

**DRAFT**

**PERMIT TO OPERATE 9103**

**and**

**PART 70 OPERATING PERMIT 9103**

**Platform Harvest**

**Parcel OCS P-0315  
Point Arguello Oilfield  
Outer Continental Shelf**

**EQUIPMENT OPERATOR**

Plains Exploration and Production Co. (PXP)

**OWNERSHIP**

Arguello Inc; Texaco Harvest LLC; Devon Energy Production Company LP; Sun Operating Limited Partnership; Whiting Petroleum Corporation; Koch Industries, Inc.; Harvest Energy, Inc.

**Santa Barbara County  
Air Pollution Control APCD**

**July 2008**

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## ABBREVIATIONS/ACRONYMS

APCO	Air Pollution Control Officer
AP-42	USEPA <i>Compilation of Emission Factors</i> document
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
ATC	Authority to Construct permit
BS&W	Basic sediment and water
bhp	brake horsepower
bpd	barrels per day (42 gallons per barrel)
BSFC	brake-specific fuel consumption
Btu	British thermal unit
CAAA	Clean Air Act Amendments of 1990
CAM	Compliance Assured Monitoring
CAP	Clean Air Plan
CARB	California Air Resources Board
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
clp	component-leak path
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
COA	corresponding offshore area
ERC	emission reduction credit
FHC	fugitive hydrocarbon
FR	Federal Register
gr	grain
g	gram
gal	gallon
GOHF	Gaviota Oil Heating Facility
HHV	higher heating value
H <sub>2</sub> S	hydrogen sulfide
H&SC	California Health and Safety Code
IC	internal combustion
I&M	inspection and maintenance
k	thousand
kV	kilovolt
lb	pound
LHV	lower heating value
MACT	Maximum Achievable Control Technology
MCC	motor control center
MDEA	methyl diethanolamine
MM, mm	million
MMS	Minerals Management Service
MSDS	Material Safety Data Sheet
MW	molecular weight, Megawatts
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGL	natural gas liquids
NO <sub>x</sub>	oxides of nitrogen (calculated as NO <sub>2</sub> )
NSPS	New Source Performance Standards

OCS	Outer Continental Shelf
PFD	process flow diagram
P&ID	pipng and instrumentation diagram
PTO	Permit to Operate permit
PTO Mod	Permit to Operate Modification permit
ppmv	parts per million volume (concentration)
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PM	particulate matter
PM <sub>10</sub>	particulate matter less than 10 $\mu$ m in size
PSV	pressure safety valve
PTE	potential to emit
PTO	Permit to Operate
PRD	pressure relief device
PVRV	pressure vacuum relief valve
ROC	reactive organic compounds
SBCAPCD	Santa Barbara County Air Pollution Control APCD or APCD or APCD
scf	standard cubic feet
scfd	standard cubic feet per day
scfm	standard cubic feet per minute
SCAQMD	South Coast Air Quality Management APCD
SO <sub>x</sub>	sulfur oxides
TEG	triethylene glycol
TOC	total organic compounds
tpq	tons per quarter
tpy	tons per year
Trn O/O	transfer of owner/operator permit application
TVP	true vapor pressure
USEPA	United States Environmental Protection Agency or EPA
UPS	uninterrupted power supply
VRS	vapor recovery system
wt %	weight percent

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## 1.0 Introduction

### 1.1 Purpose

General: The Santa Barbara County Air Pollution Control APCD (APCD) is responsible for implementing all applicable federal, state and local air pollution requirements which 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. The county is currently designated as a nonattainment area for the state ozone and PM<sub>10</sub> ambient air quality standards.

Part 70 Permitting: The issuance of this Part 70 permit to Platform Harvest satisfies the permit issuance requirements of the APCD's Part 70 operating permit program. The first permit renewal occurred in April 2001 and the second renewal in July 2005. This is the third renewal of the Part 70 permit, as well as, the APCD reevaluation, and may include additional applicable requirements.

Platform Harvest is a part of the *Point Arguello Project Stationary Source* (SSID = 1325), which is a major source for VOC<sup>1</sup>, NO<sub>x</sub>, CO, and SO<sub>x</sub>. 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.

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 three 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. Third, this permit is a consolidation of Title V Part 70 permitting requirements, renewal of the existing Part 70 PTO 9103 permit (including several Part 70 minor modifications to this permit) and the reevaluation of APCD PTO 9103.

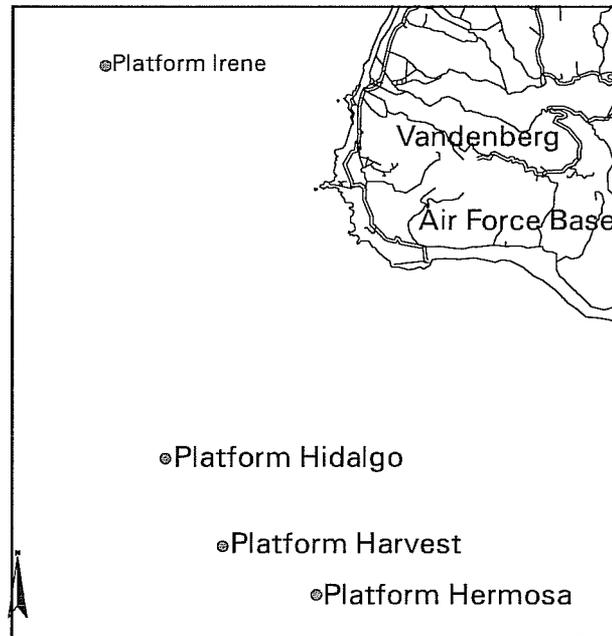
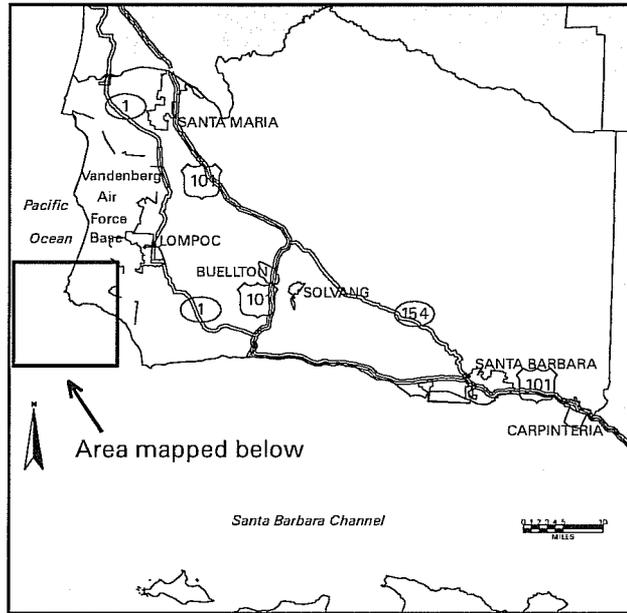
### 1.2 Facility Overview

1.2.1 Facility Overview: Platform Harvest is located on offshore lease tract OCS-P-0315, about ten miles offshore of Point Arguello, California (Latitude 34°28'42" North, Longitude 120°40'46.169" West). The platform is located in the Southern Zone of Santa Barbara County. Figure 1.1 shows the relative location of Platform Harvest off the Santa Barbara County coast. The platform is operated by Plains Exploration and Production Co. (PXP).

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<sup>1</sup> 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.

Figure 1.1 - Location Map for Platform Harvest



The eight leg, five deck platform lies in 675 feet of water and was installed in 1985 and initial production commenced in 1991. Platform Harvest is a self-contained, manned drilling and producing platform with (1) locations for a maximum of 50 well slots, (2) facilities for gas and oil production, and (3) accommodation quarters for crew.

The production systems on Platform Harvest are capable of processing 60,000 barrels per day (bpd) of dry oil; 50,000 barrels per day of water and 50 million standard cubic feet per day (MMscfd) of natural gas. Oil and gas are separated and undergo treatment on the Harvest before the oil is shipped to Platform Hermosa (1.8 miles away) for piping to the Gaviota Oil Heating Facility (GOHF) via a 12-inch submarine pipeline. Produced gas is used as fuel or is reinjected.

The Point Arguello Project is comprised of the following facilities:

**Platform Hermosa:** Installed in 1985 by Chevron and operated by PXP. This platform is subject to PTO 9104.

**Platform Hidalgo.** Installed in 1986 by Chevron and operated by PXP. This platform is subject to PTO 9105.

**Platform Harvest:** Installed in 1985 by Texaco and currently operated by PXP. This platform is subject to PTO 9103.

**Gaviota Oil Heating Facility (GOHF):** Installed in 1989 by Chevron and operated by PXP. This plant is subject to PTO 5704.

**Offshore Pipelines:** The project pipelines include both oil and gas lines between the platforms, an oil line and gas line from Platform Hermosa to the GOHF and an oil line from the GOHF to the Gaviota Interim Marine Terminal. These pipelines were installed in 1988 and are operated by PXP.

- 1.2.2 Facility New Source Review Overview: Since the issuance of the initial Part 70 operating permit on April 19, 2001 the following permitting actions have occurred. Each of these permitting actions are incorporated into this permit.

**ATC/PTO 9103-01:** This permit authorized the removal of the unplanned flaring sulfur concentration limit of 10,000 ppmv. The APCD determined that compliance for unplanned flaring can be determined through the permitted mass emission limits alone.

**ATC/PTO 9103-02:** This permit authorized an increase of the quarterly average sulfur concentration ceiling to 17,000 ppmv for produced gas flared as “planned other”. There was no increase in flare emissions.

**ATC/PTO 9103-05:** This permit authorized revisions to the visible emissions monitoring requirements listed in permit condition 9.B.2.

**ATC/PTO 9103-06:** This permit authorized an increase in the number of allowable pigging vents.

**PTO 11246:** Installation of Selective Catalytic Reduction (SCR) controls on three gas-driven turbine compressors.

**ATC/PTO 11660:** This permit authorized an increase in the number of pigging events and pigging emissions.

**PTO 11928:** This permit authorized the installation of two emergency firewater pumps and two emergency electrical generators due to the loss of the Rule 202.F.1.d exemption.

**PTO 9103-08:** Replacement of MERC emission reduction credits with credits generated by the installation of SCR emission controls on gas operated turbine compressors on Platform Harvest.

**Trn O/O 9103-07:** This permit authorized of a change of Project Ownership, Inc. (removal of Texaco Harvest, LLC)

**Trn O/O 9103-08:** Transfer of Platform Operatorship from Arguello, Inc. to Plains Exploration and Production Co. (PXP)

**PTO 9103-09:** Temporary use of an equivalent replacement air flotation cell.

**PTO 9103-10:** Modification of turbine diesel CO emissions equation.

### **1.3 Emission Sources**

The emissions from Platform Harvest come from combustion sources, vessels and piping 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.

The emission sources include:

- Five dual fired turbine generators used for electrical power generation. The turbines typically burn sweetened produced gas, however diesel fuel may be used during times when the gas supply has been interrupted.
- Three gas turbine engines used to drive the sales gas compressors. The turbines are fired on sweetened produced gas only.
- Three pedestal cranes operated by diesel driven internal combustion engines
- Two stand-by diesel driven generators that are used only in emergency situations
- Two stand-by diesel driven fire water pumps that are used only in emergency situations
- Supply and emergency response boats
- High and low pressure flare
- Helicopters
- Solvent cleaning

A list of all permitted equipment is provided in Attachment 10.3.

## 1.4 Emission Control Overview

Air quality emission controls are utilized on Platform Harvest for a number of emission units. The emission controls employed on the platform include:

- An Inspection & Maintenance program for detecting and repairing leaks of hydrocarbons from piping components, consistent with the requirements of Rule 331, to reduce ROC emissions by approximately 80-percent.
- Use of turbo-charging, enhanced inter-cooling and 4° timing retard on the supply boat main engines to achieve a NO<sub>x</sub> emissions rate of 8.4 g/bhp-hr. The newer technology on the Santa Cruz supply boat achieves 5.99 g/bhp-hr without these controls.
- A vapor recovery system to collect evaporating reactive organic vapors from various tanks and vessels and deliver them to the gas compression system.
- Water injection in the turbine-driven compressors and generators to reduce NO<sub>x</sub> formation by approximately 70-percent.
- SCR on turbine compressors for additional NO<sub>x</sub> control above the 70% attributable to water injection.

## 1.5 Offsets/Emission Reduction Credit Overview

Offsets: Offsets are required for the Point Arguello Project and are discussed in detail in Section 7.3.

Emission Reduction Credits (ERCs): Platform Harvest provides a portion of the ERCs necessary to offset Platform Harvest emissions. See section 7.4 below for additional details.

## 1.6 Part 70 Operating Permit Overview

- 1.6.1 Federally-enforceable Requirements: All federally-enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under “applicable requirements.” These include all SIP-approved APCD Rules, all conditions in the APCD-issued Authority to Construct permits, and all conditions applicable to major sources under federally promulgated rules and regulations. All permits (and conditions therein) issued pursuant to the OCS Air Regulation are federally-enforceable. All these requirements are enforceable by the public under CAAA. (*see 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 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.
- 1.6.3 Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement, or (2) included in the 29-category source list specified in 40 CFR

51.166 or 52.21. The federal PTE does include all emissions from any insignificant emissions units. (See Section 5.4 for the federal PTE for this source)

- 1.6.4 Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally-enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the APCD. Permit shields cannot be indiscriminately granted with respect to all federal requirements. PXP 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. PXP made no request for alternative operating scenarios.
- 1.6.6 Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally-enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually on or before March 1<sup>st</sup> or on a more frequent schedule 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 1.6.9 below)
- 1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data. This permit may be re-opened in the future to address new monitoring rules, if the permit is revised significantly prior to its first expiration date. (see Section 4.9.3, CAM Rule).
- 1.6.8 Hazardous Air Pollutants (HAPs): Being an OCS source, the requirements of Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology (MACT), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability.
- 1.6.9 Responsible Official: The designated responsible official and his mailing address is:

Thomas Goeres, Operations Manager  
Plains Exploration and Production Co.  
201 South Broadway  
Orcutt, CA 93455

## **2.0 PROCESS DESCRIPTION**

### **2.1 Process Summary**

- 2.1.1 *Production*: The well bays are arranged in two groups with five rows of five wells per group. Flow lines from wells in each group are connected to identical manifold systems (North Bay and South Bay). The manifolds allow flow from the wells to be switched to either the production or test separation systems. Lines for well cleanup, casing gas recovery or gas lift, hydraulic control,

and associated instrumentation are provided for each wellhead. Initially, each well flowed under its own pressure. Some weaker wells, however, require gas lift.

- 2.1.2 *Gas, Oil and Water Separation:* Two separation systems are in operation on Platform Harvest: (1) the production separation system and (2) the test separation system. The production separation system is described in this section, while the test separation system is described in the section dealing with well testing and maintenance.

The production separation system separates gas, water, and sediment from the crude oil. Oil emulsion flows from the production preheaters (X-100A and B) through a single production header into two identical production separators (V-102A and B) which normally operate in parallel, but which are capable of operating in series. The preheaters are designed to heat the production fluids from approximately 80°F to 200 °F. The oil emulsion is heated and mixed with demulsifying agents prior to the production separators.

The production separators operate at a pressure of approximately 45 psig and 200 °F with a capacity of 80,000 bpd of oil emulsion and 50 MMscfd of gas. Gas from the top of the separators is compressed in the main gas compressors (K-200A, B, and C). The water level is automatically controlled, with the excess being drained off the bottom of the separator, collected in the produced water header, and sent to the oily water coalescers (U-304A and B) for further processing. The crude oil is separated from the water and flows through the electrostatic dehydrator (V-101), the crude oil stabilizer (V-900), and finally enters the wet oil surge tanks (V-103A and B) for subsequent metering, sampling, and pumping to Platform Hermosa, and from there to the onshore facilities. The stabilizer uses stripping gas to reduce vapor pressure and H<sub>2</sub>S content to meet the pipeline sales specifications. Gas recovered from the oil surge vessels is collected by the vapor recovery system and directed to the vapor recovery compressors.

- 2.1.3 *Waste Water Treatment:* The produced water treatment system on Platform Harvest consists of the oily water coalescers (U-304A and B), air flotation cell (U-305), and the skim pile (T-303). Liquids collected in the production drain sump are routed to the production separators. The coalescers employ a sweet gas blanket and are connected to vapor recovery. The flotation cell uses a nitrogen gas blanket and the sump employs a sweet gas blanket, and both are connected to the flare relief system.
- 2.1.4 *Well Testing and Maintenance:* The test separation system is used to determine the output of a well and the amount of demulsifying agent and operating conditions necessary to optimize separation of gas, water, and sediment from a well. Each well is tested on initial start-up and periodically thereafter to determine the trend of a well's oil, gas, and water production.

Two test separator systems are provided on Platform Harvest. Crude oil from the test headers are routed to one of the test separators (V-100 A or B). The systems are similar to the production separation systems described above, but are designed for production from only one well at a time and are of lower capacity.

The primary function of the well cleanup system is to remove produced fluids and solids from new and reworked wells before bringing the wells into production in the production separation system. The well cleanup system forwards crude oil associated with BS&W (basic sediment and

water) to the dirty oil storage vessels before processing in the production separation system. All wells are connected to the well cleanup header. The system is designed for either continuous or intermittent operation.

The well cleanup vessel (V-801) receives produced fluids and contaminated solids from the wellhead to bring in or clean up a well. The produced fluid stream flows to a production heater or test separator for further processing.

- 2.1.5 *Emulsion Breaking and Crude Oil Storage:* The primary function of the oil shipping, metering, and pipeline system is to pump and record the amount of crude oil shipped from the platform. The lease automatic custody transfer (LACT) units continually register the oil shipped from the platform. A bi-directional positive displacement meter prover is used to prove the meters.

The oil pipeline system also includes pig receivers and a pig launcher for pigging the oil pipelines with a brush type pig to remove solids from the oil pipeline.

- 2.1.6 *Crude Oil Shipping:* The wet oil surge tanks (V-103A and B) have two functions: they provide a small reservoir of crude (approximately 15 minutes at full pumping capacity), and maintain a liquid suction head to the LACT charge pumps (P-101A, B, and C). After passing through the LACT unit, the oil is delivered to the pipeline pumps (P-100A, B, C, and D) to raise the pressure from 200 psig to about 500 psig for pipeline transfer to Platform Hermosa.

- 2.1.7 *Gas Dehydration and Compression:* There are two gas compressor systems on Platform Harvest: the main gas compression (MGC) system and the vapor recovery compression (VRC or VRU) system (described in the following section).

Gas removed at the production separators is directed to a suction scrubber which removes any entrained liquids and then to the sales gas compressors (K-200 A, B, and C). The sales gas compressors are three-stage machines that compress the gas from approximately 40 psig to about 900 psig. The discharge from each compression stage includes a gas cooler and a scrubber; the gas is cooled to prevent compressor overheating. Cooling the gas results in the condensation of liquids which is removed in the scrubber to prevent damage to the compressors. From the sales gas compressors, gases are directed to the triethylene glycol (TEG) dehydration system (V-500), which removes any remaining water. All gas handled on Platform Harvest, whether produced or from vapor recovery, is dehydrated.

The glycol dehydration system consists of an eight tray contactor tower, flash tank, and glycol reboiler for regeneration of the rich (i.e., water laden) glycol from the contactor tower. The primary purpose of the dehydration system is to reduce the amount of water vapor in the gas stream to prevent hydrates and subsequent freezing in the chiller. The dehydration tower operates at the same pressure as the sales gas compressor (about 1000 psig), and has a design capacity of 54 MMscfd. The glycol recirculation rate is approximately 15 gallons per minute. Vapors generated from the regenerator are stripped of glycol and this vapor stream is sent to the low-pressure flare scrubber.

Excess produced gas from the main gas compressors (K-200 A, B, and C) is sent to a gas injection compressor, K-202. This gas is reinjected back into the reservoir. Excess gas can also be routed to Platform Hidalgo via pipeline for reinjection.

2.1.8 *Condensate Removal System:* After the gas stream has been dehydrated, it is directed to the condensate removal system. Condensate that is removed in this process is collected in a knockout drum, stripped of light ends at elevated temperature and lower pressure (to stabilize the condensate), and then sent to the LACT. Gas is then sent to a discharge header in the well bay for either gas lift or gas re-injection. The gas lift compressor (K-300) has a capacity of 18 MMscfd, and the gas injection compressor (K-202) has a capacity of 13 MMscfd. Volumes are metered at each well gas flow line.

2.1.9 *Gas Sweetening and Sulfur Recovery:* Fuel gas for use by the turbine-driven electrical generators is produced as a side stream of sales gas line downstream of the dehydration and refrigeration systems. The gas is sweetened in the amine fuel gas treatment and regeneration system. This amine system (V-501) uses diglycolamine (DGA) to remove H<sub>2</sub>S and CO<sub>2</sub> from the production gas, which is sweetened to a specification of 50 ppmv or less H<sub>2</sub>S.

The amine system consists of the contactor tower, flash tank, and amine regenerator. The rich amine flows from the contactor to the flash tank where dissolved hydrocarbons are removed by flashing at reduced pressure. Rich amine is regenerated in the amine regenerator, cooled and filtered, and returned to the amine contactor.

2.1.10 *Vapor Recovery Systems:* The vapor recovery system collects vapors from various tanks and vessels and delivers them to the gas compression system. The vapor recovery compression system is upstream of the main gas compressors described in the preceding section and recovers the low-pressure gases that are released into the vapor recovery system, compresses them in four stages to about 900 psig, and delivers them to the glycol dehydration system.

Two 100 percent reciprocating gas compressors (K-201A and B) are used for compression of recovered vapors; each compressor has four cylinders and is driven by a 600 hp electric motor.

2.1.11 *Heating and Refrigeration:* There are no fuel-fired process heaters or process refrigeration systems on Platform Harvest.

2.1.12 *Flare Relief System*

2.1.12.1 *Flare System Design:* Platform flaring is performed to safely dispose of excess gas created by planned or unplanned (upset) conditions. The relief and flare system collects process vent and relief streams from all hydrocarbon systems for safe, continuous burning at the flare.

The high-pressure/low-pressure flare tip (U-204/205) is a low radiation type emitting a maximum of 650 Btu/hr/ft<sup>2</sup> of radiant heat. There are two continuous pilot burners with thermocouples for flame-out detection and automatic re-ignition of the flare via the flame front generator (U-200). Sweet fuel gas (50 ppmv or less H<sub>2</sub>S) is used for pilot flame ignition and purge.

2.1.12.2 *Planned Flaring Scenarios*: There are four common or routine planned flaring scenarios that occur on Platform Harvest:

- (1) During the startup of each unit is manually initiated to sweep atmospheric air from the system. This minimizes the possibility of having combustible gas mixtures in the process.
- (2) During the shut down of equipment, shut down valves (SDVs) will close and blowdown valves (BDVs) will open automatically to release pressure from the system. This is a requirement of federal regulations.
- (3) During maintenance of equipment, the systems are purged with nitrogen or fuel gas and blown down to the flare system.
- (4) During peak operations, low-pressure gas and blanket gas are released from the low-pressure vents if process set-points are exceeded.

All vents from production process equipment, tanks, relief valves, burst plates, and similar devices are piped to the flare system. Flaring due to pigging operations may occur up to two times per day with each event lasting for as long as about 18 minutes. Pig receivers are purged with sweet gas, thus reducing the sulfur content of the flared gas associated with pigging to levels of 50 ppmv or less as H<sub>2</sub>S.

Flaring due to planned oil train shutdown may occur four times per year with each event lasting approximately four hours. Flaring caused by planned and controlled gas plant shutdown may occur once per year and last for approximately five hours. Flaring due to gas-fired pilots occurs continuously. Flaring may also occur due to testing of safety devices as required by the Minerals Management Service.

2.1.12.3 *Unplanned Flaring Scenarios*: Unplanned flaring events on Platform Harvest most commonly derive from equipment shutdowns. Each system after blowing down will manually initiate a purge cycle before start up. These equipment shut downs are directly related to the instrumentation set point tolerances imposed by federal regulations. Unplanned flaring events are defined as all flaring that does not meet the definition of planned flaring under Rule 359. Unplanned flaring includes emergency and breakdown events.

## **2.2 Support Systems**

2.2.1 *Pipelines*: The pipelines associated with the platform include a 12-inch oil line and an 8-inch produced gas line to Platform Hermosa. Oil meeting predetermined specifications is transferred to Hermosa.

2.2.2 *Power Generation*: Electrical power for platform operations is provided by five 3316 kW Allison 501-KB5 dual-fuel turbine generators (G-700A, B, C, D, and E). The dual-fuel turbines can be run on either produced gas or diesel fuel and use water injection for NO<sub>x</sub> control. Two emergency diesel-driven generators (G-701A and B) provide backup power with rated capacities of 750 kW each.

- 2.2.3 *Supply Boats*: Supply boats regularly service the Point PXP platforms on the same round trip from Port Hueneme. Two vessels are designated as dedicated project vessels and are fitted with emission controls on the main engines as described in section 4.4 below. Other supply boats may be used provided the main engines meet the controlled emission factor and the total boat potential to emit ( all engines) is demonstrated to be under the permitted supply boat emissions .
- 2.2.4 *Crew Boats*: Transfer of crew to and from Platform Harvest occurs by helicopter. No crew boats are used by this platform.
- 2.2.5 *Helicopters*: Crew transport is normally accomplished by helicopter from Santa Maria Airport.

### **2.3 *Drilling Activities***

- 2.3.1 *Drilling*: Drilling activities occur periodically.
- 2.3.2 *Well Workover*: Current operations include a variety of well workover projects. These projects include redrilling or sidetracking of existing wells, acidizing of existing well perforations and optimizing gas lift zones.
- 2.3.3 *Enhanced Recovery*: Enhanced oil recovery techniques are employed in the form of artificial gas lift. Electrical submersible pumps may be used in the future to supplement gas lift.

### **2.4 *Maintenance/Degreasing Activities***

- 2.4.1 *Paints and Coatings*: There is a maintenance painting program that is in progress on Platform Harvest. Pollution prevention measures are in effect; tarps are used to help create a more controlled environment and all solvents are recycled or properly disposed.
- 2.4.2 *Solvent Usage*: Solvents not used for surface coating thinning may be used on the platform for daily operations. Usage include cold solvent degreasing and wipe cleaning with rags.

### **2.5 *Planned Process Turnarounds***

Process turnarounds on platform equipment are scheduled to occur when the onshore receiving facilities are required to shut down for maintenance. Major pieces of equipment such as gas compressors, turbine generators, and coolers have maintenance schedules specified by the manufacturer, and that equipment is removed from service, inspected, and repairs are made as necessary. Maintenance of critical components is carried out according to the requirements of Rule 331, Fugitive Emissions Inspection and Maintenance. The emissions from planned process turnarounds are incorporated in the emissions category for planned flaring.

### **2.6 *Other Processes***

PXP has stated that no other processes exist that would be subject to permit.

### **2.7 *Detailed Process Equipment Listing***

Refer to the tables in Attachment 10.3 for a complete listing of all permitted and exempt emission units.

### 3.0 Regulatory Review

This Section identifies the federal, state and local rules and regulations applicable to Platform Harvest.

#### 3.1 Rule Exemptions

- APCD Rule 202 (Exemptions to Rule 201): The permittee has requested a number of permit exemptions under this rule. An exemption from permit, however, does not grant relief from any applicable prohibitory rule unless specifically exempted by that prohibitory rule. The following exemptions were either approved by the APCD or may apply to individual equipment units meeting the exemption criteria:
- Section 202.L.1 for heat exchangers, test heaters (332-X-101A and B), discharge coolers (336-X-200A, -200B, -200C, -201A, -201B, -201C, -202, -203, -204, -205), gas chiller (336-X-811A and B), oil recycle cooler (331-X-103), glycol regenerator (332-X-500-3), amine reboilers (332-X-501-1 and -2), production coolers (335-X-100A and B), gas heater (335-X-600), heat exchangers (335-X-208, 336-X-209, 335-X-300, 332-X-500-1, 332-X-500-2, 332-X-500-4, 332-X-500-5, 332-X-501-3, 332-X-501-4, 332-X-501-5, 336-X-810, 336-X812), and condensate coolers (336-X-813, 336-X-814A and B).
  - Section 202.V.2 for one diesel storage tank (333-T-601).
- APCD Rule 321 (Control of Degreasing Operations): Per Section J.2, an exemption for all solvent degreasers with a liquid surface area of less than 929 square centimeters (1.0 square foot).
- *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 smaller leak-free stainless steel tubing fittings.
  - Section B.3.a for components exclusively in heavy liquid service.
  - Section B.3.b for air flotation cell components when used in nitrogen gas blanket mode.
- APCD Rule 333 (Control of Emissions from Reciprocating Internal Combustion Engines): Under Section B.1.b, engines exempt per Rule 202 are also exempt from the requirements of this rule.
- *APCD Rule 359 (Flares and Thermal Oxidizers)*: Under Section D.1.b, PXP has obtained APCD approval to comply with the exemption from Section D.1.a requirements and has offset all excess SO<sub>x</sub> emissions at a ratio of 1:1. This was originally accomplished through the Marine Engine Repowering Campaign (MERC), in which a number of boats were equipped with cleaner engines. These MERC ERCs were subsequently replaced with

ERCs created through controlling natural gas turbines on Platform Harvest as described in section 7.3. Unplanned flaring is exempt from the sulfur standards of this rule.

### **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)}: Platform Harvest was constructed and permitted prior to the applicability of these regulations. However, all permit modifications as of September 4, 1992 are subject to APCD NSR requirements. Compliance with APCD Regulation VIII (*New Source Review*), ensures that future modifications to the facility will comply with these regulations.
- 3.2.2 40 CFR Part 55 {OCS Air Regulation}: PXP is operating Platform Harvest in compliance with the requirements of this regulation.
- 3.2.3 40 CFR Part 60 {Subpart GG; Section 60.332} - Standards of Performance for Stationary Gas Turbines: This subpart requires stationary gas turbines rated between 10 and 100 MMBtu/hr to meet a NO<sub>x</sub> emission limit calculated per section 60.332 of subpart GG and a fuel sulfur content limit of 0.8 % by weight. Each turbine at this facility is subject to these standards. Since APCD Rule 311 is more stringent for fuel sulfur content, the GG sulfur content standard has been subsumed into Rule 311.

The applicable NO<sub>x</sub> standard was determined to be 190 ppmv at 15% O<sub>2</sub> in accordance with section 60.332(a)(2). “Y” was assumed to be 14.4 to provide the most conservative calculated value. “N” was assumed to be 0.1 % (as a worst case) based on diesel and gas turbine fuel data ranging from 0.1 to 0.6 % nitrogen content. To determine the specific requirements for monitoring under this subpart, the APCD reviewed past source test results for these turbines for operations on both natural gas and diesel fuel. The source test results indicated that the worst case *uncontrolled* NO<sub>x</sub> emission rate was 172 ppmv at 15% O<sub>2</sub> while operating on diesel. Thus, since these turbines operate in compliance with the 190 ppmv standard without control, water injection is not required for compliance with GG. Consequently, the monitoring and reporting requirements in subpart GG 60.334 are not applicable to these turbines.

In any case, water injection monitoring, and reporting have historically been required for these turbines. Monitoring of the water injection is performed by the platform Automated Data Gathering System (ADGS). Recordkeeping and reporting requirements are summarized in condition 9.C.2 of this permit and in the Turbine ADGS Quality Assurance Plan.

- 3.2.4 40 CFR Part 61 {NESHAP}: None of the equipment in this permit are subject NESHAP requirements.
- 3.2.5 40 CFR Part 63 {MACT}: On June 17, 1999, EPA promulgated Subpart HH, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. PXP submitted an *Initial Notification of Applicability* on June 13, 2000. In a February 20, 2003 correspondence PXP requested a black oil exemption from this subpart and provided information to support the request. The APCD approved the exemption on this date. This exemption requires that records be maintained in accordance with 40 CFR 63.10(b)(3). See permit condition 9.B.14.

- 3.2.6 40 CFR Part 63; Subpart YYYY{MACT}: On March 5, 2004, EPA promulgated Subpart YYYY, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Stationary Combustion Turbines. This subpart applies to anyone who owns or operates a stationary combustion turbine located at a major source of HAP emissions. A major source of HAP emissions is defined as a contiguous site under common control that emits, or has the potential to emit, ten tons per year or more of any single HAP or a combination of HAP exceeding 25 tons per year. This facilities' HAP emission totals are less than each of the above thresholds and therefore, this subpart is not applicable. See Section 5.6 for HAPs emission totals.
- 3.2.7 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998. Turbines 700-A, 700-B, 700-C, 700-D and 700-E are subject to this rule. The primary requirement is the submittal of a CAM Plan identifying specific operational parameters to be monitored and serve as compliance indicators for emission limits. See section 4.11.3 for a discussion of the plan and the rule applicability determination.
- 3.2.8 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to Platform Harvest. Table 3.1 lists the federally-enforceable APCD promulgated rules that are "generic" and apply to Platform Harvest. Table 3.2 lists the federally-enforceable APCD promulgated rules that are "unit-specific". These tables are based on data available from the APCD's administrative files and from PXP's Part 70 Operating Permit application. Table 3.4 includes the adoption dates of these rules.

In its Part 70 permit application (Form I ), PXP certified compliance with all existing APCD rules and permit conditions. This certification is also required of PXP semi-annually. Issuance of this permit and compliance with all its terms and conditions will ensure that PXP complies with the provisions of all applicable Subparts.

- 3.2.9 Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition (CI) Engines (CCR Section 93115, Title 17): This applies for all diesel engines rated over 50 brake horsepower located at this OCS facility. See discussion in section 3.3.3 below

### **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 are enforced by the APCD. These provisions are APCD-enforceable only.
- 3.3.2 California Administrative Code Title 17: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at Platform Harvest are required to conform to these standards. Compliance is 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 Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition (CI) Engines (CCR Section 93115, Title 17): This ATCM applies for all stationary diesel-fueled engines rated 50 brake horsepower (bhp) and greater at this facility. On March 17, 2005, APCD Rule 202 was

revised to remove the compression-ignited engine (e.g. diesel) permit exemption for units rated above 50 bhp to allow the APCD to implement the State's ATCM for Stationary Compression Ignition Engines. Compliance shall be assessed through onsite inspections and reporting. The operating requirements and emission standards outlined in the ATCM do not apply to stationary diesel-fueled engines solely used on the OCS. However, these OCS engines are required to meet fuel, recordkeeping, reporting, and monitoring requirements outlined in the ATCM. On January 30, 2006 the DICE ATCM was incorporated into 40 CFR Part 55, making the requirements of the DICE ATCM federally enforceable in the OCS.

### **3.4 Compliance with Applicable Local Rules and Regulations**

- 3.4.1 Applicability Tables: In addition to Tables 3.1 and 3.2, Table 3.3 lists the non-federally-enforceable APCD promulgated rules that apply to Platform Harvest. Table 3.4 lists the adoption date of all rules applicable to this permit at the date of this permit's issuance.
- 3.4.2 Rules Requiring Further Discussion: This section provides a more detailed discussion regarding the applicability and compliance of certain rules.

The following is a rule-by-rule evaluation of compliance for Platform Harvest:

*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, PXP 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 Ringlemann 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 Ringlemann Chart. Sources subject to this rule include: the flare and all diesel-fired piston internal combustion engines on the platform. Improperly maintained diesel engines have the potential to violate this rule. Compliance is assured by requiring periodic visible emissions evaluations. Also, all engines to be maintained according to manufacturer maintenance schedules.

*Rule 305 - Particulate Matter, Southern Zone*: Platform Harvest 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 flare and all diesel-fired IC engines on the platform. Improperly maintained diesel engines have the potential to violate this rule. Compliance is assured by requiring all engines to be maintained according to manufacturer maintenance schedules. Rule 359 addresses the need for the flare to operate in a smokeless fashion.

*Rule 309 - Specific Contaminants*: Under Section "A", no source may discharge sulfur compounds and combustion contaminants in excess of 0.2-percent as SO<sub>2</sub> (by volume) and

0.3 gr/scf (at 12% CO<sub>2</sub>) respectively. Sulfur emissions due to flaring of sweet gas will comply with the SO<sub>2</sub> limit. All diesel powered piston IC engines have the potential to exceed the combustion contaminant limit if not properly maintained (see discussion on Rule 305 above for compliance).

*Rule 310 - Odorous Organic Compounds:* This rule prohibits the discharge of H<sub>2</sub>S and organic sulfides that result in a ground level impact beyond the property boundary in excess of either 0.06 ppmv averaged over 3 minutes and 0.03 ppmv averaged over 1 hour. No measured data exists to confirm compliance with this rule, however, all produced gas from Platform Harvest is collected for sales, re-injection or is collected by vapor recovery (i.e., no venting occurs). As a result, it is expected that compliance with this rule will be achieved.

*Rule 311 - Sulfur Content of Fuels:* This rule limits the sulfur content of fuels combusted on Platform Harvest to 0.5-percent (by weight) for liquids fuels and 15 gr/100 scf (calculated as H<sub>2</sub>S) {or 239 ppmvd} for gaseous fuels. All piston IC engines on the Platform Harvest and on the supply boats are expected to be in compliance with the liquid fuel limit as determined by fuel analysis documentation. The flare relief system is not subject to this rule (see discussion under Rule 359).

*Rule 317 - Organic Solvents:* This rule sets specific prohibitions against the 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 on the platform 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. PXP is required to maintain records to ensure compliance with this rule.

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

*Rule 321 - Solvent Cleaning Operations:* This rule sets equipment and operational standards for degreasers using organic solvents. There is one remote reservoir degreasing unit (cold solvent cleaning) on the platform. This unit is exempt from all provisions of this rule with the exception of Section G.2 (requirement to keep the unit covered at all times when not in use). Degreaser compliance and solvent use is determined through APCD inspection and the operating and recordkeeping requirements of the rule.

