



air pollution control district  
SANTA BARBARA COUNTY

**DRAFT**

**PERMIT TO OPERATE 9104 – R6**

**and**

**PART 70 OPERATING PERMIT 9104**

**Platform Hermosa**

**Parcel OCS P-0316  
Point Arguello Oilfield  
Outer Continental Shelf**

**EQUIPMENT OPERATOR**

Freeman-McMoRan Oil and Gas, LLC

**OWNERSHIP**

Freeport-McMoRan Oil & Gas, LLC.

**Santa Barbara County  
Air Pollution Control District**

**October 2022**

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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-leakpath
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 um in size
PM <sub>2.5</sub>	particulate matter less than 2.5 um 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
District	Santa Barbara County Air Pollution Control District
scf	standard cubic feet
scfd	standard cubic feet per day
scfm	standard cubic feet per minute
SCAQMD	South Coast Air Quality Management District
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

## 1.0 Introduction

### 1.1 Purpose

General: The Santa Barbara County Air Pollution Control District (District) is responsible for implementing all applicable federal, state and local air pollution requirements that affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 60, 61, 63, 68, 70 and 82. The State regulations may be found in the California Health & Safety Code, Division 26, Section 39000 et seq. The applicable local regulations can be found in the District's Rules and Regulations. Santa Barbara County is designated as a non-attainment area for both the state PM<sub>10</sub> and ozone ambient air quality standard. .

Part 70 Permitting: The issuance of this Part 70 permit to Platform Hermosa satisfies the permit issuance requirements of the District's Part 70 operating permit program. The initial permit renewal was issued April 2001 in accordance with the requirements of the District's Part 70 operating permit program. This permit is the sixth renewal of the Part 70 permit and may include additional applicable requirements and associated compliance assurance conditions. This permit also incorporates any Part 70 minor modifications since the last renewal and is being issued as a combined Part 70 and District reevaluation permit.

Platform Hermosa 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 Greenhouse gases. 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 District, 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 two objectives. First, compliance with all conditions in this permit would ensure compliance with all federally enforceable requirements for the facility. Second, the permit would be a comprehensive document to be used as a reference by the permittee, the regulatory agencies and the public to assess compliance.

Tailoring Rule. This reevaluation incorporates greenhouse gas emission calculations for the stationary source. On January 20, 2011, the District revised Rule 1301 to include greenhouse gases (GHGs) that are "subject to regulation" in the definition of "Regulated Air Pollutants".

The facility's potential to emit has been estimated; however, the greenhouse gas PTE is not an emission limit. The facility will not become subject to emission limits for GHGs unless a project triggers federal Prevention of Significant Deterioration requirements under Rule 810.

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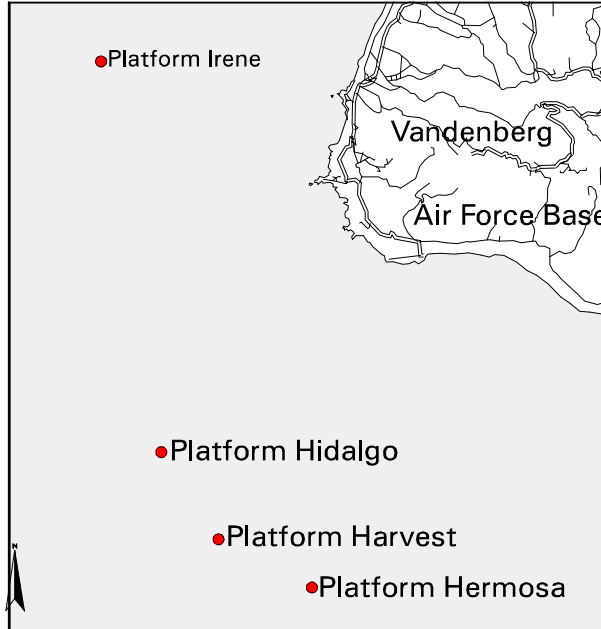
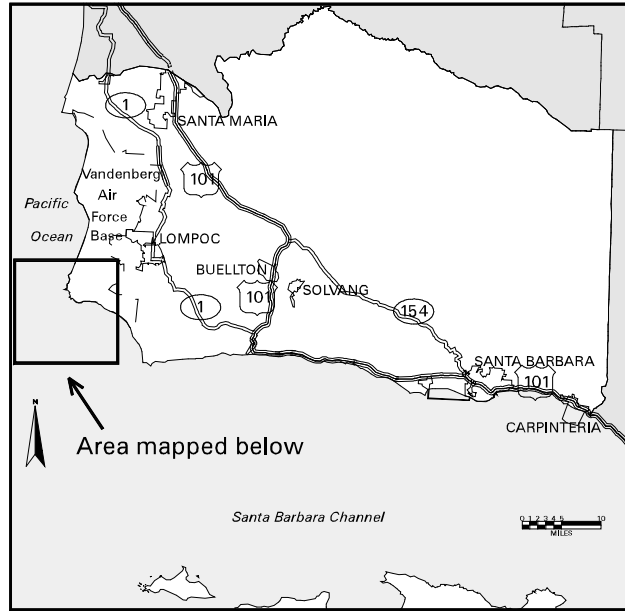
<sup>1</sup> VOC as defined in Regulation XIII has the same meaning as reactive organic compounds as defined in Rule 102. The term ROC shall be used throughout the remainder of this document, but where used in the context of the Part 70 regulation, the reader shall interpret the term as VOC.

## **1.2 Facility Overview**

1.2.1 Facility Overview: Platform Hermosa is located on offshore lease tract OCS-P-0316, approximately ten miles offshore of Point Arguello, California (Latitude 34°27'19" North, Longitude 120°38'47" West). The platform is situated in the Southern Zone of Santa Barbara County. Figure 1.1 shows the relative location of Platform Hermosa off the Santa Barbara County coast. The platform is operated by Freeport-McMoRan Oil & Gas, LLC (FM O&G). Platform operations have been suspended since May 2015 due to the failure of AAPL's pipeline that formerly transported crude oil from the Gaviota Oil Heating Facility (GOHF) to oil refining facilities. There are no active oil and gas operations at the GOHF which has been depermitted and is being decommissioned. Platform Hermosa is also being decommissioned. With the exception the equipment needed during the decommissioning of the platform such as the fuel gas system, power generation systems, various emergency and non-emergency internal combustion engines and the flare, most of the platform processing facilities are being depermitted in this permit renewal. The process operations described below are those formerly in place on the platform.



Figure 1.1 - Location Map for Platform Hermosa



Platform Hermosa is an eight-leg, five-deck platform that was installed in a water depth of 603 feet in October 1985. Initial production commenced in 1991. Platform Hermosa produces sour natural gas and crude oil. The average gravity of the produced crude oil is 20°API. Platform Hermosa is a self-contained, manned drilling and producing platform with locations for a maximum of 48 well slots, facilities for gas and oil production, and accommodation quarters for platform personnel. The production systems on Platform Hermosa are capable of processing 50,000 barrels of oil per day (bpd) of wet oil (i.e., oil/water emulsion) and approximately 30.0 million standard cubic feet of natural gas. Oil and gas are separated on the platform, and the gas is treated for dew point reduction.

Platform Hermosa is located 4.8 miles from Platform Hidalgo and 3.2 miles from Platform Harvest. Platform Hermosa receives gas and oil from Platform Hidalgo (via a 16-inch oil line and a 10-inch gas line) and from Platform Harvest (via a 12-inch oil line and an 8-inch gas line). The oil was formerly shipped via a 24-inch pipeline to the Gaviota Oil Heating Facility (GOHF).

The Point Arguello Project is comprised of the following facilities:

**Platform Hermosa:** Installed in 1985 by Chevron and operated by FM O&G. This platform is subject to PTO 9104.

**Platform Hidalgo:** Installed in 1986 by Chevron and operated by FM O&G. This platform is subject to PTO 9105.

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

**Gaviota Oil Heating Facility (GOHF):** Installed in 1989 by Chevron and operated by FM O&G. The facility has been decommissioned and the operating permit PTO 5704-R5 was cancelled on June 29, 2020. A diesel-fired firewater pump engine remains permitted under PTO 15455.

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 has been incorporated into the appropriate permit renewal.

**ATC/PTO 9104-01:** This permit authorized the removal of the unplanned flaring sulfur concentration limit of 10,000 ppmv. The District determined that compliance for unplanned flaring can be determined through the permitted mass emission limits alone.

**ATC/PTO 9104-02:** 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.

**PTO 9104-10:** This permit authorized revisions to the visible emissions monitoring requirements listed in permit condition 9.B.2.

**PTO 9104-11:** This permit authorized an increase in the facility oil emulsion throughput from 50,000 barrels per day to 100,000 barrels per day.

*PTO 9104-12:* This permit authorized an increase in the number of allowable pigging vents.

*ATC/PTO 10850:* This permit authorized corrections to turbine fuel use calculations.

*ATC/PTO 10918:* This permit authorized revisions to the number of fugitive leakpaths.

*ATC/PTO 11661:* This permit authorized an increase in the number of pigging events and pigging emissions.

*PTO 11930:* Permits one emergency firewater pump and one emergency air compressor due to the loss of the Rule 202.F.1.d exemption.

*PTO 9104-14:* Replacement of MERC emission reduction credits (ERCs) with ERCs generated by the installation of emission controls on gas operated turbines on Platform Harvest.

*Trn O/O 9104-07:* This permit authorized a change of Project Ownership, Inc. (removal Texaco Harvest, LLC).

*Trn O/O 9104-08:* Transfer of Platform Operatorship from Arguello, Inc. to Freeman-McMoRan Oil and Gas, LLC. (FM O&G).

*PTO 9104-15:* Temporary use of an equivalent replacement air flotation cell.

*PTO 9104-16:* Permits one emergency electrical generator due to the loss of the Rule 202.F.1.d exemption.

*ATC 14142:* This permit authorized the installation of an oxidation catalyst to control carbon monoxide emissions as required by 40 CFR 63 Subpart ZZZZ.

*ATC 14276:* Permit deminimis emissions and associated equipment.

*PTO 9104-18:* Corrections to fugitive I&M component leakpath count.

*ATC 14318:* Replace the emergency air compressor.

*PTO 9104-19:* Permit language postponing compliance requirements.

*PTO 9104-20:* Transfer of the PANGL pipeline components to the Platform Hermosa permit from GOHF.

*PTO 15270:* Modify use of the M/V Challenger/Modify CO emission factor.

*PT-70 ADM 15587:* Change responsible official.

### **1.3 Emission Sources**

The primary sources of platform emissions are combustion sources, storage tanks and piping components, such as valves and flanges. Section 4 of the permit provides the District'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:

- Two turbine generators used for electrical power generation. The turbines burn PUC-quality gas, however, diesel fuel may be used during times when the gas supply has been interrupted.
- Two 50-ton pedestal cranes operated by diesel-driven internal combustion engines.
- One standby diesel-driven generator that is used only in emergencies.
- A standby diesel-driven firewater pump that is used only in emergencies.
- One standby diesel-driven air compressor used to start turbines in emergencies.
- Supply and emergency response boats.
- High Pressure and Low Pressure Flares.
- Helicopters.
- Solvent cleaning.

