall be deemed to be in compliance with this condition if no more than 12 "E" notations occur within any one-hour period. For compliance purposes, "one hour period" shall mean a rolling hour.

C.26 Throughput Limits. The following facility throughput limits shall not be exceeded:

- | | | |
|----|-------------------------------------|-----------------------------------|
| a. | Crude Emulsion Receipt: | 20,000 barrels/day ^(a) |
| b. | Total Gas ^(b) Processed: | 20.0 MMSCF/day ^(b) |

Note: (a) Calculated as monthly receipt volume divided by the number of days oil emulsion is received.
(b) Total gas processed includes gas processed through all units including the dehydration unit, the Grace Unit and the natural gas liquid fractionating units.

Compliance with this condition shall be assessed through compliance with Recordkeeping and Semi-Annual Reporting conditions of this permit. (*Ref.: ATC 1196*)

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 Ellwood Onshore Facility (EOF) 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 and any applicable requirement.

- D.1 **Condition Acceptance.** Acceptance of this operating permit by Venoco shall be considered as acceptance of all terms, conditions, and limits of this permit.
- D.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.*
- D.3 **Defense of Permit.** Venoco agrees, as a condition of the issuance and use of this PTO, to defend at its sole expense any action brought against the APCD because of the issuance of this permit. Venoco 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 Venoco of its obligation under this condition. The APCD shall bear its own expenses for its participation in the action.
- D.4 **Reimbursement of Costs.** All reasonable expenses, as defined in APCD Rule 210, incurred by the APCD, APCD contractors, and legal counsel for all activities related to the implementation of Regulation XIII (*Part 70 Operating Permits*) that follow the issuance of this PTO permit, including but not limited to permit condition implementation, Abatement Order 99-6A implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by Venoco as required by Rule 210. All costs shall be reimbursed within thirty (30) calendar days of invoicing by the APCD.
- D.5 **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.
- D.6 **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application, supplements thereof (as documented in the APCD's project file), and the APCD's analyses under which this permit is issued.
- D.7 **Consistency with Federal, State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the stationary source by any other governmental agency.

D.8 **Odorous Organic Sulfides (APCD Rule 310).** Venoco shall not discharge H₂S and organic sulfides that result in ground level concentrations beyond the Venoco property boundary in excess of 0.06 ppmv averaged over 3 minutes or 0.03 ppmv averaged over 1 hour.

D.9 **Oil and Emulsion Breaker Tanks.** The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
000283	T-202	Oil Shipping Tank T-202 - 2,000 barrel (D, 30-foot by H, 16-foot)
006477	T-203	Oil Surge Tank T-203 - 2,000 barrel (D, 30-foot by H, 16-foot)
000284	T-204	Reject Oil Tank T-204 - 2,000 barrel (D, 30-foot by H, 16-foot)
008002	T-101	Emulsion Breaker Tank T-101-403 barrel (D, 12-foot by H, 20-ft)

- (a) **Emission Limits:** The mass emission for tanks T-202, T-203, and T-204 listed above shall not exceed the subtotal limit in Table 5.1-3 and Table 5.1-4. Compliance with this limit for each tank is determined based on the tank throughput, the equipment rating, ROC fraction in the liquid (if non-ROC is present in the liquid) and the USEPA tank equations. Federally enforceable limits for the emulsion breaker tank are listed in Section 9.C.
- (b) **Operational Limits:** The combined throughput of Tanks T-202, T-203, and T-204 shall not exceed 13,000 barrels of (dry) oil per day.
- (c) **Monitoring:** For Tanks T-202, T-203 and T-204, the volume of dry oil processed in each tank on a monthly and annual basis and the number of days each month that oil was processed (in units of barrels shall be recorded. The average daily oil throughput of each tank shall be calculated each month as the total monthly oil throughput for the tank divided by the number of days in the month the tank held oil.
- (d) **Recordkeeping:** Monitoring records taken per condition 9.D.9.(c) shall be retained.
- (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 the data required by the *Compliance Verification Reports* conditions of this permit.

D.10 **Wastewater Tanks, Sumps.** The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
009327	S-202	Sump Tank, S-202; 80 bbl., (D, 6.5-foot by L, 14-foot)
006478	TK-201	Wash Tank, TK-201; 3000 bbl.,(D, 30-foot by H, 24-foot)
009330	S-203	Oil Sump, S-203; 95 bbl.

- (a) **Emission Limits:** The mass emissions for the Sump Tank (S-202) and Wash Tank (TK-201) shall not exceed the limits in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit.
- (b) **Operational Limits:** To ensure the exemption of the Oil and WW Sumps (S-202/203) and Wash Tank (TK-201) from APCD Rule 344 per Section B.4, Venoco shall meet the following requirements:
 - (i) *Service* – The sump tank (and wash tank) listed above shall receive only those liquid streams from ‘one or more previous separation’ processes.
 - (ii) *Size* – The working surface area of the equipment listed above shall not exceed the values listed in Table 5.1-1, namely 6.5’ diameter for the sump tank, 7’ diameter for the oil sump, and 30’ diameter for the wash tank, (i.e., less than 1000 square feet).

Federally enforceable limits for these items are listed in Section 9.C.6.(b).

- (c) **Monitoring:** All monitoring requirements are federally enforceable, Refer to Section 9.C.6.(c).
- (d) **Recordkeeping:** All recordkeeping requirements are federally enforceable Refer to Section 9.C.6(d).
- (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 the data required by the *Compliance Verification Reports* conditions of this permit.

D.11 **Loading Racks.** The following equipment is included in this emissions category:

APCD ID No.	Venoco Equipment ID No.	Name
008003	None	LPG/NGL Loading Rack (balanced VRS loading)
106339	None	Emulsion-Breaker Loading Rack (no VRS)

Federally enforceable limits for the emulsion breaker loading rack are listed in Section 9.C.

- (a) **Emission Limits:** The mass emissions for the LPG/NGL loading rack listed above shall not exceed the limits in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit.
- (b) **Operational Limits:** Venoco shall meet the following requirements:
 - (i) *Throughput* – Daily and annual truck loading of LPG is restricted to 60,000 gallons per day and 10 million gallons per year, respectively. Daily and annual truck loading of NGL is restricted to 60,000 gallons per day and 5 million gallons per year, respectively. Compliance is based on monitoring and recordkeeping for the daily and annual throughputs.

- (c) **Monitoring:** The permittee shall log, each day, the volume of each load of LPG and NGL loaded into the tanker trucks.
- (d) **Recordkeeping:** The permittee shall maintain the following records:
 - (i) Daily logs documenting the volume, in gallons, and dates of LPG and NGL shipments.
 - (ii) The number of LPG trucks loaded each month and for the entire year.
- (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 the data required by the *Compliance Verification Reports* conditions of this permit.

D.12 **Solvent Usage.** The following equipment is included in this emissions unit category:

APCD ID No.	Name
106341	<u>Solvents - Cleaning/Degreasing (as part of regular operations)</u>
009521	<u>Surface Coating (that also includes solvents as thinners)</u>

- (a) **Emission Limits:** The mass emissions for the equipment listed above shall not exceed the limits in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit.
- (b) **Operational Limits:** Refer to Section 9.C.
- (c) **Monitoring:** None
- (d) **Recordkeeping:** Refer to Section 9.C.
- (e) **Reporting:** Refer to Section 9.C.

D.13 **Throughput Limits.** The following facility throughput limits shall not be exceeded:

- a. Oil Production^(a) (dry): 13,000 barrels/day
- b. Gas Production^{(a)(b)} (dry): 13.0 MMSCFD
- c. LPG Production : 10.0 MMgallons/year
- d. NGL Production: 5.0 MMgallons/year

Note:

- (a) Daily production is calculated as monthly production volume divided by the number of production days.
- (b) Gas production volume includes CO₂ portion of the gas.

Compliance with this condition shall be assessed through compliance with Recordkeeping and Semi-Annual Reporting conditions of this permit

D.14 **Recordkeeping.** The following records shall be maintained by the permittee and shall be made available to the APCD upon request:

- (a) The average volumes, in standard cubic feet per day, of gas processed each day (i) for distribution into the sales gas line, (ii) for use at ALL combustion units and (iii) CO₂ gas at Grace unit not re-injected into the permeate gas stream, if any. The average volume shall be computed by dividing the monthly volume by the number of days that gas was processed;
- (b) Date and duration of time that buy-back and/or sales gas does not satisfy 'sulfur content' specifications for utility grade gas (to ensure any purge gas used meets PUC gas quality regarding sulfur);
- (c) The volume (gallons) of natural gas liquids (NGL) produced/processed each month and the number of days that NGL was produced/processed;
- (d) The volume (gallons) of liquefied petroleum gas (LPG) produced/processed each month and the number of days that LPG was produced/processed;
- (e) Vacuum truck data including: date(s) of each vacuum truck use, volume (gallons) and physical characteristics of the material vacuumed;
- (f) Date(s) and time(s) of the use of the cooling tower (V-1701);
- (g) Date(s) and elapsed time (hours) of the use of the firewater pump engine and the emergency backup electrical generator engine;
- (h) Monthly/annual analytical testing of the feed stocks as required by Condition D.17 of this permit;
- (i) Log of breakdown venting(s) including date(s), time(s), volume(s) for each event;
- (j) Records required by the following APCD Rules: 325.F, 328.G, 331.G, 342.I, 343.F, 359.G and 359.H.
- (k) Oil Volume - The volume of oil pumped out of the facility shall be measured using calibrated flow meter (in units of barrels) at the EOF LACT unit. The calibration results of this flow meter too shall be made available to the APCD staff upon request.

D.15 **Compliance Verification Reports.** Twice a year, Venoco shall submit a compliance verification report to the APCD. Each report shall be used to verify compliance with the prior two calendar quarters. The first report shall cover calendar quarters 1 and 2 (January through June) and shall be submitted no later than September 1. The second report shall cover calendar quarters 3 and 4 (July through December) and shall be submitted no later than March 1. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit (if applicable for that quarter). These reports shall be in a format approved by the APCD. All logs and other basic source data not included in the report shall be 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. In addition to the information required from Section 9.C of this permit, the semi-annual compliance reports shall include the following information:

- (a) *Tanks.* Dry oil processed through each tank along with the number of days per month of production
- (b) *Loading Racks.*
 - (1) The daily volume (in thousand gallons) of LPG and NGL loaded into trucks; and

- (2) The total annual volume (in thousand gallons) of LPG and NGL loaded.
- (c) *General Reporting Requirements.*
 - (1) Facility throughput of oil emulsion and produced gas production per month, the number of operating days per month and the average monthly oil emulsion and produced gas production per month
 - (2) Breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence
 - (3) A summary of each and every occurrence of non-compliance with the provisions of this permit, APCD rules, and any other applicable air quality requirement.
 - (4) The produced gas, produced oil, in-plant fuel gas, and produced wastewater process stream analyses as required by Section 9.D of this permit. The process stream analyses, required by the APCD, per Section 4.10 of this permit. API gravity, true vapor pressure and storage temperature of the oil.
- D.16 **Feed Stock Sulfur Concentrations.** The concentration of sulfur compounds (calculated as H₂S at standard conditions, 60° F and 14.7 psia) in the gas received at the facility covered by this permit shall not exceed 2.0 mole percent. The concentration of sulfur compounds (calculated as H₂S at standard conditions, 60° F and 14.7 psia) in the crude oil received at the facility covered by this permit shall not exceed 0.1 mole percent. Compliance with this condition shall be assessed by monthly analytical testing of the feed stock (both oil and gas) for H₂S by the permittee. The feed stock shall be tested for TRS on an annual basis. Gas testing shall be in accordance with current ASTM-D1072 or an APCD-approved equivalent method. The permittee shall obtain prior APCD approval of the method used to test crude oil.
- D.17 **Vacuum Truck Use.** If a vacuum truck is used to service any equipment item listed in this permit, the permittee shall use the portable vacuum truck exhaust scrubbers to reduce emissions to the atmosphere of reactive organic and odorous compounds from the vacuum truck vent(s). All vacuum truck vent pipes shall be connected to the vacuum truck exhaust scrubbers during any period whereby organic liquids are being introduced into the vacuum truck's storage tank.
- D.18 **Complaint Response.** The permittee shall comply with all requirements of the APCD-approved Complaint Response Plan. This plan is incorporated, by reference, as a fully-enforceable part of this permit.
- D.19 **Process Monitoring & Alarm System.** The permittee shall install, operate, and properly maintain the following Odor Abatement System (OAS, dated 1995) associated process monitors and alarm systems:

Equipment Item & Parameter	Monitored Units	Monitoring Method	Recording Method
<u>Vapor Recovery Unit</u>			
VRU Compressors 14.5 and 14.6 in Attachment 10.5	Suction Pressure (Pressure Range from -4 inches W.C. to +6 inches W.C.)	PIR/Audible Alarm	Circular Chart (a)

Notes:

- (a) = Or equivalent APCD-approved permanent recording method.
PIR = Pressure indicator recorder

All process monitors listed in this condition shall be operational. All monitor calibration and maintenance shall follow the Process Monitor Calibration and Maintenance Plan submitted under Condition 9.C.23

- D.20 **Abrasive Blasting Equipment.** All abrasive blasting activities performed at the facility shall comply with the requirements of the California Administrative Code Title 17, Sections 92000 through 92530.
- D.21 **Air Toxic Hot Spots Applicability and Requirements.** Permit holder(s) are subject to the requirements of the Air Toxic "Hot Spots" Information and Assessment Act of 1987 (AB 2588 - California Health and Safety Code (HSC). Section 44300 *et seq.* Venoco shall submit toxic emission information plans and reports to the APCD in accordance with the requirements of AB 2588.
- D.22 **Rule 310 Odor (H₂S) Monitoring.** Venoco shall implement monitoring in accordance with the revised Fence Line Monitoring Plan (approved by the APCD on 12/24/2003). The Plan and any subsequent approved revisions become automatically incorporated, by reference, into this permit. Venoco shall conduct monitoring per their latest approved Plan. The following specific requirements shall apply:

(a) **Location, Alarm Set-up and Compliance.**

- (1) Venoco, Inc. shall operate the six H₂S gas monitors in accordance with the approved Fence Line Monitoring Plan. The monitors shall be set for an instantaneous alarm set point of 0.3 ppmv H₂S. Instantaneous data from these monitors shall be telemetered to the APCD's Data Acquisition System (DAS).
- (2) A reading of 0.3 ppmv H₂S of any instantaneous data point by any of the six monitors shall constitute a violation of Rule 310 unless Venoco can demonstrate to the satisfaction of the APCD that one of the conditions listed below has been fully met:
 - There is no evidence of an H₂S release at the Ellwood Facility before or during the observed exceedance and the meteorological data does not support a scenario that would lead to detection of an Ellwood facility gas release (e.g., the wind direction was from the north at the time of the alarm).

- Another non-facility source of gas or odor is located and the meteorological data supports detection of this source by the H₂S monitor, and, no other source of H₂S release was discovered at the Ellwood facility.
- Failure or malfunction of the H₂S monitoring device occurred and supporting documentation is provided to the APCD that clearly demonstrates that a failure or malfunction occurred. For any alarms that Venoco believes were caused by monitor malfunctions (including operator error), Venoco shall submit to the APCD (via e-mail or Fax) documentation for APCD review within 4-hours of the first business day after the alarm occurred.

(b) Fence Line Monitoring Plan Elements.

The revised Fence Line Monitoring Plan includes the following:

- (1) A map of the locations of all six fence line sensors, with the three re-located sensors clearly labeled.
- (2) A quality assurance procedure to insure the accuracy of the sensors, including calibration and maintenance procedures, quarterly cylinder gas audits (CGA's) and reporting forms.
- (3) A data recovery calculation and reporting procedures in order to demonstrate a 90% data recovery rate for each monitor.
- (4) An ID system for each of the six monitors that correlates directly with the ID# on the APCD Data Acquisition System, and on the map in b.(1) above.
- (5) The recordkeeping and reporting elements identified in the 'recordkeeping' and 'reporting' conditions below

(c) Additional Monitoring.

Venoco may be required to install additional fence line H₂S and/or organic sulfide monitors if more than two venting releases to atmosphere occur of gaseous hydrocarbons from any vent, hatch, or opening of a tank or vessel or any other equipment item (containing such gaseous hydrocarbons) in any given calendar year. A vent release shall include all releases except those associated with proper maintenance, repair or replacement of a pressure relief device. A 12-hour advanced written notice shall be provided to the APCD prior to any vent release associated with the scheduled repair or maintenance of a pressure relief device not requiring immediate attention.

In addition, if the APCD determines the H₂S monitors are unreliable at the 0.3 ppmv alarm level for Rule 310 compliance purposes, the APCD may require Venoco to install a revised monitoring system.

Any additional monitors or a revised monitoring system shall have to be approved by the APCD, and Venoco shall submit a revised Fence Line Monitoring Plan for such purposes. Any organic sulfide or odor monitors required shall conform to the APCD's "Air Quality Monitoring Protocol" specifications. The additional monitors or revised monitoring system shall be installed/implemented within 90 days of written notification from the APCD. A revised Fence Line Monitoring Plan shall be submitted for APCD approval within 30 days

of the written modification. The above timelines may be extended at the APCD's discretion.