*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. PXP is 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 platform is for Industrial Maintenance Coatings which has a limit of 340 gram ROC per liter of coating, as applied. PXP

is required to comply with the Administrative requirements under Section F for each container on the platform.

*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. PXP is required to maintain records to ensure compliance with this rule. Solvents used during operations (e.g., for degreasing and wipe cleaning) are limited to the non-photochemically reactive type.

*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 sumps. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. Production and test separators are all connected to gas gathering systems and relief valves are connected to the flare relief system. Compliance with Section E is met by directing all produced gas to sales, injection, gas lift or to the flare relief system.

*Rule 326 - Storage of Reactive Organic Liquids:* This rule applies to equipment used to store reactive organic compound liquids with a vapor pressure greater than 0.5 psia. There is no platform equipment subject to this rule.

*Rule 327 - Organic Liquid Cargo Tank Vessel Loading:* There are no organic liquid cargo tank loading operations associated with Platform Harvest.

*Rule 328 - Continuous Emissions Monitoring:* This rule details the applicability and standards for the use of continuous emission monitoring systems ("CEMS"). Per Section B.2, the Point Arguello Project 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.

A CEMs has been installed to monitor NO<sub>x</sub> emissions and verify the NO<sub>x</sub> emission reduction credits generated by the installation of selective catalytic controls (SCR) on turbine compressors K-200A, K-200B and K-200C. NO<sub>x</sub> emissions from the turbine compressors are continuously monitored by a "multiplexing" CEMS, i.e., sampling through individual stack probes in each unit and analysis by a single CEMS analyzer alternating between each unit on a continuous basis. A full description of this system is provided in section 4.11.1 below. Additionally, the fuel gas H<sub>2</sub>S analyzer has been classified as a CEMs by the APCD. See section 4.11.1 below.

*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 PXP will trigger the requirements of this rule. Compliance shall be based on site inspections.

*Rule 331 - Fugitive Emissions Inspection and Maintenance:* This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production fields. Ongoing compliance with the provisions of this rule are assessed through implementation of the most current version of the APCD-approved Fugitive Inspection and Maintenance Plan, platform inspection by APCD personnel using an organic vapor analyzer and through analysis of operator records. Platform Harvest 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. The diesel-fired pedestal crane engines on Platform Harvest are subject to the NO<sub>x</sub> standards under Section E.4 of 700 ppmv at 15-percent oxygen. Ongoing compliance is achieved through implementation of the most current version of the APCD-approved Rule 333 Inspection and Maintenance Plan (required under Section E and through biennial source testing). The emergency generators and firewater pumps are exempt per section B.2 since they are limited to 200 hours per year of operation.

*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 only vessels to which this rule applies are the production surge tanks. Ongoing compliance with this rule is achieved through the section F and G reporting and recordkeeping requirements of the rule.

*Rule 359 - Flares and Thermal Oxidizers:* This rule applies to Flares for both planned and unplanned flaring events. Compliance with this rule has been documented. A detailed review of compliance issues is as follows:

§ D.1 - Sulfur Content in Gaseous Fuels: Part (a) limits the total sulfur content of all planned flaring from South County flares to 15 gr/100 cubic feet (239 ppmv) calculated as H<sub>2</sub>S at standard conditions. The platform produces sweet gas which provides the flare with purge and pilot gas that is within the limits of this rule. For all other planned emissions associated with platform flaring volumes, PXP has obtained APCD approval to comply with the part (b) exemption of this rule that requires excess SO<sub>x</sub> emissions to be offset at a ratio of 1:1. Unplanned flaring is exempt from the sulfur standards of this rule.

§ D.2 - Technology Based Standard: Requires all flares to be smokeless and sets pilot flame requirements. The flare on Platform Harvest is in compliance with this section.

§ D.3 - Flare Minimization Plan: Reduction in the volume of flare gas is attained through implementation of the most current version of the APCD-approved Flare Minimization Plan.

*Rule 505 - Breakdown Conditions:* This rule describes the procedures that PXP must follow when a breakdown condition occurs to any emissions unit associated with Platform Harvest. A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment which causes a violation of an

emission limitation or restriction prescribed in the APCD Rules and Regulations, or by State law, or (2) any in-stack continuous monitoring equipment, provided such failure or malfunction:

- a. Is not the result of neglect or disregard of any air pollution control law or rule or regulation;
- b. Is not the result of an intentional or negligent act or omission on the part of the owner or operator;
- c. Is not the result of improper maintenance;
- d. Does not constitute a nuisance as defined in Section 41700 of the Health and Safety Code;
- e. Is not a recurrent breakdown of the same equipment.

*Rule 360 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers.* This rule applies to water heaters, boilers, steam generators and process heaters with rated heat input capacities greater than or equal to 0.75 MMBtu/hr up to, and including, 2.0 MMBtu/hr. There are no unit at this facility subject to this rule.

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. PXP submitted a revised Emergency Episode Plan in June 2001.

### **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 Facility Inspections. Platform Harvest is inspected by the APCD each calendar quarter. Since the previous permit renewal, with the exception of the enforcement actions documented below in section 3.5.3, each quarterly inspection indicates that Platform Harvest has operated in compliance with APCD rules, regulations and the permit conditions of this permit.

3.5.2 Variances: Since issuance of the previous Part 70 PTO 9103 permit renewal , there has been one significant variance issued as listed below:

*Variance Order 50-06R:* Violation of PTO 9103 Permit Condition 9.C.10.  
Variance Date: 11/01/06. Expiration of MERC ERCs and requirements for obtaining replacement ERCs. Compliance verified 10/03/2007.

3.5.2 Violations: Since issuance of the previous Part 70 PTO 9103 permit renewal six Notices of Violation (NOVs) have been issued. These violations are listed below. Each has been resolved.

*NOV No. 8402:* Violation of Rule 331 Issued 02/23/06. Exceedance of the number of leaks allowed by section F.2.

*NOV No. 8407:* Violation of Rule 206. Issued 05/30/06. Exceedance of turbine SOx mass

emission limits.

*NOV No. 8768:* Violation of Rule 331. Issued 09/21/06. Failure to reinspect leaking components.

*NOV No. 9044:* Violation of Rule 331. Issued 10/02/07. Exceedance of the number of leaks allowed by section F.2.

*NOV No. 9046:* Violation of Rule 206. Issued 10/16/07. Failure to inject ammonia associated with the turbine SCR.

*NOV No. 9058:* Violation of Rule 206. Issued 12/13/07. Exceeding hourly flare volume limit for planned flaring (100 Mscf/hr).

3.5.3 Significant Historical Hearing Board Actions: There have been no significant historical Hearing Board actions since issuance of the previous Part 70 permit renewal.

**Table 3.1**  
**Generic Federally-Enforceable APCD Rules**

<b>Generic Requirements</b>	<b>Affected Emission Units</b>	<b>Basis for Applicability</b>
<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 form 1302-H of the Part 70 application	Insignificant activities/emissions, per size/rating/function
<u>RULE 203</u> : Transfer	All emission units	Change of ownership
<u>RULE 204</u> : Applications	All emission units	Addition of new equipment of 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 of 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 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 contaminants
<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.

<b>Generic Requirements</b>	<b>Affected Emission Units</b>	<b>Basis for Applicability</b>
<u>RULE 318</u> : Vacuum Producing Devices – Southern Zone	All systems working under vacuum	Operating pressure
<u>RULE 321</u> : Solvent Cleaning Operations	Cold solvent cleaning unit EQ No. 14-2	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 505.A, B1, D</u> : Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
<u>RULE 603</u> : Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	PXP– Point Arguello Project 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	PXP– Point Arguello Project is a major source.

**Table 3.2**  
**Unit-Specific Federally-Enforceable APCD Rules**

<b>Unit-Specific Requirements</b>	<b>Affected Emission Units</b>	<b>Basis for Applicability</b>
<u>RULE 325</u> : Crude Oil Production and Separation	EQ Nos. 9-1, 10-1, 10-2, 11-1, 12-1, 12-2	All pre-custody production and processing emission units
<u>RULE 331</u> : Fugitive Emissions Inspection & Maintenance	EQ Nos. 4-x, 5-x	Components emit fugitive hydrocarbons.
<u>RULE 333</u> : Control of Emissions from Reciprocating IC Engines	EQ Nos. 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7	IC engines exceeding 100 bhp rating.
<u>RULE 359</u> : Flares and Thermal Oxidizers	EQ No. 3-1, 3-2	Flaring
<u>RULE 360</u> : Emissions from Oxides of Nitrogen from Large Water Heaters and Small Boilers	None.	Units greater than or equal to 0.75 MMbtu/hr and less than or equal to 2.0 MMbtu/hr.

**Table 3.3**  
**Non-Federally-Enforceable APCD Rules**

<b>Requirement</b>	<b>Affected Emission Units</b>	<b>Basis for Applicability</b>
<u>RULE 210</u> : Fees	All emission units	Administrative
<u>RULES 501-504</u> : Variance Rules	All emission units	Administrative
<u>RULE 310</u> : Odorous Org. Sulfides	All emission units	Emission of organic sulfides
<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
<u>RULE 361</u> : Small Boilers, Steam Generators and Process Heaters	None.	Units rated greater than 2.0 MMBtu/hr and less than 5.0 MMBtu/hr.

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

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

<b>Rule No.</b>	<b>Rule Name</b>	<b>Adoption Date</b>
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	July 18, 1996
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	January 25, 1994
Rule 326	Storage of Reactive Organic Compound Liquids	December 14, 1993
Rule 331	Fugitive Emissions Inspection and Maintenance	December 10, 1991
Rule 333	Control of Emissions from Reciprocating Internal Combustion Engines	April 17, 1997
Rule 342	Control of Oxides of Nitrogen (NOx) from Boilers, Steam Generators and Process Heaters	April 17, 1997
Rule 343	Petroleum Storage Tank Degassing	December 14, 1993
Rule 344	Petroleum Sumps, Pits and Well Cellars	November 10, 1994
Rule 359	Flares and Thermal Oxidizers	June 28, 1994
Rule 505	Breakdown Conditions (Section A, B1 and D)	October 23, 1978
Rule 603	Emergency Episode Plans	June 15, 1981
Rule 801	New Source Review	April 17, 1997
Rule 802	Nonattainment Review	April 17, 1997
Rule 803	Prevention of Significant Deterioration	April 17, 1997

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

## 4.0 Engineering Analysis

### 4.1 General

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

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

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

### 4.2 Stationary Combustion Sources

The stationary combustion sources associated with Platform Harvest consist of five turbine driven generators for electrical power generation, three gas turbine driven compressors, diesel-fired internal combustion engines driving three pedestal cranes, two diesel-fired piston internal combustion engines driving two emergency generators and two stand-by fire water pumps, and a high and low pressure flare relief system.

- 4.2.1 *Turbines:* Electrical power for platform operations is provided by five 3,695 kW Allison 501-KB5 dual fuel turbine generators. The turbines can be fired on either produced gas or diesel fuel oil. The driving force for the gas compressor system is provided by three 4,330 shaft-horsepower (shp) Allison 501-KC gas turbines.

*Turbine Generators:* Emission calculation methodology for NO<sub>x</sub>, ROC, and CO for the gas turbine generator is a result of source test data. The following algorithms are developed from that data.

For NO<sub>x</sub> emission calculations:

$$\begin{aligned} ER_{\text{fuel gas}} &= 5.12411 - (1.816 \times 10^{-2}) * (\text{SCFM}) + (4.073 \times 10^{-5}) * (\text{SCFM})^2 \\ ER_{\text{diesel}} &= 7.2531 - (2.17308) * (\text{GPM}) + (0.46018) * (\text{GPM})^2 \end{aligned}$$

For ROC emission calculations:

$$\begin{aligned} ER_{\text{fuel gas}} &= 0.22 \text{ lb/hr} \\ ER_{\text{diesel}} &= 22.27041 - (8.48014 * \text{GPM}) + (0.80679) * (\text{GPM})^2 \end{aligned}$$

For CO emission calculations:

$$\begin{aligned} ER_{\text{fuel gas}} &= 8.7262 - 0.02709 * (\text{SCFM}) + 0.00002765 * (\text{SCFM})^2 \\ ER_{\text{diesel}} &= (2.937 * \text{GPM}^2) - (0.5127 * \text{GPM}^3) \end{aligned}$$

where: ER = emission rate (lbs per hr)  
 SCFM = gaseous fuel usage (std ft<sup>3</sup>/minute)  
 GPM = liquid fuel usage (gallons/minute)

Note: The emission calculations in the original permit for this equipment were based on the equipment operating at maximum load. It was assumed that maximum emission rates occurred at maximum load. However, when the turbines are fired on diesel, the ROC and CO emission rates decrease as the load increases. Thus the permitted ROC and CO emissions were based on a load that resulted in an unrealistically low potential to emit. In PTO 9103-03 the ROC and CO emission rates were recalculated at 3.0 gallons/minute and 1,980 kilowatts, respectively. This is the point where water injection starts and the ROC and CO emission rates are the highest.

*Turbine Compressors:* Emission calculation methodology for NO<sub>x</sub>, ROC and CO for the gas turbine compressors is as follows.

For NO<sub>x</sub> emission calculations

$$\text{NO}_x \text{ (lb/hr)} = \{(\text{ppmvN}/10^6) * \text{S2} * \text{MWN}/\text{mv}\}$$

where: ppmvN = (5.0 ppmvd@15% O<sub>2</sub>)  
 S2 = S1 \* {(20.9-0)/(20.9-15)}  
 S1 = SCFM \* HHV \* Fd  
 SCFM = fuel gas flow (scfm)  
 HHV = annual fuel gas high heat value (Btu/scf)  
 Fd = F-factor at 60 degrees F from fuel analysis (dscfm/MMBtu)  
 MWN = 46 lb/lb-mole  
 mv = 379 scf/lb-mole

For ROC emission calculations:

$$\text{ER}_{\text{fuel gas}} = 0.173 \text{ lb/hr}$$

For CO emission calculations:

$$\text{ER}_{\text{fuel gas}} = 1.1644 + (0.00381 * \text{SCFM})$$

where:

ER = emission rate (lbs per hr)  
 kW = kilowatts  
 SCFM = gaseous fuel usage (std ft<sup>3</sup>/minute)

*Notes:*

- Table 5.1-1 (Operating Equipment Description) reflects the ISO ratings.
- Table 5.1-2 (Emission Factors) contain the calculated “lb/hr” emission factors for both short-term (site) and long-term (ISO) scenarios. The short term CO emission factor is based on the following:

$$(EF)_{\text{site}} = (EF)_{\text{ISO}} \times (Q_{\text{site}}/Q_{\text{ISO}}) = (EF)_{\text{ISO}} \times (\text{shp}_{\text{site}}/\text{shp}_{\text{ISO}}) \times (\text{BSFC}_{\text{site}}/\text{BSFC}_{\text{ISO}})$$

where:

- EF = CO emission factor in units of “lb/hr”. The  $EF_{\text{ISO}}$  “lb/hr” emission factor is based on the algorithms previously established in PTO 9103 (Section 4.2.1, page 4-2).
- Q = the heat input rating (MMBtu/hr)
- shp = shaft horsepower
- BSFC = heat rate (Btu/shp-hr) LHV based

*Note:* The maximum rating of each turbine compressor was revised by PTO modification 9103-02 with respect to short-term emission scenarios. Based on application data, the maximum design rating is 5,391.6 shp (BSFC = 9,316 Btu/shp-hr) and a heat input rating of 50.226 MMBtu/hr. These values are used for calculating the revised CO hourly and daily emission limits and the revised daily fuel use limit for each engine.

Emission factors for PM are from USEPA AP-42, Table 3.1-1 (7/93). The SO<sub>2</sub> emission factor is based on mass balance calculations.

Control of emissions is accomplished through maintaining limits on certain process parameters. The formation of NO<sub>x</sub> in the turbine generators and turbine compressors is reduced by at least 70-percent through the injection of deionized water into the combustion chamber. Section IV of the Point Arguello Project OCS E-9 Plan requires a water-to-fuel ratio controller setpoint at or greater than 0.80 pounds of water per pound of fuel when operating the compressors and 0.75 pounds of water per pound of fuel when operating the turbine generators on fuel gas and a water-to-fuel ratio setpoint at or greater than 1.0 pounds of water per pound of fuel when firing the turbine generators on diesel. For both turbine generators and turbine compressors, water must be injected when fuel gas usage is 350 standard cubic feet per minute or greater. Selective Catalytic Reduction has been installed on the turbine compressors to generate additional NO<sub>x</sub> emission reductions. See section 7.4.

The permittee, through the development approval process for the Point Arguello Project, has agreed to operate and maintain the turbines according to specific emission standards. These standards are incorporated into this permit.

*Turbine Source Testing:* Turbine source testing shall be conducted in accordance with permit condition 9.C.2(e)(x).

*Monitoring.* Monitoring, recording, and reporting shall be conducted in accordance with permit condition 9.C.2(e), (f) and (g), respectively. Quality assurance for the monitors is defined in the *Point Arguello Project Turbine ADGS System Quality Assurance Plan*.

4.2.2 *External Combustion Equipment:* There are no external combustion equipment on Platform Harvest.

4.2.3 *Piston Internal Combustion Engines:* All platform internal combustion engines are diesel-fired. The three pedestal crane engines are subject to permit and Rule 333 requirements. Other stationary IC engines on the platform include: two emergency electrical generators, and two emergency fire water pumps and three escape capsules. Temporary engines used to support drilling and well workover activities are expected to occur during the life of the platform. Applicability of permit requirements and associated controls for this temporary equipment will be determined according to the rules in effect at the time of use. The calculation methodology is similar for all stationary IC engines:

$$ER = [(EF * BHP * BSFC * FCF * HPP) \div 10^6]$$

where: ER = emission rate (lb/period)  
 EF = pollutant specific emission factor (lb/MMBtu)  
 BHP = engine rated max brake-horsepower (bhp)  
 BSFC = engine brake specific fuel consumption (Btu/bhp-hr)  
 FCF = liquid fuel correction factor, LHV to HHV  
 HPP = operating hours per time period (hrs/period)

The emission factor is an energy-based value use the higher heating value. As such, an energy based BSFC value must be also based on the HHV. Manufacturer BSFC data are typically based on LHV data and thus require a conversion (LCF) to the HHV basis. For diesel fuel oil, the HHV values are typically 6-percent greater than the corresponding LHV data. Volume or mass based BSFC data do not need any conversions.

4.2.4 *Crane Engines:* Two of the pedestal cranes are driven by identical Caterpillar Model 3408B engines rated at 503 bhp. The third crane engine is a Caterpillar Model 3306 PCT rated at 270 bhp. The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1 (7/93) and the SO<sub>x</sub> emission factor is based on mass balance calculation. The NO<sub>x</sub> emission factors of 2.66 lb/MMBtu for the Caterpillar 3408B engines and 2.49 lb/MMBtu for the Caterpillar 3306 engine are based on the limit of 8.4 g/hp-hr found in APCD Rule 333. Crane engine NO<sub>x</sub> emissions are controlled by turbocharging, 4° timing retard, enhanced intercooling and aftercooling.

Source testing is conducted biennially to determine concentrations (ppmvd) and mass emission rates (lbs/hr) of NO<sub>x</sub>, CO, and ROC from three cranes engines. The cranes are tested under simulated maximum operating loads.

Diesel fuel flow metering is accomplished by use of positive displacement meters on all three crane engines, the fire water pump, production generator and drilling generators. All permanent equipment, except flares, are fitted with non-resettable elapsed time meters for determining operating hours.

4.2.5 *Flare Relief System:* The flare relief system consists of a high-pressure and a low-pressure flare manufactured by Kaldair. Platform flaring is performed to safely dispose of excess gas created by planned or upset conditions. The relief and flare system collects process vent and relief streams from all hydrocarbon systems for safe, continuous burning at the flare. Fuel gas is used for pilot flame ignition and purge gas. The pilot gas and purge gas burned in the flare meets the total sulfur content limit of 50 ppmv. Emission factors for NO<sub>x</sub>, CO, and ROC are taken from

USEPA AP-42, Section 11.5 (September 1991). Factors for calculating PM are found in Santa Barbara APCD Flare Study Report, Table 3.1. Sulfur oxide emissions are based on mass balance calculations. The calculation methodology for the flare is:

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

where:

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

Each flare is monitored by a KURZ Model 455 mass flow meter. The low flow, or minimum, detection limit is equivalent to 1,500 scfh for both the high-pressure and low-pressure flare meters. The high-pressure flare purge rate is 1,250 scfh and the low-pressure flare purge rate is 1,000 scfh. A single pilot is used for both flares with a pilot gas flow rate of 100 scfh. Based on EPA and CARB's data reporting guidelines, a value of half the minimum detection limit is being assumed as "continuous" planned flaring. For both flare meters, this value is 750 scfh. Since the purge flow rate is detected by the meter, this value is backed out of the half-minimum detect calculation. For both flare meters, no continuous flaring is calculated. Flare gas volumes and related emissions are combined from the high-pressure and low-pressure flare and reported as being emitted from a single flare.

- 4.3 *Fugitive Hydrocarbon Emissions:* Emissions of reactive organic compounds from the valves and associated connections in gas service have been quantified 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*). Specifically, the oil and gas service factors from the offshore platform category of Table 2 were used.

The component leak-path was counted consisted with P&P 6100.061. This leak-path count is not the same as the "component" count required by APCD Rule 331. On Platform Harvest there are 5,360 leak-paths in oil service and 13,227 in gas/light liquid service.

The subject components are accessible and are safe to monitor. 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)

Regular component leak-paths are normally assigned an I&M control efficiency of 80-percent. Monthly monitoring of the valves qualifies for an Enhanced I&M credit. The APCD assigns a control efficiency of 84-percent for the regular valves for implementation of monthly monitoring. This is consistent with APCD P&P 6100.061 (Table 3), in that increasing the monitoring frequency from quarterly to monthly increases fugitive ROC control efficiency from 80-percent to 84-percent. The increased control effectiveness is assumed due to the fact that more frequent monitoring will both capture leaking valves and require that they be repaired to a leak-free state sooner than less frequent monitoring.

#### **4.4 Supply Vessels**

Supply boats are used to support activities on Platform Harvest. Crew boats are not used in support of this platform.

Two supply boats are used to service Platform Hidalgo; the *M/V Victory Seahorse* and the *M/V Santa Cruz*. The *M/V Santa Cruz* is equipped with two 2,000 bhp Caterpillar 3516B low-NO<sub>x</sub> main engines and has generator sets rated at 600 bhp and bow thrusters rated at 515 bhp.

The *M/V Victory Seahorse* main engines total 5,000 bhp and are controlled for NO<sub>x</sub> emissions with turbocharging, 4° engine timing retard and intercooling. The *M/V Victory Seahorse* generator set is rated at 490 bhp and the bow thruster is rated at 515 bhp.

For permitting purposes, the permitted supply boat is represented by a “composite boat” consisting of the largest main, generator, and bow thruster engines of the boats, listed above, that have been designated by the permittee to service Platform Harvest. Because all three engine types are required to operate the supply boat, the boat is considered one emissions unit. The composite boat consists of 5,000 total bhp main engines, 600 total bhp for the generator sets and 515 total bhp bow thrusters. The auxiliary engines on the supply boats are not controlled for NO<sub>x</sub>.

If controlled support vessels are not available, it may become necessary for the permittee to temporarily arrange for a spot-charter vessel. Spot-charter vessels are normally uncontrolled for NO<sub>x</sub>. Spot-charter usage is limited to a maximum of 10-percent of the total support vessel usage in any one year (i.e., allowable usage is based on actual trips).

The permit is assessing NO<sub>x</sub> emission liability based solely on a single emission factor (the cruise mode). For engines with the controls listed above, a full load NO<sub>x</sub> emission factor of 8.4 g/bhp-hr (337 lb/1000 gallons) is used. Sulfur oxide emissions are based on mass balance calculations assuming 0.0015 weight percent sulfur diesel fuel. Other main engine vessel emission factors are taken from USEPA, AP-42 (Volume II). For the auxiliary and bow thruster engines, emission factors are taken from USEPA, AP-42 (Volume I). Uncontrolled main engine NO<sub>x</sub> emission factors for spot-charter supply boat usage are assumed to be 14 g/bhp-hr (561 lb/1000 gallons). The calculation methodology for the supply boat main engine emissions is:

$$ER = [(EF \times EHP \times BSFC \times EL \times TM) \div (10^3)]$$

where: ER = emission rate (lbs per period)  
EF = full load pollutant specific emission factor (lb/1000 gallons)  
EHP = engine max rated horsepower (bhp)  
BSFC = engine brake specific fuel consumption (gal/bhp-hr)  
EL = engine load factors (percent of max fuel consumption)  
TM = time in mode (hours/period)

The calculations for the auxiliary engines are similar, except that a 50-percent engine load factor for the generators is utilized. Compliance with the main engine controlled emission rates shall be assessed through emission source testing. Ongoing compliance is assessed through implementation of the most current version of the APCD-approved *Point Arguello Project Boat Monitoring and Reporting Plan*.

In addition, a permanently assigned emergency response boat (i.e., the *Clean Seas III*) is associated with Platform Harvest. The engines on this vessel are uncontrolled. The approximate total engine horsepower, including auxiliary engines, is 4,400 bhp. Emissions liability is assigned in a prorated fashion among the four OCS platforms that utilize the vessel off the Santa Barbara coast. Emission factors, calculations and compliance procedures are the same as for the spot-charter supply vessels discussed above. If used, other emergency response boat fuel usage (and resulting emissions) shall be assessed against this emissions category.

Platform Harvest also has three marine survival craft each equipped with two 62 bhp engines and one 36 bhp engine. Emissions are based on g/Bhp emission factors and a 200-hour per year operating limit.

#### **4.5 Sulfur Treating/Gas Sweetening Unit**

The purpose of the amine gas sweetening unit is to remove hydrogen sulfide from produced gas. This sweetened gas is sent to the flare relief system to provide the flare with purge/pilot gas. This gas is also burned in the gas turbine generators and gas turbine compressors.

#### **4.6 Tanks/Vessels/Sumps/Separators**

*Tanks:* Platform Harvest has three diesel fuel storage tanks. The diesel storage tanks service the various turbines and IC engines on the platform and are not controlled. Diesel tank storage and handling emissions are small and are assumed to be less than 0.10 tpy (200 lb/year). The detailed compliance calculations are performed using the methods presented in USEPA AP-42, Chapter 12.

*Vessels:* Platform Harvest contains many pressure vessels. All pressure vessels in HC service are connected to the platform's vapor recovery system or process gas gathering system. No PSVs from process vessels are vented to atmosphere. Emissions from pressure vessels are due to fugitive hydrocarbon leaks from valves and connections.

*Sumps and Produced/Waste Water Tanks:* Sumps and produced and waste water tank emissions are based on the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983). Produced and waste water tanks are classified as being in secondary production and heavy oil service. The calculation is:

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

where:

ER = emission rate (lb/period)  
 EF = ROC emission factor (lb/ft<sup>2</sup>-day)  
 SAREA = unit surface area (ft<sup>2</sup>)  
 CE = control efficiency  
 HPP = operating hours per time period (hrs/period)

For open top tanks, no control efficiency is assigned. A leak free cover with a properly maintained PVRV is approximately 85-percent efficient and hookup to vapor recovery is assigned a 95-percent control efficiency.

*Oil/Water Separators:* Platform oil/water separators are a class of wastewater treatment equipment that processes known volumes of wastewater on a continuous basis to remove entrained oil. Emissions are calculated using the CARB uncontrolled emission factor of 381 lb<sub>ROC</sub>/mm gallons of throughput. Control efficiencies for a cover and vapor recovery are the same as for sumps. The calculation is:

$$ER = (EF)(THRU)(1 - CE)(HPP)$$

where:

ER = emission rate (lb/period)  
 EF = ROC emission factor (lb/mm gallon throughput)  
 THRU = throughput (mm gallons)  
 CE = control efficiency  
 HPP = operating hours per time period

The emission factors are documented in the APCD's P&P 6100.060. For open top tanks, no control efficiency is assigned. A leak free cover with PVRVs is approximately 85-percent efficient and hookup to vapor recovery is assigned a 95-percent control efficiency.

#### **4.7 Vapor Recovery Systems**

The vapor recovery system collects vapors from various tanks and vessels and delivers them to the gas compression system.

#### **4.8 Helicopters**

Helicopters are used on Platform Harvest to transport crew from the Santa Maria airport. Sykorski Model 76A helicopters are used with typical round-trip times of 50 minutes in duration. Helicopter usage is shared with Platforms Harvest and Harvest. Emission factors, in units of "lb/hr", for different type of helicopters have been established for each operating mode based on the turbine engine used. These modes (idle, climb, cruise and decent) make up the total cycle time for each trip segment. For Platform Harvest, there are two identical trip segments (Santa Maria Airport to Platform Harvest and Platform Harvest to Santa Maria Airport). The emission rate per trip segment is calculated as:

$$ER = \sum_{\text{mode}} [EF_{\text{mode}} \times \text{TIM}]$$

where:

ER = Emission rate per trip segment (lb/segment)  
EF = pollutant specific emission factor per mode (lb/engine-hr)  
TIM = Time in Mode (hr)

From this data, a platform specific emission rate per trip segment is calculated. For platform Harvest, the one trip segment is simply doubled to obtain an emission rate per trip. Emission tracking is accomplished by reporting the number of trips per helicopter.

#### **4.9 Other Emission Sources**

The following is a brief discussion of other emission sources on Platform Harvest:

*Pigging:* Pipeline pigging operations occur on the platform. These consist of sending oil and gas pigs from pig launchers on Platform Harvest to Platform Hermosa. The pig launchers are depressurized to the flare relief system prior to opening the pig launcher hatch. There is a small amount of backpressure/emissions remaining in the launchers following depressurization that is emitted when the launcher hatch is opened to the atmosphere. The remaining backpressure prior to opening the launchers to atmosphere cannot exceed 1 psig. The emission rate calculation per time period is:

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

where:

ER = emission rate (lb/period)  
 $V_1$  = 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)

*General Solvent Cleaning/Degreasing:* Solvent usage (not used as thinners for surface coating) occurs on Platform Harvest as part of normal daily operations. The usage includes cold solvent degreasing. Mass balance emission calculations are used assuming all unrecovered solvent used evaporates to the atmosphere.

*Surface Coating:* Surface coating operations typically include normal touch up activities. Entire platform painting programs are performed once every few years. Emissions are determined based on mass balance calculations assuming all unrecovered solvents evaporate into the atmosphere. Emission of PM/PM<sub>10</sub> from paint overspray are not calculated due to the lack of established calculation techniques.

*Abrasive Blasting:* Abrasive blasting with CARB certified sands may be performed as a preparation step prior to surface coating. The engines used to power the compressor are electric. 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 PM<sub>10</sub>. A PM/PM<sub>10</sub> ratio of 1.0 is assumed.

#### **4.10 BACT**

Except as described below, none of the emission units at Platform Harvest are subject to best available control technology (BACT), NSPS or NESHAP provisions.

Pursuant to Rule 331.E.1.b, all leaks from critical components are required to be replaced with BACT in accordance with the APCD's NSR rule. There are no components subject to BACT on Platform Harvest.

#### **4.11 CEMS/Process Monitoring/CAM**

##### **4.11.1 CEMS:**

As indicated in section 1.5 above, selective catalytic reduction (SCR) was installed on the gas-driven turbine compressors on Platform Harvest for the purpose of generating NO<sub>x</sub> emission reduction credits. In order for the APCD to determine compliance with the permitted NO<sub>x</sub> emission limits for these turbines and verify that the associated NO<sub>x</sub> emission reduction credits, NO<sub>x</sub> emissions from turbine compressors K-200A, K-200B and K-200C are continuously monitored by a "multiplexing" CEMS, i.e., sampling through individual stack probes in each unit and analysis by a single CEMS analyzer alternates between each unit on a continuous basis. A brief description of this system is provided below. Greater detail is provided in the CEMS Plan. A summary of the parameters that are continuously is provided in Table 4.2 below.

Each of the SCR exhausts are continually sampled with the streams routed to individual sample coolers. The datalogger switches which sample stream is being analyzed every five minutes. The data logger has measurement channels for NO<sub>x</sub> ppmv (at 15% O<sub>2</sub>), O<sub>2</sub>, and NO<sub>x</sub> lbs/hr for each of the three SCR sampling systems. These independent channels use the raw input measurements for NO<sub>x</sub> ppmv and O<sub>2</sub>, predetermined equations and the sampling cycle to record the 1-minute, 15-minute and 1-hour data averages.

Each 15-minute average uses four 1-minute averages. The 15-minute average is considered valid if three or more of the individual 1-minute averages are valid. Each hour average uses a minimum of twelve 1-minute averages to constitute a valid average.

The 1-minute averages are determined from six measurements per minute (every 10 seconds). The 15-minute average is comprised of fifteen 1-minute averages. Since the CEM system cycles back and forth between the three stacks at five minute intervals, a maximum of four valid 1-minute data points are averaged to derive the 15-minute average for any one stack. Each hourly average uses 1-minute averages and the average for each stack excludes all data-points for minutes when the applicable stack was not being sampled. The ESC 8832 Data Logger stores hourly averages and auxiliary averages (1-minute and 15-minute averages) in its internal battery-backed RAM. The averages are automatically retrieved by the EMR database software, the second primary component (as often as every minute). Further details and a schematic of the multiplexing CEMs is included in the CEM plan.

In addition to the CEMs described above, a hydrogen sulfide analyzer is assesses compliance with the fuel gas sulfur limits. This analyzer has been classified as a CEM by the APCD and is subject to the APCDs CEM Protocol document (dated October 22, 1992 and any subsequent

updates). This data does not have to be telemetered to the APCD. For most platform operations, process monitors (e.g., fuel meters) provide adequate data to assess compliance. See Section 4.12.

4.11.2 **Process Monitoring:** In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the use of process monitoring systems. Examples of these monitors include: engine hour meters, fuel usage meters, water injection mass flow meters and flare gas flow meters. 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 are required to be operated, calibrated and maintained in good working order:

- Turbine Generators: Fuel flow meters, water injection meters, process control sensors
- Turbine Compressors: Fuel flow meters, water injection meters, process control sensors
- Crane Diesel Fuel Meters
- Supply Boat Diesel Fuel Meters (main and auxiliary engines)
- Flare Header Flow Meters
- Hour Meters (drill and production generators, firewater pumps, crane engines)

Calibration and maintenance shall be done according to the most current version of the APCD-approved *Process Monitor Calibration and Maintenance Plan*, (This Plan takes into consideration manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment is utilized.

4.11.3 CAM: This rule became effective on April 22, 1998 and applies to emission units that; (1) use a control device to comply with a federally enforceable emission standard, and (2) the pre-control emissions of any one controlled pollutant exceeds 100 tpy Turbines 700-A, 700-B, 700-C, 700-D and 700-E satisfy the criterion listed in items (1) and (2) above and are therefore subject to this rule. For units subject to the rule, a CAM Plan is required that identifies one or more operational parameters to be monitored and serve as compliance indicators for emission limits.

The subject turbines are equipped with water injection as the primary emission control. The permit requires a minimum water to fuel ratio of 0.80 and therefore, the water to fuel ratio was chosen as the CAM parameter to be monitored. PXP submitted a revised Turbine ADGS Quality Assurance Plan that includes a CAM Plan detailing the monitoring procedures, averaging period, and alarming procedures of the water to fuel ratio data. A minimum of one data point every 24-hours is required for these turbines under the CAM regulations

## **4.12 Source Testing/Sampling**

Source testing and sampling is 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. The permittee is required to follow the APCD *Source Test Procedures Manual* (May 24, 1990 and all updates). The following emission units are required to be source tested:

- Dual Fuel-fired Turbine Generators (333-G-700-A through -E)

- Gas Turbine Compressors (336-K-200-A through -C)
- Crane Engines (CR-800A and B)
- Crane Engine (CR-801)
- Supply Boat Main Engines

At a minimum, the following process streams are required to be sampled and analyzed annually. Refer to Table 4.1 for specific source test requirements. Duplicate samples are required.

- Produced Gas: Sample taken at production separator outlet. Analysis for: HHV, total sulfur, hydrogen sulfide, composition.
- Fuel Gas: Sample taken at fuel gas header. Analysis for: HHV, total sulfur, hydrogen sulfide, composition.
- Produced Oil: Sample taken at outlet from production separator. Analysis for: API gravity; true vapor pressure (per Rule 325 methods).

All sampling and analyses are required to be performed according to APCD approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. It is important that all sampling and analysis be traceable by chain of custody procedures. The permittee is required to amend their source test plan to address the sampling and analytical methods required to obtain the process stream data stated above.