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

### **1.4 Emission Control Overview**

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

- A Fugitive Emissions 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 Tier 2 and Tier 3 engines for the supply boat main engines to achieve a NO<sub>x</sub> emissions rate of 8.40 g/bhp and 5.99 g/bhp-hr, respectively.
- Use of turbo-charging, inter-cooling and 4° timing retard on the pedestal crane engines to achieve a NO<sub>x</sub> emissions rate of 8.4 g/bhp-hr.
- Water injection in the G-92 and G-94 turbines to reduce NO<sub>x</sub> formation by approximately 70-percent.
- Oxidation catalysts on the crane engines to reduce CO emissions.

## **1.5 Offsets/Emission Reduction Credit Overview**

- 1.5.1 Emission Offsets and Emission Reduction Credits: See Sections 7.3 and 7.4 for a detailed discussion of facility emission offsets and emission reduction credits.
- 1.5.2 Emission Reduction Credits (ERCs) - Platform Shutdown: Decision of Issuance No. 109 was issued final March 1, 2019 for the purpose of generating ERCs from the depermitting of various processing equipment on Platform Hermosa. An ERC certificate will be issued for these ERCs once the District has confirmed this equipment is out of service.

## **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 District Rules, all conditions in the District-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 District 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 District. Permit shields cannot be indiscriminately granted with respect to all federal requirements. FM O&G 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. FM O&G made no request for permitted alternative operating scenarios.

- 1.6.6 Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application and, be re-submitted annually on or before March 1st, or on a more frequent schedule specified in the permit. 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)
- 1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data.
- 1.6.8 Hazardous Air Pollutants (HAPs): Part 70 permits regulate emission of HAPs from major sources by requiring maximum achievable control technology (MACT), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability. (See section 5.0)
- 1.6.9 Responsible Official: The designated responsible official and his mailing address is:  
Todd Cantrall, Vice President of Operations  
Freeport-McMoRan Oil & Gas, LLC  
21 Waterway Ave. Suite 250  
The Woodlands, Texas 77380-3121

## **2.0 PROCESS DESCRIPTION**

### **2.1 Process Summary**

- 2.1.1 *Production*: The well bays are arranged in two groups with four rows of six wells per group. Flow lines from wells in each group are connected to identical manifold systems (East Bay and West 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, may require gas lift for start-up purposes and eventually artificial lift (pumping) may be required to sustain production as reservoir pressures decrease.

- 2.1.2 *Gas, Oil and Water Separation*: Two separation systems are in operation on Platform Hermosa: (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 (E-1 or E-2) through a single production header into two identical production separators (V-1 or V-2) 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 from approximately 85 to 130 psig and 200°F with a capacity of 50,000 bpd of oil emulsion and 30 MMscfd of gas. Gas from the top of the separators is compressed in the second stage of the main gas compressors (K-14, K-12, and K-13). 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 de-gasser (V-97) and produced water corrugated plate interceptors (CPI) separator for further processing. The crude oil is separated from the water and flows through the electrostatic coalesces (V-6 and V-7), the crude oil stabilizer (V-67), and finally enters the oil surge tank (V-8) for subsequent metering, sampling, and pumping to onshore facilities. The stabilizer uses stripping gas to reduce vapor pressure and H<sub>2</sub>S content to meet the pipeline sales specifications.

Condensate from the gas scrubbers (V-13 and V-14) is routed to the condensate stabilizer (V-5) and then enters the crude oil stabilizer. Liquids from the dirty oil transfer pumps (P-74 and P-80), well cleanup separator (V-9) and low temperature separator (V-86) are recycled into the crude oil header upstream of the production preheaters (E-1 and E-2).

- 2.1.3 *Waste Water Treatment:* The produced water treatment system on Platform Hermosa consists of the de-gasser (V-97), produced water CPI separators (M-32 and M-33), air floatation cell (M-31), produced water surge tank (T-31), and the disposal piles (T-75 and T-76). Deck drainage and liquids collected in the sump are routed to the oily water CPI separator (M-70).
- 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 Hermosa. Crude oil from the small test headers is treated in the small test separator (V-4). Crude oil from the large test header is treated in the large test separator (V-3); the large test separator can be used as a standby production separator in segregated operating mode, but is normally used as a test separator. 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 separator receives produced fluids and contaminated solids from the wellhead to bring in or clean up a well. The produced fluid stream is not heated and flows either to the dirty oil storage vessels (V-71 and V-72) or to a production heater for further processing.

The dirty oil storage vessels are cylindrical vessels maintained under a small positive pressure (2.0 psig) by blanket gas. Each vessel has a capacity of 300 bbl. The dirty oil is pumped from the dirty oil storage vessels by the dirty oil transfer pumps (P-74 and P-80) to the production preheaters (E-1 and E-2) 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 and to coordinate the oil shipped from Platforms Hidalgo and Harvest. 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 oil surge tank (V-8) has two functions: it provides a small reservoir of crude (approximately 15 minutes at full pumping capacity), and maintains a liquid suction head to the oil charge pumps (P-5, and P-6). The oil charge pumps pump the oil at 560 gpm and 195 psig to the shipping pumps (P-1, P-2, and P-3) through the LACT units and meter prover. From the shipping pumps, the oil is pipelined through submarine pipeline to the onshore receiving facilities at the GOHF.

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

The main gas compression system compresses the high-pressure gas from the separation systems and the discharge from the vapor recovery compressors to 100/1,200 psig (in two stages). This gas is then treated to reduce the water dew point to 40°F maximum and pumped to Platform Harvest or Hidalgo for reinjection. A slipstream of produced gas from the main gas compressor second stage discharge is sweetened in the amine contactor for use as fuel gas and blanket gas.

Three 50-percent reciprocating gas compressors (K-12, K-13, and K-14) are used for main gas compression. Each compressor has four compressor cylinders and is driven by a 2,000-hp variable speed electric motor.

The hot compressed gas streams are cooled in tube and shell heat exchangers, and are scrubbed after each stage. Five scrubbers (V-11, V-12, V-112, V-13, and V-14) serve to “knock out” liquids, including both water and natural gas liquids (NGL or condensate), which are then sent to the condensate stabilizer (V-5) to pull out the gas and water. The condensate is then injected into the oil stabilizer above the oil level and at lower temperature and pressure, inducing propane and butane to flash off to the VRU. Some portion of the gas is delivered from the MGC stage 2 discharge to the amine unit where it is sweetened for use as fuel gas. After scrubbing in the third stage discharge scrubber (V-14), gas is sent to the glycol contactor to reduce water vapor.

The glycol dehydration and regeneration system dehydrates the gas using triethylene glycol. The wet gas from the gas compressors flows to the glycol contactor (V-16), a trayed vertical tower located on the wellhead and mezzanine decks. Rich glycol (96 percent weight triethylene glycol)



from the glycol contactor and the dry gas scrubber (V-17) is flashed in the glycol flash tank to remove the majority of the dissolved hydrocarbons. The hydrocarbon vapors are returned to the VRU system.

The rich glycol is heated and goes to the still section of the glycol regenerator (E-16). The regenerator heats the glycol to 385°F by a heating medium heat exchanger, thereby reconcentrating the glycol. The lean glycol is cooled and returned to the glycol contactor by the glycol pumps.

- 2.1.8 *Gas Sweetening and Sulfur Recovery:* Fuel gas for use by the turbine-driven electrical generators is produced as a side stream of the main gas compression system. The gas is sweetened in the amine fuel gas treatment and regeneration system; the amine unit uses an amine based absorbent chemical to remove H<sub>2</sub>S and CO<sub>2</sub> from the production gas. Feedstock to the amine system is a side stream from the MGC; the sour gas enters the amine contactor (V-20) and is sweetened to a specification of less than 50 ppmv H<sub>2</sub>S.

The amine contactor contains three stacked sections for a total packing height of 40 ft. The rich amine flows from the contactor to the amine flash tank where dissolved hydrocarbons are removed by flashing at reduced pressure. Rich amine is regenerated in the amine regenerator (V-22), cooled and filtered, and returned to the amine contactor.

- 2.1.9 *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 two stages to 100 psig, and delivers them to the main gas header. Two 100 percent reciprocating gas compressors (K-10 and K-11) are used for compression of recovered vapors. Each compressor has two cylinders and is driven by a 400-hp electric motor.

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

#### 2.1.11 *Flare Relief System*

- 2.1.11.1 *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 flare tip (M-12) is a low radiation type emitting approximately 440 Btu/hr/ft<sup>2</sup> of radiant heat. There are two continuous pilot burners with thermocouples for flameout detection and automatic re-ignition of the flare via the flame front generator (M-10). The low-pressure flare tip is a John Zink Model EEP-210. Sweet fuel gas is used for pilot flame ignition and purge.

- 2.1.11.2 *Planned Flaring Scenarios:* There are four common or routine planned flaring scenarios that occur on Platform Hermosa:

- (1) During the start-up 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 shutdown 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 (2-115 psig) and blanket gas is 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 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 Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), formerly the Minerals Management Service.

- 2.1.11.3 *Unplanned Flaring Scenarios*: Unplanned flaring events on Platform Hermosa 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, breakdown, and emergency flaring events are defined as all flaring that does not meet the definition of planned flaring under Rule 359.

## **2.2 Support Systems**

- 2.2.1 *Pipelines*: The pipelines associated with the platform include a 12-inch oil emulsion line and an 8-inch produced gas line from Harvest and a 16-inch emulsion line and a 10-inch produced gas line from Hidalgo. Shipping lines to the GOHF consist of a 24-inch crude oil line and a 20-inch produced gas line.
- 2.2.2 *Power Generation*: Electrical power for platform operations is provided by two 2,800 kW Solar Centaur dual-fuel turbine generators (G-92 and G-94). The dual-fuel turbines can be run on either natural gas or diesel fuel and use water injection for NO<sub>x</sub> control. An emergency diesel driven generator (G-90) is also located on the platform and provides standby power.
- 2.2.3 *Supply Boats*: Supply boats regularly service the Point Arguello platforms on the same round trip from Port Hueneme. The dedicated project vessel is 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.

2.2.5 *Helicopters*: Crew transport is normally accomplished by helicopter from Santa Maria Airport.

### **2.3 Drilling Activities**

Not Applicable. Drilling activities no longer occur on Platform Hermosa.

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

2.4.1 *Paints and Coatings* There is a maintenance painting program continuously in progress on Platform Hermosa. 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. Usages 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, that equipment be 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**

FM O&G 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 Hermosa.

### **3.1 Rule Exemptions**

➔ *District Rule 202 (Exemptions to Rule 201)*: FM O&G has requested a number of exemptions under this rule. An exemption from permit, however, does not grant relief from any applicable prohibitory rule unless specifically exempted by that prohibitory rule. The following exemptions either were approved by the District or may apply to individual equipment units meeting the exemption criteria:

- Section 202.V.2 for two diesel storage tanks (T-90 and T-91).