(d) **Recordkeeping.**

At a minimum, the following records shall be maintained by Venoco and shall be made available to the APCD upon request:

- (1) Date and time of each incident in which a monitor reports an H₂S concentration of 0.3 ppmv or greater including a full description of the incident;
- (2) For each incident in Item (1) above, a record of whether any in-plant H₂S monitors were activated during the incident;
- (3) All vent releases from plant equipment including data and time, duration, associated alarms and whether the venting is maintenance/repair related;
- (4) Calibration and Maintenance performed and all malfunctions (description, data and time) for the H₂S monitors;
- (5) Electronic file of instantaneous H₂S data and storage of the latest 24 hours on the Venoco data acquisition system;
- (6) Quarterly downtime and data capture rate for each H₂S monitor;
- (7) Results of the quarterly cylinder gas audits.

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 Venoco and shall be made available to the APCD upon request.

(e) **Reporting.**

Twice a year, Venoco Inc. submits a compliance verification report to the APCD. Each report shall include the information listed in the 'Recordkeeping' requirement 'd' listed directly above this paragraph, with the exception of items 4 and 5 therein.

[*Re: ATC/PTO 7904-2, Abatement Order 99-6(A), Rule 310*]

D.23 **Portable Hydrogen Sulfide Monitor.** Venoco shall retain on site at the EOF a fully functional and properly maintained portable H₂S monitor. This monitor shall be used by properly trained Venoco personnel to investigate, when safe, reports of odors from any of the facilities. The operating, maintenance, calibration and test requirements of Venoco's monitor shall be included in the *Process Monitoring Plan* required by this permit. Venoco shall also provide the APCD for its retention and use, a like monitor. [*Re: Rule 303, ATC/PTO 7904-2, Abatement Order 99-6(A)*]

D.24 **Use of 'Out of Service' Equipment.** The use of any equipment item(s) listed in Section 10.7 of this permit under the "Out of Service Equipment" (OOS) header is prohibited without first obtaining, for the equipment item(s), either an Authority to Construct or Permit to Operate from the APCD.

D.25 **Emergency/ Standby Diesel IC Engine (E/S-DICE).** The equipment listed below belongs to this emissions unit category.

APCD ID No.	Venoco Equipment ID No.	Name
009010	7163 7000	509 hp Detroit Diesel Model 6V-71N diesel-fired IC engine powering an emergency generator

- a. **Emission Limitations.** The mass emissions from the E/S-DICE (ID # 9010) shall not exceed the values listed in Tables 5.1-3 and 5.1-4. Compliance shall be based on the operational, monitoring, recordkeeping and reporting conditions of this permit.
- b. **Operational Restrictions.** The E/S-DICE (ID # 9010) is subject to the following operational restrictions listed below, in addition to its applicable DICE-ATCM requirements. Emergency use operations, as defined in Section (d)(25) of the ATCM⁶, have no operational hours limitations.
 - i. **Maintenance & Testing Use Limit:** Effective January 1, 2006, the E/S-DICE (ID # 9010) shall not be operated for more than 20 hours per year for maintenance and testing⁷ purposes.
 - ii. **Impending Rotating Outage Use:** The in-use E/S-DICE (ID # 9010) may be operated in response to the notification of an impending rotating outage if all the conditions cited in Section (e)(2)(B)(1) of the ATCM are met.
 - iii. **Fuel and Fuel Additive Requirements:** Effective January 1, 2006, the permittee may only add fuel and/or fuel additives to the engine or any fuel tank directly attached to the engine that comply with Section (e)(1)(A) or Section (e)(1)(B) of the ATCM, as applicable. The use of Viscon fuel additive is an APCD-approved additive that must be utilized for the engine(s) subject to this permit per the Risk Reduction and Audit Plan (RRAP) approved for Venoco – Ellwood. The fuel provision may be delayed pursuant to the provisions of Section (c)(19) of the ATCM.
- c. **Monitoring.** The E/S-DICE (ID # 9010) is subject to the following monitoring requirements:

Non-Resettable Hour Meter: Effective January 1, 2005, the E/S-DICE (ID # 9010) shall have installed a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the APCD has determined (in writing) that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and of Venoco’s compliance history.
- d. **Recordkeeping.** Effective January 1, 2005, the permittee shall record and maintain the information listed below. Log entries shall be retained for a minimum of 36 months from the

⁶ As used in the permit, “ATCM” means Section 93115, Title 17, California Code of Regulations. Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines

⁷ “maintenance and testing” is defined in Section (d)(41) of the ATCM

date of entry. Log entries made within 24 months of the most recent entry shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the APCD staff upon request. Log entries made from 25 to 36 months from most recent entry shall be made available to APCD staff within 5 working days from request. APCD Form ENF-92 (*Diesel-Fired Emergency/Standby Engine Recordkeeping Form*) can be used for this requirement.

- i. emergency use hours of operation;
 - ii. maintenance and testing hours of operation;
 - iii. hours of operation for emission testing to show compliance with Section (e)(2)(B)(3) {if specifically allowed for under this permit};
 - iv. initial start-up hours {if specifically allowed for under this permit};
 - v. hours of operation to comply with the requirements of NFPA 25/100 {if applicable};
 - vi. hours of operation for all uses other than those specified in items (a) – (d) above along with a description of what those hours were for;
 - vii. The owner or operator shall document fuel use through the retention of fuel purchase records that account for all fuel used in the engine and all fuel purchased for use in the engine, and, at a minimum, contain the following information for each individual fuel purchase transaction:
 - A. identification of the fuel purchased as either CARB Diesel, or an alternative diesel fuel that meets the requirements of the Verification Procedure, or an alternative fuel, or CARB Diesel fuel used with additives that meet the requirements of the Verification Procedure, or any combination of the above.
 - B. amount of fuel purchased.
 - C. date when the fuel was purchased.
 - D. signature of owner, operator, or representative of owner or operator who received the fuel.
 - E. signature of fuel provider indicating fuel was delivered.
- e. **Reporting.** By March 1 of each year, a written report documenting compliance of this E/S-DICE (ID # 9010) with its permit requirements as listed in Section 9.D.32 and in the ATCM, during the previous calendar year, shall be provided by the permittee to the APCD. All logs and other basic source data not included in the report shall be made available to the APCD upon request. The report shall include the information required in the Recordkeeping Condition above. This reporting requirement may be satisfied by using APCD Form ENF-92 (*Diesel-Fired Emergency Standby Engine Recordkeeping Form*).
- f. **Temporary Engine Replacements - DICE ATCM.** The E/S-DICE (ID # 9010) may be replaced temporarily only if the requirements (i – vi) listed herein are satisfied.
- i. The E/S-DICE (ID # 9010) engine is in need of routine repair or maintenance.
 - ii. The E/S-DICE (ID # 9010) engine undergoing routine repair or maintenance is returned to its original service within 180 days of installation of the temporary engine.
 - iii. The temporary replacement engine has the same or lower manufacturer rated horsepower and same or lower potential to emit of each pollutant as the permitted engine that is being temporarily replaced. At the written request of the permittee, the APCD may approve a replacement engine with a larger rated horsepower than the permitted engine if the

proposed temporary engine has manufacturer guaranteed emissions (for a brand new engine) or source test data (for a previously used engine) less than or equal to the permitted engine.

- iv. The temporary replacement engine shall comply with all rules and permit requirements that apply to the permitted engine that is undergoing routine repair or maintenance.
- v. For the E/S-DICE engine to be temporarily replaced, the permittee shall submit a completed *Temporary IC Engine Replacement Notification* form (Form ENF-94) within 14 days of the temporary engine being installed. This form shall be sent electronically to: *temp-engine@sbcapcd.org*.
- vi. Within 14 days upon return of the original E/S-DICE (ID # 9010) engine to service, the permittee shall submit a completed *Temporary IC Engine Replacement Report* form (Form ENF-95). This form shall be sent electronically to: *temp-engine@sbcapcd.org*.

Any engine in temporary replacement service shall be immediately shut down if the APCD determines that the requirements of this condition have not been met. This condition does not apply to engines that have experienced a cracked block (unless under manufacturer’s warranty), to engines for which replacement parts are no longer available, or new engine replacements {including “reconstructed” engines as defined in Section (d)(44) of the ATCM}. Such engines are subject to the provisions of New Source Review and the new engine requirements of the ATCM.

[Re: APCD PTO 11594, issued September 2005]

D.26 **Emergency Firewater Pump.** The equipment listed below belongs to this emissions unit category.

APCD ID No.	Venoco Equipment ID No.	Name
008006	8Va-366877	292 hp Detroit Diesel Model 7084-7010 Diesel IC engine

- a. **Emission Limitations.** Not Applicable. (See NFPA-related discussions in Section 4.14)
- b. **Operational Restrictions.** The emergency diesel-fired IC engine (DICE) (ID # 8006) listed above is subject to the following operational restrictions listed below, in addition to its applicable DICE-ATCM requirements. Emergency use operations, as defined in Section (d)(25) of the ATCM, have no operational hours limitations.
 - i. Impending Rotating Outage Use: The in-use emergency DICE (ID # 8006) listed above may be operated in response to the notification of an impending rotating outage if all the conditions cited in Section (e)(2)(B)(1) of the ATCM are met.
 - ii. Fuel and Fuel Additive Requirements: Effective January 1, 2006, the permittee may only add fuel and/or fuel additives to the engine or any fuel tank directly attached to the engine that comply with Section (e)(1)(A) or Section (e)(1)(B) of the ATCM, as

applicable. The use of Viscon fuel additive is an APCD-approved additive that must be utilized for the engine(s) subject to this permit per the Risk Reduction and Audit Plan (RRAP) approved for Venoco – Ellwood. The fuel provision may be delayed pursuant to the provisions of Section (c)(19) of the ATCM.

iii. **Firewater Pumps:** The emergency DICE (ID # 8006) listed above that is operated as a firewater pump shall not operate more than the number of hours necessary to comply with the testing requirements of the current National Fire Protection Association (NFPA) 25 – “*Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*”.

c. **Monitoring.** The emergency DICE (ID # 8006) is subject to the following monitoring requirements:

Non-Resettable Hour Meter: The emergency-standby DICE (ID # 8006) shall have installed a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the APCD has determined (in writing) that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator’s compliance history

d. **Recordkeeping.** The permittee shall record and maintain the information listed below. Log entries shall be retained for a minimum of 36 months from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on-site, either at a central location or at the engine’s location, and made immediately available to the APCD staff upon request. Log entries made from 25 to 36 months from most recent entry shall be made available to APCD staff within 5 working days from request. Use of APCD Form ENF-92 (*Diesel-Fired Emergency Standby Engine Recordkeeping Form*) can be used for this requirement.

i. emergency use hours of operation;

ii. maintenance and testing hours of operation;

iii. hours of operation for emission testing to show compliance with Section (e)(2)(A)(3) or Section (e)(2)(B)(3) of the ATCM{if specifically allowed for under this permit}

iv. hours of operation for all uses other than those specified in items (i) – (iii) above along with a description of what those hours were for.

v. The owner or operator shall document fuel use through the retention of fuel purchase records that account for all fuel used in the engine and all fuel purchased for use in the engine, and, at a minimum, contain the following information for each individual fuel purchase transaction:

A. identification of the fuel purchased as either CARB Diesel, or an alternative diesel fuel that meets the requirements of the Verification Procedure, or an

- alternative fuel, or CARB Diesel fuel used with additives that meet the requirements of the Verification Procedure, or any combination of the above;
 - B. amount of fuel purchased;
 - C. date when the fuel was purchased;
 - D. signature of owner, operator, or representative of owner or operator who received the fuel;
 - E. signature of fuel provider indicating fuel was delivered.
 - vi. hours of operation to comply with the requirements of the NFPA for healthcare facilities or firewater pumps {if applicable}
- e. **Reporting.** By March 1 of each year, a written report documenting compliance of the emergency DICE (ID # 8006) with its permit requirements listed in Section 9.D.33 and in the ATCM, during the previous calendar year, shall be provided by the permittee to the APCD. All logs and other basic source data not included in the report shall be made available to the APCD upon request. The report shall include the information required in the Recordkeeping Condition above. This reporting requirement may be satisfied by using APCD Form ENF-92 (*Diesel-Fired Emergency Standby Engine Recordkeeping Form*).
- f. **Temporary Engine Replacements - DICE ATCM.** The emergency DICE engine (ID # 8006) may be replaced temporarily only if the requirements (i – vi) listed herein are satisfied.
 - i. The engine (ID # 8006) is in need of routine repair or maintenance.
 - ii. The engine (ID # 8006) undergoing routine repair or maintenance is returned to its original service within 180 days of installation of the temporary engine.
 - iii. The temporary replacement engine has the same or lower manufacturer rated horsepower and same or lower potential to emit of each pollutant as the permitted engine that is being temporarily replaced. At the written request of the permittee, the APCD may approve a replacement engine with a larger rated horsepower than the permitted engine if the proposed temporary engine has manufacturer guaranteed emissions (for a brand new engine) or source test data (for a previously used engine) less than or equal to the permitted engine.
 - iv. The temporary replacement engine shall comply with all rules and permit requirements that apply to the permitted engine that is undergoing routine repair or maintenance.
 - v. For the emergency DICE (ID # 8006) to be temporarily replaced, the permittee shall submit a completed *Temporary IC Engine Replacement Notification* form (Form ENF-94) within 14 days of the temporary engine being installed. This form shall be sent electronically to: *temp-engine@sbcapcd.org*.
 - vi. Within 14 days upon return of the emergency DICE (ID # 8006) to service, the permittee shall submit a completed *Temporary IC Engine Replacement Report* form (Form ENF-95). This form shall be sent electronically to: *temp-engine@sbcapcd.org*.

Any engine in temporary replacement service shall be immediately shut down if the APCD determines that the requirements of this condition have not been met. This condition does not apply to engines that have experienced a cracked block (unless under manufacturer's warranty), to engines for which replacement parts are no longer available, or new engine replacements {including "reconstructed" engines as defined in Section (d)(44) of the ATCM}. Such engines are subject to the provisions of New Source Review and the new engine requirements of the ATCM.

[Re: APCD PTO 11593, issued November 2005]

- D.27 **Permanent Engine Replacements.** Venoco may install a new engine in place of a permitted Emergency/Standby (E/S) IC engine, fire water pump engine or engine used for an essential public service that breaks down and can not be repaired, without first obtaining an ATC permit only if the requirements (i – v) listed herein are satisfied.
- i. The permitted stationary diesel IC engine is an E/S engine, a fire water pump engine or an engine used for an essential public service (as defined by the APCD).
 - ii. The engine breaks down, cannot be repaired and needs to be replaced by a new engine.
 - iii. The facility provides "good cause" (in writing) for the immediate need to install a permanent replacement engine prior to the time period before an ATC permit can be obtained for a new engine. The new engine must comply with the requirements of the ATCM for new engines. If a new engine is not immediately available, a temporary engine may be used while the new replacement engine is being procured. During this time period, the temporary replacement engine must meet the same guidelines and procedures as defined in the permit condition above (*Temporary Engine Replacements - DICE ATCM*).
 - iv. An Authority to Construct application for the new permanent engine is submitted to the APCD within 15 days of the existing engine being replaced and the APCD permit for the new engine is obtained no later than 180 days from the date of engine replacement (these timelines include the use of a temporary engine).
 - v. For each permitted engine to be permanently replaced pursuant to the condition, the permittee shall submit a completed *Permanent IC Engine Replacement Notification* form (Form ENF-96) within 14 days of either the permanent or temporary engine being installed. This form shall be sent electronically to: *temp-engine@sbcapcd.org*.

Any engine installed (either temporarily or permanently) pursuant to this permit condition shall be immediately shut down if the APCD determines that the requirements of this condition have not been met.

- D.28 **Notification of Non-Compliance.** Owners or operators who have determined that they are operating their stationary diesel-fueled engine(s) in violation of the requirements specified in Sections (e)(1) and (e)(2) of the ATCM shall notify the APCD immediately upon detection of the violation and shall be subject to APCD enforcement action.

- D.29 **Notification of Loss of Exemption.** Owners or operators of in-use stationary diesel-fueled CI engines, who are subject to an exemption specified in Section (c) of the ATCM from all or part of the requirements of Section (e)(2) of the ATCM, shall notify the APCD immediately after they become aware that the exemption no longer applies and pursuant to Section (e)(4)(F)(1) of the ATCM shall demonstrate compliance within 180 days after notifying the APCD.
- D.30 **Enrollment in a DRP/ISC - January 1, 2005.** Any stationary diesel IC engine rated over 50 bhp that enrolls for the first time in a Demand Response Program/Interruptible Service Contract (as defined in the ATCM) on or after January 1, 2005, shall first obtain an APCD Authority to Construct permit to ensure compliance with the emission control requirements and hour limitations governing ISC engines.

AIR POLLUTION CONTROL OFFICER

Date

NOTES:

- (a) Permit Reevaluation Due Date: December 2011.
- (b) Part 70 Operating Permit Expiration Date: December 2011.
- (c) This Permit supersedes all previous “APCD-only” permits to operate for this facility issued after 12/2005, namely, PTO 11579, PTO Mod 7904 02, and ATC/PTO 12839.