**TABLE 4.1.**  
**SOURCE TEST REQUIREMENTS**

<u>Emission Points</u>	<u>Pollutants/ Parameters</u>	<u>Test Methods</u>
- Crane Engines - Supply Boat Main Engines - Turbines	NO <sub>x</sub> (outlet) (ppmv, lb/hr)	CARB 1-100 or USEPA 7E
	CO (ppmv, lb/hr)	CARB 1-100 or USEPA 10
	ROC (ppmv, lb/hr)	USEPA 18
	Ammonia (outlet) (ppmv, lb/hr)	BAAQMD ST-1B (turbine compressors only)
	Fuel Flow Rate	meter
	Fuel High Heating Value	ASTM
	Total Sulfur Content	ASTM

Site Specific Requirements

- a. All emissions tests to consist of three 40-minute runs or other duration approved by the APCD. Crane engine tests to consist of three 20-minute runs. Crane engines, one turbine generator and one turbine compressor to be tested at maximum safe load. The remaining turbines to be tested at "as historical" conditions. Maximum loaded turbine is to be rotated to each remaining turbine each subsequent year. Supply boat main engines to be tested at cruise load. Subsequent testing may be required if loads are not achieved. Additional turbine test requirements and exceptions are listed in Section 9 of this permit.
- b. The specific project supply boat to be tested shall be determined by the APCD.
- c. USEPA methods 1-4 to be used to determine O<sub>2</sub>, dry MW, moisture content, CO<sub>2</sub>, and stack flow rate. Alternatively, USEPA 19 may be used to determine stack flow rate.
- d. SO<sub>x</sub> emissions to be determined by mass balance calculation.
- e. The main engines from one supply boat shall be tested annually. Crane engines shall be tested biennially.
- f. Procedures to obtain the required operating loads shall be clearly defined in the source test plan.
- g. CEM RATA testing of the turbine compressors may be combined with the annual compliance tests, and run times shall be consistent with approved RATA plan

**Table 4.2**  
**Parameters To Be Continuously Monitored**

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**Gas Turbine Compressor K-200A, K-200B, K-200C**

**With SCR and Individual  
Exhaust Stacks**

NO<sub>x</sub> - outlet from SCR  
system (ppmv@ 15% O<sub>2</sub>)<sup>1</sup>

NO<sub>x</sub> - outlet from SCR  
system (lb/hr)<sup>1,2</sup>

NO<sub>x</sub>- SCR outlet raw ppmv<sup>3</sup>

Stack outlet O<sub>2</sub> concentration  
(percent)<sup>3</sup>

Exhaust Flow - calculated from  
fuel flow and stack O<sub>2</sub><sup>3</sup>

- (1) Equipped with High in plant alarm.
- (2) Calculated from monitored data.
- (3) Permanent recording of parameter raw data required via strip-chart, circular chart, or computer printout.

## 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 is based on the equipment's potential-to-emit (as defined by Rule 102). The following tables detail the facility emissions:

- Table 5.1 contains the operating equipment description, the equipment emission factors and the hourly, daily, quarterly and annual emissions for each equipment item.
- Table 5.2 summarizes the permitted emissions for each equipment group.
- Section 5.3 provides the federal potential to emit calculation using the definition of potential to emit used in Rule 1301.
- Table 5.4 provides the estimated emissions from permit exempt equipment and also serves as the Part 70 list of insignificant emission.
- Table 5.5 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 10.2 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<sub>x</sub>)<sup>2</sup>
- Reactive Organic Compounds (ROC)
- Carbon Monoxide (CO)
- Sulfur Oxides (SO<sub>x</sub>)<sup>3</sup>
- Particulate Matter (PM)<sup>4</sup>
- Particulate Matter smaller than 10 microns (PM<sub>10</sub>)

Permitted emissions are calculated for both short term (hourly and daily) and long term (quarterly and annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations 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. Tables 5.1-3 and 5.1-4 shows the permitted short-term and

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<sup>2</sup> Calculated and reported as nitrogen dioxide (NO<sub>2</sub>)

<sup>3</sup> Calculated and reported as sulfur dioxide (SO<sub>2</sub>)

<sup>4</sup> Calculated and reported as all particulate matter smaller than 100 μm

permitted long-term emissions for each unit or operation. All emission limits from Platform Harvest are federally-enforceable per 40 CFR Part 55 {OCS Air Regulation}.

### **5.3 Permitted Emission Limits - Facility Totals**

The total potential-to-emit for all emission units associated with the facility was analyzed. This analysis looked at the reasonable worst-case operating scenarios for each operating period. The equipment operating in each of the scenarios are presented below. Unless otherwise specified, the operating characteristics defined in Table 5.1-1 for each emission unit are assumed.

Table 5.2 shows the total permitted emissions for the facility.

#### Hourly and Daily Scenarios:

- All three crane engines
- Turbine generators (diesel fired)
- Turbine compressors
- Emergency generators and firewater pumps
- Flare purge and pilot
- Spot charter supply boat
- Auxiliary engines on supply boat provide half of maximum engine rating
- Bow thruster on supply boat does not operate during peak hour
- Fugitive components
- Oil pig launcher (one only)
- Gas pig launcher (one only)
- All sumps
- All oil/water separators
- Solvent usage
- Degreaser usage

#### Quarterly and Annual Scenario:

- All three crane engines
- Turbine Generators (maximum diesel usage; remaining hours on produced gas fire)
- Turbine Compressors
- Emergency generators and firewater pumps
- Flare purge and pilot
- Planned intermittent (other) flaring
- Unplanned flaring
- Fugitive components
- Controlled and uncontrolled supply boat
- Auxiliary engines on supply boat provide half of maximum engine rating
- Bow thruster on supply boat
- Emergency response boat
- Oil pig launcher (one only)
- Gas pig launcher (one only)
- All sumps
- All oil/water separators
- Solvent usage

- Degreaser usage

#### **5.4 Part 70: Federal Potential to Emit for the Facility**

Table 5.3 lists the federal Part 70 potential to emit. Being subject to the OCS Air Regulation, 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 the facility is subject to any applicable NSPS or NESHAP requirement.

#### **5.5 Exempt Emission Sources/Part 70 Insignificant Emissions**

Equipment/activities exempt pursuant to Rule 202 include maintenance operations involving surface coating. Under the APCD's Part 70 regulation, equipment/activities that are exempt under Rule 202 are considered insignificant units emissions. In addition, *insignificant activities* such as maintenance operations using paints and coatings, contribute to the facility emissions. Table 5.4 lists these exempt emissions units and the expected emissions. These are emission estimates only. They are not limitations.

#### **5.6 Net Emissions Increase Calculation**

The NEI for the stationary source are listed in Table 5.0. This facility's contribution to the stationary source's NEI since November 15, 1990 (the day the federal Clean Air Act Amendments was adopted in 1990) are listed in Table 5.5. These values are based on the following NSR permit actions since December 5, 1991:

**ATC 9877/PTO 9877:** Authorized the permanent installation and use of crude stabilization equipment on Platform Harvest and an associated increase in the number of fugitive hydrocarbon leak-paths associated with components (e.g. valves, flanges, and fittings) in oil and gas service. The installation of the crude stabilization equipment results in an increase of 86 oil service and 114 gas service fugitive hydrocarbon leak-paths. This increase in leak paths results in a ROC emission increase of 1.75 lbs/day. Issued: 11/11/98.

**ATC 10329/PTO 10329:** This permit authorized the sulfur content of the purge/pilot gas flared on the platform to be increased from 50 ppmv sulfur to 165 ppmv sulfur, which is the sulfur content of propane that meets the specifications of the Gas Processors Association. This change will allow propane to be used as purge/pilot gas when produced gas that meets the permitted sulfur limit is unavailable. This increase results in a SO<sub>x</sub> emission increase of 1.19 lbs/day. Issued 11/27/00.

**ATC/PTO 11660:** This permit authorized an increase in the number of pigging events and pigging emissions. This modification resulted in the following ROC emission increase: 0.19 lb/day ROC.

**Stationary Source Net Emission Increase Since 1990 (FNEI-90)**

<b>Facility</b>	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>TSP</b>	<b>PM<sub>10</sub></b>
<b>Gaviota Plant</b>						
lbs/day	209.29	376.65	455.55	8.66	70.69	70.69
tons/year	36.01	51.48	91.91	3.92	13.11	13.11
<b>Platform Harvest</b>						
lbs/day		1.94		1.19		
tons/year		0.32		0.22		
<b>Platform Hermosa</b>						
lbs/day	0.71	6.37	62.88	0.72	0.21	0.21
tons/year	0.13	1.02	8.14	0.13	0.04	0.04
<b>Platform Hidalgo</b>						
lbs/day	14.48	1.24	64.32	3.94	1.04	1.01
tons/year			7.44	4.45		
<b>Total</b>						
lbs/day	224.48	386.20	582.75	14.51	70.73	70.73
tons/year	36.14	52.82	107.49	8.72	13.15	13.15

Table 5.1-1  
Point Arguello Project Platform Harvest: PTO 9103  
Operating Equipment Description

Equipment Category	Description	Device Specifications						Usage Data						Maximum Operating Schedule				References
		Fuel	% S	Size	Units	Capacity	Units	Load	hr	day	qtr	year						
Combustion - Engines	Crane CR-800A	D2	0.0015	503	bhp	6,962	Btu/bhp-hr	--	1.0	24	1,365	2,080	A					
	Crane CR-800B	D2	0.0015	503	bhp	6,962	Btu/bhp-hr	--	1.0	24	1,365	2,080						
	Crane CR-801	D2	0.0015	270	bhp	7,446	Btu/bhp-hr	--	1.0	24	1,365	2,080						
	Emergency Generator	D2	0.0015	1300	bhp	--	--	--	1.0	2	200	200						
	Emergency Generator	D2	0.0015	1300	bhp	--	--	--	1.0	2	200	200						
Combustion - LP/HP Flare	Emergency Firewater Pump	D2	0.0015	436	bhp	--	--	--	1.0	2	200	200						
	Emergency Firewater Pump	D2	0.0015	436	bhp	--	--	--	1.0	2	200	200						
Combustion - LP/HP Flare	Purge and Pilot	PG	0.0165	2,550	scfh	3,060	MMBtu/hr	--	1.0	24	2,190	8,760	B					
	Planned - continuous	SG	1.000	0	scfh	0.000	MMscf/yr	--	1.0	24	0.25	1						
	Planned - other	SG	1.000	1,200	MMBtu/hr	11,540	MMscf/yr	--	--	--	0.25	1						
	Unplanned	SG	1.000	1,200	MMBtu/hr	22,100	MMscf/yr	--	--	--	0.25	1						
Fugitive Components	Oil - controlled	--	--	5,360	comp-ip	--	--	--	1.0	24	2,190	8,760	C					
	Oil - unsafe	--	--	0	comp-ip	--	--	--	1.0	24	2,190	8,760						
	Gas - controlled	--	--	13,227	comp-ip	--	--	--	1.0	24	2,190	8,760						
	Gas - unsafe	--	--	0	comp-ip	--	--	--	1.0	24	2,190	8,760						
Supply Boat	Main Engines - con	D2	0.0015	5,000	bhp-total	0.055	gal/bhp-hr	0.65	1.0	11	459	1,837	D					
	Main Engines - uncon	D2	0.0015	5,000	bhp-total	0.055	gal/bhp-hr	0.65	1.0	11	46	184						
	Generator Engines	D2	0.0015	600	bhp-total	0.055	gal/bhp-hr	0.50	1.0	11	459	1,837						
	Bow Thruster	D2	0.0015	515	bhp	0.055	gal/bhp-hr	1.00	1.0	2	78	312						
	Emergency response	D2	0.0015	4,400	bhp-total	--	--	0.65	--	--	32	127						
	Survival Craft	D2	0.0015	160	bhp-total	--	--	0.65	--	--	50	200						
Pigging Equipment	Oil Launcher	--	--	24	acf	1	psig	--	1	4	91	365	E					
	Gas Launcher	--	--	6	acf	1	psig	--	1	4	91	365						
Sumps/Tanks/Separators	Skim Pile	--	--	12.6	ft2	--	--	--	1.0	24	2,190	8,760	F					
	Skim Pile	--	--	12.6	ft2	--	--	--	1.0	24	2,190	8,760						
	Flotation Cell	--	--	2.1	MMgal/day	--	--	--	1.0	24	2,190	8,760						
Solvent Usage	Cleaning/degreasing	--	--	various	various	various	--	--	1.0	24	2,190	8,760	G					

**Table 5.1-1 (Continued)**  
**Point Arguello Project Platform Harvest: PTO 9103**  
**Operating Equipment Description**

Equipment Category	Description	Device Specifications					Usage Data					Maximum Operating Schedule			
		Fuel	% S	Size	Units	Capacity	Units	Capacity	Units	Load	hr	day	qtr	year	References
Combustion-Turbines	300-G-700-A	PG	0.005	3,695	kw	12,010	Btu/kw-hr	--	1.0	24	2,190	8,760	H		
	300-G-700-A	D2	0.290	3,584	kw	11,849	Btu/kw-hr	--	1.0	24	865	1,730			
	300-G-700-B	PG	0.005	3,695	kw	12,010	Btu/kw-hr	--	1.0	24	2,190	8,760			
	300-G-700-B	D2	0.290	3,584	kw	11,849	Btu/kw-hr	--	1.0	24	865	1,730			
	300-G-700-C	PG	0.005	3,695	kw	12,010	Btu/kw-hr	--	1.0	24	2,190	8,760			
	300-G-700-C	D2	0.290	3,584	kw	11,849	Btu/kw-hr	--	1.0	24	865	1,730			
	300-G-700-D	PG	0.005	3,695	kw	12,010	Btu/kw-hr	--	1.0	24	2,190	8,760			
	300-G-700-D	D2	0.290	3,584	kw	11,849	Btu/kw-hr	--	1.0	24	865	1,730			
	300-G-700-E	PG	0.005	3,695	kw	12,010	Btu/kw-hr	--	1.0	24	2,190	8,760			
	300-G-700-E	D2	0.290	3,584	kw	11,849	Btu/kw-hr	--	1.0	24	865	1,730			
Combustion-Turb Compressors <sup>(a)</sup>	336-K-200-A	PG	0.005	4,330	shp	9,345	Btu/shp-hr	--	1.0	24	2,190	8,760	I		
	336-K-200-B	PG	0.005	4,330	shp	9,345	Btu/shp-hr	--	1.0	24	2,190	8,760			
	336-K-200-C	PG	0.005	4,330	shp	9,345	Btu/shp-hr	--	1.0	24	2,190	8,760			

(a) Size of 4330 shp and capacity of 9345 Btu/shp-hr reflect ISO ratings and are used for long term CO emission calculations. Site ratings of 5391.6 shp and 9316 Btu/shp-hr used for short-term CO emission calculations.

**Table 5.1-2  
Point Arguello Project Platform Harvest: PTO 9103  
Equipment Emission Factors**

Equipment Category	Description	Emission Factors							References		
		NOx	ROC	CO	SOx	PM	PM10	Units			
Combustion-Engines	Crane CR-800A	2.660	0.30	0.95	0.002	0.31	0.30	lb/MMBtu	A		
	Crane CR-800B	2.660	0.30	0.95	0.002	0.31	0.30	lb/MMBtu			
	Crane CR-801	2.487	0.30	0.95	0.002	0.31	0.30	lb/MMBtu			
	Emergency Generator	14.06	1.12	3.03	0.180	0.98	0.98	g/bhp-hr			
	Emergency Generator	14.06	1.12	3.03	0.180	0.98	0.98	g/bhp-hr			
Combustion - LP/HP Flare	Emergency Firewater Pump	14.06	1.12	3.03	0.180	0.98	0.98	g/bhp-hr	B		
	Emergency Firewater Pump	14.06	1.12	3.03	0.180	0.98	0.98	g/bhp-hr			
	Purge and Pilot	0.068	0.12	0.37	0.023	0.02	0.02	lb/MMBtu			
	Planned - continuous	0.068	0.12	0.37	0.931	0.02	0.02	lb/MMBtu			
Fugitive Components	Planned - other	0.068	0.12	0.37	0.931	0.02	0.02	lb/MMBtu	C		
	Unplanned	0.068	0.12	0.37	0.931	0.02	0.02	lb/MMBtu			
	Oil - controlled	--	0.0009	--	--	--	--	lb/day-clp			
	Oil - unsafe	--	0.0044	--	--	--	--	lb/day-clp			
Supply Boats	Gas - controlled	--	0.0147	--	--	--	--	lb/day-clp	D		
	Gas - unsafe	--	0.0736	--	--	--	--	lb/day-clp			
	Main Engines - con	336.7	16.80	78.30	0.21	33.00	31.68	lb/1000 gal			
	Main Engines - uncon	561.2	16.80	78.30	0.21	33.00	31.68	lb/1000 gal			
	Generator Engines	600.0	48.98	129.26	0.21	42.18	40.49	lb/1000 gal			
	Bow Thruster	600.0	48.98	129.26	0.21	42.18	40.49	lb/1000 gal			
	Emergency Response	561.2	16.80	78.30	0.21	33.00	31.68	lb/1000 gal			
	Survival Craft	1.08	90.40	212.00	0.27	24.00	24.00	g/bhp-hr			
	Pigging Equipment	Oil Launcher	--	0.0026	--	--	--	--		lb/acf-evt	E
		Gas Launcher	--	0.0001	--	--	--	--		lb/acf-evt	
Sumps/Tanks/Separators	Skim Pile	--	0.013	--	--	--	--	lb/ft2-day	F		
	Skim Pile	--	0.013	--	--	--	--	lb/ft2-day			
	Flotation Cell	--	19.05	--	--	--	--	lb/ft2-day			
Solvent Usage	Cleaning/degreasing	--	various	--	--	--	--	lb/gal	G		

**Table 5.1-2 (Continued)**  
**Point Arguello Project Platform Harvest: PTO 9103**  
**Equipment Emission Factors**

<b>Equipment Category</b>	<b>Description</b>	<b>Emission Factors</b>								<b>Units</b>	<b>References</b>
		<b>NOx</b>	<b>ROC</b>	<b>CO</b>	<b>SOx</b>	<b>PM</b>	<b>PM10</b>				
Combustion-Turbines	300-G-700-A (PG)	11.53	0.22	3.07	0.37	0.13	0.13	lb/hr	H		
	300-G-700-A (D2)	9.02	4.09	12.59	1.04	2.54	2.54	lb/hr			
	300-G-700-B (PG)	11.53	0.22	3.07	0.37	0.13	0.13	lb/hr			
	300-G-700-B (D2)	9.02	4.09	12.59	1.04	2.54	2.54	lb/hr			
	300-G-700-C (PG)	11.53	0.22	3.07	0.37	0.13	0.13	lb/hr			
	300-G-700-C (D2)	9.02	4.09	12.59	1.04	2.54	2.54	lb/hr			
	300-G-700-D (PG)	11.53	0.22	3.07	0.37	0.13	0.13	lb/hr			
	300-G-700-D (D2)	9.02	4.09	12.59	1.04	2.54	2.54	lb/hr			
	300-G-700-E (PG)	11.53	0.22	3.07	0.37	0.10	0.10	lb/hr			
	300-G-700-E (D2)	9.02	4.09	12.59	1.04	1.99	1.99	lb/hr			
Combustion-Turb Compressors Long Term Emissions	336-K-200-A	0.75	0.17	3.52	0.28	0.10	0.10	lb/hr	I		
	336-K-200-B	0.75	0.17	3.52	0.28	0.10	0.10	lb/hr			
	336-K-200-C	0.75	0.17	3.52	0.28	0.10	0.10	lb/hr			
Combustion-Turb Compressors Short Term Emissions	336-K-200-A	0.75	0.17	4.09	0.28	0.10	0.10	lb/hr	I		
	336-K-200-B	0.75	0.17	4.09	0.28	0.10	0.10	lb/hr			
	336-K-200-C	0.75	0.17	4.09	0.28	0.10	0.10	lb/hr			

**Table 5.1-3**  
**Point Arguello Project Platform Harvest: PTO 9103**  
**Hourly and Daily Emissions**

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM10	
		lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day
Combustion - Engines	Crane CR-800A	9.87	236.97	1.11	26.73	3.53	0.14	0.01	0.14	1.15	27.62	1.10	26.51
	Crane CR-800B	9.87	236.97	1.11	26.73	3.53	0.14	0.01	0.14	1.15	27.62	1.10	26.51
	Crane CR-801	5.30	127.20	0.64	15.34	2.02	0.08	0.00	0.08	0.66	15.65	0.63	15.22
	Emergency Generator	--	80.52	--	6.41	--	17.35	--	1.03	--	5.61	--	5.61
	Emergency Generator	--	80.52	--	6.41	--	17.35	--	1.03	--	5.61	--	5.61
	Emergency Firewater Pump	--	27.01	--	2.15	--	5.82	--	0.35	--	1.88	--	1.88
Combustion - LP/HP Flare	Emergency Firewater Pump	--	27.01	--	2.15	--	5.82	--	0.35	--	1.88	--	1.88
	Purge and Pilot	0.21	4.99	0.37	8.84	1.13	27.17	0.07	1.71	0.06	1.47	0.06	1.47
	Planned - continuous	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Components	Planned - other	--	--	--	--	--	--	--	--	--	--	--	--
	Unplanned	--	--	--	--	--	--	--	--	--	--	--	--
	Oil - controlled	--	--	0.20	4.71	--	--	--	--	--	--	--	--
	Oil - unsafe	--	--	0.00	0.00	--	--	--	--	--	--	--	--
	Gas - controlled	--	--	8.11	194.67	--	--	--	--	--	--	--	--
	Gas - unsafe	--	--	0.00	0.00	--	--	--	--	--	--	--	--
Supply Boat	Main Engines - con	60.19	662.04	3.00	33.03	14.00	153.96	0.04	0.42	5.90	64.89	5.66	62.29
	Main Engines - uncon	100.31	1,103.40	3.00	33.03	14.00	153.96	0.04	0.42	5.90	64.89	5.66	62.29
	Generator Engines	9.90	108.91	0.81	8.89	2.13	23.46	0.00	0.04	0.70	7.66	0.67	7.35
	Bow Thruster	17.00	33.99	1.39	2.77	3.66	7.32	0.01	0.01	1.19	2.39	1.15	2.29
	Emergency Response	--	--	--	--	--	--	--	--	--	--	--	--
	Survival Craft	--	--	--	--	--	--	--	--	--	--	--	--
Pigging Equipment	Oil Launcher	--	--	0.06	0.25	--	--	--	--	--	--	--	--
	Gas Launcher	--	--	0.00	0.00	--	--	--	--	--	--	--	--
Sumps/Tanks/Separators	Skim Pile	--	--	0.01	0.16	--	--	--	--	--	--	--	--
	Skim Pile	--	--	0.01	0.16	--	--	--	--	--	--	--	--
	Flotation Cell	--	--	1.67	40.01	--	--	--	--	--	--	--	--
Solvent Usage	Cleaning/degreasing	--	--	2.29	55.07	--	--	--	--	--	--	--	--

Note: 0.00 indicates emissions are less than 0.01. "--" indicates that emissions were not calculated for this category.

**Table 5.1-3 (Continued)**  
**Point Arguello Project Platform Harvest: PTO 9103**  
**Hourly and Daily Emissions**

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM10	
		lb/hr	lb/day										
Combustion - Turbines	300-G-700-A(PG)	11.53	276.81	0.22	5.28	3.07	73.66	0.37	8.87	0.13	3.19	0.13	3.19
	300-G-700-A(D2)	9.02	216.48	4.09	98.19	12.59	302.05	1.04	24.94	2.54	61.07	2.54	61.07
	300-G-700-B(PG)	11.53	276.81	0.22	5.28	3.07	73.66	0.37	8.87	0.13	3.19	0.13	3.19
	300-G-700-B(D2)	9.02	216.48	4.09	98.19	12.59	302.05	1.04	24.94	2.54	61.07	2.54	61.07
	300-G-700-C(PG)	11.53	276.81	0.22	5.28	3.07	73.66	0.37	8.87	0.13	3.19	0.13	3.19
	300-G-700-C(D2)	9.02	216.48	4.09	98.19	12.59	302.05	1.04	24.94	2.54	61.07	2.54	61.07
	300-G-700-D(PG)	11.53	276.81	0.22	5.28	3.07	73.66	0.37	8.87	0.13	3.19	0.13	3.19
	300-G-700-D(D2)	9.02	216.48	4.09	98.19	12.59	302.05	1.04	24.94	2.54	61.07	2.54	61.07
	300-G-700-E(PG)	11.53	276.81	0.22	5.28	3.07	73.66	0.37	8.87	0.10	2.40	0.10	2.40
	300-G-700-E(D2)	9.02	216.48	4.09	98.19	12.59	302.05	1.04	24.94	1.99	47.76	1.99	47.76
Combustion-Turb Compressors	336-K-200-A	0.75	17.88	0.17	4.15	4.09	98.11	0.28	6.72	0.10	2.40	0.10	2.40
	336-K-200-B	0.75	17.88	0.17	4.15	4.09	98.11	0.28	6.72	0.10	2.40	0.10	2.40
	336-K-200-C	0.75	17.88	0.17	4.15	4.09	98.11	0.28	6.72	0.10	2.40	0.10	2.40

Table 5.1-4  
Point Arguello Project Platform Harvest: PTO 9103  
Quarterly and Annual Emissions

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM10	
		TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY
Combustion - Engines	Crane CR-800A	6.74	10.27	0.76	1.16	2.41	3.67	0.00	0.01	0.79	1.20	0.75	1.15
	Crane CR-800B	6.74	10.27	0.76	1.16	2.41	3.67	0.00	0.01	0.79	1.20	0.75	1.15
	Crane CR-801	3.62	5.51	0.44	0.66	1.38	2.11	0.00	0.00	0.45	0.69	0.43	0.66
	Emergency Generator	--	4.03	--	0.32	--	0.87	--	0.05	--	0.28	--	0.28
	Emergency Generator	--	4.03	--	0.32	--	0.87	--	0.05	--	0.28	--	0.28
	Emergency Firewater Pump	--	1.35	--	0.11	--	0.29	--	0.02	--	0.09	--	0.09
Emergency Firewater Pump	--	1.35	--	0.11	--	0.29	--	0.02	--	0.09	--	0.09	
Combustion - LP/HP Flare	Purge and Pilot	0.23	0.91	0.40	1.61	1.24	4.96	0.08	0.31	0.07	0.27	0.07	0.27
	Planned - continuous	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Planned - other	0.18	0.71	0.32	1.26	0.97	3.88	2.44	9.75	0.05	0.21	0.05	0.21
	Unplanned	0.34	1.36	0.60	2.42	1.86	7.42	4.67	18.67	0.10	0.40	0.10	0.40
Fugitive Components	Oil - controlled	--	--	0.21	0.86	--	--	--	--	--	--	--	--
	Oil - unsafe	--	--	0.00	0.00	--	--	--	--	--	--	--	--
	Gas - controlled	--	--	8.88	35.53	--	--	--	--	--	--	--	--
	Gas - unsafe	--	--	0.00	0.00	--	--	--	--	--	--	--	--
Supply Boat	Main Engines - con	13.81	55.28	0.69	2.76	3.21	12.86	0.01	0.03	1.35	5.42	1.30	5.20
	Main Engines - uncon	2.31	9.23	0.07	0.28	0.32	1.29	0.00	0.00	0.14	0.54	0.13	0.52
	Generator Engines	2.27	9.09	0.19	0.74	0.49	1.96	0.00	0.00	0.16	0.64	0.15	0.61
	Bow Thruster	0.66	2.65	0.05	0.22	0.14	0.57	0.00	0.00	0.05	0.19	0.04	0.18
	Emergency Response	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Survival Craft	0.01	0.02	0.52	2.07	1.22	4.86	0.00	0.01	0.14	0.55	0.14	0.55
Pigging Equipment	Oil Launcher	--	--	0.00	0.0	--	--	--	--	--	--	--	--
	Gas Launcher	--	--	0.00	0.0	--	--	--	--	--	--	--	--
Sumps/Tanks/Separators	Skim Pile	--	--	0.01	0.03	--	--	--	--	--	--	--	--
	Skim Pile	--	--	0.01	0.03	--	--	--	--	--	--	--	--
	Flotation Cell	--	--	1.83	7.30	--	--	--	--	--	--	--	--
Solvent Usage	Cleaning/degreasing	--	--	0.62	2.47	--	--	--	--	--	--	--	--

Note: 0.00 indicates emissions are less than 0.01. "--" indicates that emissions were not calculated for this category.

Table 5.1-4 (Continued)  
 Point Arguello Project Platform Harvest: PTO 9103  
 Quarterly and Annual Emissions

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM10	
		TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY
Combustion - Turbines	300-G-700-A(PG)	12.63	50.52	0.24	0.96	3.36	13.44	0.40	1.62	0.15	0.58	0.15	0.58
	300-G-700-A(D2)	3.90	7.80	1.77	3.54	5.44	10.89	0.45	0.90	1.10	2.20	1.10	2.20
	300-G-700-B(PG)	12.63	50.52	0.24	0.96	3.36	13.44	0.40	1.62	0.15	0.58	0.15	0.58
	300-G-700-B(D2)	3.90	7.80	1.77	3.54	5.44	10.89	0.45	0.90	1.10	2.20	1.10	2.20
	300-G-700-C(PG)	12.63	50.52	0.24	0.96	3.36	13.44	0.40	1.62	0.15	0.58	0.15	0.58
	300-G-700-C(D2)	3.90	7.80	1.77	3.54	5.44	10.89	0.45	0.90	1.10	2.20	1.10	2.20
	300-G-700-D(PG)	12.63	50.52	0.24	0.96	3.36	13.44	0.40	1.62	0.15	0.58	0.15	0.58
	300-G-700-D(D2)	3.90	7.80	1.77	3.54	5.44	10.89	0.45	0.90	1.10	2.20	1.10	2.20
	300-G-700-E(PG)	12.63	50.52	0.24	0.96	3.36	13.44	0.40	1.62	0.11	0.44	0.11	0.44
	300-G-700-E(D2)	3.90	7.80	1.77	3.54	5.44	10.89	0.45	0.90	0.86	1.72	0.86	1.72
Combustion-Turb Compressors	336-K-200-A	0.82	3.26	0.19	0.76	3.85	15.42	0.31	1.23	0.11	0.44	0.11	0.44
Long Term Emissions	336-K-200-B	0.82	3.26	0.19	0.76	3.85	15.42	0.31	1.23	0.11	0.44	0.11	0.44
	336-K-200-C	0.82	3.26	0.19	0.76	3.85	15.42	0.31	1.23	0.11	0.44	0.11	0.44

**Table 5.2**  
**Point Arguello Project Platform Harvest: PTO 9103**  
**Total Permitted Facility Emissions**

**A. PEAK HOURLY (lb/hr)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	25.05	2.87	9.08	0.01	2.96	2.84
Combustion - Flare	0.21	0.37	1.13	0.07	0.06	0.06
Turbine Generators	57.67	20.46	62.93	5.20	12.17	12.17
Turbine Compressors	2.24	0.52	12.26	0.84	0.30	0.30
Fugitive Components	--	8.31	--	--	--	--
Supply Boat	127.21	5.20	19.79	0.05	7.79	7.48
Emergency Response	--	--	--	--	--	--
Pigging	--	0.06	--	--	--	--
Sumps/Tanks/Separators	--	1.68	--	--	--	--
Solvent Usage	--	2.29	--	--	--	--
	212.37	41.75	105.19	6.17	23.28	22.85

**B. PEAK DAILY (lb/day)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	816.19	85.93	46.69	3.10	86.08	83.23
Combustion - Flare	4.99	8.84	27.17	1.71	1.47	1.47
Turbine Generators	1,384.06	490.93	1,510.27	124.72	292.05	292.05
Turbine Compressors	53.64	12.46	294.34	20.16	7.20	7.20
Fugitive Components	--	199.38	--	--	--	--
Supply Boat	1,246.30	44.70	184.74	0.47	74.93	71.93
Emergency Response	--	--	--	--	--	--
Pigging	--	0.25	--	--	--	--
Sumps/Tanks/Separators	--	40.33	--	--	--	--
Solvent Usage	--	55.07	--	--	--	--
	3,505.18	937.89	2,063.22	150.16	461.72	455.88

**C. PEAK QUARTERLY (tpq)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	17.09	1.96	6.20	0.01	2.02	1.94
Combustion - Flare	0.75	1.32	4.07	7.18	0.22	0.22
Turbine Generators	57.71	9.58	37.38	3.47	5.68	5.68
Turbine Compressors	2.45	0.57	11.56	0.92	0.33	0.33
Fugitive Components	--	9.10	--	--	--	--
Supply Boat	19.05	1.00	4.17	0.01	1.70	1.63
Emergency Response	0.00	0.00	0.00	0.00	0.00	0.00
Survival Craft	0.01	0.52	1.22	0.00	0.14	0.14
Pigging	--	0.00	--	--	--	--
Sumps/Tanks/Separators	--	1.84	--	--	--	--
Solvent Usage	--	0.62	--	--	--	--
	97.06	26.50	64.59	11.60	10.08	9.94

**D. PEAK ANNUAL (tpy)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	36.80	3.84	11.76	0.15	3.83	3.71
Combustion - Flare	2.99	5.29	16.26	28.74	0.88	0.88
Turbine Generators	241.72	21.56	108.37	10.99	12.75	12.75
Turbine Compressors	9.79	2.27	46.25	3.68	1.31	1.31
Fugitive Components	--	36.39	--	--	--	--
Supply Boat	76.25	3.99	16.67	0.04	6.79	6.51
Emergency Response	0.00	0.00	0.00	0.00	0.00	0.00
Survival Craft	0.02	2.07	4.86	0.01	0.55	0.55
Pigging	--	0.01	--	--	--	--
Sumps/Tanks/Separators	--	7.36	--	--	--	--
Solvent Usage	--	2.47	--	--	--	--
	367.58	85.26	204.18	43.61	26.11	25.71

**Table 5.3**  
**Point Arguello Project Platform Harvest: PTO 9103**  
**Federal Potential to Emit**

**A. PEAK HOURLY (lb/hr)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	25.05	2.87	9.08	0.01	2.96	2.84
Combustion - Flare	0.21	0.37	1.13	0.07	0.06	0.06
Turbine Generators	57.67	20.46	62.93	5.20	12.17	12.17
Turbine Compressors	2.24	0.52	12.26	0.84	0.30	0.30
Supply Boat	127.21	5.20	19.79	0.05	7.79	7.48
Emergency Response	--	--	--	--	--	--
Pigging	--	0.06	--	--	--	--
Sumps/Tanks/Separators	--	1.68	--	--	--	--
Solvent Usage	--	2.29	--	--	--	--
Exempt Emissions	1.34	3.14	0.67	0.08	0.07	0.07
	213.71	36.58	105.86	6.25	23.35	22.92

**B. PEAK DAILY (lb/day)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	816.19	85.93	46.69	3.10	86.08	83.23
Combustion - Flare	4.99	8.84	27.17	1.71	1.47	1.47
Turbine Generators	1,384.06	490.93	1,510.27	124.72	292.05	292.05
Turbine Compressors	53.64	12.46	294.34	20.16	7.20	7.20
Supply Boat	1,246.30	44.70	184.74	0.47	74.93	71.93
Emergency Response	--	--	--	--	--	--
Pigging	--	0.25	--	--	--	--
Sumps/Tanks/Separators	--	40.33	--	--	--	--
Solvent Usage	--	55.07	--	--	--	--
Exempt Emissions	32.16	75.34	16.11	1.92	1.64	1.64
	3,537.35	813.85	2,079.33	152.08	463.37	457.53

**C. PEAK QUARTERLY (tpq)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	17.09	1.96	6.20	0.01	2.02	1.94
Combustion - Flare	0.75	1.32	4.07	7.18	0.22	0.22
Turbine Generators	57.71	9.58	37.38	3.47	5.68	5.68
Turbine Compressors	2.45	0.57	11.56	0.92	0.33	0.33
Supply Boat	19.05	1.00	4.17	0.01	1.70	1.63
Emergency Response	0.00	0.00	0.00	0.00	0.00	0.00
Survival Craft	0.01	0.52	1.22	0.00	0.14	0.14
Pigging	--	0.00	--	--	--	--
Sumps/Tanks/Separators	--	1.84	--	--	--	--
Solvent Usage	--	0.62	--	--	--	--
Exempt Emissions	2.70	3.53	1.01	0.17	0.16	0.16
	99.76	20.93	65.60	11.77	10.24	10.10

**D. PEAK ANNUAL (tpy)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - Engines	36.80	3.84	11.76	0.15	3.83	3.71
Combustion - Flare	2.99	5.29	16.26	28.74	0.88	0.88
Turbine Generators	241.72	21.56	108.37	10.99	12.75	12.75
Turbine Compressors	9.79	2.27	46.25	3.68	1.31	1.31
Supply Boat	76.25	3.99	16.67	0.04	6.79	6.51
Emergency Response	0.00	0.00	0.00	0.00	0.00	0.00
Survival Craft	0.02	2.07	4.86	0.01	0.55	0.55
Pigging	--	0.01	--	--	--	--
Sumps/Tanks/Separators	--	7.36	--	--	--	--
Solvent Usage	--	2.47	--	--	--	--
Exempt Emissions	5.87	13.75	2.94	0.35	0.30	0.30
	373.45	62.62	207.12	43.95	26.41	26.01

## 5.6 Hazardous Air Pollutants (HAPs)

The following table summarizes the HAPs totals for this facility. Detail calculations for these HAPSs totals are maintained in the facility project file.

<b>HAP</b>	<b>Tpy</b>
Benzene	0.09
Toluene	0.22
<b>Xylene</b>	0.11
Formaldehyde	1.20
Acetaldehyde	0.11
<b>PAH</b>	0.01
Hexane	0.63
<b>TOTAL</b>	2.37

## **6.0 Air Quality Impact Analyses**

### **6.1 Modeling**

Air quality modeling was not required for the issuance of this OCS operating permit.

### **6.2 Increments**

An increment analysis was not required for the issuance of this OCS operating permit.

### **6.3 Monitoring**

Air quality monitoring was not required for the issuance of this OCS operating permit.

### **6.4 Health Risk Assessment**

A Health Risk Assessment was not required for the issuance of this OCS operating permit.