- Section 202.V.3 for one compressor lubricating oil storage tank (T-10), one lubricating oil surge tank (V-85) and one lubricating oil degasser (V-87).
- ➔ *District 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).
- ➔ *District Rule 331 (Fugitive Emissions Inspection and Maintenance)*: The following exemptions were applied for and approved by the District:
- 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.
- ➔ *District 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. The firewater pump and emergency generator engines are compression ignition emergency standby engines and are therefore exempt from Rule 333 per Section B.1.d.
- ➔ *District Rule 359 (Flares and Thermal Oxidizers)*: Under Section D.1.b, FM O&G has obtained District 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 small fishing vessels 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 7.4. 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 Hermosa was constructed and permitted prior to the applicability of these regulations. However, all permit modifications as of September 4, 1992 are subject to District NSR requirements. Compliance with District 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}: FM O&G is operating Platform Hermosa 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 District

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 District 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 to the requirements of Part 61.
- 3.2.5 CFR 60 Subpart OOOO {*Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution*} this subpart does not apply to operations in the outer continental shelf (OCS). As defined in 60.5365, this regulation applies to owners and operators of “onshore affected facilities”. The OCS is specifically excluded from the definition of onshore as found in section 60.5430.
- 3.2.6 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. FM O&G submitted an *Initial Notification of Applicability* on June 13, 2000. In a February 20, 2003, correspondence FM O&G requested a black oil exemption from this rule and provided information to support the request. The District 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.
- 3.2.7 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 facility’ HAP emission totals are less than each of the above thresholds is and therefore, this subpart is not applicable. See Section 5.7 for HAPs emission totals.

- 3.2.8 40 CFR Part 63 Subpart ZZZZ {NESHAP}: Subpart ZZZZ applies to owners and operators of stationary reciprocating IC engines (RICE). For area sources of HAP emissions, stationary RICE are “existing” if construction or reconstruction commenced before June 12, 2006. Engines that are not categorized as existing are considered “new”.

The diesel-fired IC engines on the platform were installed prior to June 12, 2006 and are therefore considered existing for the purpose of this subpart.

Operating requirements for the emergency standby generator, emergency standby air compressor, the standby firewater pump) are:

- (1) change the oil and filter every 1,000 hours of operation or annually, whichever comes first;
- (2) inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first; and
- (3) inspect all hoses and belts every 500 hours of operation or annually, whichever comes first.

In lieu of changing the oil, FM O&G may instead conduct an oil analysis. The analysis measures the Total Base Number, the oil viscosity, and the percent water content. The oil and filter will be changed if any of the following limits are exceeded:

- (1) The tested Total Base Number is less than 30 percent of the Total Base Number of the oil when new;
- (2) The tested oil viscosity has changed by more than 20 percent from the oil viscosity when new;
- (3) The tested percent water content (by volume) is greater than 0.5 percent.

The Total Base Number is the amount acid necessary to neutralize the base reserve in one gram of oil. It is expressed in the equivalent number of milligrams of potassium hydroxide and is a measure of the ability of the oil to neutralize acids created during combustion. If FM O&G chooses to change the oil at the specified frequencies, no analysis is required.

Per Section 63.6625(e) the engines must be operated and maintained according to the manufacturer’s written instructions, or FM O&G must develop their own maintenance plan to minimize emissions.

Per Section 63.6645, existing stationary RICE that are not subject to numerical emission standards do not have to submit an initial notification. No reporting requirements are identified in Section 63.6650 for these units. Per Section 63.6655, FM O&G must keep records of maintenance on the engines.

Emission limits for the crane engines (Device IDs 05029 and 05030) are:

- (1) 49 ppmvd @ 15% O<sub>2</sub>; or

- (2) a 70% or more reduction in CO emissions.

ATC 14142 authorized the installation of an oxidation catalyst for control of CO emissions. Additionally, an open crankcase filtration emission control system was installed for the purpose of complying with 40 CFR 63 Subpart ZZZZ §63.6625(g). Performance testing, conducted in October 2013 demonstrated that each crane engine complies with NESHAP subpart ZZZZ emission standards.

- 3.2.9 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998. Turbines G-92 and G-94 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 4.12 for a discussion of this plan and the rule applicability determination.
- 3.2.10 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to Platform Hermosa. Table 3.1 lists the federally enforceable District promulgated rules that are “generic” and apply to Platform Hermosa. Table 3.2 lists the federally enforceable District promulgated rules that are “unit-specific”. These tables are based on data available from the District’s administrative files and from FM O&G’s Pt70 Operating Permit application. Table 3.4 includes the adoption dates of these rules.

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

### **3.3 Compliance with Applicable State Rules and Regulations**

- 3.3.1 Division 26. Air Resources {California Health & Safety Code}: The administrative provisions of the Health & Safety Code apply to this facility and are enforced by the District. These provisions are District-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 Hermosa are required to conform to these standards. Compliance is assessed through onsite inspections. These standards are District-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 over 50 brake horsepower (bhp) at this facility. On March 17, 2005, District Rule 202 was revised to remove the compression-ignited engine (e.g. diesel) permit exemption for units rated over 50 bhp to allow the District 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.

- 3.3.4 Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (CCR Title 17, Section 95665 et. Seq.): On October 1, 2017, the California Air Resources Board (CARB) finalized this regulation, which establishes greenhouse gas emission standards for onshore and offshore crude oil and natural gas production facilities. As defined in this regulation, offshore means all lands located within the State of California. Therefore, this regulation does not apply to operations within the outer continental shelf (OCS), and Platform Hermosa is exempt from the requirements of this regulation.
- 3.3.5 California Administrative Code Title 17 {Sections 93118.5}: The Airborne Toxic Control Measure (ATCM) for Diesel Engines on Commercial Harbor Craft Operated within California Waters and 24 Nautical Miles of the California Baseline specifies emission standards and operational requirements for new and in-use engines. This ATCM only regulates fuel sulfur content in the OCS for the supply boats. All vessels now operating in the OCS must be controlled to the ATCM emission standards by the fact that operation of these vessels begin and end at a California port.

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

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

*Rule 201 - Permits Required*: This rule applies to any person who builds, erects, alters, replaces, operates or uses any article, machine, equipment, or other contrivance which may cause the issuance of air contaminants. The equipment included in this permit is listed in Attachment 10.4. An Authority to Construct is required to return any de-permitted equipment to service and may be subject to New Source Review.

*Rule 210 - Fees: Pursuant to Rule 201.G*: District permits are reevaluated every three years. This includes the re-issuance of the underlying permit to operate. Fees for this facility are recovered under the cost reimbursement provisions of this rule.

*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 District rules and regulations. To the best of the District's knowledge, FM O&G 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 all engines to be maintained according to manufacturer maintenance schedules.

*Rule 303 - Nuisance:* This rule prohibits the OCS operator from causing a public nuisance due to the discharge of air contaminants. Based on the source's location on the OCS, the potential for public nuisance is small.

*Rule 305 - Particulate Matter, Southern Zone:* Platform Hermosa 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 Hermosa is flared (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 Hermosa 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 Hermosa and on the supply boats are expected to comply 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. FM O&G 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. FM O&G has stated that there are no equipment subject to this rule.

*Rule 321 -* Rule 321 was revised to fulfill the commitment in the 2001 and 2004 Clean Air Plans to implement requirements for solvent cleaning machines and solvent cleaning. The revised rule contains solvent reactive organic compounds (ROCs) content limits, revised requirements for solvent cleaning machines, and sanctioned solvent cleaning devices and methods. These proposed provisions apply to solvent cleaning machines and wipe cleaning.

*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. FM O&G is required to maintain records during maintenance operations to ensure compliance with this rule.

Rule 323.1 (Architectural Coatings): This rule sets the standards for any architectural coating that is supplied, sold, offered for sale, or manufactured for use within the District.

*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. FM O&G 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 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 wastewater tanks, oil/water separators and sumps. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. Relief valves are connected to the flare relief system. Compliance with Section E is met by directing all produced gas to sales, injection, and 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 are 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 Hermosa.

*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 of this rule, 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. District has determined that CEMs are not required to assess compliance for Platform Hermosa.

*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 FM O&G 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 will be assessed via implementation of the most current version of the District-approved Fugitive Inspection and Maintenance Plan, platform inspection by District personnel using an organic vapor analyzer and through review of operator records. Platform Hermosa 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 Hermosa are subject to the NO<sub>x</sub> standards under Section E.4 of 700 ppmvd at 15-percent oxygen. Ongoing compliance is achieved through implementation of the most current version of the District-approved Rule 333 *Inspection and Maintenance Plan* required under Section E and through biennial source testing. The emergency generator, firewater pump and air compressor are exempt per section B.2 of the rule 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 aboveground 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 uses PUC-quality gas for purge and pilot gas. For planned emissions associated with platform flaring volumes, FM O&G has obtained District 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 Hermosa complies with this section.

§ D.3 - Flare Minimization Plan: This section requires sources to implement flare minimization procedures so as to reduce emissions and document these procedures in a Flare Minimization Plan. FM O&G has fully implemented their Flare Minimization Plan.

*Rule 505 - Breakdown Conditions:* This rule describes the procedures that FM O&G must follow when a breakdown condition occurs to any emissions unit associated with Platform Hermosa. A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment that causes a violation of an emission limitation or restriction prescribed in the District 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 units 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. FM O&G submitted a revised Emergency Episode Plan in June 2008.

*Rule 810 - Federal Prevention of Significant Deterioration:* This rule was adopted January 20, 2011 to incorporate the federal Prevention of Significant Deterioration rule requirements into the District's rules and regulations. Future projects at the facility will be evaluated to determine whether they constitute a new major stationary source or a major modification.

### **3.5 Compliance History**

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

- 3.5.1 Facility Inspections. Platform Hermosa is inspected by the District each calendar quarter. The inspection reports associated with these inspections were reviewed as part of the permit renewal process. Since the previous permit renewal, multiple enforcement actions were issued as a result of these inspections, as well as, violations issued as a result of District review of the semi-annual compliance reports or from Deviation Report submittals. In addition, multiple violations were

issued prior to issuance of the 2018 permit renewal that should have been documented in this renewal, but were not. See Section 3.5.2 below for a summary of enforcement actions.

3.5.2 Enforcement Actions. The following enforcement actions were issued to this facility since May 2017. Compliance has been achieved for each violation.

<b>VIOLATION NUMBER</b>	<b>DATE ISSUED</b>	<b>DESCRIPTION/RULE VIOLATION</b>
No. 11167	05/26/2017	Violation of Rule 206. Failure to maintain emergency generators.
No. 11162	05/26/2017	Violation of Rule 206. Failure to utilize water injection on Turbine G-92.
No. 11159	05/26/2017	Violation of Rule 206. Failure to utilize water injection on Turbines G-92/93.
No. 11282	01/05/2018	Violation of Rule 206. Failure to maintain units G-90 and P-50.
No. 11572	05/08/2019	Violation of Rule 331. Exceeding number of allowable major leaks.
No. 12121	11/13/2019	Violation of Rule 331. Failure to seal an open-ended line.
No. 12946	04/12/2022	Violation of Rule 206. Failure to utilize water injection on Turbine G-92

3.5.3 Significant Historical Hearing Board Actions. There have been no significant historical Hearing Board actions issued for this facility since issuance of the initial Part 70 permit in April 2001.