RECOMMENDATION

It is recommended that this PTO be issued with the conditions as specified in the permit.

AQ Engineer

Engineering Supervisor

10.0 Attachments

10.1 *Emission Calculation Documentation*

10.2 *Emission Calculation Spreadsheets*

10.3 *Fee Calculations*

10.4 *IDS Database Emission Tables*

10.5 *Equipment List*

10.6 *Exempt / Part 70 Insignificant Equipment List*

10.7 *Comments Received During Public Review and APCD Responses*

10.1 EMISSION CALCULATION DOCUMENTATION

This attachment contains all relevant emission calculation documentation used for the emission tables in Section 5. Refer to Section 4 of the permit for the general equations and other pertinent information. Detailed calculation spreadsheets are also attached as Attachment 10.2. The letters A-G refer to Tables 5.1-1 and 5.1-2.

Reference A - External Combustion Devices (Process Heater, Heater Treaters)

- ☞ The maximum load schedule is in units of hours

- ☞ The PUC quality- in-plant fuel gas default characteristics are:
 - ⇒ HHV = 1,105 Btu/scf. All lb/MMBtu emission factors are higher heating value based
 - ⇒ Fuel S = 80 ppmvd for all equipment (4 ppmv H₂S)

- ☞ Grace Unit permeate gas default characteristics are:
 - ⇒ HHV = 1126.1 Btu/scf, when CO₂ gas fraction is eliminated from analysis
 - ⇒ Fuel S = 239 ppmvd for all equipment

- ☞ Characteristics of 40% Grace Gas / 60% PUC gas mixture for Process Heater
 - a. HHV = 0.4 * 1126.1 + 0.6*1,105 = 1113.4 Btu/scf
 - b. Fuel S = 0.4 * 239 ppmvd + 0.6 * 80 = 143.6 ppm

- ☞ Emission factors for the heaters treaters are based on a small, uncontrolled boiler (<100 MMBtu/hr) per Table 1.4-1 and Table 1.4-2 of USEPA AP-42 (7/98) for all criteria pollutants except for SO_x.

- ☞ For the process heater, NO_x and CO emission factors are based on Rule 342 limits (0.036 lb/MMBtu and 0.297 lb/MMBtu. respectively). ROC and PM are based on Table 1.4-2 of AP-42 (7/98).

- ☞ SO_x emissions are based on mass balance techniques using the APCD's guideline titled "Gaseous Fuel SO_x Emission Factor (1/97)":

SO_x lbs/MMBtu (Heater treaters)=

$$\begin{aligned} & 80 \text{ parts S}/10^6 \times (64 \text{ lbs SO}_x/\text{lb-mole}) \times (\text{lb-mole}/379.4 \text{ scf}) \times (\text{scf}/1,105 \text{ Btu}) \times (10^6 \text{ btu/MMBtu}) \\ & = 0.0122 \text{ lbs/ MMBtu} \end{aligned}$$

$$\begin{aligned} \text{SO}_x \text{ lbs/MMBtu (Heater treaters)} &= \\ 239 \text{ parts S}/10^6 &\times (64 \text{ lbs SO}_x/\text{lb-mole}) \times (\text{lb-mole}/379.4 \text{ scf}) \times (\text{scf}/1,105 \text{ Btu}) \times (10^6 \text{ btu/MMBtu}) \\ &= 0.0122 \text{ lbs/MMBtu} \end{aligned}$$

☞ Due to the use of gaseous fuel, the PM₁₀/PM ratio is assumed to 1.0.

Reference B - Combustion: Thermal Oxidizers

☞ The gaseous fuel default characteristics are:

- Fuel S = 205 ppmvd (total S) for all oxidizers;
- HHV = 1,126.1 Btu/scf. All lb/MMBtu emission factors are higher heating value-based.

☞ The annual Planned flaring heat input limit is based on the volume limit of 16,410,000 scf per month imposed by Rule 359 and the heat content assumed above.

☞ The daily limit of planned continuous flaring at each of the thermal oxidizers H-206 and H-207 is 120,000 scf/day. This limit is based on Venoco's request for this operational cap to exempt the thermal oxidizers from emission limits and source testing under Rule 359.

☞ Emission factors are provided for each of the three thermal oxidizers for *Planned – Pilot*, *Planned –flaring* categories. Emission factors for *Unplanned* flaring are not presented because the facility is prohibited from any unplanned flaring events. The emissions factors for all planned flaring for H-205 and the planned pilot for H-206 and H-207 are based on ATC 9473 and ATC/PTO 12839. The remaining emission factors are based on Table 1.4-1 and Table 1.4-2 of USEPA AP-42 (7/98) for all criteria pollutants (except for SO_x). All SO_x emission factors are based on mass balance techniques using the APCD's guideline titled "Gaseous Fuel SO_x Emission Factor (1/97)". Because these are gas-fired flares, the PM₁₀/PM ratio is assumed to 1.0.

$$\begin{aligned} \text{SO}_x \text{ lbs/MMBtu} &= \\ 205 \text{ parts S}/10^6 &\times (64 \text{ lbs SO}_x/\text{lb-mole}) \times (\text{lb-mole}/379.4 \text{ scf}) \times (\text{scf}/1126.1 \text{ Btu}) \times (10^6 \text{ btu/MMBtu}) \\ &= \underline{0.314} \text{ lbs/MMBtu} \end{aligned}$$

Reference C - Storage Tanks

☞ The hourly/daily/annual emissions scenario is based on the following assumptions:

1. Maximum True vapor pressure for oil: 4.804 RVP (TVP = 3.6 psia @ 80 °F).
2. Crude oil and the emulsion breaker HC liquid is stored in unheated tanks.

3. Emissions occur 24 hours/day and 365 days/year for both oil and emulsion breaker.
4. The oil throughput rate for Tanks 202 & 203 is 6500 barrels/day; for Tank 204 it is 1000 barrels/day; and the emulsion breaker HC liquid throughput for Tank 101 is 402 barrels/day.
5. Maximum true vapor pressure for emulsion breaker HC liquid: 0.77 psia @ 73°F (RVP = 1.5 psia).
6. Specific gravity of the (xylene-based) HC liquid is 0.92

☞ See Section 4.6.1 for emission factor discussion.

Reference D - Pigging Equipment

- ☞ Maximum load schedule is in units of events (e.g., once per week);
- ☞ The gas & oil launcher volumes, pressures and temperatures based on file data;
- ☞ All vapor in the launcher is blown to the hydrocarbon sump, which is connected to the VRU prior to opening the vessel to the atmosphere; The remaining vessel pressure is assumed to be no greater than 1 psig. The temperature of the remaining vapor in the vessel is a maximum of 80 °F.
- ☞ The $MW_{\text{gas}} = 23 \text{ lb/lb-mol}$ for gas ; $MW_{\text{oil}} = 50 \text{ lb/lb-mol}$ for oil.
- ☞ Average ROC weight percent is = 30.8 % for gas launchers [*Reference: CARB VOC Speciation Profile 757 for ROC/TOC ratio of 0.308*];
Average ROC weight percent is = 56.0 % for oil launchers [*Reference: CARB VOC Speciation Profile 756 for ROC/TOC ratio of 0.560*];
- ☞ Density $\rho = (\text{pressure} \times MW) / (R \times T)$, density of vapor remaining in the vessel (lbs VOC/acf)
- ☞ Site-specific pigging emission factor $EF = (\rho \times \text{ROC weight } \%)$, (lb ROC/acf-event)
- ☞ $\rho_{\text{gas}} = (15.7 * 23) / (10.73 * 540) = 0.0623 \text{ lb/cu.ft}$, density of THC vapor remaining in vessel = 0.0623 lb/cubic feet for gas launchers;

 $EF(\text{gas}) = 0.0623 * 0.308 = 0.0192 \text{ lb of ROC/acf-event}$ for gas launchers.
- ☞ $\rho_{\text{oil}} = (15.7 * 50) / (10.73 * 540) = 0.1355 \text{ lb/cu.ft}$, density of THC vapor remaining in vessel = 0.1355 lb/cubic feet for oil launchers;

 $EF(\text{oil}) = 0.1355 * 0.560 = 0.0759 \text{ lb of ROC/acf-event}$ for oil launchers.

Reference E -- Wastewater Tanks and Sump

- ☞ The maximum load schedule is in units of hours;
- ☞ See Section 4.6.2 for emission factor discussion
- ☞ Calculations are based on surface area of emissions unit as noted in the APCD files;
- ☞ All separator units are classified as secondary production and heavy oil service;

Reference F -- Loading Rack

- ☞ The maximum load schedule is in units of hours;
- ☞ See Section 4.7.2 and 4.7.3 for emission factor discussion
- ☞ The *LPG Loading Rack* hourly/daily/annual emissions scenario is based on the following assumptions:
 1. The LPG loading rate is 10 million gallons/year, occurring at a maximum rate of 10,000 gal/hr;
 2. Emissions occur 6 hours/day and 167 days/year;
 3. The loading type is “bottom loading”; the return vapor going to the VRU unit;
- ☞ The *Emulsion Breaker Loading Rack* hourly/daily/annual emissions scenario is based on the following assumptions:
 1. The Emulsion Breaker loading rate is 2,173 bbls/year, occurring at a maximum rate of 403 bbls/day;
 2. Emissions occur 2 hours/day and 5 days/year;
 3. The loading type is “submerged,” with no vapor recovery;

Reference G - Pipeline Components Emitting Fugitive ROCs

- ☞ The maximum load schedule is in units of hours;
- ☞ All safe-to-monitor components are credited with an 80 percent control efficiency. Unsafe-to-monitor components (as defined in Rule 331) are considered uncontrolled.
Note: There are no unsafe-to-monitor components at the EOF.
- ☞ The ‘component leak path’ term used here differs from the Rule 331 definition of a component. A typical leak path count for a valve would be equal to four (one valve stem, a bonnet connection and two flanges).

- ☞ Leak path counts are provided by the applicant. The count was based on the final fugitive component count for ATC/PTO 12886.
- ☞ See Section 4.5.3 for emission factor discussion.

Reference H - Solvents

- ☞ Daily emissions are based on monthly value (125 gallons/month, as submitted by Venoco in its annual report) divided by 30. Hourly emissions are based on daily values divided by 8, based on daily operation for 8 hours.

10.2 EMISSION CALCULATION SPREADSHEETS

Table 10.2-1	->	H-205 Unit Residence Time Calculations
Table 10.2-2	->	Minimum H-205 Incineration Temperatures
Table 10.2-3	->	Storage Tank Calculations
Table 10.2-4	->	Facility NEI Table
Table 10.2-5	->	Stationary Source NEI Table

Table 10.2-1

H-205 Unit Residence Time Calculations

Page 1 of 1

I. DATA

1. Combustion Chamber Volume to Thermocouple for Temp Controller (V): 709 cubic ft.
2. Combustion Temperature: 1400 °F
3. Maximum Permitted Combustion Fuel Flow: 38.66 MMBtu/hr
4. Fuel "F" Factor: 9800 SCF/MMBtu @ 0% excess oxygen
5. Supplemental Combustion Air: 2500 SCFM (Ref: ATC 9473-03, Att. #1)
6. LO-Cat Exhaust Air: 4500 SCFM
7. H-205 combustion air flow per Mobil ATC 9473 application at 41.7 SCF/sec, scales up linearly from 11.5 MMBtu/hr nominal heat input used in ATC 9473-05/PTO 9473 to maximum permitted heat input.

II. ASSUMPTIONS

1. Negligible fuel heating value in LO-Cat Exhaust
2. Negligible difference between dry basis flows and wet basis flows because of large air to fuel ratio in H-205.

III. CALCULATIONS

1. Fuel Combustion Expansion:

$$(38.66 \text{ MMBtu/hr}) * (9800 \text{ SCF/MMBtu}) * (\text{hr}/3600 \text{ seconds}) = 105.2 \text{ SCF/sec, dry basis.}$$

2. Total Combustion Chamber Volumetric Flow Rate at Standard Conditions:

	<u>SCF/sec</u>
Fuel Expansion:	105.2
H-205 Blower (scaled):	41.7 * (38.66/11.5) = 140.2
<u>OAS Exhaust:</u>	<u>75.0</u>
Total:	320.4

3. Total Combustion Chamber Volumetric Flow Rate {Vt} at Actual Conditions (1400 °F):

$$(320.4 \text{ SCF/sec}) * (\{ 1400 + 460 \text{ }^\circ\text{R} \} / \{ 520 \text{ }^\circ\text{R} \}) = 1146 \text{ ft}^3/\text{sec}$$

4. Combustion Chamber Residence Time:

$$\text{Time} = V/V_t = 709 \text{ ft}^3 / 1146 \text{ ft}^3/\text{sec} = \underline{0.62 \text{ sec.}}$$

Table 10.2-2

Calculation of Minimum H-205 Incineration Temperatures

Page 1 of 1

Calculation of T99

Reference: Air Pollution Control: A Design Approach, Cooper/Alley

$$T_{99} = 577 - 10W1 + 110.2W2 + 67.1W3 + 72.6W4 + 0.586W5 - 23.4W6 - 430.9W7 + 85.2W8 - 82.2W9 + 65.5W10 - 76.1W11$$

ATC 9473 HC Species of Concern: Benzene

Variable	Description	Variable Value	Reference
W1	# of C atoms	6	
W2	Aromatic (0=no;1=yes)	1	
W3	C= Bond (0=no;1=yes)	0	
W4	# of N atoms	0	
W5	autoignition temp, oF	1044	Condensed Chemical Dictionary,
W6	# of O atoms	0	1981
W7	# of sulfur atoms	0	
W8	H/C atom ratio	1	
W9	allyl compd. (0=no;1=yes)	0	
W10	C=&CL interaction (0=no;1=yes)	0	
W11	Ln(of incinerator residence time, sec)	-0.48	
	Residence Time (sec.)	0.62	ATC 9473-06
T ₉₉ (F) +/- 20°		1361	data

ATC 9473 HC Species of Concern: Ethyl Mercaptan

Variable	Description	Variable Value	Reference
W1	# of C atoms	2	
W2	Aromatic (0=no;1=yes)	0	
W3	C= Bond (0=no;1=yes)	0	
W4	# of N atoms	0	
W5	autoignition temp, oF	570	Condensed Chemical Dictionary,
W6	# of O atoms	0	1981
W7	# of sulfur atoms	1	
W8	H/C atom ratio	2.5	
W9	allyl compd. (0=no;1=yes)	0	
W10	C=&CL interaction (0=no;1=yes)	0	
W11	Ln(of incinerator residence time, sec)	-0.48	
	Residence Time (sec.)	0.62	
T ₉₉ (F) +/- 20°		709	

Attachment 10.2-3

Storage Tank Calculations

Page 1 of 4

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Basic Input Data	
liquid (1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6) =	4
liquid TVP =	0.775
if TVP is entered, enter TVP temperature (°F) =	73
tank heated (yes, no) =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? (yes, no) =	no
is this a wash tank? (yes, no) =	no
will flashing losses occur in this tank? (yes, no) =	no
breather vent pressure setting range (psi) (def = 0.06):	0

Attachment: 10.2.3
 Permit: PTO 7904
 Date: 05/30/01
 Tank: TK 101
 Name: Emulsion Breaker Storage
 Filename: \Tanks (P7904).xls
 District: Santa Barbara

PRINT

Tank Data	
diameter (feet) =	20
capacity (enter barrels in first col, gals will compute) =	402 16,884
conical or dome roof? (c, d) =	c
shell height (feet) =	12
roof height (def = 1):	0
ave liq height (feet):	4.43
color (1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh) =	4
condition (1: Good, 2: Poor) =	1
upstream pressure (psig) (def = 0 when no flashing occurs):	0

paint color	Paint Factor Matrix	
	paint condition	
	good	poor
spec alum	0.39	0.49
diff alum	0.60	0.68
lite grey	0.54	0.63
med grey	0.68	0.74
red	0.89	0.91
white	0.17	0.34

Molecular Weight Matrix	
liquid	mol wt
gas rvp 13	62
gas rvp 10	66
gas rvp 7	68
crude oil	50
JP-4	80
jet kerosene	130
fuel oil 2	130
fuel oil 6	190

Liquid Data		
	A	B
maximum daily throughput (bopd) =		403
Ann thrupt (gal): (enter value in Column A if not max PT)	9.127E+04	9.127E+04
RVP (psia):		1.51736
Specific Gravity		0.92

Computed Values	
roof outage ¹ (feet):	0
vapor space volume ² (cubic feet):	2.378
turnovers ³ :	5.41
turnover factor ⁴ :	1
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	527.2 67.2
maximum ⁷ :	539 79
minimum ⁸ :	515.4 55.4
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	47.2
vapor pressure ¹¹ (psia):	0.386613
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	0.67415
vapor density ¹⁴ (lb/cubic foot):	0.005958
vapor expansion factor ¹⁵ :	0.117
vapor saturation factor ¹⁶ :	0.787107
vented vapor volume (scf/bbl):	0
fraction ROG - flashing losses:	0
fraction ROG - evaporative losses:	0.885