## **7.0 CAP Consistency, Offset Requirements and ERCs**

### **7.1 General**

The Point Arguello Project Stationary Source is located in an ozone nonattainment area. Santa Barbara County is designated nonattainment for both the federal and state one-hour ambient air quality standards for ozone. In addition, the County is designated nonattainment with the state PM<sub>10</sub> ambient air quality standard. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with progress toward attainment of federal and state ambient air quality standards. Under APCD regulations, any modifications at Platform Harvest (or the Point Project Arguello Stationary 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. These offset threshold levels are 55 lbs/day for all non-attainment pollutants except PM<sub>10</sub> for which the level is 80 lbs/day.

### **7.2 Clean Air Plan**

Santa Barbara County has historically violated both the federal (0.12 ppm) and state (0.09 ppm) one-hour ambient air quality standards for ozone. The county also violates the new state (0.070 ppm) eight hour ambient ozone standard. Ambient air quality data collected since 1999 show that Santa Barbara County has attained the federal one-hour ozone standard. The APCD developed, adopted, and submitted the 2001 Clean Air Plan (2001 Plan) to USEPA to demonstrate that the County will maintain the federal standard through 2015 and officially requested that the County be re-designated to an attainment area for federal purposes. On July 9, 2003, USEPA published a final rule approving the 2001 Clean Air Plan and re-designating Santa Barbara County as an attainment area for the federal one-hour ozone standard. This action became effective on August 8, 2003. On December 16, 2004, the APCD adopted the 2004 Clean Air Plan providing a three year update to the 2001 Plan for state purposes only. Santa Barbara County was designated attainment for the federal 8-hour ozone standard (0.08 ppm) effective June 15, 2004.

### **7.3 Offset Requirements**

Increases in county-wide emissions caused by a new project must be offset by commensurate reductions in emissions from another county source. APCD rules require existing source emission reductions to be in place prior to the initiation of and for the duration of the project's emissions. The emission reductions must be real, quantifiable, surplus, permanent, and enforceable. For permitted offset sources, a modification of existing permits is required to ensure that emission reductions will occur. For sources which are not owned or operated by the project applicant, a written agreement between the owner of the emission reduction source and the project applicant, with the APCD as third beneficiary, is required.

Chevron, the previous operator, entered into several agreements with the APCD identifying the sources of the emission reduction credits, the party providing the emission reduction credits (when not owned and operated by Chevron) and the specific reductions provided as offsets for the OCS platforms. A summary of these agreements and the offsets are provided in the *OCS Ozone Mitigation Agreement* (September, 1992).

The platform's emission totals (potential-to-emit) are detailed in the permits for each platform. However, the project is required to offset the "allowable emissions" from the platforms, not the potential-to-emit totals. The "allowable emissions" are stipulated in the *OCS Ozone Mitigation Agreement* (subsequently revised by PTO 5704 Exhibit 1) and are summarized in Table 5.1 (II) of PTO 5704.

In addition, the permittee required SO<sub>x</sub> offsets to comply with APCD Rule 359. These offsets were initially secured through the Marine Engine Repowering Program (MERC) which replaced engines on a number of boats with low-emission engines. The MERC emission reduction credits were subsequently replaced with credits generated by controlling emissions from three natural gas turbines on Platform Harvest. Project offsets are detailed in Table 7.3-1.

ROC offsets were required for installation of the crude stabilization unit. These are listed in Table 7.3-2.

### **7.4 Emission Reduction Credits**

Selective Catalytic Reduction (SCR) was installed on the three turbine-driven compressors at Platform Harvest for the purpose of generating NO<sub>x</sub> emission reduction credits (ERCs). Installation of these control systems resulted in 38.065 tpy of NO<sub>x</sub> ERCs as described in DOI 0035. A portion of these ERCs were used to replace expiring (MERC) ERCs at platform Harvest. See Table 7.3-1 below for a detailed summary of all ERCs dedicated to Platform Harvest.

**Table 7.3-1  
PXP Platform Harvest  
SO<sub>x</sub> Offset Requirements for Rule 359 Compliance<sup>(a)(b)</sup>**

**OXIDES OF SULFUR (SO<sub>x</sub>)**

<u>Emissions Liability</u>	<u>TPY</u>
Rule 359 Planned Flaring	9.52 SO <sub>x</sub>

<u>Emission Reduction Sources</u>	<u>Emission Reductions tons/yr</u>	<u>Distance Factor</u>	<u>Offset Credit tons/yr</u>
ERC Certificate 0149 <sup>(c)</sup>	8.79 NO <sub>x</sub>	1.0	8.79 SO <sub>x</sub>
ERC Certificate 0032 <sup>(d)</sup>	0.33 SO <sub>x</sub>	1.0	0.33 SO <sub>x</sub>
ERC Certificate 0044 <sup>(e)</sup>	0.50 NO <sub>x</sub>	1.25 <sup>(f)</sup>	<u>0.40 SO<sub>x</sub></u>
		Total	9.52 SO <sub>x</sub>

Provisions:

- (a) Offsets for SO<sub>x</sub> emissions are required for planned flaring pursuant to Rule 359 (§D.1.b)
- (b) Inter-Pollutant trade (NO<sub>x</sub> for SO<sub>x</sub>) is approved based on PM<sub>10</sub> precursor relationship.
- (c) Platform Harvest SCR Project ERCs.
- (d) Arguello Inc purchased 0.5 tpy SO<sub>x</sub> ERCs as documented in ERC Certificate 0032-1103. 0.33 tpy SO<sub>x</sub> from this amount was applied to the MERC program shortfall as documented in ERC Certificate 0033-1103
- (e) ERC Certificate 0044-0105 expires December 14, 2010, thus, these ERCs must be replaced prior to this date.
- (f) The 1.25 uncertainty factor (associated with the control of fishing boats) defines the minimum amount of NO<sub>x</sub> ERCs that must be in place for the platform on an ongoing basis.

**Table 7.3-2  
Crude Stabilization Project - Platforms Harvest and Hermosa  
Project Operation Emissions and Offsets**

**REACTIVE ORGANIC COMPOUNDS (ROC)**

**NEI FROM PROJECT**

	<u>TPQ</u>	<u>TPY</u>
Platform Harvest Crude Stabilization Unit	0.08	0.32
Platform Hermosa Crude Stabilization Unit	<u>0.08</u>	<u>0.32</u>
Project Total	0.16	0.64

**EMISSION REDUCTION SOURCES**

	Emission Reductions		Distance Factor	Offset Credit	
	<u>TPQ</u>	<u>TPY</u>		<u>TPQ</u>	<u>TPY</u>
Enhanced I&M Monitoring on Platform Hidalgo	0.19	0.76	1.2	0.16	0.64
<b>TOTAL</b>	<b>0.19</b>	<b>0.76</b>		<b>0.16</b>	<b>0.64</b>

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**Notes:**

- a) ERCs per ERC certificate #0005
- b) ERCs due to enhanced monitoring of fugitive I&M components on Platform Hidalgo (See ATC/PTO 9883).
- c) Emission units: TPQ = tons per quarter; TPY = tons per year.
- d) Determination of offset ratio ("distance factor"):  
ERCs are created from within the same stationary source, therefore an offset ratio of 1.2 is used per Rule 802 Table 4.

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\\sbcapcd.org\shares\Groups\ENGR\WP\PT70SRCE\PERMITS\O&G-PROD\Arguello - Harvest Hermosa Hidalgo\Platform Harvest\[Table 7.3-2.xls]Table 10.1

## 8.0 Lead Agency Permit Consistency

A Final Development Plan for the Point Arguello Project (85-DP-32-CZ) was approved by the Santa Barbara County Board of Supervisors as lead agency in California. The approved Plan contains a number of provisions which relate to the air quality aspects of the project. These provisions are designated the "E" conditions. Of particular interest are conditions E-4 (requirements for ambient air quality monitoring stations to examine onshore project impacts) and conditions E-7 and E-9 (requirements that all NO<sub>x</sub> and ROC emissions that contribute to ozone standard violations be completely mitigated). The project applicants and the County entered into a legally binding contract outlining the implementation of conditions E-4, E-7, and E-9. In 1992, E-4, E-7, E-9 contract was supplemented with an *OCS Ozone Mitigation Agreement* to clarify and augment requirements on ozone precursors.

The United States Department of Interior's Mineral Management Service approved the *Development and Production Plan* for Platform Harvest on January 15, 1985.

## 9.0 Permit Conditions

This section lists the applicable permit conditions for Platform Harvest. 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 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.

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 Platform Harvest. In the case of a discrepancy between the wording of a condition and the applicable APCD rule, the wording of the rule shall control.

- A.1 **Condition Acceptance:** Acceptance of this operating permit by PXP shall be considered as acceptance of all terms, conditions, and limits of this permit. [Re: PTO 9103]
- A.2 **Grounds for Revocation:** Failure to abide by and faithfully comply with this permit shall constitute grounds for the APCO to petition for permit revocation pursuant to California Health & Safety Code Section 42307 *et seq.* [Re: PTO 9103]

- A.3 **Defense of Permit:** PXP 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 issuance of this permit. PXP 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 PXP of its obligation under this condition. The APCD shall bear its own expenses for its participation in the action. [Re: PTO 9103]
- A.4 **Reimbursement of Costs:** All reasonable expenses, as defined in APCD Rule 210, incurred by the APCD, APCD contractors, and legal counsel for the activities listed below that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the permittee as required by Rule 210. Reimbursable activities include work involving: permitting, compliance, CEMS, modeling/AQIA, ambient air monitoring and air toxics. [Re;Rule 210; PTO 9103]  
[Re: PTO 9103, APCD Rule 210]
- A.5 **Access to Records and Facilities:** As to any condition that requires for its effective enforcement the inspection of records or facilities by the APCD or its agents, PXP shall make such records available or provide access to such facilities upon notice from the APCD. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. [Re: PTO 9103]
- A.6 **Compliance:** Nothing contained within this permit shall be construed to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment. [Re: PTO 9103]
- A.7 **Consistency with Analysis:** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the APCD's project file) and the APCD's analyses under which this permit is issued as documented in the permit analyses included in this permit. [Re: PTO 9103]
- A.8 **Consistency with State and Local Permits:** Nothing in this permit shall relax any air pollution control requirement imposed on the Point ArguelloProject by:
- (a) The County of Santa Barbara in the *Chevron/Point ArguelloProject Final Development Plan No. 85-DP-32-CZ* and any subsequent modifications (including the September 1992 *Ozone Mitigation Agreement for the Point ArguelloProject*, the amended September 1992 *Contract for Implementation of Conditions E-4, E-7 and E-9 of the Chevron/Point Arguello Project Preliminary Development Plan No. 83-DP-32-CZ*, and all subsequent amendments or revisions.
  - (b) The Santa Barbara County Air Pollution Control APCD in Authority to Construct 5704, Permit to Operate 5704, and any subsequent modifications to either permit; and
  - (c) The California Coastal Commission in the consistency determination for the Project with the California Coastal Act. [Re: PTO 9103]

A.9 **Compliance with Department of Interior Permits:** PXP shall comply with all air quality control requirements imposed by the Department of the Interior in the *Development and Production Plan* for Platform Harvest on January 15, 1985 and any subsequent modifications. Such requirements shall be enforceable by the APCD. [Re: PTO 9103]

A.10 **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.11 **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-days of the emergency. The “notice of emergency” shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F. [Re: 40 CFR 70.6(g), APCD Rule 1303.F]

A.12 **Compliance Plans.**

- (a) The Compliance Plans for the stationary source, submitted by the permittee on application Forms 1302-I (1 & 2) and 1302-J (1 & 2), are a part of this permit.
- (b) The permittee shall comply with all federally-enforceable requirements that become applicable during the permit term, in a timely manner.

- (c) 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.13 **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.14 **Severability:** In the event that any condition herein is determined to be invalid, all other conditions shall remain in force. [*Re: APCD Rules 103 and 1303.D.1*]

A.15 **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 apply for renewal of the Part 70 permit no later than 180-days before the permit expiration date. 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.16 **Payment of Fees:** The permittee shall reimburse the APCD for all its Part 70 permit processing and compliance expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the APCD and the USEPA pursuant to section 502(a) of the Clean Air Act. [*Re: APCD Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7)*]

A.17 **Prompt Reporting of Deviations:** The permittee shall submit a written report to the APCD documenting each and every deviation from the requirements of this permit or any applicable federal requirements within 7-days after discovery of the violation, but not later than 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. [*APCD Rule 1303.D.1, 40 CFR 70.6(a)(3)*]

A.18 **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, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by August 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.19 **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.20 **Recordkeeping Requirements:** The permittee shall maintain records of required monitoring information that include the following:

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

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

A.21 **Conditions for Permit Reopening:** The permit shall be reopened and revised for cause under any of the following circumstances:

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

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

Administrative procedures to reopen a permit shall follow the same procedures as apply to initial permit issuance. Re-openings shall affect only those parts of the permit for which cause to reopen exists. If the permit is reopened, and revised, then it will be reissued with the expiration date applicable to the re-opened permit. [Re: 40 CFR 70.7(f), 40 CFR 70.6(a)]

## **9.B. Generic Conditions**

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

- B.1 **Circumvention (Rule 301)**: A person shall not build, erect, install, or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Division 26 (Air Resources) of the Health and Safety Code of the State of California or of these Rules and Regulations. This Rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California, or of APCD Rule 303. [Re: APCD Rule 301]
- B.2 **Visible Emissions (Rule 302)**: PXP 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 Ringlemann 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.

For the flare (intermittent), emergency firewater pumps and emergency generators PXP shall determine compliance with this Condition/Rule, as specified below:

*Offshore Flaring*: For planned flaring (other than purge and pilot and planned continuous as per Table 5.1-1 of this permit), a visible emissions inspection for a one-minute period shall be performed once per quarter during a planned flaring event. If visible emissions are detected during the quarterly inspection, then a USEPA Method 9 visible emission evaluation (VEE) shall immediately be performed for a six-minute period or the duration of the flaring event, whichever is shorter. PXP staff certified in VEE shall perform the VEE and maintain logs in accordance with USEPA Method 9. The start-time and end-time of each visible emissions inspection shall be recorded in a log, along with a notation identifying whether visible emissions were detected.

Failure to perform a required VEE shall not constitute a violation if the VEE is attempted and can not be performed

Failure to perform a required Method 9 inspection will not constitute a violation if the attempted VEE can not be performed in accordance with procedures of Section 2 of Method 9 due to existing ambient conditions at the platform during the inspection and PXP fully documents the conditions that preclude the performance of the VEE.

*Diesel ICEs and Turbines:* Once per calendar quarter PXP shall perform a visible emissions inspection for a one-minute period on each permitted and exempt engine or turbine, when operating. A VEE is not required for any turbine or turbine starter engine not operating on the day of the quarterly inspection. If visible emissions are detected during any inspection, then a USEPA Method 9 visible emission evaluations (VEE) shall immediately be performed for a six-minute period. PXP staff certified in VEE shall perform the VEE and maintain logs in accordance with USEPA Method 9. The start-time and end-time of each visible emissions inspection shall be recorded in a log, along with a notation identifying whether visible emissions were detected.

*Offshore Platform Cranes:* During biennial source testing of each crane, PXP shall perform a visible emissions inspection on the crane for a one-minute period. If visible emissions are detected during any inspection, then a USEPA Method 9 visible emission evaluation (VEE) shall immediately be performed for a six-minute period. PXP staff certified in VEE shall perform the VEE and maintain logs in accordance with USEPA Method 9. The start-time and end-time of each visible emissions inspection shall be recorded in a log, along with a notation identifying whether visible emissions were detected.

For the purposes of this condition, “certified in VEE” shall mean that each individual assigned to perform a VEE has completed smoke school training and obtained certification in accordance with Method 9, section 3. Continued certification every six-months is required. [Re: APCD Rule 302; PTO 9103-05].

- B.3 **PM Concentration - South Zone (Rule 305):** PXP 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.4 **Specific Contaminants (Rule 309):** PXP 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.5 **Sulfur Content of Fuels (Rule 311):** PXP shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 239 ppm<sub>vd</sub> or 15 gr/100 scf (calculated as H<sub>2</sub>S) for gaseous fuel. Compliance with this condition shall be based on daily measurements of the fuel gas using (Draeger tubes, ASTM, or other APCD-approved) methods and diesel fuel billing records or other data showing the certified sulfur content for each shipment. [Re: APCD Rule 311]

- B.6 **Organic Solvents (Rule 317):** PXP shall comply with the emission standards listed in Rule 317.B. Compliance with this condition shall be based on PXP's compliance with Condition C.8 (*Solvent Usage*) of this permit. [Re: *APCD Rule 317*]
- B.7 **Vacuum Producing Devices or Systems - Southern Zone (Rule 318):** PXP 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.8 **Solvent Cleaning Operations (Rule 321):** PXP shall comply with the requirements listed in Sections D, G, I, P and Q of Rule 321. Compliance with this condition shall be based on PXP's compliance with Condition C.8 (*Solvent Usage*) of this permit as well as APCD inspections. [Re: *APCD Rule 321*]
- 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 PXP's compliance with Condition C.8 (*Solvent Usage*) of this permit and facility inspections. [Re: *APCD Rule 322*]
- B.10 **Architectural Coatings (Rule 323):** PXP shall comply shall comply with the coating ROC content and handling standards listed in Rule 323.D as well as the Administrative requirements listed in Rule 323.F. Compliance with this condition shall be based on PXP's compliance with Condition C.8 (*Solvent Usage*) of this permit and facility inspections. [Re: *APCD Rule 323*]
- B.11 **Disposal and Evaporation of Solvents (Rule 324):** PXP 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 PXP's compliance with Condition C.8 (*Solvent Usage*) 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 **Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers (Rule 360):** This rule applies to water heaters, boilers, steam generators and process heaters with rated heat input capacities greater than or equal to 0.75 MMbtu/hr up to, and including, 2.0 MMbtu/hr. There are no units at this facility subject to this rule. [Re: *APCD Rule 360*]

B.14 **Oil and Natural Gas Production MACT:** As discussed in section 3.2.5 above, this facility is exempt from this MACT, however PXP is required, and shall, maintain records in accordance with 40 CFR 63.10(b)(3).

## 9.C Requirements and 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 **Internal Combustion Engines.** The following equipment are included in this emissions unit category:

<b>EQ Device No.</b>	<b>Name</b>
005000	Pedestal Crane CR-800A (503 bhp)
005001	Pedestal Crane CR-800B (503 bhp)
005002	Pedestal Crane CR-801 (270 bhp)

(a) Emission Limits: Mass emissions from the pedestal crane engines listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit. In addition, the following specific emission limits apply:

(i) *Pedestal Crane Engines:* Controlled emissions of NO<sub>x</sub> from each diesel fired crane engine shall not exceed either 8.4 g/bhp-hr or 797 ppmvd at 15-percent oxygen or 2,400 ppmv at 3-percent oxygen. Compliance shall be based on quarterly inspections and biennial source testing. More frequent testing may be required, as determined by the APCD, if quarterly portable NO<sub>x</sub> analyzer results show potential exceedances of the standard.

(b) Operational Limits: The following operational limits apply:

(i) *Emission Controls:* PXP shall implement the requirements of APCD Rule 333. NO<sub>x</sub> emissions from the cranes shall be reduced by using turbocharged engines with injection timing retarded by 4 degrees. Additionally, the cranes shall be equipped with a separate intercooling circuit.

(ii) *Liquid Fuel Sulfur Limit:* Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.0015 weight-percent as determined by APCD-approved ASTM methods.

(iii) *Fuel Use Limits:* PXP shall comply with the following fuel limits:

- Crane engine (CR-800A) shall not use more than: 645 gallons per day; 36,664 gallons per quarter; 55,868 gallons per year of diesel fuel.
- Crane engine (CR-800B) shall not use more than: 645 gallons per day; 36,664 gallons per quarter; 55,868 gallons per year of diesel fuel.

- Crane engine (CR-801) shall not use more than: 370 gallons per day; 21,048 gallons per quarter; 32,074 gallons per year of diesel fuel.
- (iv) *Engine Identification and Maintenance*: Each IC engine shall be identified with a permanently-affixed plate, tag or marking, referencing either: (i) the IC engine's make, model, serial number, rated BHP and corresponding RPM; or (ii) the operator's unique tag number. The tag shall be made accessible and legible to facilitate APCD inspection of the IC engine.
- (c) **Monitoring**: The following source testing and periodic monitoring conditions apply to the pedestal crane, turbine starter, emergency generator and the emergency fire water pump engines:
  - (i) *Fuel Meters*: The amount of fuel combusted in each engine shall be measured using permanently installed APCD-approved in-line fuel meters dedicated to each engine. As an alternative to in-line fuel meters, PXP may report individual engine hours of operation utilizing a APCD-approved elapsed time meter <sup>5</sup>. A monthly log shall be maintained that records the fuel usage (or hours of operation) of each engine.
  - (ii) *Inspection and Maintenance Plan (I&M Plan)*: PXP shall implement quarterly inspections on the each engine according to the most current version of the APCD-approved *Engine Inspection and Maintenance Plan* consistent with the requirements of Rule 333.E.
  - (iii) *Source Testing*: For each pedestal crane engine, PXP shall perform source testing of air emissions and process parameters consistent with the requirement of the *Source Testing* permit condition below and in accordance with the requirements of Rule 333.
  - (iv) *Fuel Data*: PXP shall maintain documentation of the sulfur content (as determined by APCD-approved ASTM methods) of each diesel fuel shipment as certified in the fuel suppliers billing vouchers.
- d) **Recordkeeping**: PXP shall keep the required logs, as applicable to this permit, which demonstrate compliance with emission limits, operation limits and monitoring requirements above. All logs shall be available to the APCD upon request. Written information (logs) shall include:
  - (i) Daily, quarterly and annual fuel usage in units of gallons for the pedestal crane engines.

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<sup>5</sup> The hours of operation, along with the engine horsepower rating and BSFC data as listed in Table 5.1-1 of this permit, a fuel correction factor of 1.06, and a high heating value of 138,200 Btu/gal will be used to determine the number of gallons of fuel consumed per time period.

- (ii) The sulfur content (as determined by APCD-approved ASTM methods) of each fuel shipment as certified in the fuel suppliers billing vouchers. On an annual basis, the higher heating value of the diesel fuel (Btu/gal) shall be recorded. The billing vouchers shall be attached to the log.
  - (iii) IC engine operations logs, including quarterly inspection results, consistent with the requirements of Rule 333.
  - (iv) If an operator's tag number is used in lieu of an IC engine identification plate, documentation which references the operator's unique IC engine ID number to a list containing the make, model, serial number, rated maximum BHP and the corresponding RPM.
- (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: APCD Rules 202, 311, 333 and 1303, PTO 9103, 40 CFR 70.6)

C.2. **Turbines.** The following equipment are included in this emissions unit category:

<b>EQ Device No.</b>	<b>Name</b>
005013	Turbine Generator A (3,695/3,584 Kw)
005014	Turbine Generator B (3,695/3,584 Kw)
005015	Turbine Generator C (3,695/3,584 Kw)
005016	Turbine Generator D (3,695/3,584 Kw)
005017	Turbine Generator E (3,695/3,584 Kw)
005021	Turbine Compressor A (4,330 shaft bhp)
005022	Turbine Compressor B (4,330 shaft bhp)
005023	Turbine Compressor C (4,330 shaft bhp)

- (a) Emission Limits: Except during start-up and shutdown periods, turbine mass emissions from the turbines listed above shall not exceed the limits listed in Tables 5.1 and 5.2. For the purposes of this condition, "startup" shall constitute the powering up of a turbine from a non-operating condition (i.e., zero fuel flow), and is limited to 30 minutes. "Shutdown" shall constitute the powering down of a turbine from a full operating condition to a non-operating condition, (i.e., zero fuel flow). Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit. Any 15-minute average CEM data value that falls partially or completely within a start-up or shut-down period may be excluded from the hourly average for determining compliance with the NO<sub>x</sub> lb/hr limit. In addition, the following specific emission limits apply:
- (i) *Turbine Generators*: Each turbine generator shall be operated such that the emissions of NO<sub>x</sub>, ROC and CO do not exceed the emission factor algorithms listed below. Compliance shall be based on the source testing requirements listed in Table 4.1 of this permit.

Emission calculation methodology for NO<sub>x</sub>, ROC and CO for the turbine generators is a result of source test data. The following algorithms are developed from that data:

For NO<sub>x</sub> emission calculations:

$$\begin{aligned}ER_{\text{fuel gas}} &= 5.12411 - (1.816 \times 10^{-2}) * (\text{SCFM}) + (4.073 \times 10^{-5}) * (\text{SCFM})^2 \\ER_{\text{diesel}} &= 7.2531 - (2.17308) * (\text{GPM}) + (0.46018) * (\text{GPM})^2\end{aligned}$$

For ROC emission calculations:

$$\begin{aligned}ER_{\text{fuel gas}} &= 0.22 \text{ lb/hr} \\ER_{\text{diesel}} &= 22.27041 - (8.48014 * \text{GPM}) + (0.80679) * (\text{GPM})^2\end{aligned}$$

For CO emission calculations:

$$\begin{aligned}ER_{\text{fuel gas}} &= 8.7262 - 0.02709 * (\text{SCFM}) + 0.00002765 * (\text{SCFM})^2 \\ER_{\text{diesel}} &= (2.937 * \text{GPM}^2) - (0.5127 * \text{GPM}^3)\end{aligned}$$

where: ER = emission rate (lbs per hr)  
SCFM = gaseous fuel usage (std ft<sup>3</sup>/minute)  
GPM = liquid fuel usage (gallons/minute)

- (ii) *Turbine Compressors K-200A, K-200B and K-200C*: Except during compressor start-up and shut-downs as defined in 9.C.2(a) above, and NO<sub>x</sub> water filter system maintenance described in section (d)(iii) below, NO<sub>x</sub> concentrations from each compressor turbine shall not exceed 5 ppmvd at 15 percent O<sub>2</sub>. Compliance shall be based on source testing as specified in condition 9.C.2(e)(x) below. CEMS NO<sub>x</sub> data based on 15-minute averaging periods shall be used to determine compliance with the ppmv limit. Compliance with the NO<sub>x</sub> hourly mass emission limit in Table 5.1 shall be based on hourly average CEMS data as well as source testing.

Each turbine compressor shall be operated such that the emissions of ROC and CO do not exceed the emission factor algorithms listed below. Compliance shall be based on the source testing requirements as listed in Table 4.1.

For ROC emission calculations:

$$ER_{\text{fuel gas}} = 0.173 \text{ lb/hr}$$

For CO emission calculations:

$$ER_{\text{fuel gas}} = 1.1644 + (0.00381 * \text{SCFM})$$

where:

ER = emission rate (lbs per hr)

kW = kilowatts

SCFM = gaseous fuel usage (std ft<sup>3</sup>/minute)

- (iii) *Turbine Compressors - Ammonia Slip*: Exhaust stack ammonia concentrations from the exhaust of any of the turbine compressors shall not exceed 5 ppmv at 15 percent O<sub>2</sub>. Ongoing compliance with this condition shall be assessed during source testing.
- (b) Operational Limits: Turbine Generators: The following operational limits apply:
- (i) Each turbine generator shall not use more than: 976,293 standard cubic feet per day; 89.087 million standard cubic feet per quarter; 356.347 million standard cubic feet per year of fuel gas.
  - (ii) Each turbine generator shall not use more than: 7,817 gallons per day; 281,750 gallons per quarter; 565,500 gallons per year of diesel fuel.
  - (iii) Diesel fuel use in the turbine generators shall be limited to cases of emergency or when otherwise required for safety reasons, or when fuel gas is unavailable at the volumes required to operate the turbine generators.
- (c) Operational Limits: Turbine Compressors/SCR: The following operational limits apply:
- (i) The SCR system shall be operated at all times the associated gas turbine is operating. Turbine emissions shall be minimized during all turbine startup and shutdown operating periods. During gas turbine startup, PXP shall inject ammonia to the SCR once the minimum injection operating temperature of 562 °F is attained. This requirement does not limit PXP from introducing ammonia at temperatures below 562 °F.
  - (ii) With prior written notification to the APCD, PXP may replace the existing catalyst with a new unit consistent with the requirements of this permit and as long as no emission or permit exceedances occur.
  - (iii) The catalyst bed temperature shall be maintained between 562 °F and 950°F except during turbine startup. Compliance shall be based on source testing and the monitoring and recordkeeping requirements of this permit.
  - (iv) Each turbine compressor shall not use more than: 1,105,019 standard cubic feet per day; 81.231 million standard cubic feet per quarter; 324.925 million standard cubic feet per year of fuel gas.
  - (v) In order to avoid creating a shift-in-load, all Platform Harvest gas, except for VRU gas which is sent directly to the gas lift compressor, shall be processed by the 336-K-200A, 336-K-200B, or 336-K-200C turbine compressors. No Platform Harvest gas shall be routed to other platforms without first being compressed by the 336-K-

200A, 336-K-200B, or 336-K-200C turbine compressors.

- (vi) Diesel fuel shall not be used in the sales gas compressor turbines.
- (d) Operational Limits: Turbine Generators / Turbine Compressors: The following operational limits apply:
- (i) *Water Injection:* Water must be injected in the turbine generators and turbine compressors when fuel use is 350 SCFM or greater, and when diesel fuel use in the generators is 3 gallons per minute or greater.
  - (ii) *Water Injection Ratios:* PXP shall maintain a minimum W/F ratio controller set point when operating turbines at loads equal to or greater than specified in item (i) above as follows: 1.00 when operating the generators with diesel; 0.75 when operating the generators with fuel gas; and, 0.80 when operating the compressors. For the generators, PXP shall maintain water injection at these ratios a minimum of 96% of the time (on an annual basis, based on the average time of operation with and without water injection for combined diesel and fuel gas use, for all three platforms) when operating at loads or fuel use greater than or equal to those specified in item (i) above. For the compressors, PXP shall maintain water injection at these ratios on a continuous basis. This requirement does not apply during NO<sub>x</sub> water flow rate calibration periods, provided calibration records clearly demonstrate calibrations occurred. Compliance shall be based on 15-minute averages for the turbine compressors and 3-minute averages for the turbine generators.
  - (iii) *Water Injection Exception for the Compressor Turbines:* For four hours per year, water injection is not required during NO<sub>x</sub> water filter changeout.
  - (iv) *Fuel Gas Sulfur Limit:* The sulfur content of fuel gas combusted as turbine generator and turbine compressor gas shall not exceed 50 ppm<sub>v</sub> total sulfur calculated as hydrogen sulfide (at standard conditions). The ppm<sub>v</sub> limit for the turbine fuel gas shall be based on a 15-minute average. Compliance shall be based on in-line continuous monitoring using a APCD-approved hydrogen sulfide analyzer. This analyzer shall be operated consistent with the requirements of the APCD's CEM Protocol document (dated October 22, 1992 and subsequent updates), where applicable. PXP shall implement the monitoring, calibration, recordkeeping and reporting procedures contained in the most current version of the APCD-approved *Fuel Gas Reporting Plan*. PXP shall operate the amine based fuel gas sweetening system at all times when combusting fuel gas in the turbines and as purge/pilot fuel.
  - (v) *Fuel Sulfur Content Excursions:* For specific events as defined below, the sulfur content of the gaseous fuel burned in the turbines may be excluded from the 50 ppm<sub>v</sub> 15-minute average calculation defined above. However, at no time shall the fuel sulfur content exceed 15 grains per 100 cubic feet (239 ppm<sub>v</sub>). The specific events not subject to the 50 ppm<sub>v</sub> sulfur limit are:
    - Turbine start-up on gaseous fuel after running on diesel fuel

- Turbine start-up on gaseous fuel after having been shutdown
- Turbine start-up on diesel fuel after running on gaseous fuel

Each event shall be limited to no more than one (1) hour in duration. The total number of events shall be limited to six (6) per calendar quarter and twelve (12) per calendar year.

PXP shall record the date, time and duration of each event in a log, along with the peak sulfur content during the excursion. A copy of this log shall be included in the platform's quarterly report.

- (vi) *ADGS System*: PXP shall comply with the requirements of the most current version of the APCD-approved *Point Arguello Project Quality Assurance Plan Turbine ADGS System (ADGS)* (dated September 18, 2007). The ADGS may be audited independently by the APCD, or APCD-approved representatives, once per year in order to ensure compliance with proper quality control procedures to verify the accuracy of the recording devices.
  - (vii) *Water Injection Emission Reduction Efficiency*: For the turbine generators, at full safe load for either fuel gas or diesel use modes, NO<sub>x</sub> emissions shall be controlled to a rate which is 30-percent or less of the uncontrolled emission levels at full safe-load.
  - (viii) *Meters*: All OCS turbine generators and compressors shall be equipped with elapsed time meters and fuel meters.
  - (ix) *Quality Assurance*: PXP shall implement the current version of the APCD-approved *Process Monitor and Calibration and Maintenance Plan*.
- (e) Monitoring: The following source testing and monitoring conditions apply:

*Turbine Compressors*

- (i) *Continuous Monitoring Monitoring System (CEMS)*. PXP shall install, maintain, and operate a NO<sub>x</sub> CEMS that continuously monitors the exhaust of all three turbine compressors for the parameters listed in Table 4.3. The monitoring devices shall meet the requirements of 40 CFR 60, and subsequent revisions, and be operated in accordance with manufacturer's specifications. PXP shall comply with the APCD-approved CEMS Plan dated August 15, 2007 (and any subsequent approved updates). CEMS operator log entries, strip charts, magnetic tapes, computer printouts, circular charts or diskettes, whichever is applicable, shall be provided upon request to the APCD.

For each compressor, PXP shall maintain an 80% data recovery efficiency (DRE) on a quarterly basis for the CEMS parameters in Table 4.3. For the purposes of determining DRE, an hour period with twelve valid 1-minute NO<sub>x</sub> lb/hr average data points shall be considered a valid hour except during one hour per day for each exhaust sample train

when the required daily calibration occurs.

- (ii) *Dedicated CEM Sampling and Enhanced Source Testing.* If PXP fails to meet either the applicable Relative Accuracy Test Audit or the Relative Accuracy Audit accuracy criteria, the APCD may require the CEMS to cease the multiplexing configuration. Within seven (7) days of notification by the APCD after such failure, PXP shall reconfigure the CEM sampling system for continuous sampling of compressor turbine C only. A revised CEM Plan shall be submitted for APCD approval within 21 days of notification by the APCD. Quarterly source testing of units A and B shall be initiated within 90 days after APCD notification to reconfigure the CEM system.
- (iii) *SCR Monitoring.* The following SCR parameters shall be monitored
  - i. Ammonia flow rate
  - ii. Catalyst pressure drop
  - iii. Catalyst temperature
  - iv. Turbine Fuel Rate (scfm)
- (iv) *SCR Maintenance.* PXP shall maintain the SCR unit according to the manufacturer's (Cormetech) recommended procedures. These procedures shall include annual testing of the catalyst and replacement of the catalyst at a frequency no greater than every five years. Catalyst replacement may be required sooner than five years, if catalyst degradation is evident from catalyst sampling or CEMs data. A copy of the manufacturer's recommended procedures shall be maintained onsite.
- (v) *Catalyst Pressure Drop.* PXP shall conduct an inspection of the SCR system once the pressure drop across the catalyst exceeds 3.0 in. H<sub>2</sub>O for a continuous 3-day period. The inspection shall be conducted within 7-days of the date the inspection was triggered.
- (vi) *Monitoring of Turbine Startup/Shutdown.* Monitor the time each of the turbines operate in the startup/shutdown mode. Monitoring of fuel flow shall meet this requirement.

*Turbine Generators /Turbine Compressors.*

- (viii) *Process Stream Sampling and Analysis.* PXP shall sample and analyze the process streams listed in Section 4.12 of PTO 9103 issued July 1, 2005. All process stream samples shall be taken according to APCD-approved ASTM methods and must be follow traceable chain of custody procedures.
- (ix) *Water/Fuel Injection Ratio.* PXP shall continuously monitor the water injection and fuel use rates for the purpose of establishing the average hourly water injection ratio. The procedures and equipment necessary to monitor and report this ratio are fully described in the Turbine ADGS Quality Assurance Plan.
- (x) *Source Testing:* The following source testing provisions shall apply:

- (a) Source testing of air emissions and process parameters (listed in Table 4.1), shall be conducted annually on all turbines. In addition quarterly testing of turbine compressors A and B shall be performed if required by condition 9.C.2(e)(ii) of this permit. A relative accuracy test audit (RATA) for the CEM shall be performed in conjunction with the annual source test.

During each annual source test, one turbine generator and one turbine compressor shall be tested while operating at maximum load and the remaining turbines will be tested at "historical" based on the prior year's usage. The turbine tested at maximum load for subsequent annual tests will rotate to each turbine with the remaining turbines being tested at "historical" loads.

The NO<sub>x</sub> water injection ratio shall be determined from current fuel gas densities, as determined from fuel gas samples taken within 14-days immediately prior to testing. If the NO<sub>x</sub> water controllers are not updated with the new fuel gas densities, the W/F setpoint shall be set such that the actual W/F ratio is as specified above. Turbines may be tested at as-found loads, unless otherwise requested by the APCD. Any turbine operated on fuel gas less than 877 hours in the previous calendar year, or as otherwise approved by the APCD, may be exempted from source testing requirements. The minimum time period between annual tests shall be 3-months.

For the turbine generators only, at the time of annual source testing, if a turbine is inoperable due to reasons beyond the reasonable control of the platform operator, that turbine shall be exempted from testing for that calendar year. However, only one turbine generator per platform per calendar year may be exempted from testing, and no turbine may be exempted from testing for two consecutive calendar years. To qualify for this exemption, prior to source testing the PXP must provide the APCD with:

- 1) Turbine number, the date of breakdown, the nature and probable cause of the problem, the anticipated date of repair; and
- 2) Other information sufficient for the platform operator to demonstrate that the turbine is inoperable.