**Table 3.1. Generic Federally-Enforceable District 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 or modification to existing equipmt.
<u>RULE 205</u> : Standards for Granting Permits	All emission units	Emission of pollutants
<u>RULE 206</u> : Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
<u>RULE 207</u> : Denial of Applications	All emission units	Applicability of relevant Rules
<u>RULE 208</u> : Action on Applications – Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment or modification to existing equipment.
<u>RULE 212</u> : Emission Statements	All emission units	Administrative
<u>RULE 301</u> : Circumvention	All emission units	Any pollutant emission
<u>RULE 302</u> : Visible Emissions	All emission units	Particulate matter emissions
<u>RULE 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.
<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.

<b>Generic Requirements</b>	<b>Affected Emission Units</b>	<b>Basis for Applicability</b>
<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 323:I</u> Architectural Coatings	Paints used in maintenance and surface coating activities for paints made on or after 01/01/2015.	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	FM O&G - 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>RULE 810</u> : Federal Prevention of Significant Deterioration	All emission units	Sources subject to any requirement under 40 Code of Federal Regulations, Part 52, Section 52.21
<u>RULE 901</u> : New Source Performance Standards (NSPS)	All emission units	Applicability standards are specified in each NSPS.
<u>RULE 1001</u> : National Emission Standards for Hazardous Air Pollutants (NESHAPS)	All emission units	Applicability standards are specified in each NESHAP.
<u>REGULATION XIII (RULES 1301-1305)</u> : Part 70 Operating Permits	All emission units	FM O&G - Point Arguello Project is a major source.

**Table 3.2. Unit-Specific Federally-Enforceable District 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	No units are currently subject to this rule.	Units greater than or equal to 0.75 MMbtu/hr and less than or equal to 2.0 MMbtu/hr.
<u>RULE 361</u> : Small Boilers, Steam Generators and Process Heaters	No units are currently subject to this rule.	Units rated greater than 2.0 MMbtu/hr and less than 5.0 MMbtu/hr.

**Table 3.3. Non-Federally-Enforceable District Rules**

<b>Requirement</b>	<b>Affected Emission Units</b>	<b>Basis for Applicability</b>
<u>RULE 210</u> : Fees	All emission units	Administrative
<u>RULE 310</u> : Odorous Org. Sulfides	All emission units	Administrative
<u>RULE 352</u> : Natural Gas-Fired Fan-Type Central Furnaces and Small Water Heaters	All emission units	Upon Installation
<u>RULES 501-504</u> : Variance Rules	All emission units	Administrative
<u>RULE 505.B2, B3, C, E, F, G</u> : Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
<u>RULES 506-519</u> : Variance Rules	All emission units	Administrative



**Table 3.4. Adoption Dates of District 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 21, 2012
Rule 102	Definitions	August 25, 2016
Rule 103	Severability	October 23, 1978
Rule 201	Permits Required	June 21, 2012
Rule 202	Exemptions to Rule 201	August 25, 2016
Rule 203	Transfer	April 17, 1997
Rule 204	Applications	August 25, 2016
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 207	Denial of Applications	October 23, 1978
Rule 208	Action on Applications - Time Limits	April 17, 1997
Rule 212	Emission Statements	October 20, 1992
Rule 301	Circumvention	October 23, 1978
Rule 302	Visible Emissions	June 1981
Rule 303	Nuisance	October 23, 1978
Rule 305	Particulate Matter Concentration - Southern Zone	October 23, 1978
Rule 309	Specific Contaminants	October 23, 1978
Rule 310	Odorous Organic Sulfides	October 23, 1978
Rule 311	Sulfur Content of Fuels	October 23, 1978
Rule 317	Organic Solvents	October 23, 1978
Rule 318	Vacuum Producing Devices or Systems - Southern Zone	October 23, 1978
Rule 321	Solvent Cleaning Operations	June 21, 2012
Rule 322	Metal Surface Coating Thinner and Reducer	October 23, 1978
Rule 323.I	Architectural Coatings	January 1, 2015
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	July 19, 2001

<b>Rule No.</b>	<b>Rule Name</b>	<b>Adoption Date</b>
Rule 326	Storage of Reactive Organic Compound Liquids	January 18, 2001
Rule 331	Fugitive Emissions Inspection and Maintenance	December 10, 1991
Rule 333	Control of Emissions from Reciprocating Internal Combustion Engines	June 19, 2008
Rule 342	Control of Oxides of Nitrogen (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 360	Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers	March 15, 2018
Rule 361	Small Boilers, Steam Generators, and Process Heaters	June 20, 2019
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 – Definitions and General Requirements	August 25, 2016
Rule 802	New Source Review	August 25, 2016
Rule 804	Offsets	August 25, 2016
Rule 805	Air Quality Impact and Modeling, Monitoring, and Air Quality Increment Consumption	August 25, 2016
Rule 806	Emission Reduction Credits	August 25, 2016
Rule 810	Federal Prevention of Significant Deterioration (PSD)	June 20, 2013
Rule 901	New Source Performance Standards (NSPS)	September 20, 2010
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	August 25, 2016
Rule 1302	Permit Application	January 18, 2001
Rule 1303	Permits	January 18, 2001
Rule 1304	Issuance, Renewal, Modification and Reopening	January 18, 2001
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 District'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 Hermosa consist of two turbine-driven generators for electrical power generation, diesel fired internal combustion engines driving two 50-ton pedestal cranes, diesel-fired piston internal combustion engines driving an emergency generator and a standby firewater pump, and the flare relief system.

- 4.2.1 *Turbines*: Electrical power for platform operations is provided by two 2,800 kW Solar Centaur T-4000 dual fuel turbine generators (G-92 and G-94). Turbines G-92 and G-94 can be fired on either PUC-quality gas or diesel fuel oil. The turbines are equipped with a compressed air starter system.

*Turbines G-92 and G-94*: Emission calculation methodology for NO<sub>x</sub>, ROC, and CO is a result of source test data. The following algorithms are developed from that data:

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

$$ER_{fuel\ gas} = 1.0 + 0.02935 \times (kW)^{0.668}$$

$$ER_{diesel} = 2.5 + 0.000801 \times (kW)^{1.085}$$

For ROC emission calculations<sup>2</sup>:

$$ER_{fuel\ gas} = [0.05675 \times kW]^{0.03}$$

Uncontrolled:

$$ER_{diesel} = 2.22 + (0.00016 \times kW)$$

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<sup>2</sup> Uncontrolled emissions are at operations less than 650 kW. Water injection starts for control purposes at 650 kW and the equation for controlled emissions is utilized.

Controlled:

$$ER_{diesel} = 2.84 - (0.00058 \times kW)$$

For CO emission calculations:

$$ER_{fuel\ gas} = (0.0014 \times kW) + 0.6242$$

$$ER_{diesel} = 1.2475 \times e^{(0.0007 \times kW)}$$

Where:

ER = emission rate (lbs/hour)

kW = kilowatts

Emission factors for PM are from USEPA AP-42, Table 3.1-1.

Control of emissions from G-92 and G-94 is accomplished through maintaining limits on certain process parameters such as water-fuel injection rates. The SO<sub>x</sub> emission factor is based on mass balance calculations. The sulfur content of the diesel is based on the California Code of Regulations standards for diesel fuel prior onshore agreements and is 0.0015 weight-percent or less. PUC-quality gas is burned in the turbines and used as flare purge and pilot gas. The formation of NO<sub>x</sub> in the turbine is reduced by at least 70-percent through the injection of deionized water into the combustion chamber. This permit requires a water-to-fuel ratio controller set-point at or greater than 0.80 pounds of water per pound of fuel when operating turbines G-92 or G-94 with either fuel gas or diesel at loads of 650 kW or greater. Water injection is initiated at loads of 500 kW or greater. Exhaust gas treatment for turbine NO<sub>x</sub> is not employed.

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

*Turbine Source Testing:* Testing of turbines G-92 and G-94 is conducted in accordance with permit condition 9.C.2 to determine compliance with permit conditions. All the turbines are tested for concentrations (ppmv) and mass emission rates (lbs/hr) of NO<sub>x</sub>, CO, and ROC on an annual basis. One turbine test is conducted at 100-percent of safe operating load with water injection control while the turbine is fired on gas. The remaining turbines are tested at historical operating loads with water injection control while the turbines are fired on gas. Testing on diesel fuel is required per the requirements of this permit. In addition, this permit provides the ability to exempt at most one turbine per year from testing if the prior year's annual operating time is less than 877 hours. Replacement turbines are required to undergo full matrix testing.

During the 2005 permit renewal process, the higher heating value of the fuel gas was revised to 1211 Btu/scf to more closely reflect the actual fuel gas heating value. This resulted in revised fuel use limits for the turbines. The revised limits are listed in Attachment 10.1.

Monitoring, recording, and reporting of emission quantities are defined in Section 9 of this permit. 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 is no external combustion equipment on Platform Hermosa.
- 4.2.2 *Piston Internal Combustion Engines:* All platform internal combustion engines are diesel-fuel fired. The two pedestal crane engines are subject to permit and Rule 333 requirements. Other stationary IC engines on the platform include one standby electrical generator, one emergency firewater pump, one standby air compressor and two survival craft. 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 that incorporates the higher heating value (HHV) of the fuel gas, and 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.

- 4.2.3 *Crane Engines:* Identical Caterpillar Model 3408 DITA engines rated at 475 bhp drive both pedestal cranes. 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 factor of 2.565 lb/MMBtu is based on the limit of 8.4 g/hp-hr found in District Rule 333. Crane and emergency generator NO<sub>x</sub> emissions are controlled by turbocharging, 4° timing retard, and aftercooling.

Each crane engine has been equipped with a Clean Emissions Products Inc. oxidation catalyst model P/N IC-10-600 and an open crankcase filtration emission control system in order to comply with 40 CFR 63 Subpart ZZZZ emission standards. The CO emission factor is 30 percent of the factor listed in USEPA AP-42, Table 3.3-1. This reduction occurs since the oxidation catalysts have a 70 percent emission control guarantee.

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

Diesel fuel flow metering is accomplished by use of positive displacement meters on both crane engines, firewater pump, and stand-by generator. All permanent equipment, except flares, are fitted with elapsed non-resettable time meters for determining operating hours.