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	0.67415
JP-4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	1.517362
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Emissions	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss ¹⁷ =	0.05	1.15	0.21	0.05	1.15	0.21
working loss ¹⁸ =	0.01	0.13	0.02	0.01	0.13	0.02
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	0.05	1.29	0.24	0.05	1.29	0.24

Long-Term
 VRU_Eff = 95.00%
 Short-Term
 VRU_Eff = 95.00%

NOTES: see attachment for explanation of notes (1 through 19)

Storage Tank Calculations

Page 2 of 4

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Basic Input Data

liquid (1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6) =	4
liquid TVP =	2.8
if TVP is entered, enter TVP temperature (°F) =	64
tank heated (yes, no) =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? (yes, no) =	yes
is this a wash tank? (yes, no) =	no
will flashing losses occur in this tank? (yes, no) =	no
breather vent pressure setting range (psig) (def = 0.06):	0.06

Tank Data

diameter (feet) =	21.83
capacity (enter barrels in first col, gals will compute) =	2,000 84,000
conical or dome roof? (c, d) =	d
shell height (feet) =	30
roof height (def = 1):	1
ave liq height (feet):	15
color (1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh) =	4
condition (1: Good, 2: Poor) =	1
upstream pressure (psig) (def = 0 when no flashing occurs):	0

Liquid Data

maximum daily throughput (bopd) =	A	B
Ann thrupt (gal): (enter value in Column A if not max PTE)	6,500	9.965E+07
RVP (psia):	4.60377	
*API gravity =	7.1	

Computed Values

roof outage ¹ (feet):	0.5
vapor space volume ² (cubic feet):	5,801
turnovers ³ :	1186.25
turnover factor ⁴ :	0.19
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	527.2 67.2
maximum ⁷ :	539 79
minimum ⁸ :	515.4 55.4
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	47.2
vapor pressure ¹¹ (psia):	1.36788
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	2.98089
vapor density ¹⁴ (lb/cubic foot):	0.026345
vapor expansion factor ¹⁵ :	0.201
vapor saturation factor ¹⁶ :	0.289956
vented vapor volume (scf/bbl):	8
fraction ROG - flashing losses:	0.308
fraction ROG - evaporative losses:	0.885

	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss ¹⁷ =	0.33	7.88	1.44	0.02	0.39	0.07
working loss ¹⁸ =	5.09	122.18	22.30	0.25	6.11	1.11
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	5.42	130.06	23.74	0.27	6.50	1.19

NOTES: see attachment for explanation of notes (1 through 19)

Attachment: 10.2.3
 Permit: PTO 7904
 Date: 05/29/01
 Tank: Surge TK-202
 Name: Venoco Ellwd
 Filename: \Tanks (PT04).xls
 District: Santa Barbara
 Version: Tank-2b.xls

PRINT

paint color	paint condition	
	good	poor
spec alum	0.39	0.49
diff alum	0.60	0.68
lite grey	0.54	0.63
med grey	0.68	0.74
red	0.89	0.91
white	0.17	0.34

liquid	mol wt
gas rvp 13	62
gas rvp 10	66
gas rvp 7	68
crude oil	50
JP-4	80
jet kerosene	130
fuel oil 2	130
fuel oil 6	190

liquid	TVP value
gas rvp 13	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	2.98089
JP-4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	4.60377
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Long-Term
 VRU_Eff = 95.00%

 Short-Term
 VRU_Eff = 95.00%

Storage Tank Calculations

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FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Basic Input Data	
liquid (1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6) =	4
liquid TVP =	2.8
if TVP is entered, enter TVP temperature (°F) =	64
tank heated (yes, no) =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? (yes, no) =	yes
is this a wash tank? (yes, no) =	no
will flashing losses occur in this tank? (yes, no) =	no
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: 10.2.3
 Permit: PTO 7904
 Date: 05/29/01
 Tank: Surge-TK203
 Name: Venoco Ellwd
 Filename: \\Tanks (P1984).xls
 District: Santa Barbara
 Version: Tank-2b.xls

PRINT

Tank Data	
diameter (feet) =	21.83
capacity (enter barrels in first col, gals will compute) =	2,000 84,000
conical or dome roof? (c, d) =	d
shell height (feet) =	30
roof height (def = 1):	1
ave liq height (feet):	15
color (1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh) =	4
condition (1: Good, 2: Poor) =	1
upstream pressure (psig) (def = 0 when no flashing occurs):	0

Liquid Data	
maximum daily throughput (bopd) =	6,500
Ann thrupt (gal): (enter value in Column A if not max PTE)	9.965E+07
RVP (psia):	4.60377
*API gravity =	7.1

Computed Values	
roof outage ¹ (feet):	0.5
vapor space volume ² (cubic feet):	5,801
turnovers ³ :	1186.25
turnover factor ⁴ :	0.19
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	527.2 67.2
maximum ⁷ :	539 79
minimum ⁸ :	515.4 55.4
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	47.2
vapor pressure ¹¹ (psia):	1.36788
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	2.98089
vapor density ¹⁴ (lb/cubic foot):	0.026345
vapor expansion factor ¹⁵ :	0.201
vapor saturation factor ¹⁶ :	0.289956
vented vapor volume (scf/bbl):	8
fraction ROG - flashing losses:	0.308
fraction ROG - evaporative losses:	0.885

paint color	Paint Factor Matrix	
	paint condition	
	good	poor
spec alum	0.39	0.49
diff alum	0.60	0.68
lite grey	0.54	0.63
med grey	0.68	0.74
red	0.89	0.91
white	0.17	0.34

Molecular Weight Matrix	
liquid	mol.wt
gas rvp 13	62
gas rvp 10	66
gas rvp 7	68
crude oil	50
JP-4	80
jet kerosene	130
fuel oil 2	130
fuel oil 6	190

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	2.98089
JP-4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	4.60377
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Long-Term
 VRU_Eff = 95.00%

 Short-Term
 VRU_Eff = 95.00%

Emissions	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss ¹⁷ =	0.33	7.88	1.44	0.02	0.39	0.07
working loss ¹⁸ =	5.09	122.18	22.30	0.25	6.11	1.11
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	5.42	130.06	23.74	0.27	6.50	1.19

NOTES: see attachment for explanation of notes (1 through 19)

Storage Tank Calculations

Page 4 of 4

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Basic Input Data	
liquid [1:G18, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6] =	4
liquid TVP =	2.8
if TVP is entered, enter TVP temperature (°F) =	64
tank heated (yes, no) =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? (yes, no) =	yes
is this a wash tank? (yes, no) =	no
will flashing losses occur in this tank? (yes, no) =	no
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: 10.2.3
 Permit: PTO 7904
 Date: 05/29/01
 Tank: Reject-TK-204
 Name: Venoco Ellwd
 Filename: \Tanks (P1984).xls
 District: Santa Barbara
 Version: Tank-2b.xls

PRINT

Tank Data	
diameter (feet) =	26.75
capacity (enter barrels in first col, gals will compute) =	2,000 84,000
conical or dome roof? (c, d) =	d
shell height (feet) =	30
roof height (def = 1):	1
ave liq height (feet):	15
color (1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh) =	4
condition (1: Good, 2: Poor) =	1
upstream pressure (psig) (def = 0 when no flashing occurs):	0

Liquid Data		
	A	B
maximum daily throughput (bopd) =		1,000
Ann thruput (gal): (enter value in Column A if not max PTE)		1.533E+07
RVP (psia)		4.60377
*API gravity =		7.1

Computed Values	
roof outage ¹ (feet):	0.5
vapor space volume ² (cubic feet):	8,711
turnovers ³ :	182.5
turnover factor ⁴ :	0.33
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	527.2 67.2
maximum ⁷ :	539 79
minimum ⁸ :	515.4 55.4
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	47.2
vapor pressure ¹¹ (psia):	1.36788
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	2.98089
vapor density ¹⁴ (lb/cubic foot):	0.026345
vapor expansion factor ¹⁵ :	0.201
vapor saturation factor ¹⁶ :	0.289956
vented vapor volume (scf/bbl):	8
fraction ROG - flashing losses:	0.308
fraction ROG - evaporative losses:	0.885

paint color	paint condition	
	good	poor
spec alum	0.39	0.49
diff alum	0.60	0.68
lite grey	0.54	0.63
med grey	0.68	0.74
red	0.89	0.91
white	0.17	0.34

liquid	mol wt
gas rvp 13	62
gas rvp 10	66
gas rvp 7	68
crude oil	50
JP-4	80
jet kerosene	130
fuel oil 2	130
fuel oil 6	190

liquid	TVP value
gas rvp 13	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	2.98089
JP-4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	4.60377
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Long-Term
 VRU_Eff = 95.00%

 Short-Term
 VRU_Eff = 95.00%

	Uncontrolled ROG emissions			Controlled ROG emissions		
	lb/yr	lb/day	ton/year	lb/yr	lb/day	ton/year
breathing loss ¹⁷ =	0.49	11.84	2.16	0.02	0.59	0.11
working loss ¹⁸ =	1.36	32.65	5.96	0.07	1.63	0.30
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	1.85	44.48	8.12	0.09	2.22	0.41

NOTES: see attachment for explanation of notes (1 through 19)

Table 10.2-4

Venoco Ellwood Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Facility #0028 NEI-90

I. This PTO's "I" (NEI-90)

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr										
PTO 7904-R8	Nov '08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

II. This Facility's "P1s"

Enter all facility "P1" NEI-90s below:

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ATC 8262	Dec '91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 9217-01	Sept '94	0.00	0.00	0.00	0.00	158.40	28.90	0.00	0.00	5.30	1.00	5.30	1.00
ATC 9218	Feb '96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 9473-06	Apr '99	57.99	4.40	2.50	0.20	214.90	39.30	38.50	3.40	13.10	1.20	13.10	1.20
ATC 10022	Dec '98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC/PTO 10537	May '99	0.00	0.00	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 10749	Nov '02	0.00	0.00	3.54	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 10941	Jan '03	48.72	4.82	4.18	0.89	215.39	31.17	21.85	2.16	9.74	0.96	9.74	0.96
ATC 11106	Sep '04	0.00	0.00	1.31	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 11169	Sep '04	0.00	1.84	0.00	0.08	0.00	11.89	0.00	0.81	0.00	0.37	0.00	0.37
ATC 11579	July '05	0.00	0.00	15.97	2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC-PTO 12896	Nov '08	0.00	0.00	7.49	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		106.71	11.06	39.19	5.94	588.69	111.26	60.35	6.37	28.14	3.53	28.14	3.53

Notes:
 (1) Facility NEI from IDS.
 (2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
 (3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

III. This Facility's "P2" NEI-90 Decreases

Enter all facility "P2" NEI-90s below:

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ATC 10941	Jan '03	56.45	4.40	2.42	0.20	365.30	39.30	25.32	3.40	11.29	1.20	11.29	1.20
PTO Mod 7904 02	Jun '08	0.00	0.19	0.00	0.01	0.00	1.21	0.00	0.08	0.00	0.04	0.00	0.04
ATC/PTO 12839	July '08	1.63	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		58.08	4.80	2.42	0.21	365.30	40.51	25.32	3.48	11.29	1.24	11.29	1.24

Notes:
 (1) Facility NEI from IDS.
 (2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
 (3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

IV. This Facility's Pre-90 "D" Decreases

Enter all facility "D" decreases below:

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr										
None		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		0.00											

Notes:
 (1) Facility "D" from IDS.
 (2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
 (3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

V. Calculate This Facility's NEI-90

Table below summarizes facility NEI-90 as equal to: I+ (P1-P2) -D

Term	NOx		ROC		CO		SOx		PM		PM10	
	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
PTO "I" (see P1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P1	106.71	11.06	39.19	5.94	588.69	111.26	60.35	6.37	28.14	3.53	28.14	3.53
P2	58.08	4.80	2.42	0.21	365.30	40.51	25.32	3.48	11.29	1.24	11.29	1.24
D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FNEI-90	48.63	6.26	36.77	5.73	223.39	70.75	35.03	2.89	16.85	2.29	16.85	2.29

Notes:
 (1) Resultant FNEI-90 from above Section I thru IV data.
 (2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
 (3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

Table 10.2-5
 Venoco Oil&Gas Facility: PT70-APCD PTO 7904-R8
 Ellwood Source #0028 NEI-90

Facility No.	Effective Permit	Effective Date	NOx		ROC		CO		SOx		PM		PM10	
			lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
0028	PT70-APCD PTO 7904 R8	current	48.63	6.26	36.77	5.73	223.39	70.75	35.03	2.89	16.85	2.29	16.85	2.29
3105	PT70-APCD PTO 8234 R7	current	6.28	1.11	10.93	1.93	28.29	4.71	2.34	1.06	1.38	0.23	1.38	0.23
1065	PT-70/Reeval 4441-R2	current	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3035	PT-70/Reeval 8103-R4	current	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals =			54.91	7.37	47.70	7.66	251.68	75.46	37.37	3.95	18.23	2.52	18.23	2.52

Notes:

- (1) Facility/NEI from IDS.
- (2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
- (3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

10.3 FEE CALCULATIONS

All permit fees for the reevaluation of the Ellwood Onshore Facility are based on the fee schedules of Rule 210. The APCD has calculated these fees based on the CPI adjusted Rule 210 fee schedules in effect and on current equipment lists. The fees (based on an anticipated issuance date of December 2008) are detailed in the attached spreadsheet.

All work performed with respect to implementing the requirements of the Part 70 Operating Permit program are assessed on a cost reimbursement basis pursuant to APCD Rule 210.

FEE STATEMENT

PT-70/Reeval No. 07904 - R8

FID: 00028 Ellwood Onshore Facility / SSID: 01063



Device Fee

Device No.	Device Name	Fee Schedule	Qty of Fee Units	Fee per Unit	Fee Units	Max or Min. Fee Apply?	Number of Same Devices	Pro Rate Factor	Device Fee	Penalty Fee?	Fee Credit	Total Fee per Device
009198	Oil Pipeline	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009199	Utility [oil/water emulsion or gas] Pipeline	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009200	Oil Pig Receiver	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009201	Crude Oil Transfer Pumps	A2	25.000	30.41	Per total rated hp	No	2	1.000	1,520.50	0.00	0.00	1,520.50
009194	H2S Strippers	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
000283	Crude Oil Storage Tank:Shipping/Stock	A6	84.000	3.36	Per 1000 gallons	No	1	1.000	282.24	0.00	0.00	282.24
006477	Crude Oil Storage Tank: Surge	A6	84.000	3.36	Per 1000 gallons	No	1	1.000	282.24	0.00	0.00	282.24
000284	Crude Oil Storage Tank:Reject	A6	84.000	3.36	Per 1000 gallons	No	1	1.000	282.24	0.00	0.00	282.24
008002	Emulsion Breaker Storage Tank	A6	9.140	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009318	Reject Oil Transfer Pump	A2	5.000	30.41	Per total rated hp	No	1	1.000	152.05	0.00	0.00	152.05
009203	Chemical Tank #1	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009204	Chemical tank #2	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009205	Chemical Tank #3	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009449	Oxygen Scavenger Chemical Tank	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009192	Motor: Chemical Tanks	A2	0.330	30.41	Per total rated hp	Min	2	1.000	116.56	0.00	0.00	116.56
009195	Chemical Injection Pump	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
107339	Chemical Injection Pump	A2	1.000	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
000290	Heater Treater # 1	A3	4.390	440.07	Per 1 million Btu input	No	1	1.000	1,931.91	0.00	0.00	1,931.91
000289	Heater Treater # 2	A3	2.460	440.07	Per 1 million Btu input	No	1	1.000	1,082.57	0.00	0.00	1,082.57

000291	Heater Treater # 3	A3	4.390	440.07	Per 1 million Btu input	No	1	1.000	1,931.91	0.00	0.00	1,931.91
009435	Heater Treater Drip Pot	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009193	Motor: Sludge Transfer Pump	A2	20.000	30.41	Per total rated hp	No	1	1.000	608.20	0.00	0.00	608.20
009324	Process Fluid Surge Tank	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009325	Process fluid pumps	A2	30.000	30.41	Per total rated hp	No	2	1.000	1,824.60	0.00	0.00	1,824.60
000285	Process Heater	A3	25.000	440.07	Per 1 million Btu input	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
009458	Motor: Air Blower for H-204 unit	A2	30.000	30.41	Per total rated hp	No	1	1.000	912.30	0.00	0.00	912.30
009326	Process Heater	A4	300.000	5.91	Per KVA rating in 10's	No	1	1.000	1,773.00	0.00	0.00	1,773.00
009327	Process Sump	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009328	Process Sump Pump	A2	10.000	30.41	Per total rated hp	No	1	1.000	304.10	0.00	0.00	304.10
009320	LACT Unit 1: Shipping Pump	A2	60.000	30.41	Per total rated hp	No	1	1.000	1,824.60	0.00	0.00	1,824.60
009323	LACT Unit # 2 Sample Pump	A2	1.500	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009322	LACT Unit 2 Charging Pump	A2	30.000	30.41	Per total rated hp	No	1	1.000	912.30	0.00	0.00	912.30
009330	Oil Sump	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009331	Oil Sump Pump	A2	10.000	30.41	Per total rated hp	No	1	1.000	304.10	0.00	0.00	304.10
106027	Reject Oil Pump	A2	20.000	30.41	Per total rated hp	No	1	1.000	608.20	0.00	0.00	608.20
106028	Crude Oil Booster Pumps	A2	50.000	30.41	Per total rated hp	No	2	1.000	3,041.00	0.00	0.00	3,041.00
106029	Oil Shipping Pump, Lact Unit #2	A2	600.000	30.41	Per total rated hp	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
009429	Contact Vessels	A1.a	1.000	58.66	Per equipment	No	3	1.000	175.98	0.00	0.00	175.98
009514	Glycol Storage Tank	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100917	Caustic Tank	A6	0.150	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
000288	Thermal Oxidizer	A3	140.000	440.07	Per 1 million Btu input	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
000287	Thermal Oxidizer	A3	220.000	440.07	Per 1 million Btu input	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
000286	Thermal Oxidizer	A3	9.500	440.07	Per 1 million Btu input	No	1	1.000	4,180.67	0.00	0.00	4,180.67
009412	Relief Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009413	Gas Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009414	Motor: Five-stage Air Blower	A2	200.000	30.41	Per total rated hp	Max	1	1.000	5,888.34	0.00	0.00	5,888.34