If diesel use on Platform Harvest exceeds 10-percent of the total turbine operating time for the previous calendar year for the platform, the permittee shall also test each turbine generator on the platform with diesel fuel in the controlled mode with water injection at the injection ratio specified above.

- (b) The permittee shall submit a written turbine source test plan for the turbine generators and compressors to the APCD for approval at least thirty (30) days prior to initiation of each source test. The plan shall address the RATA for the NO<sub>x</sub> and oxygen analyzers for the turbine compressors. The source test plan shall be prepared consistent with the APCD's Source Test Procedures Manual (revised May 1990 and any subsequent revisions). The permittee shall obtain written APCD approval of the source test and RATA plan prior to

commencement of source testing. The APCD shall be notified at least ten (10) calendar days prior to the start of source testing activity to arrange for a mutually agreeable source test date when APCD personnel may observe the test.

- (c) Source test results and the RATA test results for NO<sub>x</sub> and O<sub>2</sub> monitors shall be submitted to the APCD within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results and CEM data will be used to document the permittee's compliance status with, mass emission rates in Tables 5.1 and 5.2, ppmv concentration limits and applicable permit conditions, rules and NSPS. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by the permittee as provided for by APCD Rule 210.
- (d) 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. If the test can not be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the APCD. 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. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without APCD's authorization shall constitute a violation of this permit. 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.

The timelines in (a), (b), and (c) above may be extended for good cause provided a written request is submitted to the APCD at least three (3) days in advance of the deadline, and approval for the extension is granted by the APCD.

- (f) Recordkeeping: PXP shall record the data specified below. For parameters monitored by the Automatic Data Gathering System (ADGS), instantaneous readings shall be obtained every 3 minutes for each turbine. All preexisting ADGS data shall be maintained for a period of one year. All turbine compressor CEMS data required by this permit shall be maintained for five years.
  - (i) Date and time of reading.

- (ii) Kilowatts (generators only).
  - (iii) Fuel rate, including diesel (generators only) and the fuel gas.
  - (iv) Water rate.
  - (v) For each turbine requiring water injection, the average hourly water/fuel (W/F) ratio (mass basis). Approximate densities of the fuel and water shall be as follows: diesel, 7.30 lb/gallon; fuel gas, no less than current tested density; water, 8.34 lb/gallon.
  - (vi) For each turbine requiring water injection, the total cumulative time for each quarter that the water to fuel ratio fell below 0.75 for turbine generators operating on fuel gas, below 1.00 for turbine generators running on diesel fuel, and below 0.80 for turbine compressors running on fuel gas, and for each turbine, the total cumulative time water was required to be injected and the annual (calendar) percentage of time that water was injected while the turbines operated above 350 scfm fuel gas or 3.0 gpm diesel fuel.
  - (vii) Documentation (log) of each compressor turbine startup and shutdown (time and date).
  - (viii) Temperature of the catalyst bed.
  - (ix) Pound per hour ammonia rate (for compressor turbines).
  - (x) Results of SCR inspections triggered by permit condition 1(e)(vi), including: dates SCR inspections were triggered and conducted, inspection results (including the highest delta P recorded and any corrective action taken), whether SCR was affected.
  - (xi) Dates of catalyst replacement.
  - (xii) Mass emissions for each turbine on a pound per hour basis.
  - (xiii) Daily summaries containing hourly averages or totals of the above process parameters and hourly totals of emissions.
- (g) Reporting:

- (i) *Turbine Generators:* Emissions reported shall be based on the following:

For NO<sub>x</sub> emission

$$ER_{\text{fuel gas}} = 5.12411 - (1.816 \times 10^{-2}) * (\text{SCFM}) + (4.073 \times 10^{-5}) * (\text{SCFM})^2$$

$$ER_{\text{diesel}} = 7.2531 - (2.17308) * (\text{GPM}) + (0.46018) * (\text{GPM})^2$$

For ROC emission calculations:

$$ER_{\text{fuel gas}} = 0.22 \text{ lb/hr}$$

$$ER_{\text{diesel}} = 22.27041 - (8.48014 * \text{GPM}) + (0.80679) * (\text{GPM})^2$$

For CO emission calculations:

$$ER_{\text{fuel gas}} = 8.7262 - 0.02709 * (\text{SCFM}) + 0.00002765 * (\text{SCFM})^2$$

$$ER_{\text{diesel}} = (2.937 * \text{GPM}^2) - (0.5127 * \text{GPM}^3)$$

where: ER = emission rate (lbs per hr)  
 SCFM = gaseous fuel usage (std ft<sup>3</sup>/minute)  
 GPM = liquid fuel usage (gallons/minute)

- (ii) *Turbine Compressors K-200A, K-200 B, and K-200 C.* Emissions reported shall be based on the following:

For NO<sub>x</sub> emissions, CEMS data for each turbine compressor:

For ROC emission calculations:

$$ER_{\text{fuel gas}} = 0.173 \text{ lb/hr}$$

For CO emission calculations:

$$ER_{\text{fuel gas}} = 1.1644 + (0.00381 * \text{SCFM})$$

where:

ER = emission rate (lbs per hr)  
 SCFM = gaseous fuel usage (std ft<sup>3</sup>/minute)

- (iii) *Manual Calculation for Turbine Generators:* The average hourly emission rate (determined by dividing the total emissions by the actual operating time during which the ADGS was operational for that calendar quarter), time the number of hours of ADGS downtime, shall be used to estimate emissions occurring during ADGS downtimes.
- (iv) 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 PTO 9103 as well as the following:
  - (1) dates SCR inspections were triggered and conducted.
  - (2) the date and time of each occurrence that the catalyst bed temperature dropped below 562 °F (except during startup) or exceeded 950 °F.
  - (3) items vi, vii, x, xii, xiii and xiv of the Recordkeeping condition above.

C.3 **Combustion Equipment – Flare.** The following equipment is included in this emissions unit category:

EQ Device No.	Name
005387	High Pressure and Low Pressure Flare

(a) Emission Limits: Flaring emissions from the purge and pilot, planned continuous, planned intermittent (other) and unplanned events shall not exceed the volumes in Table 5.1-1 and the emission limits in Tables 5.1-3 and 5.1-4.

(b) Operational Limits:

(i) *Flaring Volumes:* Flaring volumes from the purge and pilot, planned continuous, planned (other) and unplanned events shall not exceed the volumes in Table 5.1-1.

(ii) *Planned Flaring Operational Limits:* PXP shall not combust in the flare, any combination of planned flaring events (as defined by Rule 359), any more than:

- (1) 100,000 standard cubic feet in any one-hour period (60-minute sliding scale)
- (2) 300,000 standard cubic feet in any three-hour period (180-minute sliding scale)
- (3) 500,000 standard cubic feet in any 24-hour period (24-hour sliding scale)

The above limits do not apply to flare purge and pilot gas volumes. [ATC/PTO 9905, PTO 9103-02]

(iii) *Flare Purge/Pilot Fuel Gas Sulfur Limits:* The sulfur content of fuel gas combusted as purge and pilot gas shall not exceed 165 ppm<sub>v</sub> total sulfur calculated as hydrogen sulfide (at standard conditions). The ppm<sub>v</sub> limit for the purge/pilot gas shall be based on a 15-minute average. Compliance shall be based on in-line continuous monitoring using a hydrogen sulfide analyzer. PXP shall obtain APCD-approval on the analyzer design specifications prior to any modification. This analyzer shall be operated consistent with the requirements of the most current version of the APCD-approved CEM Protocol document (dated October 22, 1992 and subsequent updates), where applicable. PXP shall implement the monitoring, calibration, recordkeeping and reporting procedures contained in the most current version of the APCD-approved Fuel Gas Reporting Plan. PXP shall operate the amine based fuel gas sweetening system at all times when combusting fuel gas as purge/pilot fuel.

(iv) *Fuel Sulfur Content Excursions:* For specific events as defined below, the sulfur content of the flare purge/pilot gaseous fuel may be excluded from the 165 ppm<sub>v</sub> 15-minute average calculation defined above. However, at no time shall the fuel sulfur content exceed 15 grains per 100 cubic feet (239 ppm<sub>v</sub>). The specific events not subject to the 165 ppm<sub>v</sub> sulfur limit are:

- Platform start-up on gaseous fuel after running on propane.

- Platform start-up on gaseous fuel after having been shutdown.

Each event shall be limited to no more than one (1) hour in duration. The total number of events shall be limited to six (6) per calendar quarter and twelve (12) per calendar year.

PXP shall record the date, time and duration of each event in a log, along with the peak sulfur content during the excursion. A copy of this log shall be included in the platform's semi-annual report.

- (v) *Flare Planned Continuous Flaring Sulfur Limits:* The sulfur content of all gas burned as planned continuous flaring in the flare header shall at no time exceed 10,000 ppmv total sulfur. Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit.
  - (vi) *Flare Planned (other) Sulfur Limits:* The quarterly average sulfur concentration of produced gas flared as "planned - other" in the flare header shall not exceed 17,000 ppmv total sulfur. This limit shall be enforced on an average quarterly basis (i.e., the average of all sulfur content measurements during the quarter).

Maximum quarterly "planned - other" gas flow volumes shall be determined through the use of the following formula:

$$\text{MMscf/quarter} = \{2.438 \text{ TPQ SO}_x \text{ (PTE basis)} \times 2,000\} / (0.169 \times \text{avg. sulfur ppmv})$$

However, at no time shall the gas flow volume exceed 2.89 MMscf/quarter.

Furthermore, PXP shall not exceed the quarterly (TPQ) "planned – other" flaring mass emission limits of NO<sub>x</sub>, ROC, CO, SO<sub>x</sub>, PM, and PM<sub>10</sub> as specified in Tables 5.1 through 5.5. Compliance shall be based on the monitoring, recordkeeping and reporting requirements of this permit.
  - (vii) *Use of Propane as Fuel Gas:* Propane may be used as an auxiliary fuel to the flare purge and pilot fuel gas. The propane shall meet Gas Processors Association specifications for propane (HD-5 grade) and shall have a total sulfur content no greater than 165 ppmv (10 gr/100 scf).
  - (viii) *Rule 359 Technology Based Standards:* PXP shall comply with the technology based standards of Rule 359.D.2. Compliance shall be based on monitoring and recordkeeping requirements of this permit as well as APCD inspections.
- (c) **Monitoring:** The equipment in this section are subject to all the monitoring requirements listed in APCD Rule 359.G. The test methods In Rule 359.E. shall be used. In addition, PXP shall:
- (i) *Flare Volumes:* The volumes of gas flared during each event shall be monitored by use of APCD-approved flare header flow meters. The meters shall be calibrated and

operated consistent with most current version of the APCD-approved *Process Monitor Calibration and Maintenance Plan*.

- (ii) *Pilot Flame Detection*: PXP shall continuously monitor each pilot to ensure that a flame is present at each pilot at all times.
- (d) Recordkeeping: The equipment listed in this section is subject to all the recordkeeping requirement listed in Rule 359.H. In addition, PXP shall:
  - (i) *Flare Event Logs*: All flaring events shall be recorded in a log. The log shall include: date; duration of flaring events (start and stop times or start and duration times); quantity of gas flared; reason for flaring events; the type of event (e.g., planned or unplanned); and, a qualitative description of the gas flared including estimates of the sulfur content from the most recent measurements.
  - (ii) *Sulfur Content*: A log of the total sulfur content of produced gas combusted during flaring events shall be maintained.
  - (iii) *Propane as Flare Fuel Gas*: PXP shall record in a log each usage of propane in a APCD-approved format and shall maintain documentation of the sulfur content of each fuel shipment as certified in the fuel supplier's billing vouchers.
- (e) Reporting: The equipment listed in this section are subject to all the reporting requirements listed in APCD Rule 359.H. On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Compliance Verification Reports* condition of this permit. (Re: APCD Rules 359 and 1303, PTO 9103, ATC/PTO 19329, 40 CFR 70.6)

C.4 **Fugitive Hydrocarbon Emissions Components.** The following equipment are included in this emissions unit category:

Device No.	Name
	<i>Oil Service Components</i>
005388	Oil – Controlled
	Oil – Unsafe
	<i>Gas/Light Liquid Service Components</i>
005389	Gas – Controlled
	Gas – Unsafe

- (a) Emission Limits: Mass emissions from the gas/light liquid service and oil service components listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) Operational Limits: Operation of the equipment listed in this section shall conform to the requirements listed in APCD Rule 331.D and E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition PXP shall meet the following requirements:

- (i) *VRS Use*: The vapor recovery/gas collection (VRGC) system shall be in operation when the equipment connected to the VRGC system at the facility is in use. The VRGC system includes piping, valves, and flanges associated with the VRGC system. The VRGC system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
  - (ii) *I&M Program*: The most current version of the APCD-approved *Rule 331 Inspection and Maintenance Plan* ( for Platform Harvest 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.
  - (iii) *Leak-Path Count*: The total leak-path component count listed in PXP most recent I&M component leak-path inventory shall not exceed the total leak-path component count listed in Table 5.1-1 by more than five-percent. This five-percent range is to allow for minor differences due to component counting methods and does not constitute allowable emissions growth due to the addition of new equipment.
  - (iv) *Venting*: All routine venting of hydrocarbons shall be routed to either the sales compressor, flare header, injection well or other APCD-approved control device.
  - (v) *Rule 331 BACT*: There are no components subject to BACT on Platform Harvest.
- (c) Monitoring: The equipment listed in this section are subject to all the monitoring requirements listed in APCD Rule 331.F. The test methods in Rule 331.H shall be used, when applicable.
- (d) Recordkeeping: The equipment listed in this section are subject to all the recordkeeping requirements listed in APCD Rule 331.G. In addition, PXP shall:
- (i) *I&M Log*: PXP shall record in a log the following: a record of leaking components found (including name, location, type of component, date of leak detection, the ppmv or drop-per-minute reading, date of repair attempts, method of detection, date of re-inspection and ppmv or drop-per-minute reading following repair); a record of the total components inspected and the total number and percentage found leaking by component type; a record of leaks from critical components; a record of leaks from components that incur five repair actions within a continuous 12-month period; and, a record of component repair actions including dates of component re-inspections.

For the purpose of the above paragraph, a leaking component is any component which exceeds the applicable limit (e.g., greater than 1,000 ppmv for minor leaks under Rule 331).

- (e) Reporting: The equipment listed in this section are subject to all the reporting requirements listed in APCD Rule 331.G. 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* (CVR) condition of this permit. As a separate and identifiable part of the Leak Summary table of each CVR, provide a copy of the

Recordkeeping requirements listed above for the Enhanced I&M Program. [Re: APCD Rules 331 and 1303, PTO 9103, 40 CFR 70.6]

C.5 **Supply Boats.** The following equipment are included in this emissions category:

<b>EQ Device No.</b>	<b>Name</b>
<i>Supply Boat</i>	
102906	Supply Boat Main Engines – Controlled (5,000 bhp total)
102906	Supply Boat Main Engines – Uncontrolled (5,000 bhp total)
102907	Supply Boat Auxiliary Engines (600 bhp total)
105054	Supply Bow Thruster (515 bhp total)
<i>Emergency Response Boat</i>	
105057	Emergency Response Main/Aux Engines (4,400 bhp total)
102769	Marine Survival Craft (62 Bhp)
102770	Marine Survival Craft (62 Bhp)
102771	Marine Survival Craft (36 Bhp)

- (a) **Emission Limits:** Mass emissions from the supply and emergency response boats listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit. In addition:
- (i) With the exception of the Santa Cruz, controlled emissions of NO<sub>x</sub> from each diesel fired main engine in each controlled crew boat and controlled supply boat shall not exceed 337 lb/1000 gallons (8.4 g/bhp-hr). Controlled emissions of NO<sub>x</sub> from each diesel fired main engine of the Santa Cruz shall not exceed 270 lb/gal (5.99 g/bhp-hr). Spot charter supply boats and emergency response (e.g., *Clean Seas*) boats shall not be required to comply with this controlled NO<sub>x</sub> emission rate. Compliance shall be based on annual source testing consistent with the requirements listed in Table 4.1 and permit Condition 9.C.19.
  - (ii) The combined emissions from all supply boats serving the OCS platforms in the Point PXP Project (Platforms Harvest, Hermosa and Harvest) shall not exceed the emission limits listed in Table 9.1 below. The emissions from the emergency response boat and survival craft are not included in Table 9.1

**Table 9.1  
Point Arguello Source Limit  
Supply Boat Emissions**

	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM</b>	<b>PM10</b>
lbs/day	1,246.30	44.70	184.74	90.05	74.93	71.93
tons/year	76.25	3.99	16.67	8.18	6.79	6.51

- (b) Operational Limits: Operation of the equipment listed in this section shall not exceed the limits listed below. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.
- (i) *Supply Boat Main Engine Limits*: The combined fuel use for all Point Arguello Project supply boat main engines shall not exceed: 1,967 gallons per day; 90,269 gallons per quarter; 361,254 gallons per year of diesel fuel.
  - (ii) *Supply Boat Auxiliary Engine Limits*: The combined fuel use for all Point Arguello Project supply boat auxiliary engines (generators and bow thruster) shall not exceed: 239 gallons per day; 9,784 gallons per quarter; 39,149 gallons per year of diesel fuel.
  - (iii) *Emergency Response Boat Engine Limits*: The emergency response boat engines shall not use more than: 20,000 gallons per quarter; 80,000 gallons per year of diesel fuel. The permittee's pro-rated allocation of allowable emergency response boat fuel usage shall not exceed: 5,000 gallons per quarter; 20,000 gallons per year of diesel fuel.
  - (iv) *Spot-Charter Limits*: The number of allowable annual spot charter supply boat trips shall not exceed ten-percent of the actual annual number of trips made by the controlled (i.e., primary) supply boats. A trip is defined as any time the boat makes a trip from port to the platform and back (i.e. a round trip).
  - (v) *Marine Survival Craft*. The marine survival craft shall be limited to 200 hours of operation per year.
  - (vi) *Liquid Fuel Sulfur Limit*: Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.0015 weight percent.
  - (vii) *New and Replacement Supply Boats*: The permittee may utilize any new/replacement project boat without the need for a permit revision if that boat meets the following conditions:
    - (1) The main engines are of the same or less bhp rating; and
    - (2) The combined pounds per day potential to emit (PTE) of all generator and bow thruster engines is the same or less than the sum of the pounds per day PTE for these engines as determined from the corresponding Table 5.1-3 emission line items of this permit; and
    - (3) The NO<sub>x</sub>, ROC, CO, PM and PM10 emission factors are the same or less for the main and auxiliary engines. For the main engines, NO<sub>x</sub> emissions must meet the 337 lb/1000 gallons emission standard.

The above criteria also apply to spot charter boats, except for the NO<sub>x</sub> emission standard noted in (3) above. Any proposed new/replacement supply or spot charter boat that does not meet the above requirements (1) - (3) shall first obtain a permit

revision prior to operating the boat. The APCD may require manufacturer guarantees and emission source tests to verify this NO<sub>x</sub> emission standard.

The permittee shall revise the Boat Monitoring and Reporting Plan, obtain APCD approval of such revisions and implement the revised Plan prior to bringing any new/replacement boat into service, except for the use of spot charters. If a new spot charter is brought into service then the permittee shall revise and resubmit the boat plan within thirty (30) calendar days after it is first brought into service. If the fuel metering and emissions computation procedures for a new spot charter are identical to a boat that is already addressed in the approved boat plan, a letter addendum stating this will suffice for the revision/resubmittal of the boat plan.

Prior to bringing the boat into service for the first time, the permittee shall submit the information listed below to the APCD for any new/replacement supply boat that meets the requirements set forth in (a) - (c) above, and for new spot charters that have not been previously used on the Point PXP project. For spot charters, this information shall be submitted within thirty (30) calendar days after the boat is first brought into service. The permittee shall notify the APCD (via fax or E-mail) within three (3) calendar days after a new spot charter is first brought into operation. Any boat put into service that does not meet the requirements above, as determined by the APCD at any time, shall immediately cease operations and all prior use of that boat shall be considered a violation of this permit.

- Boat description, including the type, size, name, engine descriptions and emission control equipment.
- Engine manufacturers' data on the emission levels for the various engines and applicable engine specification curves.
- A quantitative analysis using the operating and emission factor assumptions given in tables 5.1-1 and 5.1-2 of this permit that demonstrates criteria (b) above is met.
- Estimated fuel usage within 25-miles of Platform Harvest.
- Any other information the APCD deems necessary to ensure the new boat will operate consistent with the analyses that form the basis for this permit.

(viii) *Availability of Maintenance Logs*: Upon request, the permittee shall make available to the APCD engine maintenance logs that include: details on injector timing, setting adjustments, major engine overhauls, and routine engine maintenance.

(c) Monitoring: PXP shall comply with the following requirements:

(i) *Boat Use Monitoring*: The permittee shall comply with the requirements of the most current version of the APCD's *Data Reporting Protocol for Crew and Supply Boat Activity Monitoring* document (dated June 21, 1991 and any subsequent updates) for

documenting and reporting boat activity, fuel usage and emissions associated with the platform. Boats reporting emissions based on cruise mode only shall not be required to comply with the protocol requirements for boat speed, engine rpm, mode or activity code.

The permittee shall implement the most current version of the APCD-approved *Boat Monitoring and Reporting Plan*. This plan shall be used for measuring, calculating, and reporting fuel use and emissions for all boats servicing the Point PXP Project. The data collected and reported shall demonstrate that the boats are being operated consistent with the emission assumptions used in the issuance of this operating permit. Spot charter boats shall, at a minimum, track total fuel usage on a per trip basis using APCD-approved procedures. Emergency response boats shall, at a minimum, track fuel usage on a quarterly basis using APCD-approved procedures. These data shall be submitted in an APCD-approved format to the APCD.

- (ii) *Source Testing*: Source testing of the supply boat main engines shall occur on an annual basis. PXP shall perform source testing of air emissions and process parameters consistent with the requirement of the *Source Testing* permit condition below.
- (d) Recordkeeping: The following records shall be maintained in legible logs and shall be made available to the APCD upon request:
  - (i) *Maintenance Logs*: Maintenance log summaries that include details on injector timing, setting adjustments, major engine overhauls, and routine engine maintenance. These logs and summaries shall be made available to the APCD upon request.
  - (ii) *Supply Boat Fuel Usage*: Daily, quarterly and annual fuel use for the supply boat main engines, generator engine and bow thruster engine.
  - (iii) *Emergency Response Boat Fuel Usage*: Total quarterly and annual fuel use for the emergency response boat and Platform Harvest's allocation of that total.
  - (iv) *Spot Charters*: The name of each spot charter boat used and the number of round trips.
  - (v) The sulfur content of each fuel shipment as documented by fuel supplier records (e.g. billing vouchers or bills of lading). On an annual basis, the heating value of the diesel fuel (Btu/gal) shall be recorded based on measurement by PXP or certified by the fuel supplier.
- (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 1303, PTO 9103, ATC/PTO 9883, 40 CFR 70.6]

C.6. **Pigging Equipment.** The following equipment are included in this emissions category:

<b>EQ Device No.</b>	<b>Name</b>
102815	Oil Pig Launcher
102816	Gas Pig Launcher

- (a) Emission Limits: Mass emissions from the oil and gas pig launchers listed above shall not exceed the limits listed in Tables 5.1-3 and 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 compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition, PXP shall adhere to the following requirements:
  - (i) *Events*: The number of oil and gas pig operations (events) shall not exceed the maximum operating schedule listed in Table 5.1-1.
  - (ii) *Pressure*: The pig launchers shall be depressurized to the flare prior to each hatch opening to the maximum extent feasible, but at no time shall the pig launcher hatches be opened when the pressure in the launchers is greater than 1 psig. Pressure readings shall be recorded prior to each opening of the launchers.
  - (iii) *Openings*: Access openings to the pig launchers shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the launchers or during equipment inspection and maintenance. Prior to opening the pig launchers, the vessel shall be purged with either sweet fuel gas (not to exceed 50 ppmv total sulfur content calculated as H<sub>2</sub>S at standard conditions), nitrogen or water.
- (c) Monitoring: For all pigging events, pig launcher pressure shall be monitored by a pressure gauge at the pig launcher. Additionally, the APCD may request pig launcher gas sample analyses as necessary.
- (d) Recordkeeping: PXP shall record in a log each pigging operation. The log shall include the date and pigging unit used (e.g., oil or gas), and the pressure gauge reading.
- (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 permit condition 9.C.6 (d) above.

[Re: APCD Rules 325 and 1303, PTO 9103-06, 40 CFR 70.6]

C.7 **Tanks/Sumps/Separators.** The following equipment are included in this emissions category:

<b>EQ Device No.</b>	<b>Name</b>	<b>KVB Service</b>
<i>Sumps And Wastewater Tanks</i>		
005394	Skim Pile	Heavy Oil
005395	Skim Pile	Heavy Oil
<i>Oil/Water Separators</i>		
005397	Flotation Cell	Heavy Oil

- (a) Emission Limits: Mass emissions from the equipment listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit.
- (b) Operational Limits: Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition, PXP shall:
- (i) *VRS Use*: The vapor recovery systems shall be in operation when the equipment connected to the VRS system at the facility are in use. The VRS system includes piping, valves, and flanges associated with each VRS system. Each VRS system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
  - (ii) *Vapor Recovery System Efficiency*: The vapor recovery system shall maintain a minimum efficiency of 90-percent (mass basis).
  - (iii) *Air Flotation Cell*: The flotation cell unit shall not process more than 2.10 million gallons per day and 766.50 million gallons per year.
- (c) Temporary Use of Flotation Cell (Wemco) Replacements. The flotation cell may be replaced temporarily only if requirements (i - iv) listed below are satisfied.
- (i) The permitted unit is in need of routine repair or maintenance.
  - (ii) The permitted unit that is undergoing routine repair or maintenance is returned to its original service within 60 days of placement of the temporary unit. For good cause, and with advance written APCD approval, this time period may be extended.
  - (iii) The temporary unit has the same or lower potential to emit of each pollutant as the permitted flotation cell that is being temporarily replaced.
  - (iv) The temporary replacement unit shall comply with all rules and permit requirements that apply to the permitted unit that is undergoing routine repair or maintenance.
  - (v) Within three days of temporarily replacing a permitted unit, the permittee shall notify the APCD project manager E-mail or fax. The notification shall include the date the temporary unit was installed, the specifications of the temporary flotation cell (Wemco unit), and the number of days anticipated for use.

(vi) Within 14 days upon return of the original permitted unit to service, the permittee shall notify by E-mail or fax the APCD project manager of the date that the temporary unit was removed from the platform along with the highest daily (gallons /day) throughput for the temporary unit.

Any flotation cell (Wemco unit) in temporary replacement service shall be immediately shut down if the APCD determines that the requirements of this condition have not been met.

(d) **Monitoring:** The equipment listed in this section are subject to all the monitoring requirements of APCD Rule 325.H. The test methods outlined in APCD Rule 325.G shall be used, as applicable. In addition, PXP shall:

(i) Analyze the process streams listed the *Process Stream Sampling and Analysis* permit condition below.

(e) **Recordkeeping:** The equipment listed in this section is subject to all the recordkeeping requirements listed in APCD Rule 325.F. In addition, PXP shall maintain logs for the information listed below. These logs shall be made available to the APCD upon request:

(i) On a monthly basis, the total oil emulsion and produced gas production along with the number of days per month of production

(ii) Process stream analyses data as required from the *Process Stream Sampling and Analysis* permit condition.

(iii) On a daily basis, the amount of oily water processed in the permitted air flotation cell, as well as any temporary air floatation cell, in units of gallons.

(f) **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: APCD Rules 325 and 1303, PTO 9103, 40 CFR 70.6]

C.8 **Solvent Usage:** The following equipment are included in this emissions unit category:

EQ Device No.	Name
102913	Cleaning/Degreasing

(a) **Emission Limits:** Mass emissions from the solvent usage shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance shall be based on the operational, recordkeeping and reporting requirements of this permit. For short-term emissions, compliance shall be based on monthly averages.

(b) **Operational Limits:** Use of solvents for cleaning, degreasing, thinning and reducing shall conform to the requirements of APCD Rules 317, 321 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and

reporting conditions in this permit and facility inspections. In addition, PXP shall comply with the following:

- (i) *Containers*: Vessels or containers used for storing materials containing organic solvents shall be kept closed unless adding to or removing material from the vessel or container.
  - (ii) *Materials*: All materials that have been soaked with cleanup solvents shall be stored, when not in use, in closed containers that are equipped with tight seals.
  - (iii) *Solvent Leaks*: Solvent leaks shall be minimized to the maximum extent feasible or the solvent shall be removed to a sealed container and the equipment taken out of service until repaired. A solvent leak is defined as either the flow of three liquid drops per minute or a discernable continuous flow of solvent.
  - (iv) *Reclamation Plan*: Any disposal of any reclaimed solvent shall be in accordance with the most current version of the APCD-approved *Point PXP Solvent Reclamation Plan*. All solvent disposed of pursuant to the Plan will have the appropriate solvent recovery factor for solvent use recordkeeping.
- (c) Monitoring: none
- (d) Recordkeeping: PXP shall record in a log the following on a monthly basis for each solvent used: amount used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed for APCD-approved disposal; 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 on the platform
- (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: APCD Rules 317, 321, 324 and 1303, PTO 9103, 40 CFR 70.6]

C.9 **Helicopter Use.** The following equipment is included in this emissions unit category:

EQ Device No.	Name
005573	Helicopters

- (a) Emission Limits: None.
- (b) Operational Limits: None
- (c) Monitoring: None

- (d) **Recordkeeping:** Manual records shall be maintained for all helicopters. Records shall be maintained at a readily accessible location for a period of two years, and the APCD shall be notified of such location. The format of the manual records shall be as follows:
- (i) Helicopter description, including the type, size, name, and home base.
  - (ii) Make, model and horsepower of engine.
  - (iii) Date, flight time, and segment description of each flight.
- (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. The following shall be included in the report:
- (i) Helicopter model.
  - (ii) Frequency and description of flight segment.
  - (iii) Total NOx and ROC emissions for each segment type, as well as total emissions for the reporting period. Helicopter emissions shall be calculated by multiplying the total number of each segment by the standard emissions per segment presented in Attachment 10.4 or other more representative emission factors. [Re: PTO 9103 40 CFR 70.6]

C.10 **Standby/Emergency Diesel IC Engines.** The following equipment are included in this emissions unit category:

Device ID #	Device Name
005003	IC Engine: Emergency Generator A
005004	IC Engine: Emergency Generator B
005005	IC Engine: Emergency Firewater Pump A
005006	IC Engine: Emergency Firewater Pump B

- (a) **Emission Limits:** Emissions from these engines shall not exceed the emission limit standards (emission factors) listed in Table 5.1-2 or the mass limits 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. These limits are based on the maintenance and testing operational limits listed in permit condition C.1(b)(i) below.
- (b) **Operational Limits:** The equipment permitted herein is subject to the following operational restrictions listed below. Emergency use operations, as defined in Section (d)(25) of the ATCM<sup>6</sup>, have no operational hours limitations.

<sup>6</sup> 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

- (i) *Maintenance & Testing Use Limit:* The stationary emergency standby diesel-fueled CI engine(s) subject to this permit, shall limit maintenance and testing<sup>7</sup> operations to no more than 2 hours per day and 200 hours per year.
  - (ii) *Fuel and Fuel Additive Requirements:* The permittee may only add CARB Diesel, or an alternative diesel fuel that meets the requirements of the ATCM Verification Procedure, or CARB Diesel fuel used with additives that meet the requirements of the ATCM Verification Procedure, or any combination of the above to the engine or any fuel tank directly attached to the engine.
- (c) Monitoring: The equipment permitted herein is subject to the following monitoring requirements:
- (i) *Non-Resettable Hour Meter:* Each stationary diesel-fueled CI engine(s) subject to this permit 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. 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 all uses other than for emergency use and maintenance and testing, along with a description of what those hours were for.
  - (iv) Fuel purchase records or a written statement on the fuel supplier's letterhead signed by an authorized representative of the company confirming that the fuel purchased is 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 (*Reference Stationary Diesel ATCM and Title 13, CCR, Sections 2281 and 2282*).
  - (v) The sulfur content of each fuel shipment as documented by fuel supplier records (e.g. billing vouchers or bills of lading). On an annual basis, the heating value of the diesel fuel (Btu/gal) shall be recorded based on measurement by DCOR or certified by the fuel

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<sup>7</sup> "maintenance and testing" is defined in Section (d)(41) of the ATCM

supplier.

- (e) **Temporary Engine Replacements - DICE ATCM.** Any reciprocating internal combustion engine subject to this permit and the stationary diesel ATCM may be replaced temporarily only if the requirements (i - vii) listed herein are satisfied:

(i) The permitted engine is in need of routine repair or maintenance;

(ii) The permitted engine that is 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 each permitted 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](mailto:temp-engine@sbcapcd.org) or may be transmitted in hardcopy to the ECD Engineering Supervisor;

(vi) Within 14 days upon return of the original permitted 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](mailto:temp-engine@sbcapcd.org) or may be transmitted in hardcopy to the ECD Engineering Supervisor;

(vii) 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.

- (f) **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) of the ATCM shall notify the APCD immediately upon detection of the violation and shall be subject to APCD enforcement action.

- (g) **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) from all or part of the requirements of Section (e)(2), 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.
- C.11 **Offsets - General.** PXP shall comply with the procedures and requirements specified in Section 7.3 (Offset Requirements) and offset all planned flaring emissions of SO<sub>x</sub> (as SO<sub>2</sub>) for flare gas compositions exceeding 239 ppmvd (as H<sub>2</sub>S). Emission Reduction Credits (ERCs) sufficient to offset the annual SO<sub>x</sub> emissions as specified in Table 7.3-1 shall be in place for the life of the project.
- C.12 **Offsets - Platform Harvest Crude Stabilization Project.** PXP shall offset all reactive organic compound (ROC) emissions pursuant to Table 7.3-2 that result from the Platform Harvest Crude Stabilization Project. Emission reduction credits (ERCs) sufficient to offset the permitted quarterly ROC emissions shall be in place for the life of the crude stabilization project.
- C.13 **CEM Reporting.** Semi-annual CEMS reports shall be submitted to the APCD in conjunction with the required Compliance Verification Reports. Data shall be reported consistent with the approved CEM Plan and (at a minimum) must include the following:
- Data summaries for each parameter as per the APCD-approved CEM plan
  - Monitor downtime summary, including explanation and corrective action
  - Quarterly data capture calculations and summary results
  - Report on compliance with permit requirements, including any corrective action taken
  - A report summarizing the number of times the NO<sub>x</sub> ppmv value exceeded 4 ppmv and any lb/hr limit exceedances detected by the CEM, except during startup and shutdown.
- C.14 **Facility Throughput Limitations.** Platform Harvest production shall be limited to a monthly average of 60,000 barrels of oil per day; 50,000 barrels of water per day and 50 million standard cubic feet of produced gas per day. PXP shall record in a log the volumes of oil emulsion and gas produced and the actual number of days in production per month. The above limits are based on actual days of operation during the month. [*Re: PTO 9103*]
- C.15 **Produced Gas.** PXP shall direct all produced gases to the sales compressors, the flare header or other permitted control device when de-gassing, purging or blowing down any oil and gas well or tank, vessel or container that contains reactive organic compounds or reduced sulfur compounds due to activities that include, but are not limited to, process or equipment turnarounds, process upsets (e.g., well spikes), well blow down and MMS ordered safety tests. [*Re: APCD Rules 325, 331, PTO 9103*]
- C.16 **Diesel IC Engines - Particulate Matter Emissions.** To ensure compliance with APCD Rules 205.A, 302, 304, 309 and the California Health and Safety Code Section 41701, PXP shall implement manufacturer recommended operational and maintenance procedures to ensure that all project diesel-fired engines minimize particulate emissions. PXP shall implement the most current version of the APCD-approved *IC Engine Particulate Matter Operation and Maintenance Plan* for the life of the project. This Plan details the manufacturer recommended

maintenance and calibration schedules that PXP will implement. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment shall be utilized. All project diesel-fired engines, regardless of exemption status, shall be included in this Plan. [Re: APCD Rules 205.A, 302, 304, 309, PTO 9103]

C.17 **Abrasive Blasting Equipment.** All abrasive blasting activities performed on Platform Harvest shall comply with the requirements of the California Administrative Code Title 17, Sub-Chapter 6, Sections 92000 through 92530. [Re: APCD Rules 303, PTO 9103]

C.18 **Process Monitoring Systems - Operation and Maintenance.** All platform process monitoring devices listed in Section 4.10 of this permit shall be properly operated and maintained according to manufacturer recommended specifications. PXP shall implement the most current version of the APCD-approved *Process Monitor Calibration and Maintenance Plan* for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment is utilized. [Re: PTO 9103]

C.19 **Source Testing.** The following source testing provisions shall apply:

(a) The permittee shall conduct source testing of air emissions and process parameters listed in Table 4.1 of this Permit to Operate. More frequent source testing may be required if the equipment does not comply with permitted limitations or if other compliance problems, as determined by the APCO, occur.

- Source testing of the supply boat main engines shall occur on an annual basis. The supply boat engines shall be tested at normal cruise speeds (minimum of 70-percent of maximum engine load).
- Source testing of the crane engines shall be performed on a biennial schedule. The crane engines shall be loaded to the maximum safe load obtainable.
- Source testing of the turbines shall be conducted on an annual basis. During each annual source test, one turbine shall be tested while operating at maximum load and the remaining three turbines will be tested at "historical" based on the prior year's usage. The turbine tested at maximum load for subsequent annual tests will rotate to each turbine with the remaining turbines being tested at "historical" loads. Exceptions, as described in Condition 9.C.2, from annual turbine source testing shall apply to this permit.