4.2.4 *Flare Relief System:* The flare relief system consists of a flare manufactured by John Zink with a low radiation type flare tip emitting about 440 BTU/hr-ft<sup>2</sup> of radiant heat. There are two continuous pilot burners with thermocouples for flame out detection and automatic reignition of the flare via a flame front generator. 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 hydrocarbon systems for safe, continuous burning at the flare. PUC-quality gas is used for pilot flame ignition and purge gas. The pilot gas and purge gas burned in the flare is PUC-quality gas. Emission factors for NO<sub>x</sub>, CO, and ROC are taken from USEPA AP-42 Section 11.5 (May 1991). Factors for calculating PM are found in Santa Barbara District 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)

The flare header is equipped with a Fluid Components LT81A Gas Flow Transmitter that is capable of detecting flow rates between 0.035 - 35 MMscfd. The low flow, or minimum, detection limit is equivalent to 1,458 scfh which is much greater than the purge/pilot flow rate of 1,100 scfh. The purge flow rate is 1,000 scfh and the pilot flow rate is 100 scfh. As such, there is no practical method for assessing flow rates between 1,000 and 1,458 scfh. Therefore, based on EPA and CARB's data reporting guidelines, a value of half the minimum detection limit is being assumed as "continuous" planned flaring. This value is 729 scfh. Since the purge flow rate is detected by the meter, this value (i.e., 1000 scfh) is backed out of the half-minimum detect calculation. Consequently, a continuous planned flaring amount of zero remains. 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. *Note: There is currently no produced gas flowing to Platform Hermosa. All natural gas at the platform is PUC-quality gas provided from onshore facilities.*

### 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 District 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 emission factors from the offshore platform category of Table 2 are used

The component leak-path was counted consistent with P&P 6100.061. This leak-path count is not the same as the “component” count required by District Rule 331. The current number of component leakpaths is listed in Table 5.1-1. A complete review of the fugitive component leak path (clp) inventory for Platform Hermosa conducted in 2013 identified significant counting errors. A net increase of 2,767 clps (11.82 tpy ROC) was identified during this review. It was determined that these errors date back to 1996 and 1997. The corrected clp total and associated emission increase was incorporated into the 2014 permit renewal. Since that time the clp count has been significantly reduced due to the shutdown of many of the processing facilities documented in this permit renewal.

Since issuance of the previous permit renewal, fugitive component leak-paths associated with the onshore pig receiver at the GOHF and those associated with the PANGL pipeline were removed from PTO 5704 and incorporated into PTO 9104 via PTO 9104-20.

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 valves qualifies for an Enhanced I&M credit. The District assigns a control efficiency of 84-percent for the regular valves for implementation of monthly monitoring Per District P&P 6100.061 (Table 3), Increased control efficiency is based on the fact that more frequent monitoring is likely to capture leaking valves and require that they be repaired to a leak-free state sooner than less frequent monitoring. There is a small number of valves that are subject to monthly monitoring and have been assigned an 84-percent control efficiency. The connections associated with these valves are also monitored monthly and have been assigned an 82-percent control efficiency. Monthly monitoring and the assigned control efficiencies were approved by the District.

#### 4.4 Supply Vessels

Supply boats are used to support activities on Platform Hermosa. Supply boat emissions are assessed based on two scenarios; (1) a composite of supply boat data comprised of the *M/V Victory Seahorse* and the *M/V Santa Cruz* and (2) operation of the *M/V Challenger* which incorporates the worst case operating scenario for CO emissions.

##### *M/V Victory Seahorse and the M/V Santa Cruz Composite*

The composite of these vessels consists of use of the largest engines on each vessel for the emission calculations. See Reference D at the end of this permit for specific engine size data for these vessels.

NO<sub>x</sub> emission liability based solely on a single emission factor (the cruise mode); 8.4 g/bhp-hr (337 lb/10000 gal). 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)

##### *M/V Challenger*

Emission calculations for the *M/V Challenger* are included because the engines on this vessel represent the worst case operating scenario for CO emissions. The *M/V Challenger* is equipped with two Marine Tier III Caterpillar 3512C main engines rated at 1,911 bhp each and two Marine Tier III Caterpillar 32C generators rated at 1476 bhp each that drive electric motors on two bow thrusters and two stern thrusters.

Emission factors used for the *M/V Challenger* for NO<sub>x</sub>, ROC, CO and PM are based on EPA Marine Tier 3 factors for Category 1 vessels. A 1.25 Not-To-Exceed multiplier is applied to the NO<sub>x</sub> and CO emission factors which ensures the worst case emissions are representative across all operating loads. SO<sub>x</sub> emission factors are based on the fuel sulfur content and mass balance. A PM<sub>10</sub>/PM ratio of 0.96 is used. PM<sub>2.5</sub>/PM<sub>10</sub> ratio is assumed to be 1:1.

The permit assesses emission liability associated with the *M/V Challenger* based solely on a single emission factor (the cruise mode). The calculation methodology for the *M/V Challenger* supply boat main engine emissions is:



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

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)  
 NTE = Not-to-Exceed-Emission Factor of 1.25 for NO<sub>x</sub> and CO

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 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 District-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 Hermosa. 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 (Platforms Harvest, Hermosa, Hidalgo and Irene) 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 Hermosa also has two marine survival craft each equipped with a 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**

Not Applicable. The sulfur treating/gas sweetening unit has been removed and depermitted under this permit reevaluation.

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

*Tanks:* Platform Hermosa has three diesel fuel storage tanks. The diesel storage tanks service the various turbines and IC engines on the platform and are not controlled. The emission from these tanks are small and are assumed less than 0.10 tpy (200 lb/year). The detailed compliance calculations are performed using the methods presented in USEPA AP-42, Chapter 12. All units which are in hydrocarbon service are vented to the flare as necessary

*Pressure Vessels:* The only pressure vessels currently operating on the platform are associated with the fuel gas system. All pressure vessels in hydrocarbon service are vented to the flare as necessary. 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 Waste Water Tanks:* Sumps and wastewater tank emissions from the sump tank, sump deck tank and the oily water tank are based on the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983). Wastewater tanks are classified as being in secondary production and in light 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.

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

Not Applicable. The vapor recovery system equipment has been removed as part of decommissioning activities.

#### **4.8 Helicopters**

Helicopters are used on Platform Hermosa to transport crew from the Santa Maria airport. Sikorski Model 76A helicopters are used with typical round-trip times of 50 minutes in duration. Helicopter usage is shared with Platforms Hidalgo 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 Hermosa, there are two identical trip segments (Santa Maria Airport to Platform Hermosa and Platform Hermosa 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 Hermosa, 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 Greenhouse Gases

GHG emissions from combustion sources are calculated using emission factors found in Tables C-1 and C-2 of 40 CFR Part 98 and global warming potentials found in Table A-1 of 40 CFR Part 98. The derivation of these emission factors is provided in Attachment 10.1.

Internal Combustion Engines: 556.60 g/bhp-hr

Flare: 117.10 lbs/MMbtu as CO<sub>2</sub>

G-91 - G94 Turbine (Operating on NG): 5188 lb/hr as CO<sub>2</sub>

G-91 - G94 Turbine (Operating on Diesel): 6755 lb/hr as CO<sub>2</sub>

#### 4.10 Other Emission Sources

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

*Pigging*: Pipeline pigging operations occur on the platform. These consist of sending gas pigs from pig launchers to onshore facilities (GOHF) and receiving gas pigs from Platforms Hidalgo and Harvest. Since the GOHF has been depermitted, PTO 9104-20 was issued to remove the gas pig receiver at the GOHF from PTO 5704 and incorporate it into PTO 9104 (although the actual pig receiver remains onshore). The pig launchers/receivers are depressurized to the flare relief system prior to opening vessel hatches. There is a small amount of backpressure/emissions remaining in the launchers/receivers following depressurization that is emitted when these vessels are opened to the atmosphere. The remaining backpressure prior to opening the vessels 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<sub>1</sub> = volume of vessel (ft<sup>3</sup>)  
ρ = density of vapor at actual conditions (lb/ft<sup>3</sup>)  
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 Hermosa 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>10/2.5</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>10/2.5</sub>. A PM/PM<sub>10</sub> and PM/PM<sub>2.5</sub> ratio of 1.0 is assumed.

#### **4.11 BACT**

Except as described below, there are no emission units at Platform Hermosa subject to best available control technology (BACT).

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

#### **4.12 CEMS/Process Monitoring/CAM**

4.12.1 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 Generator Fuel Gas Meters
- Turbine Generator Diesel Fuel Meters
- Turbine Generator Water Injection Meters
- Turbine Generator Water/Fuel Controllers
- Turbine Generator Fuel Gas PLC
- Crane Engine Hour Meters
- Standby Air Compressor Hour Meter
- Stand-by Generator Hour Meter
- Firewater Pump Hour Meter
- Supply Vessel Diesel Fuel Meters
- The Flare Header Flow Meters

Calibration and maintenance is conducted according to the most current version of the District-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.

4.12.2 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 which exceeds 100 tpy. Turbines G-92 and G-94 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 controls. 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. FM O&G 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.

#### **4.13 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 District *Source Test Procedures Manual* (May 24, 1990 and all updates). The following emission units are required to be source tested.

- Gas Turbines (G-92 and G-94)
- West Crane Engine (G-360)
- East Crane Engine (G-361)
- Supply Boat Main Engines and Generators

FMOG was previously required to sample and analyze the produced gas and fuel gas HHV, total sulfur, and hydrogen sulfide composition annually. The produced oil was required to be analyzed for API gravity and TVP annual as well. These requirements have been removed in this permit reevaluation as all of the wells have been plugged and oil/gas operations have ceased. All fuel gas used on the Platform is now PUC quality gas.

**TABLE 4.1**

**SOURCE TEST REQUIREMENTS**

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

Site Specific Requirements

- a. All annual turbine emissions tests are to consist of three 40-minute runs or other duration approved by the District. Crane engine tests are to consist of three 20-minute runs. Both crane engines and one turbine are to be tested at maximum safe load. The remaining turbine is to be tested at "historical" loads. Maximum loaded turbine will alternate between each turbine in subsequent annual tests. Supply boat main engines to be tested at cruise load. Supply boat generator engines to be tested at normal load during dynamic positioning operations. Subsequent testing may be required if loads are not achieved. Additional turbine test requirements, including exemptions from testing, are listed in Section 9 of this permit.
- b. The specific project supply boat to be tested shall be determined by the District.
- 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. Source testing of supply vessel generator engines used for dynamic positioning shall be performed upon written request. Crane engines shall be tested biennially.
- f. Procedures to obtain the required operating loads shall be clearly defined in the source test plan.

## 5.0 Emissions

### 5.1 General

Emissions calculations are divided into "permitted" and "exempt" categories. Permit exempt equipment is determined by District 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 serves as the Part 70 list of insignificant emission.
- Table 5.5 provides the estimated Hazardous Air Pollutant (HAP) emissions from the permitted equipment.