009415	Motor: Blowers	A2	15.000	30.41	Per total rated hp	No	2	1.000	912.30	0.00	0.00	912.30
009416	Motor: Blower	A2	25.000	30.41	Per total rated hp	No	1	1.000	760.25	0.00	0.00	760.25
009431	Iron Sponge Inlet Scrubber	A6	0.300	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100919	Carbon Canister	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009333	Oil Skim Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
106004	Water Settling Tank	A6	126.000	3.36	Per 1000 gallons	No	1	1.000	423.36	0.00	0.00	423.36
009401	Gas Stabilizer	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009402	Motor: LPG/NGL Loading Pumps	A2	20.000	30.41	Per total rated hp	No	2	1.000	1,216.40	0.00	0.00	1,216.40
008003	Loading Rack	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009459	NGL Tank	A6	25.000	3.36	Per 1000 gallons	No	1	1.000	84.00	0.00	0.00	84.00
009460	NGL Tank	A6	25.000	3.36	Per 1000 gallons	No	1	1.000	84.00	0.00	0.00	84.00
009461	LACT Unit (NGL and LPG)	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106339	Emulsion-breaker Loading Rack	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009345	Gas Filters with separator and blow downs	A1.a	1.000	58.66	Per equipment	No	3	1.000	175.98	0.00	0.00	175.98
009346	Separation Drum	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
009347	Gas/Solution Eductors	A1.a	1.000	58.66	Per equipment	No	8	1.000	469.28	0.00	0.00	469.28
009348	Water Wash Drum	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009349	Flash Drum	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009350	Flash Water Knockout Drum	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009351	Reaction Tank	A6	115.500	3.36	Per 1000 gallons	No	1	1.000	388.08	0.00	0.00	388.08
106025	Oxidizer Units	A1.a	2.000	58.66	Per equipment	No	2	1.000	234.64	0.00	0.00	234.64
009352	Oxidizer Air Blower Motor	A2	300.000	30.41	Per total rated hp	Max	2	1.000	11,776.68	0.00	0.00	11,776.68
009353	Oxidizer Air Cooler	A2	10.000	30.41	Per total rated hp	No	1	1.000	304.10	0.00	0.00	304.10
009440	Lo-Cat Diesel Injection Pump	A2	0.750	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009450	Lo-Cat Water Storage Tank	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009438	Lo-Cat water injection pump	A2	1.000	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009439	Lo-Cat Water Injection Pumps	A2	1.000	30.41	Per total rated hp	Min	2	1.000	116.56	0.00	0.00	116.56
009448	Lo-Cat Solution Oxidizer Tanks	A6	1.000	3.36	Per 1000 gallons	Min	2	1.000	116.56	0.00	0.00	116.56
009357	Makeup Tank	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009358	Makeup Tank Agitator	A2	0.500	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
106038	Cooling Tower Fans	A2	5.000	30.41	Per total rated hp	No	2	1.000	304.10	0.00	0.00	304.10

009354	Sulfur Slurry Pits	A6	42.000	3.36	Per 1000 gallons	No	2	1.000	282.24	0.00	0.00	282.24
009355	Sulfur Slurry Pit Agitators	A2	15.000	30.41	Per total rated hp	No	4	1.000	1,824.60	0.00	0.00	1,824.60
009356	Sulfur Slurry Balance Pit Tank	A6	84.000	3.36	Per 1000 gallons	No	1	1.000	282.24	0.00	0.00	282.24
009361	Sulfur Tower	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009362	Turbine Aerators	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
009363	Sulfur Slurry Pumps	A2	15.000	30.41	Per total rated hp	No	2	1.000	912.30	0.00	0.00	912.30
009359	Chemical (Lo-Cat Liquor 310M) Storage Tank	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009360	Chemical Tank Pumps	A2	0.250	30.41	Per total rated hp	Min	3	1.000	174.84	0.00	0.00	174.84
009364	Caustic Solution Storage Tank	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009365	Caustic Tank Circulation Pumps	A2	600.000	30.41	Per total rated hp	Max	2	1.000	11,776.68	0.00	0.00	11,776.68
009462	Motor: Diesel Oil Pump	A2	0.250	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009366	Sump Pump	A2	2.000	30.41	Per total rated hp	No	1	1.000	60.82	0.00	0.00	60.82
106047	Carbon Adsorber Discharge Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
009367	Chemical 310C Storage Tank	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106048	Carbon Adsorber Regenerator Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
009445	Sump	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106031	Vacuum Pumps	A2	200.000	30.41	Per total rated hp	Max	2	1.000	11,776.68	0.00	0.00	11,776.68
106034	Agitator Motor	A2	20.000	30.41	Per total rated hp	No	1	1.000	608.20	0.00	0.00	608.20
106035	LO-Cat Drum Injection Blowers	A2	100.000	30.41	Per total rated hp	No	2	1.000	6,082.00	0.00	0.00	6,082.00
106037	Sour Gas Sump Vessel	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106099	Permeate Tubes - first stage skid - Bank B	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	52.86	5.80
009399	Permeate Tubes - first stage skid - Bank A	A1.a	1.000	58.66	Per equipment	No	4	1.000	234.64	0.00	0.00	234.64
009397	Polishing Filter	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009398	Guard Bed	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106340	Permeate Tubes - first stage skid - Bank C	A1.a	1.000	58.66	Per equipment	No	4	1.000	234.64	0.00	0.00	234.64
106100	Coalescing Filter	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
111090	Permeate Tubes - second stage skid	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
111091	Filter Separator	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
111092	Guard Bed	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
111093	Polishing Filter	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106039	Blower for Cooling Tower	A2	5.000	30.41	Per total rated hp	No	1	1.000	152.05	0.00	0.00	152.05
009335	Gas Pipeline	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009336	Seep Pipeline	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009337	Gas Pig Receivers	A1.a	1.000	58.66	Per equipment	No	3	1.000	175.98	0.00	0.00	175.98
009338	Inlet Gas Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66

009339	Inlet Gas Condensate Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009340	Condensate Recovery Pumps	A2	5.000	30.41	Per total rated hp	No	2	1.000	304.10	0.00	0.00	304.10
009341	Gas Condensate Collector Vessel	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009342	"Buy-back" Gas Handling System	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009343	Sales Gas Handling System	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009372	Standby Compressors	A2	600.000	30.41	Per total rated hp	Max	2	1.000	11,776.68	0.00	0.00	11,776.68
009434	Motor: Lube Oil Pump	A2	1.000	30.41	Per total rated hp	Min	2	1.000	116.56	0.00	0.00	116.56
009442	Lube Oil Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
009446	Motor: Pre-lube Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
009451	Suction Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009443	Motor: Lube Oil Circulating Pump	A2	5.000	30.41	Per total rated hp	No	1	1.000	152.05	0.00	0.00	152.05
009452	Auxiliary Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009370	Suction Scrubbers	A1.a	1.000	58.66	Per equipment	No	3	1.000	175.98	0.00	0.00	175.98
009444	Motor: Lube Oil Circulating Pump	A2	5.000	30.41	Per total rated hp	No	1	1.000	152.05	0.00	0.00	152.05
009373	Standby Suction Scrubbers	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
009371	Discharge Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009374	Standby Discharge Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009369	Three-Stage Compressor	A2	4500.000	30.41	Per total rated hp	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
009380	Compressor Jacket Water Surge Tank	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009376	Motor: Jacket Water Pump	A2	2.000	30.41	Per total rated hp	No	3	1.000	182.46	0.00	0.00	182.46
009381	Compressor Jacket Water Chemicals Tank	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009377	Motor: 40 wt. Compressor Oil Storage Tank Pump	A2	0.330	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009436	Motor: Compressor Vapor Pump	A2	1.000	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009375	Motor: Air Cooler Fans	A2	10.000	30.41	Per total rated hp	No	2	1.000	608.20	0.00	0.00	608.20
009378	Three-phase Separators	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
009379	Hybon Condensate Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009389	Glycol Separator	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009390	Glycol Surge Tank/Regenerator	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009391	Flash Tank	A6	0.100	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009392	Glycol Pumps	A1.a	1.000	58.66	Per equipment	No	3	1.000	175.98	0.00	0.00	175.98
009393	Glycol Sock Filter	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009394	Glycol Charcoal Filters	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
009395	Glycol Drip Pot	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66

009441	Glycol Storage Transfer Pump	A2	0.330	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
009463	Motor: Glycol Pump	A2	0.250	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
106040	Water/Glycol Pump	A2	7.500	30.41	Per total rated hp	No	1	1.000	228.08	0.00	0.00	228.08
009383	Five-stage Compressor	A2	1750.000	30.41	Per total rated hp	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
009384	Refrigeration Unit Float Chamber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009385	Jacket Water Pump	A2	10.000	30.41	Per total rated hp	No	2	1.000	608.20	0.00	0.00	608.20
009386	Motor: Air Cooler Fans	A2	10.000	30.41	Per total rated hp	No	2	1.000	608.20	0.00	0.00	608.20
009457	York Shutdown Liquid off. Receiver	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
106041	Oil Recovery scrubber for York Unit	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009404	Gas Condensate Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009405	Gas Condensate Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009406	VRU Water Jacket Pump	A2	10.000	30.41	Per total rated hp	No	2	1.000	608.20	0.00	0.00	608.20
009408	VRS Compressor	A2	75.000	30.41	Per total rated hp	No	2	1.000	4,561.50	0.00	0.00	4,561.50
009409	Motor: VRS Compressors	A2	200.000	30.41	Per total rated hp	Max	2	1.000	11,776.68	0.00	0.00	11,776.68
009410	Blanket Gas System	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009453	VRU #1 Liquid Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009456	Free Water Knockout Vessel	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
106015	Caustic Tank	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100918	Trailer	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106017	Carbon canister	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
106018	Exhaust stack	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009420	Methanol Storage Tanks	A6	0.550	3.36	Per 1000 gallons	Min	4	1.000	233.12	0.00	0.00	233.12
009421	Methanol Injection Pumps	A2	0.250	30.41	Per total rated hp	Min	2	1.000	116.56	0.00	0.00	116.56
009424	Fume Hood	A2	0.330	30.41	Per total rated hp	Min	1	1.000	58.28	0.00	0.00	58.28
106013	Contact vessels	A1.a	1.000	58.66	Per equipment	No	3	1.000	175.98	0.00	0.00	175.98
009430	Sump Pit	A6	6.090	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
009447	Motor: Bulk Viscosity Transfer Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
106042	NGL/LACT Pumps	A2	25.000	30.41	Per total rated hp	No	2	1.000	1,520.50	0.00	0.00	1,520.50
106043	De-butanizers	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
106044	De-butanizer Pumps	A2	5.000	30.41	Per total rated hp	No	2	1.000	304.10	0.00	0.00	304.10
106045	Vent tank	A6	6.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28

106046	Reflux Accumulator	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
009477	Motor: Pump	A2	200.000	30.41	Per total rated hp	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
106009	Oil skim pump for Wash Tank	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
111633	Utility Pig Receiver	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
111634	Gas Pig Receiver	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
	Device Fee Sub-Totals =								\$164,156.55	\$0.00	\$52.86	
	Device Fee Total =											\$164,103.69

Permit Fee

Fee Based on Devices

164,103.69

Fee Statement Grand Total = \$164,103

Notes:

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- (1) Fee Schedule Items are listed in APCD Rule 210, Fee Schedule "A".
 - (2) The term "Units" refers to the unit of measure defined in the Fee Schedule.

10.4 IDS DATABASE EMISSION TABLES

Table 1
Permitted potential to emit (PPTE)

	NO_x	ROC	CO	SO_x	PM	PM₁₀
Part 70/PTO 7904-R8						
lb/day	137.52	515.15	592.06	51.54	20.62	20.62
tons/year	16.48	89.19	86.84	8.05	2.75	2.75

Table 2
Facility potential to emit (FPTE)

	NO_x	ROC	CO	SO_x	PM	PM₁₀
Part 70/PTO 7904-R8						
lb/day	137.52	515.15	592.06	51.54	20.62	20.62
tons/year	16.48	89.19	86.84	8.05	2.75	2.75

Table 3
Federal potential to emit (PT 70 FPTE)

	NO_x	ROC	CO	SO_x	PM	PM₁₀
Part 70/PTO 7904-R8						
lb/day	137.52	50.64	592.06	51.54	20.62	20.62
tons/year	16.48	4.49	86.84	8.05	2.75	2.75

Table 4
Facility Net Emission Increase Since 1990 (FNEI-90)

	NO _x	ROC	CO	SO _x	PM	PM ₁₀
Part 70/PTO 7904-R8						
lb/day	48.63	36.77	223.39	35.03	16.85	16.85
tons/year	6.26	5.73	70.75	2.89	2.29	2.29

10.5 Equipment List

1 Oil Processing

1.1 Oil Pipeline

<i>Device ID #</i>	009198	<i>Device Name</i>	Oil Pipeline
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	6" PO-454-HC-D
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	diameter: 6.0"		

1.2 Utility [oil/water emulsion or gas] Pipeline

<i>Device ID #</i>	009199	<i>Device Name</i>	Utility [oil/water emulsion or gas] Pipeline
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	4" G-1000-HC-D
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. : 4.0", from Platform Holly		

1.3 Oil Pig Receiver

<i>Device ID #</i>	009200	<i>Device Name</i>	Oil Pig Receiver
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Interfacing Holly		

1.4 Crude Oil Transfer Pumps

<i>Device ID #</i>	009201	<i>Device Name</i>	Crude Oil Transfer Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	25.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-217A and P-217B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two (2) dry crude oil/crude oil emulsion pumps powered by electric motor; horsepower rating (each) 25.0 hp		

1.5 H2S Strippers

<i>Device ID #</i>	009194	<i>Device Name</i>	H2S Strippers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-201 & V-202
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two (2) strippers used for removing H2S from oil.		

1.6 Crude Oil Storage System

1.6.1 Crude Oil Storage Tank:Shipping/Stock

<i>Device ID #</i>	000283	<i>Device Name</i>	Crude Oil Storage Tank:Shipping/Stock
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	TK-202
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Shipping Tank dia. 30', height: 16.0', volume 2000 barrels. Connected to vapor recovery.		

1.6.2 Crude Oil Storage Tank: Surge

<i>Device ID #</i>	006477	<i>Device Name</i>	Crude Oil Storage Tank: Surge
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	TK-203
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Surge Tank dia. 30', height 16.0', volume 2000 barrels. Connected to vapor recovery (surge).		

1.6.3 Crude Oil Storage Tank:Reject

<i>Device ID #</i>	000284	<i>Device Name</i>	Crude Oil Storage Tank:Reject
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	TK-204
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	This is a Reject Tank dia. 30', height 16.0', volume 2000 barrels. Connected to vapor recovery.		

1.6.4 Emulsion Breaker Storage Tank

<i>Device ID #</i>	008002	<i>Device Name</i>	Emulsion Breaker Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	9137.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	TK-101
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used for storing emulsion breaker HC fluid (xylene based, sp. Gr. = 0.92), 12' dia. by 20' high. Estimated storage volume = 1220 cu.ft. = 9,137 gallons		

1.6.5 Reject Oil Transfer Pump

<i>Device ID #</i>	009318	<i>Device Name</i>	Reject Oil Transfer Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-238
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor horsepower rating: 5.0.		

1.7 Chemical Injection System

1.7.1 Chemical Tank #1

<i>Device ID #</i>	009203	<i>Device Name</i>	Chemical Tank #1
<i>Rated Heat Input</i>		<i>Physical Size</i>	125.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	T-102A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 31.0", height 49.0", volume 125 gallons. Chemical stored: Exxon Breaxit WC 7980 (water clarifier); Williams Pump (air).		

1.7.2 Chemical tank #2

<i>Device ID #</i>	009204	<i>Device Name</i>	Chemical tank #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	110.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	T-102B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 33.0", height: 31.0", volume 110 gallons. Chemical stored: Exxon Corexit 4318 (corrosion inhibitor).		

1.7.3 Chemical Tank #3

<i>Device ID #</i>	009205	<i>Device Name</i>	Chemical Tank #3
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	T-102C
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 39.0", height 49.0", volume 200 gallons. Chemical stored: Exxon Surflo SI (Scale Inhibitor) 7620.		