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

- (c) Source test results shall be submitted to the APCD within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results shall document the permittee's compliance status with BACT requirements, mass emission rates in Section 5 and applicable permit conditions, rules and NSPS (if applicable). All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by the permittee as provided for by APCD Rule 210.
- (d) 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. If the test can not be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the APCD. 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. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without APCD's authorization shall constitute a violation of this permit. 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.

The timelines in (a), (b), and (c) above may be extended for good cause provided a written request is submitted to the APCD at least three (3) days in advance of the deadline, and approval for the extension is granted by the APCD.

- C.20 **Process Stream Sampling and Analysis.** PXP shall sample and analyze the process streams listed in Section 4.12 of this permit according to the methods and frequency detailed in that Section. All process stream samples shall be taken according to APCD approved ASTM methods and must follow traceable chain of custody procedures. [*Re: APCD Rules 325, 331, 333, PTO 9103*]
- C.21 **Recordkeeping.** All records and logs required by this permit and any applicable APCD, state or federal rule or regulation shall be maintained for a minimum of five calendar years from the date of information collection and log entry at the platform. These records or logs shall be readily accessible and be made available to the APCD upon request. [*Re: APCD Rule 1303, PTO 9103, 40 CFR 70.6*]
- C.22 **Semi-Annual Compliance Verification Reports.** Twice a year, PXP 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<sup>st</sup>. The second report shall cover calendar

quarters 3 and 4 (July through December) and shall be submitted no later than March 1<sup>st</sup>. 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. The report shall include the following information:

(a) *Internal Combustion Engines.*

- (i) The daily, quarterly and annual fuel use for each pedestal crane in units of gallons, and resultant mass emissions for each.
- (ii) The monthly and cumulative annual hours of operation for each firewater pump and each emergency power generator (by ID number), and resultant mass emissions for each.
- (iii) Description of any temporary equipment, including type and horsepower. The amount and type of fuel consumed per month (for equipment using fuel as a basis for emission calculations) and the number of hours each equipment item operated each month, and resultant mass emissions for each.
- (iv) Results of the quarterly Rule 333 portable NO<sub>x</sub> analyzer readings.
- (v) Total sulfur content of each diesel fuel shipment. Annually, the higher heating value of the diesel fuel (Btu/gal).
- (vi) Summary results of all compliance emission source testing performed.
- (vii) For Standby/Emergency Diesel IC Engines:
  - (a) emergency use hours of operation;
  - (b) maintenance and testing hours of operation
  - (c) hours of operation for all uses other than for emergency use and maintenance and testing, along with a description of what those hours were for.
  - (d) written statement from fuel supplier if provided in lieu of fuel use records.

(b) *Turbines:* PXP shall provide daily and monthly summaries of each parameter listed below for each turbine. These summaries shall include the average daily values for each process parameter specified, and the total NO<sub>x</sub> and ROC emissions for each day of the calendar month.

- (i) Date and time of reading.
- (ii) Kilowatts (generators only).

- (iii) Fuel rate, including diesel (generators only) and the fuel gas.
  - (iv) Water rate.
  - (v) For each turbine requiring water injection, the total cumulative time for each quarter that the water to fuel ratio fell below 0.75 for turbine generators operating on fuel gas, below 1.00 for turbine generators running on diesel fuel, and below 0.80 for turbine compressors running on fuel gas, and for each turbine, the total cumulative time water was required to be injected and the annual (calendar) percentage of time that water was injected while the turbines operated above 350 scfm fuel gas or 3.0 gpm diesel fuel.
  - (vi) Mass emissions for each turbine
  - (vii) Summary results of all compliance emission source testing performed.
  - (viii) ADGS failures and downtime. PXP shall report the reasons for the ADGS system failures and the measures taken to correct each failure. Emissions during ADGS downtime shall be determined by using the average hourly emission rate (determined by dividing the total emissions by the actual operating time during which the ADGS was operational for that calendar quarter), times the number of hours of ADGS downtime.
- (c) *Flare.*
- (i) The volumes of gas combusted and resultant mass emissions for each flare category (i.e., Purge/Pilot; Planned –Continuous; Planned Other; Unplanned), shall be presented as a cumulative summary for each day, quarter and year.
  - (ii) The sulfur content (ppm<sub>v</sub>) for each planned (continuous) flaring event.
  - (iii) A listing of all infrequent flaring events that exceed 4 events per year from the same cause from the same processing unit or equipment type.
  - (iv) The highest total sulfur content and hydrogen sulfide content observed each week in the flare header.
  - (v) The monthly total sulfur content of flare purge and pilot fuel gas.
- (d) *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) Mass emissions from fugitive hydrocarbons.
  - (viii) Listing of components installed as BACT under APCD Rule 331 as approved by the APCD.
- (e) *Supply Boats:*
- (i) Daily, quarterly and annual fuel use for the supply boat main engines and auxiliary engines while operating within 25-miles of Platform Harvest, itemized by regular supply boat (controlled ICE) usage and spot charter/emergency response boat (uncontrolled ICE) usage, and resultant mass emissions for each.
  - (ii) The sulfur content of each delivery of diesel fuel used by the supply boats.
  - (iii) Information regarding any new project boats servicing PXP's OCS platforms as detailed in Permit Condition 9.C.5 above.
  - (iv) If requested by the APCD staff, maintenance log summaries including details on injector type and timing, setting adjustments, major engine overhauls, and routine engine tune-ups. For spot charters this shall be provided as available.
  - (v) The number of boat trips made (a) by the supply boats and (b) by the spot charter supply boats, both itemized by the trip dates and the boat names.
  - (vi) Summary results of all compliance emission source testing performed.
- (f) *Pigging:* For each pig receiver and launcher, the number of pigging events per day, quarter and year and resultant mass emissions.
- (g) *Tanks/Sumps/Separators:*
- (i) On a daily basis, the amount of oily water processed in each floatation cell unit, in units of gallons.
  - (ii) Process stream analyses data as required from the *Process Stream Sampling and Analysis* permit Condition 9.C.19.
- (h) *Helicopters.*

- (i) Helicopter model.
  - (ii) Frequency and description of flight segment.
  - (iii) Total NO<sub>x</sub> and ROC emissions for each segment type, as well as total emissions for the reporting period.
- (i) *Solvent Usage*: On a monthly basis: the amount of solvent used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed; whether the solvent is photochemically reactive; and, the resulting emissions of ROC and photochemically reactive solvents to the atmosphere in units of pounds per month.
- (j) *General Reporting Requirements*:
- (i) On a monthly basis, the total oil emulsion and produced gas production along with the number of days per month of production.
  - (i) On quarterly basis, the emissions from each permitted emission unit for each criteria pollutant.
  - (ii) On quarterly basis, the emissions from each exempt emission unit for each criteria pollutant.
  - (iii) On quarterly basis, PXP shall submit data for CEM downtime and CEM detected excess emissions in a format approved by the APCD.
  - (iv) 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.
  - (v) The produced gas, produced oil, fuel gas, and produced wastewater process stream analyses as required by condition 9.C.19 of this permit. Process stream analyses per Section 4.12.
  - (vi) Breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence.
  - (vii) Helicopter trips (by type and trip segments with emission calculations)
  - (viii) On an annual basis, the ROC and NO<sub>x</sub> emissions from all permit exempt activities.
  - (ix) Tons per quarter totals of all pollutants (by each emission unit). The third/fourth quarter report shall include tons per year totals for all pollutants (by each emission unit).
  - (x) A copy of the Rule 202 De Minimis Log for the stationary source. [*Re: PTO 9103*]

- C.23 **Emergency Episode Plan.** PXP shall implement the most recently issued version of the APCD-approved Emergency Episode Plan during emergency episodes. [Re: APCD Rule 1303, PTO 9104]
- C.24 **Permitted Equipment.** Only those equipment items listed in Attachment 10.3 are covered by the requirements of this permit and APCD Rule 201.B. [Re: APCD Rule 1303, PTO 9103]
- C.25 **Mass Emission Limitations.** Mass emissions for each equipment item (i.e., emissions unit) associated with Platform Harvest shall not exceed the values listed in Tables 5.1-3 and 5.1-4. Emissions for the entire facility shall not exceed the total limits listed in Table 5.2. [Re: APCD Rule 1303, PTO 9103, 40 CFR 70.6]
- C.26 **Documents Incorporated by Reference.** PXP shall implement, and operate in accordance with, each of the plans listed below. 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 of this operating permit:
- a) *Purging and Inerting Procedures Plan ( approved December 2002)*
  - b) *Boat Monitoring and Reporting Plan (approved September 2002)*
  - c) *Rule 333 Inspection and Maintenance Plan (approved September 2002)*
  - d) *Turbine ADGS Quality Assurance Plan (approved August 2007)*
  - e) *Rule 359 Flare Minimization Plan (approved September 2002)*
  - f) *Fugitive I&M Plan (approved September 2002)*
  - g) *Diesel IC Engine Particulate Matter Operation and Maintenance Plan (approved September 2002)*
  - h) *Process Monitor Calibration and Maintenance Plan (approved December 2002)*
  - i) *Fuel Gas Sulfur Reporting Plan (approved December 2002)*
  - j) *Flare Gas Sulfur Reporting Plan (approved December 2002)*
  - k) *Continuous Monitoring Monitoring System (CEMS)Plan (August 2007)*
  - l) *Emergency Episode Plan (approved February 2005)*

**9.D APCD-Only Conditions**

The following section lists permit conditions that are not enforceable by the USEPA or the public. However, these conditions are enforceable by the APCD and the State of California. These conditions are issued pursuant to APCD Rule 206 (*Conditional Approval of Authority to Construct or Permit to Operate*), which states that the Control Officer may issue an operating permit subject to specified conditions. Permit conditions have been determined as being necessary for this permit to ensure that operation of the facility complies with all applicable local and state air quality rules, regulations and laws. Failure to comply with any condition specified pursuant to the provisions of Rule 206 shall be a violation of that rule, this permit, as well as any applicable section of the California Health & Safety Code.

→ There are no permit conditions that are APCD-only enforceable for this permit ←

**AIR POLLUTION CONTROL OFFICER**

\_\_\_\_\_  
\_\_\_\_\_  
Date

Notes:

- a. Permit Reevaluation Due Date: July 2011
- b. Part 70 Operating Permit Expiration Date: July 2011

J. Menno _____ AQ Engineer	July 2008 _____ Date	_____ Engineering Supervisor	_____ Date
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## **Attachments**

- 10.1 Emission Calculation Documentation**
- 10.2 IDS Tables**
- 10.3 Equipment List**
- 10.4 Helicopter Emission Tables**
- 10.5 PXP Comments on Draft Permit/ACPD Response**

# ATTACHMENT 10.1. Emission Calculation Documentation

## Reference A - Combustion Engines

- The maximum operating schedule is in units of hours
- The default diesel fuel #2 characteristics are:
  - density = 7.043 lb/gal (36°API)
  - LHV = 18,410 Btu/lb (129,700 Btu/gal)
  - HHV = 19,620 Btu/lb (138,200 Btu/gal)
- BSFC (Caterpillar 3408 B engine) = 6,962 Btu/hp-hr  
energy based value using LHV  
engine specification = 27 gal/hr
- BSFC (Caterpillar 3306 engine) = 7,446 Btu/hp-hr  
energy based value using LHV  
engine specification = 15.5 gal/hr
- Emission factor units (lb/MMBtu) are based on HHV.
- FCF (LHV to HHV) value of 6 percent used.
- NO<sub>x</sub> emission factor based on District Rule 333 limit (8.4 g/bhp-hr)  
 $E_{\text{lb/MMBtu}} = [(8.4 \text{ g/bhp-hr}) \times (10^6)] / [(BSFC) \times 1.06 \times 453.6]$
- ROC, CO and PM emission factors based on USEPA AP-42, Table 3.3-1 (7/93)
- SO<sub>x</sub> emissions based on mass balance  
 $SO_x \text{ (as SO}_2\text{)} = (\%S) \times (\rho_{\text{oil}}) \times (20,000) / (HHV)$
- Allowable sulfur content of 0.0015% wt.
- PM<sub>10</sub>:PM ratio = 0.96; ROC:TOC ratio = 1.0
- Crane engine operational limits: General Equation

$$Q = (BSFC) \times (\text{bhp}) \times (LCF) \times (\text{hours/time period}) / (HHV, \text{ Btu/gal})$$

CR-800A and CR-800B Crane Engines (each engine):

$$Q = (6,962 \text{ Btu/bhp-hr}) \times (503 \text{ bhp}) \times (1.06) \times (24 \text{ hours/day}) / (138,200 \text{ Btu/gal}) \\ = 645 \text{ gallons per day}$$

$$Q = (6,962 \text{ Btu/bhp-hr}) \times (503 \text{ bhp}) \times (1.06) \times (1,365 \text{ hours/qtr}) / (138,200 \text{ Btu/gal}) \\ = 36,664 \text{ gallons per quarter}$$

$$Q = (6,962 \text{ Btu/bhp-hr}) \times (503 \text{ bhp}) \times (1.06) \times (2,080 \text{ hours/yr}) / (138,200 \text{ Btu/gal}) \\ = 55,868 \text{ gallons per year}$$

CR-801 Crane Engine:

$$Q = (7,446 \text{ Btu/bhp-hr}) \times (270 \text{ bhp}) \times (1.06) \times (24 \text{ hours/day}) / (138,200 \text{ Btu/gal}) \\ = 370 \text{ gallons per day}$$

$$Q = (7,446 \text{ Btu/bhp-hr}) \times (270 \text{ bhp}) \times (1.06) \times (1,365 \text{ hours/qtr}) / (138,200 \text{ Btu/gal}) \\ = 21,048 \text{ gallons per quarter}$$

$$Q = (7,446 \text{ Btu/bhp-hr}) \times (270 \text{ bhp}) \times (1.06) \times (2,080 \text{ hours/yr}) / (138,200 \text{ Btu/gal}) \\ = 32,074 \text{ gallons per year}$$

**Reference B - Combustion Flare**

- The maximum operating schedule for the purge/pilot gas and planned continuous flaring is in units of hours
- The maximum operating schedule for the planned other and unplanned flaring is in units of percentage of annual usage
- Purge and pilot, planned, planned (continuous), and unplanned flow rate reported PXP
- HHV = 1,200 for purge and pilot gas; HHV = 1,816 Btu/scf for all other flare gas
- Planned intermittent (other) and unplanned flaring events not calculated for short-term events per District policy
- "Planned continuous flaring" value based on one-half the minimum detection limit of the flare meter for both high pressure and low pressure flares:
  - Flare meter: FCI
  - Minimum flow detection limit of high pressure flow element: 0.336 fps
  - Minimum flow detection limit of low pressure flow element: 0.329 fps
  - Flare header diameter: HP diameter = 15.25 inches;
  - LP diameter = 17.25 inches
  - Minimum detection limit: HP flare = 1,534 scfh; LP flare = 1,922 scfh
  - Half minimum detection limit: HP flare = 767 scfh; LP flare = 961 scfh
  - Calculation spreadsheet backs out the purge volumes
  - HP purge rate = 1,250 scfh
  - LP purge rate = 1,000 scfh
  - Combined HP/LP pilot rate = 100 scfh
- No planned continuous flaring assessed as the LP and HP flare purge is greater than half the minimum detect value of each meter. All purge and pilot emissions (2,350 scfh for both flares) based on propane sulfur limit (165 ppmv S); SO<sub>x</sub> emissions from the remainder of flaring events 10,000 ppmv S.
- The same emission factors are used for all flaring scenarios, except SO<sub>x</sub>
- NO<sub>x</sub>, ROC and CO emission factors based on USEPA AP-42, Table 11.5-1 (9/91)

- PM emission factor based on District Flare Study - Phase I Report, Table 3.1.1 (7/91)
- ROC:TOC ratio = 0.86; PM<sub>10</sub>:PM ratio = 1.0
- SO<sub>x</sub> emissions based on mass balance  

$$\text{SO}_x \text{ (as SO}_2\text{)} = (0.169) \times (\text{ppmv S}) / (\text{HHV})$$

### **Reference C - Fugitive Components**

- The maximum operating schedule is in units of hours.
- All safe to monitor components are credited an 80-percent control efficiency. Unsafe to monitor components (as defined in Rule 331) are considered uncontrolled.
- The component leak path definition differs from the Rule 331 definition of a component. A typical leak path count for a valve would be equal to 4 (one valve stem, a bonnet connection and two flanges).
- Leak path counts are provided by applicant. The total count has been verified to be accurate within 5 percent of the District's P&ID and platform review/site checks.
- Emission factors based on the District/Tecolote Report, *Modeling of Fugitive Hydrocarbon Emissions* (1/86), Model B.

### **Reference D - Supply Boats**

- The maximum operating schedule is in units of hours.
- Supply boat engine data based on a composite of the *M/V Victory Seahorse* and *M/V Santa Cruz*, with the largest engines on each boat used in the emission calculations.
- Two 2,500 bhp main engines (i.e., 5,000 bhp), two 300 bhp generator engines (i.e., 600 bhp) and one 515 bow thruster engine are utilized.
- Main engine load factor based on District *Crew and Supply Boat* study (6/87).
- Supply boat bow thruster engine only operates during maneuver mode.
- Supply boat generator engines provide half of total rated load; one generator engine operating continuously.
- The District has standardized the total time a supply boat operates (per trip) within 25 miles of platform to 11 hours. Typical trip is: 8 hours cruise, 2 hours maneuver and 1 hour idle. A trip includes time to, from and at the platform. Annual time based on 167 controlled trips. Spot-charter trips add about 184 hours.
- Main engine emission factors are based only on cruise mode values.

- *M/V Victory Seahorse* main engines achieve a controlled NO<sub>x</sub> emission rate of 8.4 g/bhp-hr through the use of turbo-charging, enhanced inter-cooling and 4° timing retard. This emission factor equates to 337 lb/1000 gallons.

$$EF_{NO_x} = (8.4 \text{ g/bhp-hr}) / (0.055 \text{ gal/bhp-hr}) / (453.6 \text{ g/lb}) \times (1,000)$$

*M/V Santa Cruz* main engines achieve a controlled NO<sub>x</sub> emission rate of 5.99 g/bhp-hr through the use of turbo-charging, enhanced inter-cooling and 4° timing retard. This emission factor equates to 270 lb/gal.

$$EF_{NO_x} = (5.99 \text{ g/bhp-hr}) / (0.055 \text{ gal/bhp-hr}) / (453.6 \text{ g/lb}) \times (1,000)$$

- Spot charter supply boat usage limited to 10 percent of actual annual controlled supply boat usage.
- Spot charter and Emergency Response vessels are uncontrolled for NO<sub>x</sub>.
- Uncontrolled NO<sub>x</sub> emission factor for main engines based on NO<sub>x</sub> emission rate of 14 g/bhp-hr. This emission factor equates to 561 lb/1000 gallons:

$$EF_{NO_x} = (14 \text{ g/bhp-hr}) / (0.055 \text{ gal/bhp-hr}) / (453.6 \text{ g/lb}) \times (1,000)$$

- Uncontrolled ROC and CO emission factors for the main engines are based on USEPA AP-42, Volume II, Table II-3.3 (1/75) {cruise factor, 2500 bhp engine}.
- PM emission factor for the main engines are based on *Kelly, et. al.* (1981).
- PM<sub>10</sub>:PM ratio = 0.96; ROC:TOC ratio = 1.0
- Sulfur content basis of 0.0015 wt %
- All SO<sub>x</sub> emissions based on mass balance:

$$SO_x \text{ (as } SO_2) = (\%S) \times (\rho_{oil}) \times (20,000) / (HHV)$$

- Auxiliary and bow thruster engine emission factors (uncontrolled) are based on USEPA AP-42, Table 3.3-1 (7/93). Table emission factors converted to fuel basis using:

$$EF_{lb/1000 \text{ gal}} = (EF_{lb/MMBtu}) \times (19,300 \text{ Btu/lb}) \times (7.05 \text{ lb/gal}) / (1,000)$$

- Spot charter engine set-up assumed to be equal to main supply boat.
- Emergency response vessel is permanently assigned to Torch Platform Irene and PXP Platforms Hermosa, Hidalgo and Harvest. Vessel data provided by applicants. Short-term emissions from this vessel are not assessed. Long-term emissions are assessed equally amongst the four affected platforms.
- Emergency response vessel emissions calculated as an aggregate (main and auxiliary engines) using the uncontrolled supply boat emission factors. Total vessel bhp assumed to

be 4,400 bhp. The long term hours of operating are back-calculated based on the fuel usage allocation for this platform of 20,000 gallons per year (80,000 gal/yr basis).

$$T_{yr} = \{(20,000 \text{ gal/yr}) / (0.055 \text{ gal/bhp-hr} \times 4,400 \text{ bhp} \times 0.65)\} = 127 \text{ hr/yr}$$

- Main and auxiliary engine operational limits: General Equation

$$Q = (\text{BSFC}) \times (\text{bhp}) \times (\text{hours/time period}) \times (\text{load factor})$$

Main engines:

$$Q = (0.055 \text{ gal/bhp-hr}) \times (5,000 \text{ bhp}) \times (11 \text{ hours/day}) \times (0.65) \\ = 1,967 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (5,000 \text{ bhp}) \times (505 \text{ hours/qtr}) \times (0.65) \\ = 90,269 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (5,000 \text{ bhp}) \times (2,021 \text{ hours/yr}) \times (0.65) \\ = 361,254 \text{ gallons per year}$$

Note: The quarterly and annual main engine hours include hours spent in controlled and uncontrolled operation.

Auxiliary engines – Generators:

$$Q = (0.055 \text{ gal/bhp-hr}) \times (600 \text{ bhp}) \times (11 \text{ hours/day}) \times (0.50) \\ = 182 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (600 \text{ bhp}) \times (459 \text{ hours/qtr}) \times (0.50) \\ = 7,574 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (600 \text{ bhp}) \times (1,837 \text{ hours/yr}) \times (0.50) \\ = 30,311 \text{ gallons per year}$$

Auxiliary engines - Bow Thruster:

$$Q = (0.055 \text{ gal/bhp-hr}) \times (515 \text{ bhp}) \times (2 \text{ hours/day}) \\ = 57 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (515 \text{ bhp}) \times (78 \text{ hours/qtr}) \\ = 2,210 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (515 \text{ bhp}) \times (312 \text{ hours/yr}) \\ = 8,838 \text{ gallons per year}$$

### **Reference E - Pigging Equipment**

- Maximum operating schedule is in units of events
- Gas and oil launcher volume, pressures and temperatures based on application
- All gas in launchers is blown down to the flare relief system prior to opening the vessel to the atmosphere
- The remaining vessel pressure is assumed to be no greater than 5 psig. The temperature of the remaining vapor in vessels based upon Texaco reported values.
- The  $MW_{\text{gas}} = 23$  lb/lb-mol (gas launcher) and  $MW_{\text{oil}} = 50$  lb/lb-mol (oil launcher)
- Average ROC weight % = 0.37
- Calculate a site vessel specific emission factor using the ideal gas law and the volume of the vessel in units of "lb ROC/acf-event"  
$$\rho = (P_{\text{ves}} \times MW)/(R \times T), \text{ density of vapor remaining in vessel (lb VOC/acf)}$$
$$EF = (\rho \times \text{ROC wt. \%}), \text{ (lb ROC/acf-event)}$$

### **Reference F - Sumps/Tanks/Separators**

- Maximum operating schedule is in units of events
- Emission calculation methodology based on the CARB/KVB report *Emissions Characteristics of Crude Oil Production Operations in California (1/83)*
- Sump calculations are based on surface area of emissions unit as supplied by the applicant
- Oil/water separator calculations are based on gallons of oily water throughput
- All emission units are classified as secondary production and heavy oil service

### **Reference G - Solvents**

- All solvents not used to thin surface coatings are included in this equipment category
- Daily, quarterly and annual emission rates per the application
- Hourly emissions based on daily value divided by an average 8-hour day. Compliance with hourly data to be based on daily actual usage divided by 8.

## Reference H – Turbine Generators

- The maximum operating schedule is in units of hours
- Refer to permit condition 1(a)(i) for general calculation equations for NO<sub>x</sub>, ROC, and CO
- NO<sub>x</sub> and ROC emission factor equations found in *Point Arguello Outer Continental Shelf Emission Control Measures, Recordkeeping, and Reporting Plan*; CO equations based on application.
- Emission factors for SO<sub>2</sub> and PM are found in EPA AP-42, Table 3.1-1
- PM<sub>10</sub>/PM ratio = 0.96; ROC/TOC ratio = 1.0
- HHV fuel gas = 1,200 Btu/scf
- HHV diesel = 19,620 Btu/gal
- Density diesel = 7.043 lb/gal
- FCF gas = 1.10
- FCF diesel = 1.06
- Emission calculations are based upon turbine operating at max load
- Turbine Generator Operational Limits: General Equation

$$Q = (\text{BSFC}) \times (\text{kW}) \times (\text{FCF}) \times (\text{hours/time period}) / (\text{HHV, Btu/scf or gal})$$

### Fuel Gas - Per Turbine

$$Q = (12,010 \text{ Btu/kW-hr}) \times (3,695 \text{ kW}) \times (1.10) \times (24 \text{ hours/day}) / (1,200 \text{ Btu/scf}) \\ = 976,293 \text{ scf per day}$$

$$Q = (12,010 \text{ Btu/kW-hr}) \times (3,695 \text{ kW}) \times (1.10) \times (2,190 \text{ hours/qtr}) / (1,200 \text{ Btu/scf}) \\ = 89.087 \text{ million scf per quarter}$$

$$Q = (12,010 \text{ Btu/kW-hr}) \times (3,695 \text{ kW}) \times (1.10) \times (8,760 \text{ hours/year}) / (1,200 \text{ Btu/scf}) \\ = 356.347 \text{ million scf per year}$$

### Diesel - Per Turbine

$$Q = (11,849 \text{ Btu/kW-hr}) \times (3,584 \text{ kW}) \times (1.06) \times (24 \text{ hours/day}) / (138,200 \text{ Btu/gal}) \\ = 7,817 \text{ gallons per day}$$

$$Q = (11,849 \text{ Btu/kW-hr}) \times (3,584 \text{ kW}) \times (1.06) \times (865 \text{ hours/qtr}) / (138,200 \text{ Btu/gal}) \\ = 281,750 \text{ gallons per quarter}$$

$$Q = (11,849 \text{ Btu/kW-hr}) \times (3,584 \text{ kW}) \times (1.06) \times (1,730 \text{ hours/yr}) / (138,200 \text{ Btu/gal}) \\ = 565,500 \text{ gallons per year}$$

## Reference I - Turbine Compressors

### NO<sub>x</sub> Emissions

$$\text{General Equations: NO}_x \text{ (lb/hr)} = \{(\text{ppmvN}/10^6) * S2 * \text{MWN}/\text{mv}\}$$
$$\text{lb/MMBtu} = \text{lb/hr} / \text{MMBtu/hr}$$

where:

$$\text{ppmvN} = (5.0 \text{ ppmvd}@15\% \text{ O}_2)$$
$$S2 = S1 * \{(20.9-0)/(20.9-15)\}$$
$$\text{MWN} = 46 \text{ lb/lb-mole}$$
$$\text{mv} = 379 \text{ scf/lb-mole}$$

Calculation Parameters:

$$S1 = \text{FD} * \text{QH} = 346,539 \text{ dscf/hr}$$
$$\text{FD} = 8,565 \text{ dscf/MMBtu (Attach. 2-3 USEPA Combustion Manual)}$$
$$\text{QH} = (\text{BHP} * \text{BSFC}_H) / 10^6 = 40.46 \text{ MMBtu/hr}$$
$$\text{BHP} = 4,330 \text{ shp (from PTO 9103)}$$
$$\text{BSFC}_H = 9,345 \text{ (Btu/shp-hr) (from PTO 9103)}$$
$$\text{BSFC}_L = 8,495 \text{ (Btu/shp-hr) (from PTO 9103)}$$
$$\text{FCF} = 1.1 \text{ (Fuel Correction Factor from PTO 9103)}$$

- Turbine Hourly Heat Input = 40.464 MMBtu/hr
- The maximum operating schedule is in units of hours

### ROC, CO, SO<sub>x</sub>, PM<sub>10</sub>/PM Emissions

- The maximum operating schedule is in units of hours
- Refer to permit condition 1(a)(ii) for general calculation equations for ROC and CO
- ROC emission factor equations found in *Point Arguello Outer Continental Shelf Emission Control Measures, Recordkeeping, and Reporting Plan*; CO based on the original PTO application for this facility.
- Emission factors for SO<sub>2</sub> and PM are found in EPA AP-42, Table 3.1-1
- PM<sub>10</sub>/PM ratio = 0.96; ROC/TOC ratio = 1.0

### ***Turbine Compressor Operational Limits***

General Equation (where HHV fuel gas = 1,200 Btu/scf; FCF = 1.10):

$$Q = (\text{BSFC}) \times (\text{shp}) \times (\text{FCF}) \times (\text{hours/time period}) / (\text{HHV, Btu/scf})$$

Fuel Gas - Per Turbine

$$\begin{aligned} Q &= (9,345 \text{ Btu/shp-hr}) \times (4,330 \text{ shp}) \times (1.10) \times (24 \text{ hours/day}) / (1,200 \text{ Btu/scf}) \\ &= 890,205 \text{ scf per day} \end{aligned}$$

$$\begin{aligned} Q &= (9,345 \text{ Btu/shp-hr}) \times (4,330 \text{ shp}) \times (1.10) \times (2190 \text{ hours/quarter}) / (1,200 \text{ Btu/scf}) \\ &= 81.231 \text{ million scf per quarter} \end{aligned}$$

$$\begin{aligned} Q &= (9,345 \text{ Btu/shp-hr}) \times (4,330 \text{ shp}) \times (1.10) \times (8760 \text{ hours/year}) / (1,200 \text{ Btu/scf}) \\ &= 324.925 \text{ million scf per year} \end{aligned}$$

ATTACHMENT 10.2. IDS Database Emission Tables

**Table 10.2-1  
Permitted Potential to Emit (PPTE)**

	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM</b>	<b>PM<sub>10</sub></b>
<b>PTO 9103 – Pt-70 Permit to Operate</b>						
lb/hour	212.37	41.75	105.19	6.17	23.28	22.85
lb/day	3,505.18	937.89	2,063.22	150.16	461.72	455.88
tons/qtr	97.06	26.50	64.59	11.60	10.08	9.94
tons/year	367.58	85.26	204.18	43.61	26.11	25.71

**Table 10.2-2  
Facility Potential to Emit (FPTE)**

	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM</b>	<b>PM<sub>10</sub></b>
<b>PTO 9103 – Pt-70 Permit to Operate</b>						
lb/hour	212.37	41.75	105.19	6.17	23.28	22.85
lb/day	3,505.18	937.89	2,063.22	150.16	461.72	455.88
tons/qtr	97.06	26.50	64.59	11.60	10.08	9.94
tons/year	367.58	85.26	204.18	43.61	26.11	25.71

**Table 10.2-3  
Facility Net Emission Increase Since 1990 (FNEI-90)**

	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM</b>	<b>PM<sub>10</sub></b>
<b>PTO 9103 – Pt-70 Permit to Operate</b>						
Lb/day		1.94		1.19		
Tons/year		0.32		0.22		

**Table 10.2-4**  
**Stationary Source Net Emission Increase Since 1990 (FNEI-90)**

<b>Facility</b>	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>TSP</b>	<b>PM<sub>10</sub></b>
<b>Gaviota Plant</b>						
lbs/day	209.29	376.65	455.55	8.66	70.69	70.69
tons/year	36.01	51.48	91.91	3.92	13.11	13.11
<b>Platform Harvest</b>						
lbs/day		1.94		1.19		
tons/year		0.32		0.22		
<b>Platform Hermosa</b>						
lbs/day	0.71	6.37	62.88	0.72	0.21	0.21
tons/year	0.13	1.02	8.14	0.13	0.04	0.04
<b>Platform Hidalgo</b>						
lbs/day	14.48	1.24	64.32	3.94	1.04	1.01
tons/year			7.44	4.45		
<b>Total</b>						
lbs/day	224.48	386.20	582.75	14.51	70.73	70.73
tons/year	36.14	52.82	107.49	8.72	13.15	13.15

**ATTACHMENT 10.3. Equipment List**

**Tuesday, February 26, 2008**  
**Santa Barbara County APCD – Equipment List**

PT-70/Reeval 09103 R3 / FID: 08013 Platform Harvest / SSID: 01325

**A PERMITTED EQUIPMENT**

**1 Stationary Internal Combustion Engines**

**1.1 IC Engine: Crane (800A)**

<i>Device ID #</i>	<b>005000</b>	<i>Device Name</i>	<b>IC Engine: Crane (800A)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	503.00 Brake Horsepower
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	HA-330-P-101A
<i>Model</i>	3408 B	<i>Serial Number</i>	CR-800A
<i>Location Note</i>	P-101A, Mod 333, +124		
<i>Device Description</i>	This crane engine's rated bhp is at 2100 rpm.		

**1.2 IC Engine: Crane (CR801)**

<i>Device ID #</i>	<b>005002</b>	<i>Device Name</i>	<b>IC Engine: Crane (CR801)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	270.00 Brake Horsepower
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	HA-330-P-101A
<i>Model</i>	3306 PCT	<i>Serial Number</i>	CR-801
<i>Location Note</i>	P-101A, Mod 333, +124		
<i>Device Description</i>	This crane engine's rated bhp is at 2200 rpm.		

### 1.3 IC Engine: Crane (800B)

<i>Device ID #</i>	<b>005001</b>	<i>Device Name</i>	<b>IC Engine: Crane (800B)</b>
<i>Rated Heat Input</i>	3.710 MMBtu/Hour	<i>Physical Size</i>	503.00 Brake Horsepower
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	HA-330-P-101A
<i>Model</i>	3408 B	<i>Serial Number</i>	CR-800B
<i>Location Note</i>	P-101A, Mod 333, +124		
<i>Device Description</i>	Engine's rated bhp is at 2100 rpm.		

## 2 Fixed Roof Storage Tanks

### 2.1 Diesel Storage Tank

<i>Device ID #</i>	<b>102774</b>	<i>Device Name</i>	<b>Diesel Storage Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	10400.00 Gallons
<i>Manufacturer</i>	Hyundai Heavy Ind. Co.	<i>Operator ID</i>	HA-330-F-113
<i>Model</i>		<i>Serial Number</i>	336-T-602
<i>Location Note</i>	P-102A, Mod 333 +87		
<i>Device Description</i>	Vertical tank 6 feet diameter, shell height 50 feet, roof height 50 feet, average liquid height 22 feet.		

### 2.2 Chemical Tank

<i>Device ID #</i>	<b>102776</b>	<i>Device Name</i>	<b>Chemical Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	100.00 Gallons
<i>Manufacturer</i>	Tote Tank	<i>Operator ID</i>	100
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	60		
<i>Device Description</i>	Vertical tank stores Chronex 9037; not connected to vapor recovery.		

### 2.3 Chemical Tank

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<i>Device ID #</i>	102777	<i>Device Name</i>	<b>Chemical Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	700.00 Gallons
<i>Manufacturer</i>	Tote Tank	<i>Operator ID</i>	100
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	60		
<i>Device Description</i>	Vertical tank stores Chronex CT 9086; not connected to vapor recovery.		

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### 2.4 Chemical Tank

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<i>Device ID #</i>	102778	<i>Device Name</i>	<b>Chemical Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1900.00 Gallons
<i>Manufacturer</i>	Steel Baker Tank	<i>Operator ID</i>	100
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	60		
<i>Device Description</i>	Vertical tank stores Foambrok F-2659; not connected to vapor recovery.		

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## 3 Compressors

### 3.1 Glycol Stripper Overhead Blower

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<i>Device ID #</i>	102779	<i>Device Name</i>	<b>Glycol Stripper Overhead Blower</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	SIHI	<i>Operator ID</i>	076
<i>Model</i>	KPH-3408-BN-139-42	<i>Serial Number</i>	332-K-500-1
<i>Location Note</i>	P-103, Mod 333, +60		
<i>Device Description</i>	Compressor rated at 5 bhp; capacity 35 scfm. Housing/seals not connected to vapor recovery.		

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### 3.2 Gas Lift Compressor

<b>Device ID #</b>	<b>102780</b>	<b>Device Name</b>	<b>Gas Lift Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	700.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Superior	<i>Operator ID</i>	085
<i>Model</i>	MW62	<i>Serial Number</i>	335-K-300
<i>Location Note</i>	P-102A, Mod 335, +87		
<i>Device Description</i>	Rated capacity is 14700 scfm.		

### 3.3 Vapor Recovery Compressor

<b>Device ID #</b>	<b>102781</b>	<b>Device Name</b>	<b>Vapor Recovery Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Superior	<i>Operator ID</i>	
<i>Model</i>	MW64	<i>Serial Number</i>	336-K-201A
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Compressor rated at 1292 scfm. Housing/seals not connected to vapor recovery. N2 purge.		

### 3.4 Vapor Recovery Compressor

<b>Device ID #</b>	<b>102782</b>	<b>Device Name</b>	<b>Vapor Recovery Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Superior	<i>Operator ID</i>	
<i>Model</i>	MW64	<i>Serial Number</i>	336-K-201B
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	1292 scfm rated capacity, not connected to vapor recovery, uses N2 purge. Powered by 600 hp electric motor.		

### 3.5 Injection Gas Compressor

<b>Device ID #</b>	<b>102783</b>	<b>Device Name</b>	<b>Injection Gas Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1750.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Superior	<i>Operator ID</i>	079
<i>Model</i>	MW64	<i>Serial Number</i>	336-K-202
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	13900 scfm rated capacity; N2 purge. Housing /seals not connected to vapor recovery. Powered by 1750 hp electric motor.		