In order to accurately track the emissions from a facility, the District uses a computer database. Attachment 10.2 contains the District'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>3</sup>
- Reactive Organic Compounds (ROC)
- Carbon Monoxide (CO)
- Sulfur Oxides (SO<sub>x</sub>)<sup>4</sup>
- Particulate Matter (PM)<sup>5</sup>
- Particulate Matter smaller than 10 microns (PM<sub>10</sub>)
- Particulate Matter smaller than 2.5 microns (PM<sub>2.5</sub>)<sup>6</sup>
- Greenhouse Gases (as CO<sub>2</sub>)

Permitted emissions are calculated for both short term (hourly and daily) and long-term (quarterly and annual) times. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the

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<sup>3</sup> Calculated and reported as nitrogen dioxide (NO<sub>2</sub>)

<sup>4</sup> Calculated and reported as sulfur dioxide (SO<sub>2</sub>)

<sup>5</sup> Calculated and reported as all particulate matter smaller than 100 μm

<sup>6</sup> Since the previous permit renewal, PM<sub>2.5</sub> has been added as a regulated pollutant, therefore PM<sub>2.5</sub> emissions have been quantified.

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 permitted long-term emissions for each unit or operation. All emission limits from Platform Hermosa 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.

The facility's GHG potential to emit has been estimated, however the greenhouse gas PTE is not an emission limit. The facility will not become subject to emission limits for GHGs unless a project triggers federal Prevention of Significant Deterioration requirements under Rule 810.

#### Hourly and Daily Scenarios:

- East and west crane engines
- One emergency generator, one emergency compressor, and one firewater pump
- Turbines (diesel fired)
- Flare purge and pilot
- Planned continuous flaring
- Supply boat
- Generator engines on the supply boat provide half of maximum engine rating
- Bow thruster on supply boat does not operate during peak hour
- Fugitive components
- Gas pig launcher (one only)
- All sumps
- Solvent usage
- Degreaser usage

#### Quarterly and Annual Scenario:

- East and west crane engines
- One emergency generator, one emergency compressor, and one firewater pump
- Turbines (diesel fired for maximum allowable hours and remaining hours on fuel gas fire)
- Flare purge and pilot
- Planned continuous flaring
- Planned intermittent (other) flaring
- Unplanned flaring
- Fugitive components
- Controlled supply boats
- Uncontrolled supply boats
- Generator engines on the and supply boat provide half of maximum engine rating
- Bow thruster on supply boat



- Emergency response boat
- Gas pig launcher (one only)
- All sumps
- 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 District'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 5.3 lists these exempt emissions units and the expected emissions. These are emission estimates only. They are not limitations.

#### **5.6 Part 70: Hazardous Air Pollutant Emissions for the Facility**

Total emissions of hazardous air pollutants (HAP) are computed based on the factors listed in Table 5.5-1 for each emissions unit. Potential Facility HAP emissions are shown in Table 5.5-2. Stationary Source HAP emissions are shown in in Table 5.5-3. These are based on a combination of the worst-case scenario listed in Section 5.3.

**Table 5.1-1  
Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6  
Operating Equipment Description**

Equipment Category	Description	Device Specifications			Usage Data		Maximum Operating Schedule					References
		Fuel	% S	Size	Units	Capacity	Units	Load	hr	day	qtr	
Combustion - Engines	West Crane	D2	0.0015	400 bhp	6,811	Btu/bhp-hr	--	1.0	24	800	3,200	A
	East Crane	D2	0.0015	400 bhp	6,811	Btu/bhp-hr	--	1.0	24	800	3,200	
	Emergency Generator	D2	0.0015	1,425 bhp	--	--	--	1.0	2.0	200	200	
	Air Compressor	D2	0.0015	142 bhp	--	--	--	1.0	2.0	40	40	
	Emergency Firewater Pump	D2	0.0015	408 bhp	--	--	--	1.0	2.0	200	200	
Combustion - LP/HP Flare	Purge and Pilot	PG	0.0165	1,420 scfh	1,917	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	2,070 MMBtu/hr	5,700	MMscf/yr	--	--	--	0.25	1	
	Unplanned	SG	1.000	2,070 MMBtu/hr	3,000	MMscf/yr	--	--	--	1.00	1	
Fugitive Components - Gas	Valves/Connections	--	--	1,788 comp-lp	--	--	--	1.0	24	2,190	8,760	C
	Valves/Connections: Inaccess.	--	--	0 comp-lp	--	--	--	1.0	24	2,190	8,760	
	Compressor Seals	--	--	0	--	--	--	--	--	--	--	
	Pump Seals	--	--	0	--	--	--	--	--	--	--	
	PSV to Atm/Flare	--	--	7	--	--	--	--	--	--	--	
	Valves: Monthly	--	--	230 comp-lp	--	--	--	1.0	24	2,190	8,760	
	Valves/Connections: Monthly	--	--	598 comp-lp	--	--	--	1.0	24	2,190	8,760	
Valves/Connections: NDE	--	--	0 comp-lp	--	--	--	1.0	24	2,190	8,760		
Fugitive Components - Gas (PANGL Pipeline)	Valves/Controlled	--	--	94 comp-lp	--	--	--	1.0	24	2,190	8,760	C
	Valves/UTM	--	--	18 comp-lp	--	--	--	1.0	24	2,190	8,760	
	Gas Connections/Controlled	--	--	417 comp-lp	--	--	--	1.0	24	2,190	8,761	
	Connections/UTM	--	--	94 comp-lp	--	--	--	1.0	24	2,191	8,762	
Supply Boat	Main Engines - M/V Challenger <sup>1</sup>	D2	0.0015	3,822 bhp-total	0.055	gal/bhp-hr	0.65	1.0	14	661	2,644	D
	Generator Engines - M/V Challenger <sup>1,2</sup>	D2	0.0015	2,952 bhp-total	0.055	gal/bhp-hr	0.5	1.0	24	1,232	4,932	
	Main Engines - con	D2	0.0015	5,000 bhp-total	0.055	gal/bhp-hr	0.65	1.0	11	459	1,837	
	Main Engines - unoon	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 Generator	D2	0.0015	115 bhp	0.055	gal/bhp-hr	1.00	1.0	2	78	312	
	Emergency Response	D2	0.0015	4,400 bhp-total	0.055	gal/bhp-hr	0.65	--	--	32	127	
	Survival Craft	D2	0.0015	72 bhp-total	--	--	0.65	--	--	50	200	
Pigging Equipment	Gas Pig Launcher (PANGL)	--	--	33 cf	1	psig	--	1	4	91	365	F
	Gas Pig Receiver (Harvest)	--	--	10 cf	1	psig	--	1	4	91	365	
	Gas Pig Receiver (Hidalgo)	--	--	14 cf	1	psig	--	1	4	91	365	
	Gas Pig Receiver (PANGL Onshore)	--	--	33 cf	2	psig	--	1	4	91	365	

**Notes:**

<sup>1</sup> Dynamic positioning vessel generator engine fuel use limits (bhp\*BSFC\*load\*days) are equal to the combined fuel usage of main engines and generator engines minus fuel used by the main engine. Only applies to vessels with dynamic positioning systems powered by generator engines such as the M/V Challenger.

<sup>2</sup> The maximum operating schedule for the M/V Challenger Generator engines assumes the entire allotted fuel use (equal to the main engine fuel use limits plus the aux engine fuel use limits) is used by the Generator Engines only.

**Table 5.1-1 (Continued)**  
**Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6**

Equipment Category	Description	Device Specifications				Usage Data		Maximum Operating Schedule				References	
		Fuel	% S	Size	Units	Capacity	Units	Load	hr	day	qtr		year
Sumps/Tanks/Separators	Sump Tank	--	--	8 ft2		--	--	--	1.0	24	2,190	8,760	
	Sump Deck Tank	--	--	48 ft2		--	--	--	1.0	24	2,190	8,760	
	Oily Water Tank	--	--	50 ft2		--	--	--	1.0	24	2,190	8,760	
Solvent Usage	Cleaning/degreasing	--	--	various		various	--	--	1.0	24	2,190	8,760	H
Combustion-Turbines	G-92	NG	0.005	2,800	kw	14,581	Btu/kw-hr	--	1	24	2,190	8,760	
	G-92	D2	0.290	2,800	kw	14,581	Btu/kw-hr	--	1	24	875	1,750	
	G-94	NG	0.005	2,800	kw	14,581	Btu/kw-hr	--	1	24	2,190	8,760	
	G-94	D2	0.290	2,800	kw	14,581	Btu/kw-hr	--	1	24	875	1,750	

**Table 5.1-2  
Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6  
Equipment Emission Factors**

		Emission Factors								
Equipment Category	Description	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG <sup>1</sup>	Units	References
Combustion - Engines	West Crane	2.719	0.30	0.285	0.002	0.31	0.30	556.60	lb/MMBtu	A
	East Crane	2.719	0.30	0.285	0.002	0.31	0.30	556.60	lb/MMBtu	
	Emergency Generator	14.06	1.12	3.03	0.002	0.98	0.98	556.60	g/bhp-hr	
	Air Compressor	2.54	0.14	3.73	0.002	0.007	0.98	556.60	g/bhp-hr	
	Emergency Firewater Pump	14.06	1.12	3.03	0.002	0.98	0.98	556.60	g/bhp-hr	
Combustion - LP/HP Flare	Purge and Pilot	0.068	0.12	0.37	0.021	0.02	0.02	117.1	lb/MMBtu	B
	Planned - continuous	0.068	0.12	0.37	1.101	0.02	0.02	117.1	lb/MMBtu	
	Planned - other	0.068	0.12	0.37	1.101	0.02	0.02	117.1	lb/MMBtu	
	Unplanned	0.068	0.12	0.37	1.101	0.02	0.02	117.1	lb/MMBtu	
Fugitive Components - Gas	Valves/Connections	--	0.0147	--	--	--	--	--	lb/day-clp	
	Valves/Cnectns: Inaccess.	--	0.0147	--	--	--	--	--	lb/day-clp	
	Compressor Seals	--	0.0147	--	--	--	--	--	lb/day-clp	
	Pump Seals	--	0.0147	--	--	--	--	--	lb/day-clp	
	PSV to Atm/Flare	--	0.0147	--	--	--	--	--	lb/day-clp	
	Valves: Monthly	--	0.0118	--	--	--	--	--	lb/day-clp	
	Valves Cnectns: Monthly	--	0.0132	--	--	--	--	--	lb/day-clp	
	Valves/Cnectns: NDE	--	0.0000	--	--	--	--	--	lb/day-clp	
Fugitive Components - Gas (PANGL Pipeline)	Valves/Controlled	--	0.0768	--	--	--	--	--	lb/day-clp	
	Valves/UTM	--	0.4800	--	--	--	--	--	lb/day-clp	
	Gas Connections/Controlled	--	0.0058	--	--	--	--	--	lb/day-clp	
	Connections/UTM	--	0.0288	--	--	--	--	--	lb/day-clp	
Supply Boat	Main Engines - M/V Challenger	210.44	8.02	185.39	0.21	3.21	3.08	22310	lb/1000 gal	D
	Generator Engines - M/V Challenger	199.36	8.02	185.39	0.21	3.21	3.08	22310	lb/1000 gal	
	Main Engines - con	337.00	16.80	78.30	0.21	33.00	31.68	556.60	lb/1000 gal	
	Main Engines - unconf	561.2	16.80	78.30	0.21	33.00	31.68	556.60	lb/1000 gal	
	Generator Engines	600.0	48.98	129.26	0.21	42.18	40.49	556.60	lb/1000 gal	
	Bow Thruster	600.0	48.98	129.26	0.21	42.18	40.49	556.60	lb/1000 gal	
	Emergency Generator	179.0	48.98	129.26	0.21	42.18	40.49	556.60	lb/1000 gal	
	Emergency Response	561.2	16.80	78.30	0.21	33.00	31.68	556.60	lb/1000 gal	
	Survival Craft	1.08	90.40	212.00	0.27	24.00	24.00	556.60	g/bhp-hr	
Pigging Equipment	Gas Pig Launcher (PANGL)	--	0.0001	--	--	--	--	--	lb/acf-evt	
	Gas Pig Receiver(Harvest)	--	0.0001	--	--	--	--	--	lb/acf-evt	
	Gas Pig Receiver(Hidalgo)	--	0.0001	--	--	--	--	--	lb/acf-evt	
	Gas Pig Receiver (PANGL Onshore)	--	0.0001	--	--	--	--	--	lb/acf-evt	

<sup>1</sup> GHG emission factors for all ICEs are based on g/bhp-hr. For external combustion equipment, GHG emission factors are based on lb/MMBtu. For turbines, GHG emission factors are lb/hr.