1.7.4 Oxygen Scavenger Chemical Tank

<i>Device ID #</i>	009449	<i>Device Name</i>	Oxygen Scavenger Chemical Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-207
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

1.7.5 Motor: Chemical Tanks

<i>Device ID #</i>	009192	<i>Device Name</i>	Motor: Chemical Tanks
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.33 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	T-103 and T-104
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Motor horsepower rating (each) 0.33.		

1.7.6 Chemical Injection Pump

<i>Device ID #</i>	009195	<i>Device Name</i>	Chemical Injection Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-102A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	ID # P-102 A; electric motor, 1/3 hp		

1.7.7 Chemical Injection Pump

<i>Device ID #</i>	107339	<i>Device Name</i>	Chemical Injection Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.50 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-103A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	electric motor, 1/2 hp		

1.8 Heater Treater System**1.8.1 Heater Treater # 1**

<i>Device ID #</i>	000290	<i>Device Name</i>	Heater Treater # 1
<i>Rated Heat Input</i>	4.390 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Natco	<i>Operator ID</i>	H-201
<i>Model</i>	10' x 50'	<i>Serial Number</i>	T-1794301-01
<i>Location Note</i>			
<i>Device Description</i>	Maximum heat input rating = 4.399 MMBtu/hr; fuel = "in-plant fuel" gas		

1.8.2 Heater Treater # 2

<i>Device ID #</i>	000289	<i>Device Name</i>	Heater Treater # 2
<i>Rated Heat Input</i>	2.460 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Natco	<i>Operator ID</i>	H-202
<i>Model</i>	8'x40'	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Maximum heat input rating = 2.464 MMBtu/hr; fuel = "in-plant fuel" gas		

1.8.3 Heater Treater # 3

<i>Device ID #</i>	000291	<i>Device Name</i>	Heater Treater # 3
<i>Rated Heat Input</i>	4.390 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Natco	<i>Operator ID</i>	H-203
<i>Model</i>	10' x 50'	<i>Serial Number</i>	T-6024701-01
<i>Location Note</i>			
<i>Device Description</i>	Maximum heat input rating = 4.399 MMBtu/hr; fuel = "in-plant fuel" gas		

1.8.4 Heater Treater Drip Pot

<i>Device ID #</i>	009435	<i>Device Name</i>	Heater Treater Drip Pot
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-239
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

1.8.5 Motor: Sludge Transfer Pump

<i>Device ID #</i>	009193	<i>Device Name</i>	Motor: Sludge Transfer Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-251
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Associated with H-202, used to remove sludge, powered by 20 hp motor.		

1.9 Process Oil Heating System

1.9.1 Process Fluid Surge Tank

<i>Device ID #</i>	009324	<i>Device Name</i>	Process Fluid Surge Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	80.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	V-213
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Tank dia. 6.0', height 16.0', volume 80.0 barrels. Connected to vapor recovery.		

1.9.2 Process fluid pumps

<i>Device ID #</i>	009325	<i>Device Name</i>	Process fluid pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-209A & P-209B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Pumps, each powered by electric motor with rating (each) = 30.0 hp;		

1.9.3 Process Heater

<i>Device ID #</i>	000285	<i>Device Name</i>	Process Heater
<i>Rated Heat Input</i>	25.000 MMBtu/Hour	<i>Physical Size</i>	25.00 MMBtu/Hour
<i>Manufacturer</i>	Uniflux	<i>Operator ID</i>	H-204
<i>Model</i>	25MM	<i>Serial Number</i>	4035
<i>Location Note</i>			
<i>Device Description</i>	Emission control equipment for flue gas recirculation, flue gas oxygen trim control, flue gas recirculation burners (when necessary). Primary fuels: PUC-quality natural gas & permeate waste gas, backup fuel: PUC-quality natural gas, use: heat Therminol (heat transfer media)		

1.9.4 Motor: Air Blower for H-204 unit

<i>Device ID #</i>	009458	<i>Device Name</i>	Motor: Air Blower for H-204 unit
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	BL-730
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

1.9.5 Process Heater

<i>Device ID #</i>	009326	<i>Device Name</i>	Process Heater
<i>Rated Heat Input</i>		<i>Physical Size</i>	300.00 Kilowatts
<i>Manufacturer</i>		<i>Operator ID</i>	H-208
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric, 300 kW rating, acts as stand-by for Therminol Heater H-204		

1.9.6 Process Sump

<i>Device ID #</i>	009327	<i>Device Name</i>	Process Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	80.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	S-202
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Tank dia. 6.5', height 14.0', volume 80 barrels. Used as accumulation point for process hydrocarbon drain system, connected to vapor recovery.		

1.9.7 Process Sump Pump

Device ID #	009328	Device Name	Process Sump Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-215
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Pump powered by 10 hp electric motor		

1.10 LACT System Unit 1

1.10.1 LACT Unit 1: Shipping Pump

Device ID #	009320	Device Name	LACT Unit 1: Shipping Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	60.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-222
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Pump equipped with a 60 hp electric motor		

1.11 LACT System Unit 2

1.11.1 LACT Unit # 2 Sample Pump

Device ID #	009323	Device Name	LACT Unit # 2 Sample Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.50 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-221
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with a 1.5 hp		

1.11.2 LACT Unit 2 Charging Pump

Device ID #	009322	Device Name	LACT Unit 2 Charging Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-220
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with an electric motor of 30 hp.		

1.12 Oil Sump

Device ID #	009330	Device Name	Oil Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	95.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	S-203
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

1.13 Oil Sump Pump			
<i>Device ID #</i>	009331	<i>Device Name</i>	Oil Sump Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>		<i>Operator ID</i>	P-244
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Equipped with an electric motor rated at 10 hp.		

1.14 Reject Oil Pump			
<i>Device ID #</i>	106027	<i>Device Name</i>	Reject Oil Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Brake Horsepower
<i>Manufacturer Model</i>		<i>Operator ID</i>	# P-202
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Pump equipped with a 20 hp motor		

1.15 Crude Oil Booster Pumps			
<i>Device ID #</i>	106028	<i>Device Name</i>	Crude Oil Booster Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Brake Horsepower
<i>Manufacturer Model</i>		<i>Operator ID</i>	# P-224 A/B
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Pumps equipped with 50 hp motor each		

1.16 Oil Shipping Pump, Lact Unit #2			
<i>Device ID #</i>	106029	<i>Device Name</i>	Oil Shipping Pump, Lact Unit #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Brake Horsepower
<i>Manufacturer Model</i>		<i>Operator ID</i>	# P-203
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Pump equipped with a 600 hp electric motor		

2 Contact Vessels			
<i>Device ID #</i>	009429	<i>Device Name</i>	Contact Vessels
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	V-114, -115, -116
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Dia. (each): 6.0', height (each): 20.0'; device ID #s: V- 114 & V- 115 only (iron sponge (or equivalent)); V-116 only (Sulfa-check (or equivalent) system)		

3 Glycol Storage Tank			
<i>Device ID #</i>	009514	<i>Device Name</i>	Glycol Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	V-212
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>			

4 Caustic Tank			
<i>Device ID #</i>	100917	<i>Device Name</i>	Caustic Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	158.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	volume: 158.0 gallons		
	an equivalent system to C/D		
5 Waste Gas Collection & Incineration			
5.1 Thermal Oxidizer			
<i>Device ID #</i>	000288	<i>Device Name</i>	Thermal Oxidizer
<i>Rated Heat Input</i>	140.000 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Hirt	<i>Operator ID</i>	H-205
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: continuous service, main unit. Rated at 140 MMBtu/hr, restricted to 34.06 MMBtu/hr planned continuous op.		
5.2 Thermal Oxidizer			
<i>Device ID #</i>	000287	<i>Device Name</i>	Thermal Oxidizer
<i>Rated Heat Input</i>	220.000 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Hirt	<i>Operator ID</i>	H-206
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Standby unit for H-205 unit, rated at 220 MMBtu/hr, restricted to 34.06 MMBtu/hr planned continuous op.		
5.3 Thermal Oxidizer			
<i>Device ID #</i>	000286	<i>Device Name</i>	Thermal Oxidizer
<i>Rated Heat Input</i>	9.500 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Hirt	<i>Operator ID</i>	H-207
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Standby Unit for H-205/H-206, 9.5 MMBtu/hr rating		
5.4 Relief Scrubber			
<i>Device ID #</i>	009412	<i>Device Name</i>	Relief Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-221
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Type: horizontal, dia. 5.0', length 15.0 feet'		
5.5 Gas Scrubber			
<i>Device ID #</i>	009413	<i>Device Name</i>	Gas Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-238
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Servicing thermal oxidizer unit H-207, 3' dia. by 5' height.		

5.6 Motor: Five-stage Air Blower

<i>Device ID #</i>	009414	<i>Device Name</i>	Motor: Five-stage Air Blower
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Spencer C-55	<i>Operator ID Serial Number</i>	BL-1808
<i>Location Note</i>			
<i>Device Description</i>	Powered by a 200 hp electric motor, servicing thermal oxidizer H-205 unit		

5.7 Motor: Blowers

<i>Device ID #</i>	009415	<i>Device Name</i>	Motor: Blowers
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	BL-201A, BL-201B
<i>Location Note</i>			
<i>Device Description</i>	Hybon, each equipped with 15.0 rated hp electric motor.		

5.8 Motor: Blower

<i>Device ID #</i>	009416	<i>Device Name</i>	Motor: Blower
<i>Rated Heat Input</i>		<i>Physical Size</i>	25.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	BL-201C
<i>Location Note</i>			
<i>Device Description</i>	Hybon, electric motor horsepower rating: 25.0.		

6 Iron Sponge Inlet Scrubber

<i>Device ID #</i>	009431	<i>Device Name</i>	Iron Sponge Inlet Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2' dia. x 13' height.		

7 Carbon Canister

<i>Device ID #</i>	100919	<i>Device Name</i>	Carbon Canister
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Type: 55-gallon drum, carbon capacity: 250 pounds, carbon type: granulated activated carbon		
	An equivalent system to A/B		

8 Fugitive Hydrocarbon Components - CLP Counts**8.1 Gas/Light Liq Service: Valves: Accessible**

<i>Device ID #</i>	000297	<i>Device Name</i>	Gas/Light Liq Service: Valves: Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	3607.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	3607 component leakpaths		

8.2 Gas/Light Liq Service: Connections: Accessible

<i>Device ID #</i>	000300	<i>Device Name</i>	Gas/Light Liq Service: Connections: Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	19737.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	19737 component leakpaths		

8.3 Gas/Light Liq Service: Valves: Inaccessible

<i>Device ID #</i>	000310	<i>Device Name</i>	Gas/Light Liq Service: Valves: Inaccessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	4.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	4 component leakpaths		

8.4 Gas/Light Liquid Service: Valves: Unsafe

<i>Device ID #</i>	009118	<i>Device Name</i>	Gas/Light Liquid Service: Valves: Unsafe
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	7 component leakpaths		

8.5 Gas/Lt Liquid Service: Press Relief Valves: Accessible

<i>Device ID #</i>	009122	<i>Device Name</i>	Gas/Lt Liquid Service: Press Relief Valves: Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	74.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	74 component leakpaths		

8.6 Gas/Lt Liquid Service: Pressure Relief Valves: Inaccessible

<i>Device ID #</i>	009123	<i>Device Name</i>	Gas/Lt Liquid Service: Pressure Relief Valves: Inaccessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2 component leakpaths		

8.7 Gas/Light Liq Service: Connections: Inaccessible

<i>Device ID #</i>	000312	<i>Device Name</i>	Gas/Light Liq Service: Connections: Inaccessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	2327.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2327 component leakpaths		

8.8 Gas/Light Liq Service: Connections: Unsafe

<i>Device ID #</i>	009120	<i>Device Name</i>	Gas/Light Liq Service: Connections: Unsafe
<i>Rated Heat Input</i>		<i>Physical Size</i>	78.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	78 component leakpaths		

8.9 Gas/Light Liq Service: Pump Seals

<i>Device ID #</i>	009125	<i>Device Name</i>	Gas/Light Liq Service: Pump Seals
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	10 component leakpaths		

8.10 Gas/Light Liq Service: Compressor Seals

<i>Device ID #</i>	009121	<i>Device Name</i>	Gas/Light Liq Service: Compressor Seals
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	20 component leakpaths		

8.11 Oil: Valves: Accessible

<i>Device ID #</i>	000298	<i>Device Name</i>	Oil: Valves: Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	458.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	458 component leakpaths		

8.12 Oil: Pressure Relief Valves: Accessible

<i>Device ID #</i>	009127	<i>Device Name</i>	Oil: Pressure Relief Valves: Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	0 component leakpaths		

8.13 Oil: Connections: Accessible

<i>Device ID #</i>	000301	<i>Device Name</i>	Oil: Connections: Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	2428.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2428 component leakpaths		

8.14 Oil: Pump Seals			
<i>Device ID #</i>	009128	<i>Device Name</i>	Oil: Pump Seals
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	7 component leakpaths		
8.15 Gas Light Liquid Service - Pressure relief Valves - Unsafe			
<i>Device ID #</i>	107363	<i>Device Name</i>	Gas Light Liquid Service - Pressure relief Valves - Unsafe
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			
8.16 Oil Service - Connections - Unsafe			
<i>Device ID #</i>	107364	<i>Device Name</i>	Oil Service - Connections - Unsafe
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			
9 Exhaust Stack and Quick-release Connections			
<i>Device ID #</i>	100920	<i>Device Name</i>	Exhaust Stack and Quick-release Connections
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	An equivalent system to A/B		
10 Wastewater Handling			
10.1 Oil Skim Pump			
<i>Device ID #</i>	009333	<i>Device Name</i>	Oil Skim Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-254
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	For the wash tank, equipped with a 3 hp motor		
10.2 Water Settling Tank			
<i>Device ID #</i>	106004	<i>Device Name</i>	Water Settling Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	3000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	TK-201
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Wash tank type: 30' high by 24' diameter; volume = 3000 barrels, connected to VRU		

11 Liquefied Petroleum Gas/Natural Gas Liquids (LPG/NGL) Fac

11.1 Gas Stabilizer

<i>Device ID #</i>	009401	<i>Device Name</i>	Gas Stabilizer
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-214
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

11.2 Motor: LPG/NGL Loading Pumps

<i>Device ID #</i>	009402	<i>Device Name</i>	Motor: LPG/NGL Loading Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-212A, P-212B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each with a 20 hp motor.		

11.3 Loading Rack

<i>Device ID #</i>	008003	<i>Device Name</i>	Loading Rack
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 100 Barrels Processed
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Grade level rack used to load liquefied petroleum gas into highway tanker trucks.		

11.4 NGL Tank

<i>Device ID #</i>	009459	<i>Device Name</i>	NGL Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	25000.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	V-227
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

11.5 NGL Tank

<i>Device ID #</i>	009460	<i>Device Name</i>	NGL Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	25000.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	V-228
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

11.6 LACT Unit (NGL and LPG)

<i>Device ID #</i>	009461	<i>Device Name</i>	LACT Unit (NGL and LPG)
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	FQI-222
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

11.7 Emulsion-breaker Loading Rack

<i>Device ID #</i>	106339	<i>Device Name</i>	Emulsion-breaker Loading Rack
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Low-TVP ROC loading rack: Not connected to VRS		

12 Produced Gas Sweetening Unit (Lo-Cat Unit)**12.1 Gas Filters with separator and blow downs**

<i>Device ID #</i>	009345	<i>Device Name</i>	Gas Filters with separator and blow downs
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-2201, F-2202, F-2203
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Filter separator blow down line is connected to vapor recovery.		

12.2 LO-Cat Unit**12.2.1 Separation Drum**

<i>Device ID #</i>	009346	<i>Device Name</i>	Separation Drum
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-1201 & V-1202
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two drums, each drum equipped with four (4) gas/ (LO-Cat)-solution eductors for gas sweetening		

12.2.2 Gas/Solution Eductors

<i>Device ID #</i>	009347	<i>Device Name</i>	Gas/Solution Eductors
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	J-1101-1104, J-1105-1108
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Four for each drum V-1201 and V-1202; eductor device ID #s J-1101 through J-1104 & J-1105 through J-1108.		

12.2.3 Water Wash Drum

<i>Device ID #</i>	009348	<i>Device Name</i>	Water Wash Drum
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-1203
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.2.4 Flash Drum

<i>Device ID #</i>	009349	<i>Device Name</i>	Flash Drum
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-1206
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Design pressure: 10 - 17 psig.		

12.2.5 Flash Water Knockout Drum

<i>Device ID #</i>	009350	<i>Device Name</i>	Flash Water Knockout Drum
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-1207
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.2.6 Reaction Tank

<i>Device ID #</i>	009351	<i>Device Name</i>	Reaction Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	2750.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	T-1901
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	This standby holding tank dia. 29'9", height: 22.3', volume 2750 barrels.		