## 4 Pumps

### 4.1 Pipeline Pump

<b>Device ID #</b>	<b>102787</b>	<b>Device Name</b>	<b>Pipeline Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	900.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	United Centrifugal Pump Co.	<i>Operator ID</i>	040
<i>Model</i>	A-4X11 MSN-M	<i>Serial Number</i>	332-P-100-B
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Rated capacity is 1200 gpm. Driven by 900 hp electric motor; fitted with dual seals.		

### 4.2 Pipeline Pump

<b>Device ID #</b>	<b>102788</b>	<b>Device Name</b>	<b>Pipeline Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	900.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	United Centrifugal Pump Co.	<i>Operator ID</i>	040
<i>Model</i>	A-4X11 MSN-M	<i>Serial Number</i>	332-P-100-C
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Rated capacity 1200 gpm. Driven by 900 hp electric motor. Fitted with dual seals.		

### 4.3 Pipeline Pump

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<b>Device ID #</b>	<b>102789</b>	<b>Device Name</b>	<b>Pipeline Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	900.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	United Centrifugal Pump Co.	<i>Operator ID</i>	040
<i>Model</i>	A-4X11 MSN-M	<i>Serial Number</i>	332-P-100-D
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Powered by 1200 hp electric motor. Fitted with dual seals.		

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### 4.4 LACT Charge Pump

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<b>Device ID #</b>	<b>102790</b>	<b>Device Name</b>	<b>LACT Charge Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	037
<i>Model</i>	4X11 W	<i>Serial Number</i>	332-P-101-A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Rated capacity is 1200 gpm, powered by 200 hp electric motor. Fitted with dual seals.		

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### 4.5 LACT Charge Pump

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<b>Device ID #</b>	<b>102791</b>	<b>Device Name</b>	<b>LACT Charge Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	037
<i>Model</i>	4X11 W	<i>Serial Number</i>	332-P-101-B
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Rated capacity is 1200 gpm. Driven by 200 hp electric motor. Fitted with dual seals.		

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#### 4.6 LACT Charge Pump

<i>Device ID #</i>	<b>102792</b>	<i>Device Name</i>	<b>LACT Charge Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	200.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	037
<i>Model</i>	4X11 W	<i>Serial Number</i>	332-P-101-C
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Rated capacity is 1200 gpm; fitted with dual seals. Driven by 200 hp electric motor.		

#### 4.7 Flare Condensate Pump A

<i>Device ID #</i>	<b>102793</b>	<i>Device Name</i>	<b>Flare Condensate Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.50 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co.	<i>Operator ID</i>	150
<i>Model</i>	1½ x 2 x 9 VCM	<i>Serial Number</i>	332-P-200
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	HP Flare condensate service; 50 gpm rated capacity. Not fitted with dual seals. Driven by 7.5 hp electric motor.		

#### 4.8 Flare Condensate Pump B

<i>Device ID #</i>	<b>102794</b>	<i>Device Name</i>	<b>Flare Condensate Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.50 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co.	<i>Operator ID</i>	150
<i>Model</i>	1½ x 2 x 9 VCM	<i>Serial Number</i>	332-P-201
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	LP flare condensate service, 25 gpm rated capacity, not fitted with dual seals. Driven by 7.5 hp electric motor.		

#### 4.9 Flotation Cell Pump A

<i>Device ID #</i>	<b>102795</b>	<i>Device Name</i>	<b>Flotation Cell Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co.	<i>Operator ID</i>	133
<i>Model</i>	6X6X12 VCM	<i>Serial Number</i>	332-P-309A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	1460 gpm rated capacity; not fitted with dual seals. Driven by 30 hp electric motor.		

#### 4.10 Flotation Cell Pump B

<i>Device ID #</i>	<b>102796</b>	<i>Device Name</i>	<b>Flotation Cell Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co	<i>Operator ID</i>	133
<i>Model</i>	6X6X12 VCM	<i>Serial Number</i>	332-P-309B
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	1460 gpm rated capacity; fitted with dual seals. Driven by 30 hp electric motor.		

#### 4.11 Glycol Pump A

<i>Device ID #</i>	<b>102797</b>	<i>Device Name</i>	<b>Glycol Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Wheatley	<i>Operator ID</i>	076
<i>Model</i>		<i>Serial Number</i>	332-P-500-1-A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Glycol circulation service, pumping triethylene glycol, rated at 16 gpm, not fitted with dual seals. Driven by 15 hp electric motor.		

#### 4.12 Glycol Pump B

<b>Device ID #</b>	<b>102798</b>	<b>Device Name</b>	<b>Glycol Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Wheatley	<i>Operator ID</i>	076
<i>Model</i>		<i>Serial Number</i>	332-P-500-1-B
<i>Location Note</i>	P-103A, Mod 332 +60		
<i>Device</i>	Pumps triethylene glycol, not fitted with dual seals; 16 gpm rated capacity.		
<i>Description</i>	Driven by 15 hp electric motor.		

#### 4.13 Amine Booster Pump A

<b>Device ID #</b>	<b>102799</b>	<b>Device Name</b>	<b>Amine Booster Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	076
<i>Model</i>	3X2X10 HEC	<i>Serial Number</i>	332-P-501-1-A
<i>Location Note</i>	P-103A, Mod 332 +60		
<i>Device</i>	Pumps hot lean amine/50% DGA, rated capacity is 180 gpm; fitted with dual seals.		
<i>Description</i>	Driven by 50 hp electric motor.		

#### 4.14 Amine Booster Pump B

<b>Device ID #</b>	<b>102800</b>	<b>Device Name</b>	<b>Amine Booster Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	072
<i>Model</i>	3X2X10 HEC	<i>Serial Number</i>	332-P-501-1-B
<i>Location Note</i>	P-103A, Mod 332 +60		
<i>Device</i>	Pumps hot lean amine/50% DGA, rated capacity 180 gpm; fitted with dual seals.		
<i>Description</i>	Driven by 50 hp electric motor.		

#### 4.15 Amine Solution Pump A

<i>Device ID #</i>	<b>102801</b>	<i>Device Name</i>	<b>Amine Solution Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	071B
<i>Model</i>	4X2X12WN	<i>Serial Number</i>	332-P-501-2-A
<i>Location Note</i>	P-103A, Mod 332 +60		
<i>Device Description</i>	Pumps cold lean amine/50% DGA, rated capacity of 154 gpm; fitted with dual seals. Driven by 75 hp electric motor.		

#### 4.16 Amine Solution Pump B

<i>Device ID #</i>	<b>102802</b>	<i>Device Name</i>	<b>Amine Solution Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	071B
<i>Model</i>	4X2X12WN	<i>Serial Number</i>	332-P-501-2-B
<i>Location Note</i>	P-103A, Mod 332 +60		
<i>Device Description</i>	Pumps cold lean amine/50% DGA, rated at 154 gpm, fitted with dual seals. Driven by 75 hp electric motor.		

#### 4.17 Amine Regeneration Reflux Pump A

<i>Device ID #</i>	<b>102803</b>	<i>Device Name</i>	<b>Amine Regeneration Reflux Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	074
<i>Model</i>	1pX1X6 HOC	<i>Serial Number</i>	332-P-501-3-A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Amine regeneration reflux service, pumping H <sub>2</sub> O/CO <sub>2</sub> ; 17 gpm rated capacity, fitted with dual seals. Driven by 3 hp electric motor.		

#### 4.18 Amine Regeneration Reflux Pump B

<i>Device ID #</i>	<b>102804</b>	<i>Device Name</i>	<b>Amine Regeneration Reflux Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	074
<i>Model</i>	1pX1X6 HOC	<i>Serial Number</i>	332-P-501-3-B
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Amine regeneration reflux service, pumping H2O/CO2, 17 gpm rated capacity, fitted with dual seals. Powered by 3 hp electric motor.		

#### 4.19 Amine Charge Pump A

<i>Device ID #</i>	<b>102805</b>	<i>Device Name</i>	<b>Amine Charge Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	074
<i>Model</i>	1pX1X6 HOC	<i>Serial Number</i>	332-P-501-4-A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Pumps 30% DGA, 20 gpm rated capacity, fitted with dual seals. Powered by 3 hp electric motor.		

#### 4.20 Amine Charge Pump B

<i>Device ID #</i>	<b>102806</b>	<i>Device Name</i>	<b>Amine Charge Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	
<i>Model</i>	1pX1X6 HOC	<i>Serial Number</i>	332-P-501-4-B
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Pumps 30% DGA, 20 gpm rated capacity, fitted with dual seals. Powered by 3 hp electric motor.		

#### 4.21 Production Drain Sump Pump

<i>Device ID #</i>	<b>102807</b>	<i>Device Name</i>	<b>Production Drain Sump Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Allweiler	<i>Operator ID</i>	143
<i>Model</i>	SEP 750.1	<i>Serial Number</i>	332-P-800A
<i>Location Note</i>	P-104A, Mod 332, +47		
<i>Device Description</i>	Pumps sump fluid, 150 gpm rated capacity, not fitted with dual seals. Powered by 15 hp electric motor.		

#### 4.22 Production Drain Sump Pump

<i>Device ID #</i>	<b>102808</b>	<i>Device Name</i>	<b>Production Drain Sump Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Allweiler	<i>Operator ID</i>	143
<i>Model</i>	SEP 750.1	<i>Serial Number</i>	332-P-800B
<i>Location Note</i>	P-104A, Mod 332, +47		
<i>Device Description</i>	Pumps sump fluid, 150 gpm rated capacity, not fitted with dual seals. Powered by 15 hp electric motor.		

#### 4.23 LACT Test Water Pump

<i>Device ID #</i>	<b>102809</b>	<i>Device Name</i>	<b>LACT Test Water Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	60.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gould	<i>Operator ID</i>	038A
<i>Model</i>	3996	<i>Serial Number</i>	332-P-2000
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	LACT test water service, pumps sea water or produced water, 270 gpm rated capacity, not fitted with dual seals. Powered by 60 hp electric motor.		

#### 4.24 Pipeline Pump

<b>Device ID #</b>	<b>102786</b>	<b>Device Name</b>	<b>Pipeline Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	900.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	United Centrifugal Pump Co.	<i>Operator ID</i>	040
<i>Model</i>	A-4X11 MSN-M	<i>Serial Number</i>	332-P-100-A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Rated capacity 1200 gpm. Driven by 900 hp electric motor. Fitted with dual seals.		

#### 4.25 1st Stage Sales Gas Condensate Pump A

<b>Device ID #</b>	<b>102810</b>	<b>Device Name</b>	<b>1st Stage Sales Gas Condensate Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co.	<i>Operator ID</i>	047B
<i>Model</i>	1½ x 2 x 9 VCM	<i>Serial Number</i>	336-P-203-A
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	Pumps condensate, 40 gpm rated capacity, not fitted with dual seals. Powered by 3 hp electric motor.		

#### 4.26 1st Stage Sales Gas Condensate Pump B

<b>Device ID #</b>	<b>102811</b>	<b>Device Name</b>	<b>1st Stage Sales Gas Condensate Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co.	<i>Operator ID</i>	047B
<i>Model</i>	1½ x 2 x 9 VCM	<i>Serial Number</i>	336-P-203-B
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	Pumps condensate, 40 gpm rated capacity, not fitted with dual seals. Powered by 3 hp electric motor.		

#### 4.27 1st Stage Sales Gas Condensate Pump C

<b>Device ID #</b>	<b>102812</b>	<b>Device Name</b>	<b>1st Stage Sales Gas Condensate Pump C</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Union Pump Co.	<i>Operator ID</i>	047B
<i>Model</i>	1½ x 2 x 9 VCM	<i>Serial Number</i>	336-P-203-C
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	Pumps condensate, 40 gpm rated capacity, not fitted with dual seals. Powered by 3 hp electric motor.		

#### 4.28 Flotation Cell Skimmers

<b>Device ID #</b>	<b>102813</b>	<b>Device Name</b>	<b>Flotation Cell Skimmers</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	US Electric	<i>Operator ID</i>	074
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Mod 332		
<i>Device Description</i>	WEMCO service, pumping produced water, not fitted with dual seals. Powered by 1/4 hp electric motor.		

#### 4.29 Flotation Cell Agitators

<b>Device ID #</b>	<b>102814</b>	<b>Device Name</b>	<b>Flotation Cell Agitators</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	US Electric	<i>Operator ID</i>	074
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Mod 332		
<i>Device Description</i>	WEMCO service pumping produced water, not fitted with dual seals. Powered by 15 hp electric motor.		

## 5 Pigging Equipment

### 5.1 Oil Pipeline Pig Launcher/Receiver

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<b><i>Device ID #</i></b>	<b>102815</b>	<b><i>Device Name</i></b>	<b>Oil Pipeline Pig Launcher/Receiver</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	12304.00 Cubic Feet
<i>Manufacturer</i>	Progressive Metals	<i>Operator ID</i>	041
<i>Model</i>		<i>Serial Number</i>	331-U-101
<i>Location Note</i>	P-103A, Mod 331, +60		
<i>Device Description</i>	Connected to gas gathering or vapor recovery.		

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### 5.2 Gas Pipeline Pig Launcher/Receiver

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<b><i>Device ID #</i></b>	<b>102816</b>	<b><i>Device Name</i></b>	<b>Gas Pipeline Pig Launcher/Receiver</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5527.00 Cubic Feet
<i>Manufacturer</i>	Progressive Metals	<i>Operator ID</i>	041
<i>Model</i>		<i>Serial Number</i>	331-U-201
<i>Location Note</i>	P-103A, Mod 331, +60		
<i>Device Description</i>	Connected to gas gathering or vapor recovery.		

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## 6 Pressure Vessels

### 6.1 LACT Crude Strainer A

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<b><i>Device ID #</i></b>	<b>102817</b>	<b><i>Device Name</i></b>	<b>LACT Crude Strainer A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Continental EMESCO	<i>Operator ID</i>	038
<i>Model</i>	Custom	<i>Serial Number</i>	332-F-104A
<i>Location Note</i>	P-104A, Mod 332, +60		
<i>Device Description</i>	Vertical crude oil strainer, diameter 1.5 feet, length 3.0 feet S/S; not connected to gas gathering or vapor recovery.		

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## 6.2 LACT Crude Strainer B

<i>Device ID #</i>	<b>102818</b>	<i>Device Name</i>	<b>LACT Crude Strainer B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Continental EMESCO	<i>Operator ID</i>	038
<i>Model</i>	Custom	<i>Serial Number</i>	332-F-104B
<i>Location Note</i>	P-104A, Mod 332, +60		
<i>Device Description</i>	Vertical crude strainer 1.5 feet dia, 3.0 feet long S/S. Not connected to gas gathering or vapor recovery.		

## 6.3 Glycol Charcoal Filter

<i>Device ID #</i>	<b>102819</b>	<i>Device Name</i>	<b>Glycol Charcoal Filter</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PECO	<i>Operator ID</i>	077
<i>Model</i>	10-7-44	<i>Serial Number</i>	332-F-500-1
<i>Location Note</i>	P-104A, Mod 332, +60		
<i>Device Description</i>	Vertical type 3 feet diameter, 4.2 feet long S/S. Not connected to gas gathering or vapor recovery.		

## 6.4 Glycol Cartridge Filter

<i>Device ID #</i>	<b>102820</b>	<i>Device Name</i>	<b>Glycol Cartridge Filter</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PECO	<i>Operator ID</i>	077
<i>Model</i>	55-5-336	<i>Serial Number</i>	332-F-500-2
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical glycol filter, diameter 0.9 feet, length 3.4 feet S/S, not connected to gas gathering or vapor recovery.		

### 6.5 Amine Cartridge Filter

<i>Device ID #</i>	<b>102821</b>	<i>Device Name</i>	<b>Amine Cartridge Filter</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PECO	<i>Operator ID</i>	
<i>Model</i>	Custom	<i>Serial Number</i>	332-F-501-1
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical type, diameter 2.67 feet, length 5.5 feet, not connected to gas gathering or vapor recovery.		

### 6.6 Amine Charcoal Filter

<i>Device ID #</i>	<b>102822</b>	<i>Device Name</i>	<b>Amine Charcoal Filter</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PECO	<i>Operator ID</i>	072
<i>Model</i>	Custom	<i>Serial Number</i>	332-F-501-2
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical type, diameter 4 feet, 6.25 feet, not connected to gas gathering or vapor recovery.		

### 6.7 Amine Cartridge Filter

<i>Device ID #</i>	<b>102823</b>	<i>Device Name</i>	<b>Amine Cartridge Filter</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PECO	<i>Operator ID</i>	072
<i>Model</i>	Custom	<i>Serial Number</i>	332-F-501-4
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical type, diameter 2.67 feet, length 5.5 feet, not connected to gas gathering or vapor recovery.		

### 6.8 Amine Sump Vessel

<i>Device ID #</i>	<b>102824</b>	<i>Device Name</i>	<b>Amine Sump Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	074
<i>Model</i>	Custom	<i>Serial Number</i>	332-T-501-1
<i>Location Note</i>	P-104A, Mod 332, +47		
<i>Device Description</i>	Horizontal type, 6 feet diameter, length 9.5 feet S/S, not connected to gas gathering or vapor recovery.		

### 6.9 Oily Water Coalescer A

<i>Device ID #</i>	<b>102825</b>	<i>Device Name</i>	<b>Oily Water Coalescer A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	E.P.I.	<i>Operator ID</i>	131
<i>Model</i>	Custom	<i>Serial Number</i>	332-U-304A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical type in oily water service, diameter 7 feet, length 16.0 feet T/T, connected to gas gathering or vapor recovery.		

### 6.10 Oily Water Coalescer B

<i>Device ID #</i>	<b>102826</b>	<i>Device Name</i>	<b>Oily Water Coalescer B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	E.P.I.	<i>Operator ID</i>	131
<i>Model</i>	Custom	<i>Serial Number</i>	332-U-304B
<i>Location Note</i>	P-103A, Mod 333, +60		
<i>Device Description</i>	Vertical type in oily water service, diameter 7 feet, length 16.0 T/T, connected to gas gathering or vapor recovery.		

### 6.11 Test Separator A

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<b>Device ID #</b>	<b>102827</b>	<b>Device Name</b>	<b>Test Separator A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco	<i>Operator ID</i>	033
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-100A
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Horizontal type in water, oil, gas service. Diameter		6 ft, length 15.0
<i>Description</i>	T/T. Connected to gas gathering or vapor recovery.		

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### 6.12 Test Separator B

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<b>Device ID #</b>	<b>102828</b>	<b>Device Name</b>	<b>Test Separator B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco	<i>Operator ID</i>	033
<i>Model</i>		<i>Serial Number</i>	332-V-100B
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Horizontal type in water, oil and gas service. Diameter 6 ft, 15.0 ft T/T.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

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### 6.13 LACT Air/Gas Eliminator

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<b>Device ID #</b>	<b>102829</b>	<b>Device Name</b>	<b>LACT Air/Gas Eliminator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Continental EMESCO	<i>Operator ID</i>	038
<i>Model</i>		<i>Serial Number</i>	332-V-104-1
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Horizontal type in water, oil and gas service, diameter		3.5 feet, length 8.0
<i>Description</i>	feet F/F, connected to gas gathering or vapor recovery.		

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#### 6.14 Sweet Gas Separator 1

<i>Device ID #</i>	<b>102830</b>	<i>Device Name</i>	<b>Sweet Gas Separator 1</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco	<i>Operator ID</i>	027
<i>Model</i>		<i>Serial Number</i>	332-V-210
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Horizontal type in gas, condensate service, diameter 3 ft, length 12.0 T/T.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

#### 6.15 H.P. Flare Scrubber

<i>Device ID #</i>	<b>102831</b>	<i>Device Name</i>	<b>H.P. Flare Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	150
<i>Model</i>		<i>Serial Number</i>	332-V-211
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Vertical type in gas condensate service, diameter 9 feet, length 16.0 feet T/T, not connected to gas gathering or vapor recovery.		
<i>Description</i>			

#### 6.16 L.P. Flare Scrubber

<i>Device ID #</i>	<b>102832</b>	<i>Device Name</i>	<b>L.P. Flare Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	150
<i>Model</i>		<i>Serial Number</i>	332-V-212
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Vertical type in gas condensate service, diameter 4.5 feet, length 12.0 feet T/T, not connected to gas gathering or vapor recovery.		
<i>Description</i>			

### 6.17 Glycol Contactor

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<b>Device ID #</b>	<b>102833</b>	<b>Device Name</b>	<b>Glycol Contactor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	075
<i>Model</i>		<i>Serial Number</i>	332-V-500-1
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Trayed column type in glycol, gas service, diameter 4.5 feet, length		
<i>Description</i>	24.0 feet S/S, connected to gas gathering or vapor recovery.		

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### 6.18 Glycol Surge Vessel

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<b>Device ID #</b>	<b>102834</b>	<b>Device Name</b>	<b>Glycol Surge Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	076
<i>Model</i>		<i>Serial Number</i>	332-V-500-2
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Horizontal type in glycol service, diameter 3 feet, length 14.0 feet S/S, not		
<i>Description</i>	connected to gas gathering or vapor recovery.		

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### 6.19 Glycol Flash Vessel

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<b>Device ID #</b>	<b>102835</b>	<b>Device Name</b>	<b>Glycol Flash Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	077
<i>Model</i>		<i>Serial Number</i>	332-V-500-3
<i>Location Note</i>	P-03A, Mod 32, +60		
<i>Device</i>	Horizontal type in glycol service, diameter 2 feet, length 11.0 feet S/S,		
<i>Description</i>	connected to gas gathering or vapor recovery.		

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## 6.20 Glycol Stripper Overhead Stripper

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<b>Device ID #</b>	<b>102836</b>	<b>Device Name</b>	<b>Glycol Stripper Overhead Stripper</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	076
<i>Model</i>		<i>Serial Number</i>	332-V-500-4
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Horizontal type in glycol service, diameter 2 feet, length 11.0 feet S/S, connected to gas gathering or vapor recovery.		

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## 6.21 Amine Contactor

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<b>Device ID #</b>	<b>102837</b>	<b>Device Name</b>	<b>Amine Contactor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	071A
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-501-1
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Trayed column type in amine service, diameter 3 feet, length 60.0 feet S/S, connected to gas gathering or vapor recovery.		

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## 6.22 Amine Regenerator Tower

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<b>Device ID #</b>	<b>102838</b>	<b>Device Name</b>	<b>Amine Regenerator Tower</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	73
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-501-2
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Trayed column type in amine service, 3 ft diameter, 56.0 ft S/S. Connected to gas gathering or vapor recovery.		

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### 6.23 Amine Flash Vessel

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<b>Device ID #</b>	<b>102839</b>	<b>Device Name</b>	<b>Amine Flash Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	071B
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-501-3
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Horizontal type, amine service, 4 ft diameter, 12.0 ft S/S, connected to gas gathering or vapor recovery.		

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### 6.24 Regenerator Reflux Vessel

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<b>Device ID #</b>	<b>102840</b>	<b>Device Name</b>	<b>Regenerator Reflux Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	74
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-501-4
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Horizontal type in amine service, diameter 2.5 feet, length 6.0 feet S/S, connected to gas gathering or vapor recovery.		

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### 6.25 Fuel Gas Scrubber

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<b>Device ID #</b>	<b>102841</b>	<b>Device Name</b>	<b>Fuel Gas Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	109
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-600
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical type in gas service, diameter 2.5 ft, length 7.5 ft T/T. Connected to gas gathering or vapor recovery.		

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### 6.26 Production Drain Sump

<b>Device ID #</b>	<b>102842</b>	<b>Device Name</b>	<b>Production Drain Sump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	143
<i>Model</i>		<i>Serial Number</i>	332-V-800
<i>Location Note</i>	P-104A, Mod 332, +47		
<i>Device Description</i>	Horizontal type in water, oil, gas service, diameter 6 feet, length 25.0 feet T/T, connected to gas gathering or vapor recovery.		

### 6.27 Well Clean-up Vessel

<b>Device ID #</b>	<b>102843</b>	<b>Device Name</b>	<b>Well Clean-up Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	144
<i>Model</i>	Custom	<i>Serial Number</i>	332-V-801
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Vertical type in water, oil, gas service, diameter 6 feet, length 15.0 feet T/T, connected to gas gathering or vapor recovery.		

### 6.28 Gas Lift Suction Scrubber

<b>Device ID #</b>	<b>102844</b>	<b>Device Name</b>	<b>Gas Lift Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E.M.I.	<i>Operator ID</i>	085
<i>Model</i>	Custom	<i>Serial Number</i>	335-V-300
<i>Location Note</i>	P-102A, Mod 335, +87		
<i>Device Description</i>	Vertical type in gas service, diameter 2 ft, length 6.5 ft S/S. Connected to gas gathering or vapor recovery.		

### 6.29 Production Separator A

<i>Device ID #</i>	<b>102845</b>	<i>Device Name</i>	<b>Production Separator A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco	<i>Operator ID</i>	029
<i>Model</i>	Custom	<i>Serial Number</i>	335-V-102A
<i>Location Note</i>	P-102A, Mod 335, +87		
<i>Device</i>	Horizontal type in water, oil, gas service, diameter 10 feet, length 30.0		
<i>Description</i>	feet T/T, connected to gas gathering or vapor recovery.		

### 6.30 Production Separator B

<i>Device ID #</i>	<b>102846</b>	<i>Device Name</i>	<b>Production Separator B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco	<i>Operator ID</i>	031
<i>Model</i>		<i>Serial Number</i>	335-V-102B
<i>Location Note</i>	P-102A, Mod 335, +87		
<i>Device</i>	Horizontal type in water, oil, gas service, diameter 10 feet, length 30.0 feet		
<i>Description</i>	T/T, connected to gas gathering or vapor recovery.		

### 6.31 Oil Surge Vessel A

<i>Device ID #</i>	<b>102847</b>	<i>Device Name</i>	<b>Oil Surge Vessel A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	037
<i>Model</i>	Custom	<i>Serial Number</i>	335-V-103A
<i>Location Note</i>	P-101A, Mod 335, +107		
<i>Device</i>	Horizontal type in oil service, diameter 8 ft, length 30.0 ft T/T. Connected to		
<i>Description</i>	gas gathering or vapor recovery.		

### 6.32 Oil Surge Vessel B

<b>Device ID #</b>	<b>102848</b>	<b>Device Name</b>	<b>Oil Surge Vessel B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	037
<i>Model</i>	Custom	<i>Serial Number</i>	335-V-103B
<i>Location Note</i>	P-101A, Mod 335, +107		
<i>Device</i>	Horizontal type in oil service, diameter		8 ft, length 30.0 ft T/T.
<i>Description</i>	Connected to gas gathering or vapor recovery.		

### 6.33 Fuel Gas Filter Separator A

<b>Device ID #</b>	<b>102849</b>	<b>Device Name</b>	<b>Fuel Gas Filter Separator A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	111
<i>Model</i>	13-372	<i>Serial Number</i>	335-V-601A
<i>Location Note</i>	P-101A, Mod 335, +107		
<i>Device</i>	Vertical type in gas service. Diameter 1.50 ft, length 10.7 ft S/S. Connected		
<i>Description</i>	to gas gathering or vapor recovery.		

### 6.34 Fuel Gas Filter Separator B

<b>Device ID #</b>	<b>102850</b>	<b>Device Name</b>	<b>Fuel Gas Filter Separator B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg	<i>Operator ID</i>	111
<i>Model</i>	13-372	<i>Serial Number</i>	335-V-601B
<i>Location Note</i>	P-101A, Mod 335, +107		
<i>Device</i>	Vertical type in gas service, diameter 1.50 ft, length 10.7 ft S/S. Connected		
<i>Description</i>	to gas gathering or vapor recovery.		

### 6.35 1st Stage Sales Gas Suction Scrubber

<b>Device ID #</b>	<b>102851</b>	<b>Device Name</b>	<b>1st Stage Sales Gas Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg	<i>Operator ID</i>	047B
<i>Model</i>	13-372	<i>Serial Number</i>	336-V-200
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Vertical type in gas service, diameter 8 ft, length		8.0 ft S/S.
<i>Description</i>	Connected to gas gathering or vapor recovery.		

### 6.36 2nd Stage Sales Gas Suction Scrubber A

<b>Device ID #</b>	<b>102852</b>	<b>Device Name</b>	<b>2nd Stage Sales Gas Suction Scrubber A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	049
<i>Model</i>	130-30	<i>Serial Number</i>	336-V-201A
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Vertical type in gas service, diameter 2.5 ft, length		8.0 ft S/S.
<i>Description</i>	Connected to gas gathering or vapor recovery.		

### 6.37 2nd Stage Sales Gas Suction Scrubber B

<b>Device ID #</b>	<b>102853</b>	<b>Device Name</b>	<b>2nd Stage Sales Gas Suction Scrubber B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	055
<i>Model</i>	130-30	<i>Serial Number</i>	336-V-201B
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Vertical type in gas service, diameter 2.5 ft, length 8.0 ft S/S. Connected to		
<i>Description</i>	gas gathering or vapor recovery.		

### 6.38 2nd Stage Sales Gas Suction Scrubber C

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<b>Device ID #</b>	<b>102854</b>	<b>Device Name</b>	<b>2nd Stage Sales Gas Suction Scrubber C</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	061
<i>Model</i>	130-30	<i>Serial Number</i>	336-V-201C
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 2.5 ft, length 8.0 ft S/S. Connected to gas gathering or vapor recovery.		

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### 6.39 3rd Stage Sales Gas Suction Scrubber A

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<b>Device ID #</b>	<b>102855</b>	<b>Device Name</b>	<b>3rd Stage Sales Gas Suction Scrubber A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg	<i>Operator ID</i>	051
<i>Model</i>	130-20	<i>Serial Number</i>	336-V-202A
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 1.7 ft, length 8.0 ft S/S. Connected to gas gathering or vapor recovery.		

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### 6.40 3rd Stage Sales Gas Suction Scrubber B

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<b>Device ID #</b>	<b>102856</b>	<b>Device Name</b>	<b>3rd Stage Sales Gas Suction Scrubber B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	057
<i>Model</i>	130-20	<i>Serial Number</i>	336-V-202B
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 1.7 ft, length 8.0 S/S. Connected to gas gathering or vapor recovery.		

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#### 6.41 3rd Stage Sales Gas Suction Scrubber C

<i>Device ID #</i>	<b>102857</b>	<i>Device Name</i>	<b>3rd Stage Sales Gas Suction Scrubber C</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	083
<i>Model</i>	130-20	<i>Serial Number</i>	336-V-202C
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Vertical type in gas service, diameter 1.7 ft, length		8.0 ft S/S.
<i>Description</i>	Connected to gas gathering or vapor recovery.		

#### 6.42 3rd Stage Sales Gas Discharge Scrubber

<i>Device ID #</i>	<b>102858</b>	<i>Device Name</i>	<b>3rd Stage Sales Gas Discharge Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	070
<i>Model</i>	130-050	<i>Serial Number</i>	336-V-203
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Vertical type in gas service, diameter 2.5 ft, length		8.0 ft S/S.
<i>Description</i>	Connected to gas gathering or vapor recovery.		

#### 6.43 1st Stage Vapor Recovery Suction Scrubber

<i>Device ID #</i>	<b>102859</b>	<i>Device Name</i>	<b>1st Stage Vapor Recovery Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	042
<i>Model</i>	130-24	<i>Serial Number</i>	336-V-204
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Vertical type in gas service, diameter 2 ft, length 8.0 S/S. Connected to gas		
<i>Description</i>	gathering or vapor recovery.		

#### 6.44 2nd Stage Vapor Recovery Suction Scrubber

<i>Device ID #</i>	<b>102860</b>	<i>Device Name</i>	<b>2nd Stage Vapor Recovery Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	044
<i>Model</i>	130-18	<i>Serial Number</i>	336-V-205
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 1.5 ft, length 8.0 ft S/S. Connected to gas gathering or vapor recovery.		

#### 6.45 3rd Stage Vapor Recovery Suction Scrubber

<i>Device ID #</i>	<b>102861</b>	<i>Device Name</i>	<b>3rd Stage Vapor Recovery Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	045
<i>Model</i>	130-14	<i>Serial Number</i>	336-V-206
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 1.2 ft, length 8.0 ft S/S. Connected to gas gathering or vapor recovery.		

#### 6.46 4th Stage Vapor Recovery Suction Scrubber

<i>Device ID #</i>	<b>102862</b>	<i>Device Name</i>	<b>4th Stage Vapor Recovery Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	046
<i>Model</i>	130-14	<i>Serial Number</i>	336-V-207
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 1.2 ft, length 8.7 ft S/S. Connected to gas gathering or vapor recovery.		

#### 6.47 Injection Gas Suction Scrubber

<i>Device ID #</i>	<b>102863</b>	<i>Device Name</i>	<b>Injection Gas Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	079
<i>Model</i>	130-30	<i>Serial Number</i>	336-V-208
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 2.5 ft, length 8.0 S/S. Connected to gas gathering or vapor recovery.		

#### 6.48 Vapor Recovery Blowcase

<i>Device ID #</i>	<b>102864</b>	<i>Device Name</i>	<b>Vapor Recovery Blowcase</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	HEF-FAB Inc.	<i>Operator ID</i>	042
<i>Model</i>	Custom	<i>Serial Number</i>	336-V-209
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Vertical type in gas service, diameter 1.3 feet, length 4.0 feet S/S, connected to gas gathering or vapor recovery.		

#### 6.49 4th Stage Vapor Recovery Discharge Scrubber

<i>Device ID #</i>	<b>102865</b>	<i>Device Name</i>	<b>4th Stage Vapor Recovery Discharge Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Peerless Mfg.	<i>Operator ID</i>	078
<i>Model</i>	130-14	<i>Serial Number</i>	336-V-224
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	Vertical type in gas service, diameter 1.2 ft, length 8.0 ft S/S. Connected to gas gathering or vapor recovery.		

### 6.50 Acid Gas Glycol Contactor

<b>Device ID #</b>	<b>102866</b>	<b>Device Name</b>	<b>Acid Gas Glycol Contactor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	PETROFAC	<i>Operator ID</i>	
<i>Model</i>	Custom	<i>Serial Number</i>	336-V-500-5
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	Vertical type in gas service, diameter 1.1 ft, length 29.5 ft F.F. Connected to gas gathering or vapor recovery.		

### 6.51 Chiller Knock-out Drum

<b>Device ID #</b>	<b>102867</b>	<b>Device Name</b>	<b>Chiller Knock-out Drum</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Houston Steel Products, Inc.	<i>Operator ID</i>	091
<i>Model</i>	Custom	<i>Serial Number</i>	336-V-810
<i>Location Note</i>	P-102A, Mod 336, +87		
<i>Device Description</i>	Vertical type in gas service, diameter 5 ft, length 12.0 ft T/T. Connected to gas gathering or vapor recovery.		

### 6.52 Stabilizer

<b>Device ID #</b>	<b>102868</b>	<b>Device Name</b>	<b>Stabilizer</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Houston Steel Products, Inc.	<i>Operator ID</i>	092
<i>Model</i>	Custom	<i>Serial Number</i>	336-V-812
<i>Location Note</i>	P-102A, Mod. 336, +87		
<i>Device Description</i>	Trayed column type in gas service, diameter 2.5 and 3.5 feet, length 25.4 feet S/S, connected to gas gathering or vapor recovery.		

**7 Heat Exchangers**

**8 Speciality Units and Packages**

**8.1 LACT Unit Meter Prover**

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<i>Device ID #</i>	<b>102869</b>	<i>Device Name</i>	<b>LACT Unit Meter Prover</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Continental Emsco	<i>Operator ID</i>	039
<i>Model</i>		<i>Serial Number</i>	MP-104
<i>Location Note</i>	Cellar Deck		
<i>Device Description</i>	In crude service, capacity 5.8 bbls/hr, powered by 60 hp electric motor.		

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**9 Flares and Thermal Oxidizers**

**9.1 LP/HP Flare Relief System**

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<i>Device ID #</i>	<b>005387</b>	<i>Device Name</i>	<b>LP/HP Flare Relief System</b>
<i>Rated Heat Input</i>	1200.000 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Kaldair	<i>Operator ID</i>	151
<i>Model</i>	I 45-HL-FS	<i>Serial Number</i>	337-U-204
<i>Location Note</i>	P-013A, South End		
<i>Device Description</i>	Smokeless flare, 1200/424 MMBtu/hr design heat release (HP/LP), flare gas higher heating value 1815 Btu/scf, total sulfur content of flared gas 10,000 max. ppmv S as H <sub>2</sub> S, max expected volume of gas flared per day 15 MMscf; highest expected annual average volume of gas flared per year 22.1 MMscf, no emissions controls, pilot and purge gas flow rate 2,550 scf/hr, pilot/purge gas higher heating value 1,200 BTU/scf, pilot/purge gas sulfur content 50 ppmv S as H <sub>2</sub> S.		