**Table 5.1-2 (Continued)**  
**Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6**  
**Equipment Emission Factors**

Emission Factors										
Equipment Category	Description	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG	Units	References
Sumps/Tanks/Separators	Sump Tank	--	0.0126	--	--	--	--	--	lb/ft2-day	
	Sump Deck Tank	--	0.0019	--	--	--	--	--	lb/ft2-day	
	Oily Water Tank	--	0.0006	--	--	--	--	--	lb/mmgal thru	
Solvent Usage	Cleaning/degreasing	--	various	--	--	--	--	--	lb/gal	H
Combustion-Turbines	G-92 (NG)	6.89	0.72	4.54	0.28	0.10	0.10	5188	lb/hr	
	G-92 (D2)	6.90	2.46	8.86	0.81	1.99	1.99	6755	lb/hr	
	G-94 (NG)	6.89	0.72	4.54	0.28	0.10	0.10	5188	lb/hr	
	G-94 (D2)	6.90	2.46	8.86	0.81	1.99	1.99	6755	lb/hr	

**Table 5.1-3  
Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6  
Hourly and Daily Emissions**

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM <sub>2.5</sub>		GHG	
		lb/hr	lb/day	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	West Crane	7.85	188.45	0.87	20.79	0.82	19.75	0.00	0.11	0.90	21.49	0.86	20.63	490.83	11,779.89
	East Crane	7.85	188.45	0.87	20.79	0.82	19.75	0.00	0.11	0.90	21.49	0.86	20.63	490.83	11,779.89
	Emergency Generator	0.00	88.26	--	7.03	--	19.02	--	0.01	--	6.15	--	6.15	--	--
	Air Compressor	--	1.59	--	0.09	--	2.33	--	0.00	--	0.00	--	0.61	--	--
	Emergency Firewater Pump	--	25.27	--	2.01	--	5.45	--	0.00	--	1.76	--	1.76	--	--
Combustion - LP/HP Flare	Purge and Pilot	0.13	3.13	0.23	5.54	0.71	17.02	0.04	0.95	0.04	0.92	0.04	0.92	224.48	5,387.54
	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	0.00	0.00
	Planned - other	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Unplanned	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fugitive Components - Gas	Valves/Connections	--	--	1.10	26.29	--	--	--	--	--	--	--	--	--	--
	Valves/Connctns: Inaccess.	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	Compressor Seals	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	Pump Seals	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	PSV to Atm/Flare	--	--	0.00	0.10	--	--	--	--	--	--	--	--	--	--
	Valves: Monthly	--	--	0.11	2.71	--	--	--	--	--	--	--	--	--	--
	Valves Connctns: Monthly	--	--	0.33	7.62	--	--	--	--	--	--	--	--	--	--
	Valves/Connctns: NDE	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
Fugitive Components - Gas (PANGL Pipeline)	Valves/Controlled	--	--	0.30	7.22	--	--	--	--	--	--	--	--	--	--
	Valves/UTM	--	--	0.36	8.64	--	--	--	--	--	--	--	--	--	--
	Gas Connections/Controlled	--	--	0.10	2.42	--	--	--	--	--	--	--	--	--	--
	Connections/UTM	--	--	0.11	2.71	--	--	--	--	--	--	--	--	--	--
Supply Boat	Main Engines - M/V Challenger	28.75	413.93	1.10	15.34	25.33	364.66	0.03	0.42	0.44	6.14	0.42	5.89	3,048.31	43882.98
	Generator Engines - M/V Challenger	16.18	388.42	0.65	15.63	15.05	44.31	0.02	0.42	0.28	6.25	0.25	6.00	1,811.09	5331.99
	Main Engines - con	80.24	662.63	3.00	33.03	14.00	153.96	0.04	0.42	5.90	64.89	5.66	62.29	6,135.36	67,488.98
	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	6,135.36	67,488.98
	Generator Engines	9.90	108.90	0.81	8.89	2.13	23.46	0.00	0.04	0.70	7.66	0.67	7.35	736.24	8,098.68
	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	631.94	1,263.88
	Emergency Generator	1.13	2.26	0.31	0.62	0.82	1.64	0.00	0.00	0.27	0.53	0.28	0.51	141.11	282.23
	Emergency Response	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pigging Equipment	Gas Pig Launcher (PANGL)	--	--	0.00	0.01	--	--	--	--	--	--	--	--	--	--
	Gas Pig Receiver(Harvest)	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	Gas Pig Receiver(Hidalgo)	--	--	0.00	0.01	--	--	--	--	--	--	--	--	--	--
	Gas Pig Receiver (PANGL Onshore)	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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 Hermosa: Permit to Operate No. 9104-R6**  
**Hourly and Daily Emissions**

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM <sub>2.5/10</sub>		GHG	
		lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day
Sumps/Tanks/Separators	Sump Tank	--	--	0.00	0.10	--	--	--	--	--	--	--	--	--	--
	Sump Deck Tank	--	--	0.00	0.09	--	--	--	--	--	--	--	--	--	--
	Oily Water Tank	--	--	0.00	0.03	--	--	--	--	--	--	--	--	--	--
Solvent Usage	Cleaning/degreasing	--	--	8.59	68.71	--	--	--	--	--	--	--	--	--	--
Combustion-Turbines	G-92(NG)	6.89	165.42	0.72	17.28	4.54	109.06	0.28	6.72	0.10	2.42	0.10	2.32	5,188.00	124,512.00
	G-92(D2)	6.90	165.68	2.46	59.11	8.86	212.55	0.81	19.49	1.99	47.71	1.99	47.71	6,755.00	162,120.00
	G-94(NG)	6.89	165.42	0.72	17.28	4.54	109.06	0.28	6.72	0.10	2.42	0.10	2.32	5,188.00	124,512.00
	G-94(D2)	6.90	165.68	2.46	59.11	8.86	212.55	0.81	19.49	1.99	47.71	1.99	47.71	6,755.00	162,120.00

**Table 5.1-4  
Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6  
Quarterly and Annual Emissions**

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM <sub>2.5/10</sub>		GHG	
		TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY
Combustion - Engines	West Crane	3.14	12.56	0.35	1.39	0.33	1.32	0.00	0.01	0.36	1.43	0.34	1.38	4711.96	18847.83
	East Crane	3.14	12.56	0.35	1.39	0.33	1.32	0.00	0.01	0.36	1.43	0.34	1.38	4711.96	18847.83
	Emergency Generator	--	4.41	--	0.35	--	0.95	--	0.00	--	0.31	--	0.31	0.00	0.00
	Air Compressor	--	0.02	--	0.00	--	0.02	--	0.00	--	0.00	--	0.01	0.00	0.00
	Emergency Firewater Pump	--	1.26	--	0.10	--	0.27	--	0.00	--	0.09	--	0.09	0.00	0.00
Combustion - LP/HP Flare	Purge and Pilot	0.14	0.57	0.25	1.01	0.78	3.11	0.04	0.17	0.04	0.17	0.04	0.17	245.81	963.23
	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	0.00	0.00
	Planned - other	0.07	0.30	0.13	0.53	0.40	1.62	1.20	4.82	0.02	0.09	0.02	0.09	0.08	0.33
	Unplanned	0.16	0.16	0.28	0.28	0.85	0.85	2.54	2.54	0.05	0.05	0.05	0.05	0.18	0.18
Fugitive Components - Gas	Valves/Connections	--	--	1.20	4.80	--	--	--	--	--	--	--	--	--	--
	Valves/Cnectns: Inaccess.	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	Compressor Seals	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	Pump Seals	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
	PSV to Atm/Flare	--	--	0.00	0.02	--	--	--	--	--	--	--	--	--	--
	Valves: Monthly	--	--	0.12	0.49	--	--	--	--	--	--	--	--	--	--
	Valves Cnectns: Monthly	--	--	0.36	1.45	--	--	--	--	--	--	--	--	--	--
	Valves/Cnectns: NDE	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
Fugitive Components - Gas (PANGL Pipeline)	Valves/Controlled	--	--	0.33	1.32	--	--	--	--	--	--	--	--	--	--
	Valves/UTM	--	--	0.39	1.58	--	--	--	--	--	--	--	--	--	--
	Gas Connections/Controlled	--	--	0.11	0.44	--	--	--	--	--	--	--	--	--	--
	Connections/UTM	--	--	0.12	0.49	--	--	--	--	--	--	--	--	--	--
Supply Boat	Main Engines - M/V Challenger	9.50	38.01	0.36	1.45	8.37	33.49	0.01	0.04	0.14	0.58	0.14	0.56	62,128.19	4,029.60
	Generator Engines - M/V Challenger	9.97	39.91	0.40	1.61	0.91	3.61	0.01	0.04	0.16	0.64	0.15	0.62	89,438.31	436.70
	Main Engines - con	13.82	55.33	0.69	2.76	3.21	12.86	0.01	0.03	1.35	5.42	1.30	5.20	1,408.07	5,635.33
	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	141.11	564.45
	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	168.97	676.24
	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	24.65	98.58
	Emergency Generator	0.04	0.18	0.01	0.05	0.03	0.13	0.00	0.00	0.01	0.04	0.01	0.04	5.50	22.01
	Emergency Response	1.41	5.61	0.04	0.17	0.20	0.78	0.00	0.00	0.08	0.33	0.08	0.32	86.39	342.84
	Survival Craft	0.00	0.01	0.23	0.93	0.55	2.18	0.00	0.00	0.06	0.25	0.06	0.25	2.21	8.83
Pigging Equipment	Gas Pig Launcher	--	--	0.00	0.001	--	--	--	--	--	--	--	--	--	--
	Gas Pig Receiver(Harvest)	--	--	0.00	0.000	--	--	--	--	--	--	--	--	--	--
	Gas Pig Receiver(Hidalgo)	--	--	0.00	0.000	--	--	--	--	--	--	--	--	--	--
	Gas Pig Receiver (PANGL Onshore)	--	--	0.00	0.001	--	--	--	--	--	--	--	--	--	--