12.2.7 Oxidizer Units

<i>Device ID #</i>	106025	<i>Device Name</i>	Oxidizer Units
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-1902 and T-1903
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.2.8 Oxidizer Air Blower Motor

<i>Device ID #</i>	009352	<i>Device Name</i>	Oxidizer Air Blower Motor
<i>Rated Heat Input</i>		<i>Physical Size</i>	300.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	BL-1801 & BL-1802.
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motors serving each oxidizer air blower, electric motor horsepower rating (each): 300 hp		

12.2.9 Oxidizer Air Cooler

<i>Device ID #</i>	009353	<i>Device Name</i>	Oxidizer Air Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	E-1302
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Air coolers service the oxidizers. The coolers are equipped with one 10 hp electric motor.		

12.2.10 Lo-Cat Diesel Injection Pump

<i>Device ID #</i>	009440	<i>Device Name</i>	Lo-Cat Diesel Injection Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.75 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-1909
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 0.75 hp		

12.2.11 Lo-Cat Water Storage Tank

<i>Device ID #</i>	009450	<i>Device Name</i>	Lo-Cat Water Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-1210
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.2.12 Lo-Cat water injection pump

<i>Device ID #</i>	009438	<i>Device Name</i>	Lo-Cat water injection pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-1506 A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Pump with a 1 hp electric motor drive.		

12.2.13 Lo-Cat Water Injection Pumps

<i>Device ID #</i>	009439	<i>Device Name</i>	Lo-Cat Water Injection Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-1505A, P-1505B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two pumps, 1 hp each electric motor drive; device ID #s P-1505 A/B.		

12.2.14 Lo-Cat Solution Oxidizer Tanks

<i>Device ID #</i>	009448	<i>Device Name</i>	Lo-Cat Solution Oxidizer Tanks
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-1902, T-1903
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.2.15 Makeup Tank

<i>Device ID #</i>	009357	<i>Device Name</i>	Makeup Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-1904
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	7' dia. by 4' height.		

12.2.16 Makeup Tank Agitator

<i>Device ID #</i>	009358	<i>Device Name</i>	Makeup Tank Agitator
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.50 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	M-2406
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with a 1/2 hp motor.		

12.2.17 Cooling Tower Fans

<i>Device ID #</i>	106038	<i>Device Name</i>	Cooling Tower Fans
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	#s E-1701 A/B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Driven by electric motors, 5 hp each		

12.3 LO-Cat Sulfur Unit**12.3.1 Sulfur Slurry Pits**

<i>Device ID #</i>	009354	<i>Device Name</i>	Sulfur Slurry Pits
<i>Rated Heat Input</i>		<i>Physical Size</i>	1000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	T-3102 & T-3103
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two pits of 1,000 bbl. each.		

12.3.2 Sulfur Slurry Pit Agitators

<i>Device ID #</i>	009355	<i>Device Name</i>	Sulfur Slurry Pit Agitators
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	M-2404, M-2405, M-2407 &
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each agitator equipped with a 15 hp motor.		

12.3.3 Sulfur Slurry Balance Pit Tank

<i>Device ID #</i>	009356	<i>Device Name</i>	Sulfur Slurry Balance Pit Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	T-3101
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.3.4 Sulfur Tower

<i>Device ID #</i>	009361	<i>Device Name</i>	Sulfur Tower
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-1908
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	10' dia. by 35' height.		

12.3.5 Turbine Aerators

<i>Device ID #</i>	009362	<i>Device Name</i>	Turbine Aerators
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	M-2402 & M-2403
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

12.3.6 Sulfur Slurry Pumps

<i>Device ID #</i>	009363	<i>Device Name</i>	Sulfur Slurry Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>		<i>Operator ID</i>	P-1507 and P-1509
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Each pump equipped with 15.0 motor.		

12.4 Chemical (Lo-Cat Liquor 310M) Storage Tank

<i>Device ID #</i>	009359	<i>Device Name</i>	Chemical (Lo-Cat Liquor 310M) Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	T-1907
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	9' dia. by 18' height.		

12.5 Chemical Tank Pumps

<i>Device ID #</i>	009360	<i>Device Name</i>	Chemical Tank Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	P-1905A/1906A/1907A
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Each pump equipped with 0.25 hp motor for chemicals pumping.		

12.6 Caustic Solution Storage Tank

<i>Device ID #</i>	009364	<i>Device Name</i>	Caustic Solution Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	T-1905
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>			

12.7 Caustic Tank Circulation Pumps

<i>Device ID #</i>	009365	<i>Device Name</i>	Caustic Tank Circulation Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>		<i>Operator ID</i>	P-1505, P-1506
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Each pump equipped with 600 hp electric motor.		

12.8 Motor: Diesel Oil Pump

<i>Device ID #</i>	009462	<i>Device Name</i>	Motor: Diesel Oil Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.25 Brake Horsepower
<i>Manufacturer Model</i>		<i>Operator ID</i>	P-242
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>			

12.9 Sump Pump			
<i>Device ID #</i>	009366	<i>Device Name</i>	Sump Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-1513
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used for drainage water collection. Pump equipped with 2 hp electric motor.		
12.10 Carbon Adsorber Discharge Pump			
<i>Device ID #</i>	106047	<i>Device Name</i>	Carbon Adsorber Discharge Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-1510
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with an electric motor, 3 hp. This equipment is currently OUT-OF-SERVICE.		
12.11 Chemical 310C Storage Tank			
<i>Device ID #</i>	009367	<i>Device Name</i>	Chemical 310C Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-1906
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	9' dia.' x 18' height.		
12.12 Carbon Adsorber Regenerator Pump			
<i>Device ID #</i>	106048	<i>Device Name</i>	Carbon Adsorber Regenerator Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-1511
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with an electric motor, 3 hp. This equipment is currently OUT-OF-SERVICE		
12.13 Sump			
<i>Device ID #</i>	009445	<i>Device Name</i>	Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	S-207
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Associated with the Lo-Cat unit		
12.14 Vacuum Pumps			
<i>Device ID #</i>	106031	<i>Device Name</i>	Vacuum Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	#s P-1510 and P-1511
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	The two pumps facilitate transfer of LO-Cat solution from separators and flash drums to oxidizers. The pumps are equipped with electric motors of 200 hp each.		

12.15 Agitator Motor

<i>Device ID #</i>	106034	<i>Device Name</i>	Agitator Motor
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	# M-2401
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with a 20 hp motor		

12.16 LO-Cat Drum Injection Blowers

<i>Device ID #</i>	106035	<i>Device Name</i>	LO-Cat Drum Injection Blowers
<i>Rated Heat Input</i>		<i>Physical Size</i>	100.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	#s BL-1803 and BL-1804
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with electric motors 100 hp each		

12.17 Sour Gas Sump Vessel

<i>Device ID #</i>	106037	<i>Device Name</i>	Sour Gas Sump Vessel
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00
<i>Manufacturer</i>		<i>Operator ID</i>	# S-205
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Sump unit. Removed in 2002		

13 Grace Unit**13.1 Permeate Tubes - first stage skid - Bank B**

<i>Device ID #</i>	106099	<i>Device Name</i>	Permeate Tubes - first stage skid - Bank B
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Bank of four (4) tubes, each 10.75" diameter by 23' long		

13.2 Permeate Tubes - first stage skid - Bank A

<i>Device ID #</i>	009399	<i>Device Name</i>	Permeate Tubes - first stage skid - Bank A
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Bank of four (4) tubes, each 10.75" diameter by 23' long		

13.3 Polishing Filter

<i>Device ID #</i>	009397	<i>Device Name</i>	Polishing Filter
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-211
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	8" diameter by 7' tall		

13.4 Guard Bed			
<i>Device ID #</i>	009398	<i>Device Name</i>	Guard Bed
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-210
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	18" diameter by 7' tall		

13.5 Permeate Tubes - first stage skid - Bank C			
<i>Device ID #</i>	106340	<i>Device Name</i>	Permeate Tubes - first stage skid - Bank C
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Bank of four (4) tubes, each 10.75" diameter by 23' long		

13.6 Coalescing Filter			
<i>Device ID #</i>	106100	<i>Device Name</i>	Coalescing Filter
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-216
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	8" diameter by 7' tall		

13.7 Permeate Tubes - second stage skid			
<i>Device ID #</i>	111090	<i>Device Name</i>	Permeate Tubes - second stage skid
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Bank of two (2) tubes, each 10.75" diameter by 23' long		

13.8 Filter Separator			
<i>Device ID #</i>	111091	<i>Device Name</i>	Filter Separator
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-215
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	10" and 6" dia by 7' long		

13.9 Guard Bed			
<i>Device ID #</i>	111092	<i>Device Name</i>	Guard Bed
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-217
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	16" dia by 7' tall		

13.10 Polishing Filter

<i>Device ID #</i>	111093	<i>Device Name</i>	Polishing Filter
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-218
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	8" dia by 7' tall		

14 Surface Coating Operations**14.1 Paint-coating and use of solvent as thinners**

<i>Device ID #</i>	009521	<i>Device Name</i>	Paint-coating and use of solvent as thinners
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: activities for surface coating operations, not included in scheduled maintenance and repair activities.		

14.2 Solvent use for degreasing and cleaning

<i>Device ID #</i>	106341	<i>Device Name</i>	Solvent use for degreasing and cleaning
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Activity is part of regular operations, and not included as part of regular maintenance and repair		

15 Sweet Gas Compression**15.1 Blower for Cooling Tower**

<i>Device ID #</i>	106039	<i>Device Name</i>	Blower for Cooling Tower
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	# BL-1806
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Driven by electric motor, 5 hp		

16 Gas Processing**16.1 Gas Pipeline**

<i>Device ID #</i>	009335	<i>Device Name</i>	Gas Pipeline
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	6"G-453-HC-B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 6.0", used to transport gas from Platform Holly to landfall.		

16.2 Seep Pipeline

<i>Device ID #</i>	009336	<i>Device Name</i>	Seep Pipeline
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	6"-G-848-B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 6.0", used to transport gas from Seep Containment Device to landfill.		

16.3 Gas Pig Receivers

<i>Device ID #</i>	009337	<i>Device Name</i>	Gas Pig Receivers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	One used for utility pipeline, pig launcher for seep (1) connected to the VRU via the process hydrocarbon drain system; device ID # -- NONE.		

16.4 Inlet Gas Scrubber

<i>Device ID #</i>	009338	<i>Device Name</i>	Inlet Gas Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-203
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 6.0', length 8.0'.		

16.5 Inlet Gas Condensate Scrubber

<i>Device ID #</i>	009339	<i>Device Name</i>	Inlet Gas Condensate Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-204
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 2.0', length 8.0'.		

16.6 Condensate Recovery Pumps

<i>Device ID #</i>	009340	<i>Device Name</i>	Condensate Recovery Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-250A & P-250B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two pumps: each with an electric motor horsepower rated at 5.0, serving V-204 of this permit (P-250A & P-250B).		

16.7 Gas Condensate Collector Vessel

<i>Device ID #</i>	009341	<i>Device Name</i>	Gas Condensate Collector Vessel
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 1.0', length 6.0', volume 1.0 barrel. Equipped with backpressure regulator, serving equipment Items # 27 and #28 of this permit. No device IDs.		

16.8 "Buy-back" Gas Handling System

<i>Device ID #</i>	009342	<i>Device Name</i>	"Buy-back" Gas Handling System
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used to internally route gas to fuel EOF plant combustion equipment; no device ID.		

16.9 Sales Gas Handling System

<i>Device ID #</i>	009343	<i>Device Name</i>	Sales Gas Handling System
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used to route gas to utility company odorant and metering facilities, equipped with a 6" diameter pipeline; no device ID.		

17 Sweet Gas Compressor Operations**17.1 Standby Compressors**

<i>Device ID #</i>	009372	<i>Device Name</i>	Standby Compressors
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	K-205 [CFB], K-206 [HHE]
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each three-stage compressor powered by electric motor horsepower rating (each): 600.0.		

17.2 Motor: Lube Oil Pump

<i>Device ID #</i>	009434	<i>Device Name</i>	Motor: Lube Oil Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-241A, P-241B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two pumps, each pump driven by electric motors, 1 hp each.		

17.3 Lube Oil Pump

<i>Device ID #</i>	009442	<i>Device Name</i>	Lube Oil Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-236A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Pump equipped with electric motor, 3 hp rated		

17.4 Motor: Pre-lube Pump

<i>Device ID #</i>	009446	<i>Device Name</i>	Motor: Pre-lube Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-257
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 3 hp		

17.5 Suction Scrubber			
<i>Device ID #</i>	009451	<i>Device Name</i>	Suction Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-229
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

17.6 Motor: Lube Oil Circulating Pump			
<i>Device ID #</i>	009443	<i>Device Name</i>	Motor: Lube Oil Circulating Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-225
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 5 hp		

17.7 Auxiliary Scrubber			
<i>Device ID #</i>	009452	<i>Device Name</i>	Auxiliary Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-230A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

17.8 Suction Scrubbers			
<i>Device ID #</i>	009370	<i>Device Name</i>	Suction Scrubbers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-205, V-206, V-208
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	V-205 (first stage), V-206 (second stage) and V-208 (third stage).		

17.9 Motor: Lube Oil Circulating Pump			
<i>Device ID #</i>	009444	<i>Device Name</i>	Motor: Lube Oil Circulating Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-231
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 5 hp		

17.10 Standby Suction Scrubbers			
<i>Device ID #</i>	009373	<i>Device Name</i>	Standby Suction Scrubbers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-230, V-231
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	V-230 (first stage) & V-231 (second stage).		

17.11 Discharge Scrubber			
<i>Device ID #</i>	009371	<i>Device Name</i>	Discharge Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-207
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Second stage unit.		
17.12 Standby Discharge Scrubber			
<i>Device ID #</i>	009374	<i>Device Name</i>	Standby Discharge Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-232
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Third stage		
17.13 Three-Stage Compressor			
<i>Device ID #</i>	009369	<i>Device Name</i>	Three-Stage Compressor
<i>Rated Heat Input</i>		<i>Physical Size</i>	4500.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	De Laval	<i>Operator ID</i>	K-201
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with a 4500 hp electric motor		
17.14 Compressor Jacket Water Surge Tank			
<i>Device ID #</i>	009380	<i>Device Name</i>	Compressor Jacket Water Surge Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-240
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2' dia.. by 12' height		
17.15 Motor: Jacket Water Pump			
<i>Device ID #</i>	009376	<i>Device Name</i>	Motor: Jacket Water Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-219, P-226, P-229
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each powered by 2 hp electric motor.		
17.16 Compressor Jacket Water Chemicals Tank			
<i>Device ID #</i>	009381	<i>Device Name</i>	Compressor Jacket Water Chemicals Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-240A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2' dia. by 4.5' height		

17.17 Motor: 40 wt. Compressor Oil Storage Tank Pump

<i>Device ID #</i>	009377	<i>Device Name</i>	Motor: 40 wt. Compressor Oil Storage Tank Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.33 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-218
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Powered by 0.33 hp electric motor; device ID # P-218.		

17.18 Motor: Compressor Vapor Pump

<i>Device ID #</i>	009436	<i>Device Name</i>	Motor: Compressor Vapor Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-260
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Driven by 1 hp electric motor drive		

17.19 Motor: Air Cooler Fans

<i>Device ID #</i>	009375	<i>Device Name</i>	Motor: Air Cooler Fans
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	E-218 & E-225
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each powered by 10 hp electric motor.		

17.20 Three-phase Separators

<i>Device ID #</i>	009378	<i>Device Name</i>	Three-phase Separators
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-118, V-119
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each connected to vapor recovery.		

17.21 Hybon Condensate Scrubber

<i>Device ID #</i>	009379	<i>Device Name</i>	Hybon Condensate Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-224
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 20.0", length: 8.0'		

18 Glycol Unit**18.1 Glycol Separator**

<i>Device ID #</i>	009389	<i>Device Name</i>	Glycol Separator
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-209
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

18.2 Glycol Surge Tank/Regenerator

<i>Device ID #</i>	009390	<i>Device Name</i>	Glycol Surge Tank/Regenerator
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-210.
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

18.3 Flash Tank

<i>Device ID #</i>	009391	<i>Device Name</i>	Flash Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.50 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	V-211
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Tank dia. 20.0", height: 6.0 feet, volume: 2.5 barrels, connected to vapor recovery.		

18.4 Glycol Pumps

<i>Device ID #</i>	009392	<i>Device Name</i>	Glycol Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-207A/B/C
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Three Pumps: Each pump driven by a pneumatic motor powered by pressurized air; device ID #s P-207A [rich glycol], P-207B [lean glycol], P-207C		

18.5 Glycol Sock Filter

<i>Device ID #</i>	009393	<i>Device Name</i>	Glycol Sock Filter
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-206
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	6" dia. x 3' height.		

18.6 Glycol Charcoal Filters

<i>Device ID #</i>	009394	<i>Device Name</i>	Glycol Charcoal Filters
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-207 & F-208
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	10" dia. x 5'.		

18.7 Glycol Drip Pot

<i>Device ID #</i>	009395	<i>Device Name</i>	Glycol Drip Pot
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-210A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2' x 3".		

18.8 Glycol Storage Transfer Pump

<i>Device ID #</i>	009441	<i>Device Name</i>	Glycol Storage Transfer Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.33 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-208
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 0.33 hp		

18.9 Motor: Glycol Pump

<i>Device ID #</i>	009463	<i>Device Name</i>	Motor: Glycol Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.25 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-208
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 0.25 hp		

18.10 Water/Glycol Pump

<i>Device ID #</i>	106040	<i>Device Name</i>	Water/Glycol Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.50 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-204 A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Pump equipped with 7.5 hp motor.		