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## 10 Turbines

### 10.1 Gas Turbine Generator A

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<b>Device ID #</b>	<b>005013</b>	<b>Device Name</b>	<b>Gas Turbine Generator A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	
<i>Model</i>	501-KB5	<i>Serial Number</i>	333-G-700-A
<i>Location Note</i>	P-015, Mod 333, +87		
<i>Device</i>	Burns PUC-quality natural gas, or diesel.		
<i>Description</i>	Peak oper design rating (kW) 3,316 / 3,194		
	Engine BSFC (Btu/kW-hr) 12,610 / 12,791		
	Fuel higher heating value: 1,200 / 19,620		
	Units for fuel HHV: BTU/scf / Btu/lb		
	Total sulfur content of fuel: <50 / 0.29		
	Units for sulfur content: ppm / % wt		
	Operating hours per day (max.): 24 / 24		
	Operating hours per quarter (max.): 2,190 / 865		
	Operating hours per year (highest annual average): 8,760 / 1,730		
	Emission controls used?: Yes / Yes		
	Water/fuel injection rate: 0.8:1 / 1:1		

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### 10.2 Gas Turbine Generator B

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<b>Device ID #</b>	<b>005014</b>	<b>Device Name</b>	<b>Gas Turbine Generator B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	
<i>Model</i>	501-KB5	<i>Serial Number</i>	333-G-700-B
<i>Location Note</i>	P-015, Mod 333, +87		
<i>Device</i>	Burns PUC-quality natural gas, or diesel.		
<i>Description</i>	Peak oper design rating (kW) 3,316 / 3,194		
	Engine BSFC (Btu/kW-hr) 12,610 / 12,791		
	Fuel higher heating value: 1,200 / 19,620		
	Units for fuel HHV: BTU/scf / Btu/lb		
	Total sulfur content of fuel: <50 / 0.29		
	Units for sulfur content: ppm / % wt		
	Operating hours per day (max.): 24 / 24		
	Operating hours per quarter (max.): 2,190 / 865		
	Operating hours per year (highest annual average): 8,760 / 1,730		
	Emission controls used?: Yes / Yes		
	Water/fuel injection rate: 0.8:1 / 1:1		

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### 10.3 Gas Turbine Generator C

<i>Device ID #</i>	<b>005015</b>	<i>Device Name</i>	<b>Gas Turbine Generator C</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	
<i>Model</i>	501-KB5	<i>Serial Number</i>	333-G-700-C
<i>Location Note</i>	P-015, Mod 333, +87		
<i>Device Description</i>	Burns PUC-quality natural gas, or diesel.		
	Peak oper design rating (kW)	3,316 / 3,194	
	Engine BSFC (Btu/kW-hr)	12,610 / 12,791	
	Fuel higher heating value:	1,200 / 19,620	
	Units for fuel HHV:	BTU/scf / Btu/lb	
	Total sulfur content of fuel:	<50 / 0.29	
	Units for sulfur content:	ppm / % wt	
	Operating hours per day (max.):	24 / 24	
	Operating hours per quarter (max.):	2,190 / 865	
	Operating hours per year (highest annual average):	8,760 / 1,730	
	Emission controls used?:	Yes / Yes	
	Water/fuel injection rate:	0.8:1 / 1:1	

### 10.4 Gas Turbine Generator D

<i>Device ID #</i>	<b>005016</b>	<i>Device Name</i>	<b>Gas Turbine Generator D</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	
<i>Model</i>	501-KB5	<i>Serial Number</i>	333-G-700-D
<i>Location Note</i>	P-015, Mod 333, +87		
<i>Device Description</i>	Burns PUC-quality natural gas, or diesel.		
	Peak oper design rating (kW)	3,316 / 3,194	
	Engine BSFC (Btu/kW-hr)	12,610 / 12,791	
	Fuel higher heating value:	1,200 / 19,620	
	Units for fuel HHV:	BTU/scf / Btu/lb	
	Total sulfur content of fuel:	<50 / 0.29	
	Units for sulfur content:	ppm / % wt	
	Operating hours per day (max.):	24 / 24	
	Operating hours per quarter (max.):	2,190 / 865	
	Operating hours per year (highest annual average):	8,760 / 1,730	
	Emission controls used?:	Yes / Yes	
	Water/fuel injection rate:	0.8:1 / 1:1	

### 10.5 Gas Turbine Generator E

<i>Device ID #</i>	<b>005017</b>	<i>Device Name</i>	<b>Gas Turbine Generator E</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	
<i>Model</i>	501-KB5	<i>Serial Number</i>	333-G-700-E
<i>Location Note</i>	P-015, Mod 333, +87		
<i>Device</i>	Burns PUC-quality natural gas, or diesel.		
<i>Description</i>	Peak oper design rating (kW) 3,316 / 3,194		
	Engine BSFC (Btu/kW-hr) 12,610 / 12,791		
	Fuel higher heating value: 1,200 / 19,620		
	Units for fuel HHV: BTU/scf / Btu/lb		
	Total sulfur content of fuel: <50 / 0.29		
	Units for sulfur content: ppm / % wt		
	Operating hours per day (max.): 24 / 24		
	Operating hours per quarter (max.): 2,190 / 865		
	Operating hours per year (highest annual average): 8,760 / 1,730		
	Emission controls used?: Yes / Yes		
	Water/fuel injection rate: 0.8:1 / 1:1		

### 10.6 Gas Turbine Compressor A

<i>Device ID #</i>	<b>005021</b>	<i>Device Name</i>	<b>Gas Turbine Compressor A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	048
<i>Model</i>	501-KC-5	<i>Serial Number</i>	336-K-200-A
<i>Location Note</i>	P-102, Mod 336, +87		
<i>Device</i>	Turbine engine with peak operating design rating of 4,330 shp burning		
<i>Description</i>	natural gas (HHV 1,200 BTU/scf). Uses water injection (W/F 0.8/1) for		
	emissions control. Operating hours: 24 hr/day, 2190 hr/qtr, 8760 hr/yr.		

### 10.7 Gas Turbine Compressor B

<b>Device ID #</b>	<b>005022</b>	<b>Device Name</b>	<b>Gas Turbine Compressor B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	053
<i>Model</i>	501-KC-5	<i>Serial Number</i>	336-K-200-B
<i>Location Note</i>	P-102, Mod 336, +87		
<i>Device Description</i>	Turbine engine with peak operating design rating of 4,330 shp burning natural gas (HHV 1,200 BTU/scf). Uses water injection (W/F 0.8/1) for emissions control. Operating hours: 24 hr/day, 2190 hr/qtr, 8760 hr/yr. Emission controls used?: Yes Emission controls description: Water injection.		

### 10.8 Gas Turbine Compressor C

<b>Device ID #</b>	<b>005023</b>	<b>Device Name</b>	<b>Gas Turbine Compressor C</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.58 Megawatts
<i>Manufacturer</i>	Allison	<i>Operator ID</i>	059
<i>Model</i>	501-KC-5	<i>Serial Number</i>	336-K-200-C
<i>Location Note</i>	P-102, Mod 336, +87		
<i>Device Description</i>	Turbine engine with peak operating design rating of 4,330 shp burning natural gas (HHV 1,200 BTU/scf). Uses water injection (W/F 0.8/1) for emissions control. Operating hours: 24 hr/day, 2190 hr/qtr, 8760 hr/yr.		

### 11 Fugitive HC Components - CLP

<b>Device ID #</b>	<b>102755</b>	<b>Device Name</b>	<b>Fugitive HC Components - CLP</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>			

### 11.1 Gas/Condensate Service Components - Accessible

<b>Device ID #</b>	<b>005389</b>	<b>Device Name</b>	<b>Gas/Condensate Service Components - Accessible</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	13227.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID</i>	200
<i>Location Note</i>	Various locations	<i>Serial Number</i>	
<i>Device Description</i>			

## 11.2 Oil Service Components - Accessible

<b>Device ID #</b>	<b>005388</b>	<b>Device Name</b>	<b>Oil Service Components - Accessible</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5360.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID</i>	200
<i>Location Note</i>	Various locations	<i>Serial Number</i>	
<i>Device Description</i>			

## 12 Oil and Gas Wellheads

<b>Device ID #</b>	<b>102758</b>	<b>Device Name</b>	<b>Oil and Gas Wellheads</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	18.00 Active Wells
<i>Manufacturer Model</i>		<i>Operator ID</i>	020
<i>Location Note</i>	Cellar Deck	<i>Serial Number</i>	
<i>Device Description</i>	No gas injection wells, no water injection wells.		
	The device grouping number is represented by the final number group of a Texaco E&P process flow diagram number.		
	18 producing wells numbers: A-2 through A-19.		
	One plugged and abandoned oil and gas well: A-1.		

## 13 Oil Water Separators

### 13.1 Flotation Cell

<b>Device ID #</b>	<b>005397</b>	<b>Device Name</b>	<b>Flotation Cell</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.10 MMgal/Day
<i>Manufacturer</i>	US Filter	<i>Operator ID</i>	133
<i>Model</i>	Q-160	<i>Serial Number</i>	332-U-305
<i>Location Note</i>	P-103A, Mod 322, +60		
<i>Device Description</i>	Throughput: 2.1MMgal/day, 191.6 MMgal/qtr, 766.5 MMgal/yr. Covered and connected to vapor recovery, with 95% vapor recovery control efficiency.		

## 14 Sumps and Wastewater Tanks

### 14.1 Skim Pile

<b>Device ID #</b>	<b>005395</b>	<b>Device Name</b>	<b>Skim Pile</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	12.60 Square Feet Surface Area
<i>Manufacturer</i>		<i>Operator ID</i>	144
<i>Model</i>		<i>Serial Number</i>	T-801
<i>Location Note</i>	P-104A, Mod 333, +20		
<i>Device Description</i>	Tertiary vessel in water service, not covered, not connected to vapor recovery.		

### 14.2 Skim Pile

<b>Device ID #</b>	<b>005394</b>	<b>Device Name</b>	<b>Skim Pile</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	12.60 Square Feet Surface Area
<i>Manufacturer</i>		<i>Operator ID</i>	144
<i>Model</i>		<i>Serial Number</i>	T-303
<i>Location Note</i>	P-104A, Mod 333, +20		
<i>Device Description</i>	Tertiary vessel in water service, not covered, not connected to vapor recovery.		

## 15 Supply Boats

### 15.1 Supply Boat (basis: M/V San Miguel / M/V Santa Cruz)

<b>Device ID #</b>	<b>102905</b>	<b>Device Name</b>	<b>Supply Boat (basis:</b>
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		<b>M/V San Miguel / M/V Santa Cruz)</b>
<i>Rated Heat Input</i>		5115.00 BTU/bhp-hr
<i>Manufacturer</i>		M/V San Miguel / M/V Sant
<i>Model</i>		
<i>Location Note</i>	OCS	
<i>Device Description</i>	Two main engines (2000 bhp each) and three auxiliary engines (2 gensets at 300 bhp each, 1 bow thruster at 515 bhp, totalling 1115 bhp) for total of 5115 bhp.	

### 15.1.1 Main Engines

<b>Device ID #</b>	<b>102906</b>	<b>Device Name</b>	<b>Main Engines</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	4000.00 Brake Horsepower
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model</i>	3516B	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two main engines at 2000 bhp each, electronically controlled, turbocharged, low-NOx engines.		
	RDM NOTE: Check permit - Sec. 4.4 shows 2 mains at 2500 bhp each.		

### 15.1.2 Generator Engines

<b>Device ID #</b>	<b>102907</b>	<b>Device Name</b>	<b>Generator Engines</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two generator engines at 300 bhp each for 600 bhp total, uncontrolled for NOx.		

### 15.1.3 Bow Thruster Engine

<b>Device ID #</b>	<b>105054</b>	<b>Device Name</b>	<b>Bow Thruster Engine</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	515.00 Brake Horsepower

<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	One bow thruster engine at 515 bhp, uncontrolled for NOx.		
<i>Description</i>			

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## 15.2 Spot Charter Boat Engines

<b><i>Device ID #</i></b>	<b>105056</b>	<b><i>Device Name</i></b>	<b>Spot Charter Boat Engines</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5000.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Spot-charter vessels are normally uncontrolled for NOx. Spot-charter usage is limited to a maximum of 10-percent of the total support vessel usage in any one year (i.e., allowable usage is based on actual trips).		
<i>Description</i>			

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## 15.3 Emergency Response Boat Engines (basis: Clean Seas III)

<b><i>Device ID #</i></b>	<b>105057</b>	<b><i>Device Name</i></b>	<b>Emergency Response Boat Engines (basis: Clean Seas III)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	4400.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	A permanently assigned emergency response boat (i.e., the Clean Seas III) is associated with Platform Harvest. The engines on this vessel are uncontrolled. The approximate total engine horsepower, including auxiliary engines, is 4,400 bhp. Emissions liability is assigned in a prorated fashion among the four OCS platforms that utilize the vessel off the Santa Barbara coast. Emission factors, calculations and compliance procedures are the same as for the spot-charter supply vessels.		
<i>Description</i>			

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## 15.4 Supply Boat (basis: M/V Victory Seahorse)

### 15.4.1 Main Engines

<b><i>Device ID #</i></b>	<b>005390</b>	<b><i>Device Name</i></b>	<b>Main Engines</b>
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<i>Rated Heat Input</i>		<i>Physical Size</i>	5000.00 Brake Horsepower
<i>Manufacturer</i>	EMD	<i>Operator ID</i>	
<i>Model</i>	EMD-16-645	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two main engines (2500 bhp each).		

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#### 15.4.2 Bow Thruster Engine

<b><i>Device ID #</i></b>	<b>105055</b>	<b><i>Device Name</i></b>	<b>Bow Thruster Engine</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	515.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	One bow thruster engine at 515 bhp, uncontrolled for NOx.		

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#### 15.4.3 Generator Engine

<b><i>Device ID #</i></b>	<b>102909</b>	<b><i>Device Name</i></b>	<b>Generator Engine</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	490.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	One generator engine at 490 bhp, uncontrolled for NOx.		

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## 16 Helicopters

<i>Device ID #</i>	<b>005573</b>	<i>Device Name</i>	<b>Helicopters</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	Tons of Solvent In Coating
<i>Manufacturer</i>	Sykorski Helicopter	<i>Operator ID</i>	
<i>Model</i>	SK-76	<i>Serial Number</i>	
<i>Location Note</i>	SMA to Platforms		
<i>Device Description</i>	See permit for trip details.		

## 17 Maintenance Activities

### 17.1 Maintenance Supply

<i>Device ID #</i>	<b>102913</b>	<i>Device Name</i>	<b>Maintenance Supply</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	300
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Harvest		
<i>Device Description</i>	Coating/solvent brand name	Amercoat 78 HB	
	Application	Tank lining repair	
	Annual usage (gal per year)	1	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	2.54	
	Emission controls used?	No	
	Emission controls description		

### 17.2 Maintenance Supply

<i>Device ID #</i>	<b>102914</b>	<i>Device Name</i>	<b>Maintenance Supply</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	300
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Harvest		
<i>Device Description</i>	Coating/solvent brand name	Amercoat 450 HS (white)	
	Application	Gloss top coat	
	Annual usage (gal per year)	300	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	2.44	
	Emission controls used?	Yes	
	Emission controls description Overspary tarps		

### 17.3 Maintenance Supply

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<b>Device ID #</b>	<b>102915</b>	<b>Device Name</b>	<b>Maintenance Supply</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>	Platform Harvest		
<i>Device</i>	Coating/solvent brand name	Amerlock 400 AL	
<i>Description</i>	Application Coating		
	Annual usage (gal per year)	50	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	2.04	
	Emission controls used?	Yes	
	Emission controls description	Overspary tarps	

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### 17.4 Maintenance Supply

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<b>Device ID #</b>	<b>102916</b>	<b>Device Name</b>	<b>Maintenance Supply</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>	Platform Harvest		
<i>Device</i>	Coating/solvent brand name	Amerloc 400 (pearl gray)	
<i>Description</i>	Application Coating		
	Annual usage (gal per year)	300	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	2.04	
	Emission controls used?	Yes	
	Emission controls description	Overspary tarps	

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### 17.5 Maintenance Supply

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<b>Device ID #</b>	<b>102917</b>	<b>Device Name</b>	<b>Maintenance Supply</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>	Platform Harvest		
<i>Device</i>	Coating/solvent brand name	Ameron T-5 Thinner	
<i>Description</i>	Application Paint thinner		
	Annual usage (gal per year)	120	
	Regulatory VOC content (g/l)		
	ROC emission factor (lb/gal)	7.0	
	Emission controls used?	Yes	
	Emission controls description	Overspary tarps	

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### 17.6 Maintenance Supply

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<b>Device ID #</b>	<b>102918</b>	<b>Device Name</b>	<b>Maintenance Supply</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>	Platform Harvest		
<i>Device</i>	MEK cleaning solvent. Usage 150 gal/year.		
<i>Description</i>	ROC emission factor 6.7 lb/gal; emission controls used.		

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### 17.7 Maintenance Supply

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<b>Device ID #</b>	<b>102919</b>	<b>Device Name</b>	<b>Maintenance Supply</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>	Platform Harvest		
<i>Device</i>	Coating/solvent brand name	140 HT Thinner	
<i>Description</i>	Application Cleaning solvent		
	Annual usage (gal per year)	60	
	Regulatory VOC content (g/l)		
	ROC emission factor (lb/gal)	6.7	
	Emission controls used?	Yes	
	Emission controls description	Tank lid kept closed	

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**B EXEMPT EQUIPMENT**

**1 IC Engine: Emergency Generator A**

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<b>Device ID #</b>	<b>005003</b>	<b>Device Name</b>	<b>IC Engine: Emergency Generator A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1000.00 Brake Horsepower
<i>Manufacturer</i>	Detriot Diesel	<i>Operator ID</i>	G-701A
<i>Model</i>	12V-149TI	<i>Serial Number</i>	12E00008156
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 334, +87		
<i>Device Description</i>	Engine's rated bhp is at 1800 rpm.		

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**2 IC Engine: Emergency Generator B**

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<b>Device ID #</b>	<b>005004</b>	<b>Device Name</b>	<b>IC Engine: Emergency Generator B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	995.00 Brake Horsepower
<i>Manufacturer</i>	Detriot Diesel	<i>Operator ID</i>	G-701B
<i>Model</i>	12V-149TI	<i>Serial Number</i>	12E00008835
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 334, +87		
<i>Device Description</i>	Engine's rated bhp is at 1800 rpm.		

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**3 IC Engine: Emergency Firewater Pump A**

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<b>Device ID #</b>	<b>005005</b>	<b>Device Name</b>	<b>IC Engine: Emergency Firewater Pump A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	558.00 Brake Horsepower
<i>Manufacturer</i>	Detriot Diesel	<i>Operator ID</i>	P-306A
<i>Model</i>	12V71	<i>Serial Number</i>	12VA077380
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	

*Location Note* P-103A, Mod 331, +60  
*Device* Engine's rated bhp is at 1800 rpm.  
*Description*

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**4 IC Engine: Emergency Firewater Pump B**

<i>Device ID #</i>	<b>005006</b>	<i>Device Name</i>	<b>IC Engine: Emergency Firewater Pump B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	558.00 Brake Horsepower
<i>Manufacturer Model</i>	Detroit Diesel 12V71	<i>Operator ID Serial Number</i>	12VA077381
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note Device Description</i>	P-103A, Mod 331, +60 Engine's rated bhp is at 1800 rpm.		

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**5 Diesel Storage Tank**

<i>Device ID #</i>	<b>102773</b>	<i>Device Name</i>	<b>Diesel Storage Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	10400.00 Gallons
<i>Manufacturer Model</i>	Hyundai Heavy Ind. Co.	<i>Operator ID Serial Number</i>	HA-330-F-113 336-T-600
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note Device Description</i>	P-102A, Mod 336, +87 Vertical tank 6 feet diameter, shell height 50 feet, roof height 50 feet, average liquid height 22 feet.		

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**6 Diesel Storage Tank**

<i>Device ID #</i>	<b>102775</b>	<i>Device Name</i>	<b>Diesel Storage Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5625.00 Gallons
<i>Manufacturer</i>	Hyundai Heavy Ind. Co.	<i>Operator ID</i>	HA-330-F-112
<i>Model</i>		<i>Serial Number</i>	336-T-601
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-102A, Mod 333 +87		
<i>Device Description</i>	Vertical tank 4.5 feet diameter, shell height 50 feet, roof height 50 feet, average liquid height 22 feet.		

**7 Freon Compressor**

<i>Device ID #</i>	<b>102784</b>	<i>Device Name</i>	<b>Freon Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	250.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Vilter	<i>Operator ID</i>	94
<i>Model</i>	VRS 700	<i>Serial Number</i>	336-K-810A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-102A, Mod 336, +100		
<i>Device Description</i>	In refrigeration service, 250 Bhp rated compressor, 3408 rated scfm, powered by 250 hp electric motor. Housing/seals connected to vapor recovery? No		

**8 Freon Compressor**

<i>Device ID #</i>	<b>102785</b>	<i>Device Name</i>	<b>Freon Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	250.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Vilter	<i>Operator ID</i>	94
<i>Model</i>	VRS 700	<i>Serial Number</i>	336-K-810B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-102A, Mod 336, +100		
<i>Device Description</i>	In refrigeration service, compressor rated at 3408 scfm. Powered by 250 hp electric motor.		

## 9 Glycol Regenerator

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<b>Device ID #</b>	<b>102870</b>	<b>Device Name</b>	<b>Glycol Regenerator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Energy Exchanger	<i>Operator ID</i>	076
<i>Model</i>	Custom	<i>Serial Number</i>	332-X-500-3
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in glycol service; heat medium Therminol.		

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## 10 Amine Reboiler

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<b>Device ID #</b>	<b>102871</b>	<b>Device Name</b>	<b>Amine Reboiler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Petrofac	<i>Operator ID</i>	
<i>Model</i>	Custom	<i>Serial Number</i>	332-X-501-1
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in amine service; heat medium Therminol.		

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## 11 Amine Reclaimer

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<b>Device ID #</b>	<b>102872</b>	<b>Device Name</b>	<b>Amine Reclaimer</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Petrofac	<i>Operator ID</i>	073
<i>Model</i>	Custom	<i>Serial Number</i>	332-X-501-2
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in amine service, heat medium Therminol.		

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**12 Gas Chiller A**

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<b>Device ID #</b>	<b>102873</b>	<b>Device Name</b>	<b>Gas Chiller A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Worsham	<i>Operator ID</i>	090
<i>Model</i>	Custom	<i>Serial Number</i>	336-X-811A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 336, +87		
<i>Device Description</i>	Shell & tube type in cooler service; heat medium		refrigerant.

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**13 Gas Chiller B**

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<b>Device ID #</b>	<b>102874</b>	<b>Device Name</b>	<b>Gas Chiller B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Worsham	<i>Operator ID</i>	090
<i>Model</i>	Custom	<i>Serial Number</i>	336-X-811B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, mod 336, +87		
<i>Device Description</i>	Shell & tube type in cooler service; heat medium		refrigerant.

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**14 Production Cooler A**

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<b>Device ID #</b>	<b>102875</b>	<b>Device Name</b>	<b>Production Cooler A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Poly Metals	<i>Operator ID</i>	029
<i>Model</i>	Custom	<i>Serial Number</i>	335-X-100 A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, mod 336, +87		
<i>Device Description</i>	Shell & tube type in crude service; heat medium is glycol.		

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**15 Production Cooler B**

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<b>Device ID #</b>	<b>102876</b>	<b>Device Name</b>	<b>Production Cooler B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Poly Metals	<i>Operator ID</i>	029
<i>Model</i>	Custom	<i>Serial Number</i>	335-X-100 B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, mod 336, +87		
<i>Device Description</i>	Shell & tube type in crude service, heat medium glycol.		

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**16 Test Heater A**

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<b>Device ID #</b>	<b>102877</b>	<b>Device Name</b>	<b>Test Heater A</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	033
<i>Model</i>	6.66.1A040.010	<i>Serial Number</i>	332-X-101 A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in well test service, heat medium	Therminol.	

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**17 Test Heater B**

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<b>Device ID #</b>	<b>102878</b>	<b>Device Name</b>	<b>Test Heater B</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	035
<i>Model</i>	6.66.1A040.010	<i>Serial Number</i>	332-X-101 B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in well test service, heat medium Therminol.		

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**18 Recycle Cooler**

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<b>Device ID #</b>	<b>102879</b>	<b>Device Name</b>	<b>Recycle Cooler</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	040
<i>Model</i>	12-15-1A090-020	<i>Serial Number</i>	331-X-103
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103, Mod 331, +60		
<i>Device</i>	Shell & tube type in crude pipeline service. Heat medium seawater.		
<i>Description</i>			

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**19 Discharge Cooler**

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<b>Device ID #</b>	<b>102880</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	048
<i>Model</i>	10-61-1A09-023	<i>Serial Number</i>	336-X-200 A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 330, +107		
<i>Device</i>	Shell & tube type in gas service; heat medium seawater.		
<i>Description</i>			

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**20 Discharge Cooler**

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<b>Device ID #</b>	<b>102881</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	059
<i>Model</i>	10-61-1A09-023	<i>Serial Number</i>	336-X-200 B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 330, +107		
<i>Device</i>	Shell & tube type in gas service; heat medium seawater.		
<i>Description</i>			

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**21 Discharge Cooler**

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<b>Device ID #</b>	<b>102882</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	059
<i>Model</i>	10-61-1A09-023	<i>Serial Number</i>	336-X-200 C
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 330, +107		
<i>Device Description</i>	Shell & tube type in gas service; heat medium seawater.		

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**22 Discharge Cooler**

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<b>Device ID #</b>	<b>102883</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	049
<i>Model</i>	10-61-1A09-023	<i>Serial Number</i>	336-X-201 A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 330, +107		
<i>Device Description</i>	Shell & tube type in gas service; heat medium seawater.		

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**23 Discharge Cooler**

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<b>Device ID #</b>	<b>102884</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	055
<i>Model</i>	10-61-1A09-20	<i>Serial Number</i>	336-X-201B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 330, +107		
<i>Device Description</i>	Shell & tube type in gas service; heat medium seawater.		

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**24 Discharge Cooler**

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<b>Device ID #</b>	<b>102885</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	061
<i>Model</i>	10-61-1A09-20	<i>Serial Number</i>	336-X-201C
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 330, +107		
<i>Device Description</i>	Shell & tube type in gas service; heat medium seawater.		

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**25 Discharge Cooler**

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<b>Device ID #</b>	<b>102886</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Poly Metals	<i>Operator ID</i>	070
<i>Model</i>		<i>Serial Number</i>	336-X-202
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Shell & tube type in gas service; heat medium seawater.		

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**26 Discharge Cooler**

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<b>Device ID #</b>	<b>102887</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex	<i>Operator ID</i>	044
<i>Model</i>	6-67-14990-017	<i>Serial Number</i>	336-X-203
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device Description</i>	Shell & tube type in vapor recovery service; heat medium seawater.		

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**27 Discharge Cooler**

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<b>Device ID #</b>	<b>102888</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Bas-Tex	<i>Operator ID</i>	045
<i>Model</i>	1A990-025	<i>Serial Number</i>	336-X-204
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Shell & tube type in vapor recovery service; heat medium seawater.		
<i>Description</i>			

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**28 Discharge Cooler**

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<b>Device ID #</b>	<b>102889</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Bas-Tex	<i>Operator ID</i>	045
<i>Model</i>	55-1A990-020	<i>Serial Number</i>	336-X-205
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101A, Mod 336, +107		
<i>Device</i>	Shell & tube type in vapor recovery service; heat medium seawater.		
<i>Description</i>			

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**29 Heat Exchanger**

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<b>Device ID #</b>	<b>102890</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Poly Metals	<i>Operator ID</i>	047
<i>Model</i>		<i>Serial Number</i>	335-X-208
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101, Mod 335, + 107		
<i>Device</i>	Shell & tube type in gas service; heat medium seawater.		
<i>Description</i>			

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**30 Discharge Cooler**

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<b>Device ID #</b>	<b>102891</b>	<b>Device Name</b>	<b>Discharge Cooler</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	078
<i>Model</i>	55-1B990-024	<i>Serial Number</i>	336-X-209
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101, Mod 335, + 87		
<i>Device</i>	Shell & tube type in gas service; heat medium seawater.		
<i>Description</i>			

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**31 Heat Exchanger**

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<b>Device ID #</b>	<b>102892</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Air-X-changer	<i>Operator ID</i>	085
<i>Model</i>	48EHS	<i>Serial Number</i>	335-X-300
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101, Mod 335, + 87		
<i>Device</i>	Fin fan type in gas lift service, heat medium forced air.		
<i>Description</i>			

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**32 Heat Exchanger**

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<b>Device ID #</b>	<b>102893</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Petrofac	<i>Operator ID</i>	075
<i>Model</i>	Custom	<i>Serial Number</i>	332-X-500-1
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-101, Mod 335, + 60		
<i>Device</i>	Shell & tube type in gas/glycol service, heat medium glycol.		
<i>Description</i>			

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**33 Heat Exchanger**

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<i>Device ID #</i>	<b>102894</b>	<i>Device Name</i>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Petrofac	<i>Operator ID</i>	076
<i>Model</i>	Custom	<i>Serial Number</i>	332-X-500-2
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in glycol service, heat medium		glycol.

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**34 Heat Exchanger**

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<i>Device ID #</i>	<b>102895</b>	<i>Device Name</i>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	077
<i>Model</i>	12150-M.T.	<i>Serial Number</i>	332-X-500-4
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in glycol service, heat medium		glycol.

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**35 Heat Exchanger**

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<i>Device ID #</i>	<b>102896</b>	<i>Device Name</i>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Bas-Tex Corp.	<i>Operator ID</i>	077
<i>Model</i>	12150-M.T	<i>Serial Number</i>	332-X-500-5
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device Description</i>	Shell & tube type in glycol service, heat medium		glycol.

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**36 Heat Exchanger**

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<b>Device ID #</b>	<b>102897</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Petrofac	<i>Operator ID</i>	073
<i>Model</i>		<i>Serial Number</i>	332-X-501-3
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Shell & tube type in amine service, heat medium seawater.		
<i>Description</i>			

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**37 Heat Exchanger**

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<b>Device ID #</b>	<b>102898</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Superchanger	<i>Operator ID</i>	072
<i>Model</i>	UX-296-SP-101	<i>Serial Number</i>	332-X-501-4
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Plate & frame type in amine service, heat medium		lean amine.
<i>Description</i>			

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**38 Heat Exchanger**

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<b>Device ID #</b>	<b>102899</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat</i>		<i>Physical Size</i>	
<i>Input</i>			
<i>Manufacturer</i>	Petrofac	<i>Operator ID</i>	072
<i>Model</i>	25-144-BES	<i>Serial Number</i>	332-X-501-5
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	P-103A, Mod 332, +60		
<i>Device</i>	Shell & tube in amine service, heat medium seawater.		
<i>Description</i>			

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**39 Heat Exchanger**

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<b>Device ID #</b>	<b>102900</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	102A
<i>Model</i>		<i>Serial Number</i>	336-X-810
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	090-A-Mod 336, +100		
<i>Device Description</i>	Shell & tube type in gas service, heat medium refrigerant.		

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**40 Heat Exchanger**

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<b>Device ID #</b>	<b>102901</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	092
<i>Model</i>		<i>Serial Number</i>	336-X-812
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	090-A-Mod 336, +100		
<i>Device Description</i>	Shell & tube type in gas service, heat medium refrigerant.		

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**41 Heat Exchanger**

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<b>Device ID #</b>	<b>102902</b>	<b>Device Name</b>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	092
<i>Model</i>		<i>Serial Number</i>	336-X-813
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	090-A-Mod336, +100		
<i>Device Description</i>	Shell & tube type in gas service, heat medium refrigerant.		

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**42 Heat Exchanger**

<i>Device ID #</i>	<b>102903</b>	<i>Device Name</i>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	093
<i>Model</i>		<i>Serial Number</i>	336-X-814A
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	090-A-Mod336, +100		
<i>Device Description</i>	Shell & tube type in gas service, heat medium refrigerant.		

**43 Heat Exchanger**

<i>Device ID #</i>	<b>102904</b>	<i>Device Name</i>	<b>Heat Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	093
<i>Model</i>		<i>Serial Number</i>	336-X-814B
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	090-A-Mod336, +100		
<i>Device Description</i>	Shell & tube type in gas service, heat medium refrigerant.		

**44 Marine Survival Craft**

<i>Device ID #</i>	<b>102769</b>	<i>Device Name</i>	<b>Marine Survival Craft</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	47.00 Brake Horsepower
<i>Manufacturer</i>	Perkins	<i>Operator ID</i>	
<i>Model</i>	4-154	<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	Mod 331, +60		
<i>Device Description</i>	Less than 200 operating hours per quarter and per year. No emissions controls.		

**45 Marine Survival Craft**

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<b><i>Device ID #</i></b>	<b>102770</b>	<b><i>Device Name</i></b>	<b>Marine Survival Craft</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	47.00 Brake Horsepower
<i>Manufacturer</i>	Perkins	<i>Operator ID</i>	
<i>Model</i>	4-154	<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	Mod 334, +107		
<i>Device Description</i>	Less than 200 operating hours per quarter and per year. No emissions controls.		

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**46 Marine Survival Craft**

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<b><i>Device ID #</i></b>	<b>102771</b>	<b><i>Device Name</i></b>	<b>Marine Survival Craft</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	47.00 Brake Horsepower
<i>Manufacturer</i>	Perkins	<i>Operator ID</i>	
<i>Model</i>	4-154	<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	Mod 333, +124		
<i>Device Description</i>	Less than 200 operating hours per quarter and per year. No emissions controls.		

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**47 Emergency Response Boat Engines SMALL**

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<b><i>Device ID #</i></b>	<b>102772</b>	<b><i>Device Name</i></b>	<b>Emergency Response Boat Engines SMALL</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	300.00 Brake Horsepower
<i>Manufacturer</i>	Johnson	<i>Operator ID</i>	
<i>Model</i>	OMC	<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>	Mod 332, +60		
<i>Device Description</i>	Two gasoline powered outboard engines of 150 hp each.		

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**48 Maintenance Supply**

<i>Device ID #</i>	<b>102911</b>	<i>Device Name</i>	<b>Maintenance Supply</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	300
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>	<i>APCD Rule Exemption:</i>		
<i>Device Description</i>	Platform Harvest		
	Coating/solvent brand name	Amercoat 450 (yellow)	
	Application	Gloss top coat	
	Annual usage (gal per year)	15	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	2.44	
	Emission controls used?	Yes	
	Emission controls description	Overspray tarps	

**49 Maintenance Supply**

<i>Device ID #</i>	<b>102912</b>	<i>Device Name</i>	<b>Maintenance Supply</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	300
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>	<i>APCD Rule Exemption:</i>		
<i>Device Description</i>	Platform Harvest		
	Coating/solvent brand name	Amercoat 68 HS	
	Application	Epoxy Primer	
	Annual usage (gal per year)	30	
	Regulatory VOC content (g/l)	350	
	ROC emission factor (lb/gal)	2.86	
	Emission controls used?	Yes	
	Emission controls description	Oversparry tarps	

**50 Maintenance Supply**

<i>Device ID #</i>	<b>102910</b>	<i>Device Name</i>	<b>Maintenance Supply</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	300
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>	<i>APCD Rule Exemption:</i>		
<i>Device Description</i>	Platform Harvest		
	Coating/solvent brand name	Amercoat 450 (red)	
	Application	Gloss top coat	
	Annual usage (gal per year)	3	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	2.44	
	Emission controls used?	Yes	
	Emission controls description	Overspary tarps	

**ATTACHMENT 10.4. Helicopter Emission Tables**

## Point Arguello Project Helicopter Emissions Summary

### Sykorski SK-76 Helicopters

Trip Segment	Climbout (min)	Approach (min)	Idle (min)	Cruise (min)	NOx (lbs/segment)	ROC (lbs/segment)	CO (lbs/segment)
SBA-Harvest	2	2	4	22	0.79	0.97	2.38
SBA-Hermosa	2	2	4	20	0.73	0.96	2.29
SBA-Hidalgo	2	2	4	25	0.88	0.97	2.51
SBA-Irene	2	2	4	25	0.88	0.97	2.51
Harvest-SBA	2	2	4	22	0.79	0.97	2.38
Hermosa-SBA	2	2	4	20	0.73	0.96	2.29
Hidalgo-SBA	2	2	4	25	0.88	0.97	2.51
Irene-SBA	2	2	4	25	0.88	0.97	2.51
SMA-Harvest	2	2	4	15	0.58	0.95	2.07
SMA-Hermosa	2	2	4	15	0.58	0.95	2.07
SMA-Hidalgo	2	2	4	15	0.58	0.95	2.07
SMA-Irene	2	2	4	10	0.43	0.95	1.86
Harvest-SMA	2	2	4	15	0.58	0.95	2.07
Hermosa-SMA	2	2	4	15	0.58	0.95	2.07
Hidalgo-SMA	2	2	4	15	0.58	0.95	2.07
Irene-SMA	2	2	4	10	0.43	0.95	1.86
Harvest-Harvest	2	2	4	0	0.13	0.93	1.42
Harvest-Hermosa	2	2	4	2	0.19	0.93	1.51
Harvest-Hidalgo	2	2	4	3	0.22	0.94	1.55
Harvest-Irene	2	2	4	5	0.28	0.94	1.64
Hermosa-Harvest	2	2	4	2	0.19	0.93	1.51
Hermosa-Hermosa	2	2	4	0	0.13	0.93	1.42
Hermosa-Hidalgo	2	2	4	3	0.22	0.94	1.55
Hermosa-Irene	2	2	4	5	0.28	0.94	1.64
Hidalgo-Harvest	2	2	4	3	0.22	0.94	1.55
Hidalgo-Hermosa	2	2	4	3	0.22	0.94	1.55
Hidalgo-Hidalgo	2	2	4	0	0.13	0.93	1.42
Hidalgo-Irene	2	2	4	5	0.28	0.94	1.64
Irene-Harvest	2	2	4	5	0.28	0.94	1.64
Irene-Hermosa	2	2	4	5	0.28	0.94	1.64
Irene-Hidalgo	2	2	4	5	0.28	0.94	1.64
Irene-Irene	2	2	4	5	0.28	0.94	1.64

### Emission Factors

(lbs/hr)	Climbout	Approach	Idle	Cruise
NOx	2.60	1.00	0.10	1.80
THC	0.10	0.50	14.40	0.10
ROC (95% THC)	0.10	0.48	13.68	0.10
CO	2.10	5.40	17.60	2.60

**ATTACHMENT 10.5. PXP Comments on Draft Permit/APCD Response**

**TO BE PROVIDED**