19 Refrigeration Unit (York Skid)**19.1 Five-stage Compressor**

<i>Device ID #</i>	009383	<i>Device Name</i>	Five-stage Compressor
<i>Rated Heat Input</i>		<i>Physical Size</i>	1750.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	K-202
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Powered by electric motor		

19.2 Refrigeration Unit Float Chamber

<i>Device ID #</i>	009384	<i>Device Name</i>	Refrigeration Unit Float Chamber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-246
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	18" diameter by 4' height		

19.3 Jacket Water Pump

<i>Device ID #</i>	009385	<i>Device Name</i>	Jacket Water Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-248A, 248B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each powered by a 10 hp electric motor.		

19.4 Motor: Air Cooler Fans

<i>Device ID #</i>	009386	<i>Device Name</i>	Motor: Air Cooler Fans
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	E-217A, E-217B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each powered by a 10 hp electric motor.		

19.5 York Shutdown Liquid off. Receiver

<i>Device ID #</i>	009457	<i>Device Name</i>	York Shutdown Liquid off. Receiver
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-244 A.
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	8.625" diameter by 6' height		

19.6 Oil Recovery scrubber for York Unit

<i>Device ID #</i>	106041	<i>Device Name</i>	Oil Recovery scrubber for York Unit
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00
<i>Manufacturer</i>		<i>Operator ID</i>	V- 244
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

20 Vapor Recovery Unit

20.1 Gas Condensate Scrubber

<i>Device ID #</i>	009404	<i>Device Name</i>	Gas Condensate Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-235
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	dia. 2.0', length 4.0'.		

20.2 Gas Condensate Scrubber

<i>Device ID #</i>	009405	<i>Device Name</i>	Gas Condensate Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-236
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 3.0', length 6.0'.		

20.3 VRU Water Jacket Pump

<i>Device ID #</i>	009406	<i>Device Name</i>	VRU Water Jacket Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-249A, P-249B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two Pumps, each with a 10 hp motor.		

20.4 Vapor Recovery System

20.5 VRS Compressor

<i>Device ID #</i>	009408	<i>Device Name</i>	VRS Compressor
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	K-1, K-3
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two compressors, each with electric motor horsepower rating (each) 75 hp		

20.6 Motor: VRS Compressors

<i>Device ID #</i>	009409	<i>Device Name</i>	Motor: VRS Compressors
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	K-2 & K-4
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each equipped with electric motors horsepower rating (each) 200 hp.		

20.7 Blanket Gas System

<i>Device ID #</i>	009410	<i>Device Name</i>	Blanket Gas System
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used to supply blanket produced gas to the facility.		

20.8 VRU #1 Liquid Scrubber

<i>Device ID #</i>	009453	<i>Device Name</i>	VRU #1 Liquid Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-234
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

20.9 Free Water Knockout Vessel

<i>Device ID #</i>	009456	<i>Device Name</i>	Free Water Knockout Vessel
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-237 A
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>			

21 Vacuum Truck Exhaust Scrubbing

21.1 Portable Vacuum Truck Exhaust Scrubber

21.2 Caustic Tank

<i>Device ID #</i>	106015	<i>Device Name</i>	Caustic Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	158.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Volume = 158 gallons		

21.3 Trailer			
<i>Device ID #</i>	100918	<i>Device Name</i>	Trailer
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Exhaust stack, valves, and quick-release connections. An equivalent system to C/D		

21.4 Alternate Vacuum Truck scrubber system

21.5 Carbon canister

<i>Device ID #</i>	106017	<i>Device Name</i>	Carbon canister
<i>Rated Heat Input</i>		<i>Physical Size</i>	250.00 Pounds
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	55-gallon drum: capacity 250 lbs., carbon canister with granulated, activated carbon content		

21.6 Exhaust stack

<i>Device ID #</i>	106018	<i>Device Name</i>	Exhaust stack
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Stack and quick-release connection		

22 Methanol Injection Unit

22.1 Methanol Storage Tanks

<i>Device ID #</i>	009420	<i>Device Name</i>	Methanol Storage Tanks
<i>Rated Heat Input</i>		<i>Physical Size</i>	550.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	T-101 A/B/C/D
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Four (4) tanks, capacity 550 gallons each. Provides methanol for the VRU chiller.		

22.2 Methanol Injection Pumps

<i>Device ID #</i>	009421	<i>Device Name</i>	Methanol Injection Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-101 A/B
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each powered by 0.25 hp motor		

23 Hydrocarbon Laboratory

23.1 Fume Hood

<i>Device ID #</i>	009424	<i>Device Name</i>	Fume Hood
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Powered by electric motor horsepower rating: 0.33		

24 Stand-by Equipment

24.1 Seep/VRU Hydrogen Sulfide Removal System

<i>Device ID #</i>	009428	<i>Device Name</i>	Seep/VRU Hydrogen Sulfide Removal System
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: continuously scrub H2S from the seep gas stream and intermittently scrub H2S from the Platform Holly/vapor recovery system gas streams during periods when the Lo-Cat is not operating. Consists of the following:		

24.2 Contact vessels

<i>Device ID #</i>	106013	<i>Device Name</i>	Contact vessels
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-114/115/116
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Three contact vessels: Each 6' diameter by 20' height; ID #'s V-114, V-115, V-116; scrubbing medium in V-114 and 115 (iron sponge only or equivalent); scrubbing medium in V-116 (sulfa-check only);		

24.3 Sump Pit

<i>Device ID #</i>	009430	<i>Device Name</i>	Sump Pit
<i>Rated Heat Input</i>		<i>Physical Size</i>	145.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Dia. 8.0', height 35.3'. Use: accumulation point for scrubbing medium.		

24.4 Motor: Bulk Viscosity Transfer Pump

<i>Device ID #</i>	009447	<i>Device Name</i>	Motor: Bulk Viscosity Transfer Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	P-103
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 3 hp		

25 Piston IC Engine

25.1 IC Engine: Emergency Fire Water Pump

<i>Device ID #</i>	008006	<i>Maximum Rated BHP</i>	2.04
<i>Device Name</i>	IC Engine: Emergency Fire Water Pump	<i>Serial Number</i>	8VA366877
<i>Engine Use</i>	EngineUse	<i>EPA Engine Family Name</i>	EPAEngineFamily
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model Year</i>	ModelYear	<i>Fuel Type</i>	FuelType
<i>Model</i>	7084-7010		
<i>DRP/ISC?</i>	DRPISC	<i>Healthcare Facility?</i>	HealthCareYesNo
<i>Daily Hours</i>	DailyHours	<i>Annual Hours</i>	AnnualHours
<i>Location Note</i>			
<i>Device Description</i>	Type: 2 cycle - 8 cylinder, use: prime mover for Equipment Item 12, maximum brake-horsepower rating @ 1800 rpm = 292.0: fuel: diesel oil number 2.		

25.2 IC Engine: Backup Emergency Generator

<i>Device ID #</i>	009010	<i>Maximum Rated BHP</i>	520.00
<i>Device Name</i>	IC Engine: Backup Emergency Generator	<i>Serial Number</i>	7163-7000
<i>Engine Use</i>	EngineUse	<i>EPA Engine Family Name</i>	EPAEngineFamily
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model Year</i>	ModelYear	<i>Fuel Type</i>	FuelType
<i>Model</i>	16V-71		
<i>DRP/ISC?</i>	DRPISC	<i>Healthcare Facility?</i>	HealthCareYesNo
<i>Daily Hours</i>	DailyHours	<i>Annual Hours</i>	AnnualHours
<i>Location Note</i>			
<i>Device Description</i>	520 hp unit powers the vapor recovery system compressors,		

26 Heat Exchangers

27 Utility Pig Receiver

<i>Device ID #</i>	111633	<i>Device Name</i>	Utility Pig Receiver
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Interfacing Holly		

28 Gas Pig Receiver

<i>Device ID #</i>	111634	<i>Device Name</i>	Gas Pig Receiver
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Interfacing Holly		

10.6

EXEMPT/PART 70 INSIGNIFICANT EQUIPMENT LIST

The list attached designates Rule 203 permit exempt list of emissions units at Ellwood Onshore Facility. Unless otherwise noted by a double asterisk (**), this list also serves to designate the emissions units that are also Insignificant Units under Part 70 Rules.

1 Heat Exchangers			
<i>Device ID #</i>	009519	<i>Device Name</i>	Heat Exchangers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-201 A/B/C/D
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
2 Fluor Solvent Sump			
<i>Device ID #</i>	107265	<i>Device Name</i>	Fluor Solvent Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	S-206
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No description provided. This equipment is currently OUT-OF-SERVICE		
3 Propane Tank			
<i>Device ID #</i>	009467	<i>Device Name</i>	Propane Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-241
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	5' diameter by 20' length, S/S, refrigerant supply for York compressor		
4 LPG Tanks			
<i>Device ID #</i>	009466	<i>Device Name</i>	LPG Tanks
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-218, V-219
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
5 Instrument Air Compressors			
<i>Device ID #</i>	009472	<i>Device Name</i>	Instrument Air Compressors
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	K-204 A/B/C
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Device ID #s: K-204 A/B/C; supply pressurized air for use in EOF control systems, electric motor horsepower rating (each): 25.0.; D-205 A/B; Air compressor dryers (2), dry air; V-237 air compressor receiver, 30' by 50"		

6 Air Dryer Filters			
<i>Device ID #</i>	009473	<i>Device Name</i>	Air Dryer Filters
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-205A and F-205B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
7 Air Filters			
<i>Device ID #</i>	107263	<i>Device Name</i>	Air Filters
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-237 A/B/C/D
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No description		
8 Water Tanks			
<i>Device ID #</i>	009475	<i>Device Name</i>	Water Tanks
<i>Rated Heat Input</i>		<i>Physical Size</i>	3000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	TK-205 & TK-206
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Volume (each): 3000 barrels, use: store fresh water for fire fighting. [No potential to emit criteria pollutants]		
9 Water Supply Pumps			
<i>Device ID #</i>	009482	<i>Device Name</i>	Water Supply Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-205A, P-205B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Each powered by electric motor horsepower rating: 15 hp (each)		
10 Pump			
<i>Device ID #</i>	009476	<i>Device Name</i>	Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-206B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: emergency fire fighting water pump. Associated with Detroit Diesel IC engine of 292 hp		

11 Diesel Storage Tank			
<i>Device ID #</i>	009478	<i>Device Name</i>	Diesel Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-219
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: Emergency firewater pump fuel supply.		
12 Firewater System Main Pump			
<i>Device ID #</i>	009454	<i>Device Name</i>	Firewater System Main Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-243A
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Electric motor, 20 hp		
13 Firewater Foam System with Foam Tank			
<i>Device ID #</i>	009479	<i>Device Name</i>	Firewater Foam System with Foam Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-225
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used for fire fighting.		
14 Pump			
<i>Device ID #</i>	106091	<i>Device Name</i>	Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	# P-206A
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used for pumping fire fighting water. Equipped with an electric motor rated at 200 hp.		
15 Water Supply Surge Tank			
<i>Device ID #</i>	009483	<i>Device Name</i>	Water Supply Surge Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-242
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			

16 Water Supply Surge Tank Pump			
<i>Device ID #</i>	009484	<i>Device Name</i>	Water Supply Surge Tank Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-243-B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with 15 hp electric motor		
17 Water Sump Pump			
<i>Device ID #</i>	009487	<i>Device Name</i>	Water Sump Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-230
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Equipped with a 10 hp electric motor		
18 Water Irrigation Pump			
<i>Device ID #</i>	107259	<i>Device Name</i>	Water Irrigation Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-237
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
19 Pump			
<i>Device ID #</i>	009489	<i>Device Name</i>	Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-201C
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: pump produced water, electric motor horsepower rating: 20.0.		
20 Motor: Pump			
<i>Device ID #</i>	009490	<i>Device Name</i>	Motor: Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	P-201A/B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	device ID #s: P-201A & P-201B, use: pump brine/produced water, electric motor horsepower rating (each): 75.0.		

21 Storm Water Sump			
<i>Device ID #</i>	009485	<i>Device Name</i>	Storm Water Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	S-201
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[No potential to emit criteria pollutants].		
22 Filter Separator			
<i>Device ID #</i>	009492	<i>Device Name</i>	Filter Separator
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-201
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	10" and 6" diameter by 10' long		
23 Storm Water Sump Pump			
<i>Device ID #</i>	009486	<i>Device Name</i>	Storm Water Sump Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	P-214
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[No potential to emit criteria pollutants].		
24 Water Injection/Disposal Well			
<i>Device ID #</i>	009493	<i>Device Name</i>	Water Injection/Disposal Well
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
25 Water Filter			
<i>Device ID #</i>	107260	<i>Device Name</i>	Water Filter
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-225
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No Description		
26 Water Runoff Sump			
<i>Device ID #</i>	107261	<i>Device Name</i>	Water Runoff Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	S-230
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No description		

27 Water Filter			
<i>Device ID #</i>	107262	<i>Device Name</i>	Water Filter
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	F-209
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No description		
28 Rinse Water Storage Tank			
<i>Device ID #</i>	009495	<i>Device Name</i>	Rinse Water Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	V-226
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Use: storage of fresh water. [No potential to emit criteria pollutants]		
29 Gas Chillers			
<i>Device ID #</i>	009508	<i>Device Name</i>	Gas Chillers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-207/208
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		
30 De-butanizer Condenser			
<i>Device ID #</i>	009468	<i>Device Name</i>	De-butanizer Condenser
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-214
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
31 Receiver Intercooler			
<i>Device ID #</i>	009509	<i>Device Name</i>	Receiver Intercooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-209
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		
32 De-Butanizer Bottom Cooler			
<i>Device ID #</i>	009469	<i>Device Name</i>	De-Butanizer Bottom Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-215
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			

33 Heat Exchangers			
<i>Device ID #</i>	009499	<i>Device Name</i>	Heat Exchangers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-203/204/205
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1] ; device was originally E-203/A-D		

34 Condensers			
<i>Device ID #</i>	009510	<i>Device Name</i>	Condensers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-210 A/B/C/D
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		

35 Reboiler			
<i>Device ID #</i>	009470	<i>Device Name</i>	Reboiler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-211
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			

36 Gas Fin Cooler			
<i>Device ID #</i>	009500	<i>Device Name</i>	Gas Fin Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-216
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			

37 Air Fin Coolers			
<i>Device ID #</i>	009501	<i>Device Name</i>	Air Fin Coolers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-220A, E220-B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		

38 Fin Tube Heat Exchanger			
<i>Device ID #</i>	009503	<i>Device Name</i>	Fin Tube Heat Exchanger
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-200
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		

39 Refrigeration Unit Gas Fin Cooler			
<i>Device ID #</i>	009511	<i>Device Name</i>	Refrigeration Unit Gas Fin Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-206
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		

40 Compressor Jacket Water Cooler			
<i>Device ID #</i>	009504	<i>Device Name</i>	Compressor Jacket Water Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-226
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		

41 Lube Oil Cooler			
<i>Device ID #</i>	009505	<i>Device Name</i>	Lube Oil Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-219
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		

42 Glycol-Water/Water Heat Exchanger			
<i>Device ID #</i>	009515	<i>Device Name</i>	Glycol-Water/Water Heat Exchanger
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-202
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			

43 Glycol/Glycol Heat Exchanger			
<i>Device ID #</i>	009516	<i>Device Name</i>	Glycol/Glycol Heat Exchanger
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-224 A/B
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			

44 Oil/Therminol Heat Exchanger			
<i>Device ID #</i>	009518	<i>Device Name</i>	Oil/Therminol Heat Exchanger
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-102
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
45 Vapor Recovery Gas Chiller			
<i>Device ID #</i>	009502	<i>Device Name</i>	Vapor Recovery Gas Chiller
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-222
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>			
46 De-Butanizer Reboiler			
<i>Device ID #</i>	107257	<i>Device Name</i>	De-Butanizer Reboiler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-213
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Device: 2.75" diameter by 25' length		
47 Stabilizer Bottom Cooler			
<i>Device ID #</i>	107258	<i>Device Name</i>	Stabilizer Bottom Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-212
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No description provided		
48 Water Chiller			
<i>Device ID #</i>	009506	<i>Device Name</i>	Water Chiller
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-202
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.L.1]		
49 40-wt Oil Storage Tank			
<i>Device ID #</i>	009497	<i>Device Name</i>	40-wt Oil Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-218
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.V.3] being replaced w/small tank		

50 30-wt Oil Storage Tank			
<i>Device ID #</i>	009498	<i>Device Name</i>	30-wt Oil Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-100
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	[Rule 202.V.3] being replaced w/small tank		

51 LO-Cat Diesel Injection Tank			
<i>Device ID #</i>	107264	<i>Device Name</i>	LO-Cat Diesel Injection Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	T-1909
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	No description provided. This equipment is currently OUT-OF-SERVICE		

10.7 Comments Received During Public Review and APCD Responses

VENOCO COMMENTS ON 'DRAFT' PART 70/APCD PTO NO. 7904-R7 (EOF) ISSUED 10-8-2005; AND APCD RESPONSES

No .	Page/ Section	Venoco Citation and Issue	Venoco Proposed Resolution	APCD Response
1.				