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 Hermosa: Permit to Operate No. 9104-R6**  
**Quarterly and Annual Emissions**

Equipment Category	Description	NOx		ROC		CO		SOx		PM		PM <sub>2.5/10</sub>		GHG	
		TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY
Sumps/Tanks/Separators	Sump Tank	--	--	0.00	0.02	--	--	--	--	--	--	--	--	--	--
	Sump Deck Tank	--	--	0.00	0.02	--	--	--	--	--	--	--	--	--	--
	Oily Water Tank	--	--	0.00	0.01	--	--	--	--	--	--	--	--	--	--
Solvent Usage	Cleaning/degreasing	--	--	3.14	12.54	--	--	--	--	--	--	--	--	--	--
Combustion-Turbines	G-92(NG)	7.55	30.19	0.79	3.15	4.98	19.90	0.31	1.23	0.11	0.44	0.11	0.42	5680.86	22723.44
	G-92(D2)	3.02	6.04	1.08	2.16	3.87	7.75	0.36	0.71	0.87	1.74	0.87	1.74	2955.31	5910.63
	G-94(NG)	7.55	30.19	0.79	3.15	4.98	19.90	0.31	1.23	0.11	0.44	0.11	0.42	5680.86	22723.44
	G-94(D2)	3.02	6.04	1.08	2.16	3.87	7.75	0.36	0.71	0.87	1.74	0.87	1.74	2955.31	5910.63

**Table 5.2**  
**Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6**  
**Total Permitted Facility Emissions**

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

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	15.70	1.73	1.65	0.01	1.79	1.72	981.66
Combustion-Turbines	13.81	4.93	17.71	1.62	3.98	3.98	13510.00
Combustion - Flare	0.13	0.23	0.71	0.04	0.04	0.04	224.48
Fugitive Components	--	2.42	--	--	--	--	--
Supply Boat	127.20	5.20	40.38	0.05	7.79	7.48	7,503.55
Emergency Response	--	--	--	--	--	--	--
Pigging	--	0.01	--	--	--	--	--
Sumps/Tanks/Separators	--	0.01	--	--	--	--	--
Solvent Usage	--	8.59	--	--	--	--	--
	156.85	23.11	60.45	1.72	13.59	13.21	22219.69

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

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	492.02	50.72	66.31	0.23	50.89	49.78	23,559.79
Combustion-Turbines	331.37	118.22	425.11	67.20	95.42	95.42	324,240.00
Combustion - Flare	3.13	5.54	17.02	0.95	0.92	0.92	5,387.54
Fugitive Components	--	58.00	--	--	--	--	--
Supply Boat	1,246.29	44.70	408.97	0.47	74.93	71.93	76,851.54
Emergency Response	--	--	--	--	--	--	--
Pigging	--	0.02	--	--	--	--	--
Sumps/Tanks/Separators	--	0.22	--	--	--	--	--
Solvent Usage	--	68.71	--	--	--	--	--
	2,072.80	346.14	917.41	68.84	222.16	218.06	430,038.86

**C. PEAK QUARTERLY (tpq)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	6.28	0.69	0.66	0.00	0.72	0.69	9,423.92
Combustion-Turbines	15.10	3.10	13.72	1.08	1.87	1.87	11,361.72
Combustion - Flare	0.37	0.66	2.03	3.78	0.11	0.11	246.07
Fugitive Components	--	2.65	--	--	--	--	--
Supply Boat	19.11	1.00	9.28	0.01	1.70	1.63	1,742.79
Emergency Response	1.41	0.04	0.20	0.00	0.08	0.08	86.39
Survival Craft	0.00	0.23	0.55	0.00	0.06	0.06	2.21
Pigging	--	0.00	--	--	--	--	--
Sumps/Tanks/Separators	--	0.01	--	--	--	--	--
Solvent Usage	--	3.14	--	--	--	--	--
	42.28	11.52	26.44	4.88	4.54	4.44	22,863.09

**D. PEAK ANNUAL (tpy)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	30.82	3.23	3.88	0.01	3.26	3.15	37,695.66
Combustion-Turbines	60.40	9.36	47.35	3.38	4.19	4.16	45446.88
Combustion - Flare	1.03	1.81	5.58	7.52	0.30	0.30	983.73
Fugitive Components	--	10.59	--	--	--	--	--
Supply Boat	76.48	3.99	37.10	0.04	6.79	6.51	6974.61
Emergency Response	5.61	0.17	0.78	0.00	0.33	0.32	342.84
Survival Craft	0.01	0.93	2.18	0.00	0.25	0.25	8.83
Pigging	--	0.00	--	--	--	--	--
Sumps/Tanks/Separators	--	0.04	--	--	--	--	--
Solvent Usage	--	12.54	--	--	--	--	--
	174.34	42.66	96.87	10.97	15.12	14.69	91,452.56

**Table 5.3**  
**Point Arguello Project Platform Hermosa: Permit to Operate No. 9104-R6**  
**Federal Potential to Emit**

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

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	15.70	1.73	1.65	0.01	1.79	1.72	22.39
Combustion-Turbines	13.81	4.93	17.71	1.62	3.98	3.98	13510.00
Combustion - Flare	0.13	0.23	0.71	0.04	0.04	0.04	224.48
Supply Boat	128.34	5.20	19.79	0.05	7.79	7.48	7,503.55
Emergency Response	--	--	--	--	--	--	--
Pigging	--	0.01	--	--	--	--	--
Sumps/Tanks/Separators	--	0.01	--	--	--	--	--
Solvent Usage	--	8.59	--	--	--	--	--
Exempt Emissions	0.53	1.44	0.99	0.06	0.06	0.06	--
	158.51	22.13	40.84	1.78	13.66	13.27	21,260.42

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

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	492.02	50.72	66.31	0.23	50.89	49.78	981.66
Combustion-Turbines	331.37	118.22	425.11	67.20	95.42	95.42	324,240.00
Combustion - Flare	3.13	5.54	17.02	0.95	0.92	0.92	5,387.54
Supply Boat	1,248.55	44.70	184.74	0.47	74.93	71.93	76,851.54
Emergency Response	--	--	--	--	--	--	--
Pigging	--	0.02	--	--	--	--	--
Sumps/Tanks/Separators	--	0.22	--	--	--	--	--
Solvent Usage	--	68.71	--	--	--	--	--
Exempt Emissions	12.77	34.52	23.67	1.42	1.48	1.42	--
	2,087.84	322.65	716.85	70.27	223.64	219.48	407,460.73

**C. PEAK QUARTERLY (tpq)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	6.28	0.69	0.66	0.00	0.72	0.69	9,423.92
Combustion-Turbines	15.10	3.10	13.72	1.08	1.87	1.87	25217.98
Combustion - Flare	0.37	0.66	2.03	3.78	0.11	0.11	245.91
Supply Boat	19.11	1.00	4.17	0.01	1.70	1.63	1245.10
Emergency Response	1.41	0.04	0.20	0.00	0.08	0.08	61.72
Survival Craft	0.00	0.23	0.55	0.00	0.06	0.06	3.51
Pigging	--	0.00	--	--	--	--	--
Sumps/Tanks/Separators	--	0.01	--	--	--	--	--
Solvent Usage	--	3.14	--	--	--	--	--
Exempt Emissions	0.59	1.59	1.08	0.07	0.07	0.07	--
	42.88	10.47	22.41	4.95	4.61	4.50	36,198.14

**D. PEAK ANNUAL (tpy)**

Equipment Category	NOx	ROC	CO	SOx	PM	PM <sub>2.5/10</sub>	GHG
Combustion - Engines	25.13	2.77	2.63	0.01	2.86	2.75	37,695.66
Combustion-Turbines	60.40	9.36	47.35	3.38	4.19	4.16	4.16
Combustion - Flare	1.03	1.81	5.58	7.52	0.30	0.30	983.73
Supply Boat	76.48	3.99	16.67	0.04	6.79	6.51	6974.61
Emergency Response	5.61	0.17	0.78	0.00	0.33	0.32	342.84
Survival Craft	0.01	0.93	2.18	0.00	0.25	0.25	8.83
Pigging	--	0.00	--	--	--	--	--
Sumps/Tanks/Separators	--	0.04	--	--	--	--	--
Solvent Usage	--	12.54	--	--	--	--	--
Exempt Emissions	2.33	6.30	4.32	0.26	0.27	0.26	--
	170.98	37.92	79.52	11.23	14.99	14.55	46,009.8





Table S.4-3  
 Point Arguello Project: Permit to Operate 9104-06  
 Stationary Source Hazardous Air Pollutant Emissions (TSP)

Facility	Permit #	2010												2011												Total 20 Years
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
08015 - Platform Hermosa	PTO 9103-01	1.29E+01	8.20E-01	3.00E-01	1.60E-01	1.11E+01	2.81E-01	8.93E-01	1.13E-02	6.47E-02	8.72E-01	2.98E-01	8.88E-08	9.32E-02	5.54E-02	2.19E-01	1.23E-08	3.73E-03	3.98E-03	1.29E-04	5.94E-03	1.47E-01	1.19E-03	4.89E-03	5.28E-03	2.99E+01
08016 - Platform Hermosa	PTO 9104-01	1.82E+02	7.12E-01	8.37E-01	8.43E-01	1.86E+02	1.99E-01	8.97E-01	8.62E-03	8.78E-02	8.22E-01	1.80E-01	8.71E-06	2.37E-02	8.59E-02	1.20E-01	2.94E-06	1.28E-03	1.36E-03	2.89E-06	3.37E-03	8.74E-02	1.21E-04	3.06E-03	2.42E-03	9.83E+00
08015 - Platform Hidalgo	PTO 9105-01	5.21E+08	8.91E-01	8.02E-01	5.55E-01	8.43E+08	2.29E-01	8.23E-01	8.47E-03	8.26E-02	7.73E-01	2.18E-01	8.93E-05	2.82E-02	5.03E-02	1.87E-01	4.25E-05	1.70E-02	2.32E-02	6.19E-05	4.37E-03	8.90E-02	8.05E-01	3.05E-03	3.94E-03	1.23E+01
<b>Total Stationary Source - By Facility</b>	<b>2.81E+01</b>	<b>2.23E+08</b>	<b>1.70E+00</b>	<b>1.86E+00</b>	<b>1.71E+01</b>	<b>7.72E+01</b>	<b>1.98E-01</b>	<b>2.83E-02</b>	<b>2.89E-02</b>	<b>2.27E-02</b>	<b>6.29E-02</b>	<b>1.71E-04</b>	<b>1.22E-02</b>	<b>5.99E-01</b>	<b>3.89E-02</b>	<b>1.40E-04</b>	<b>3.37E-03</b>	<b>7.88E-03</b>	<b>2.10E-04</b>	<b>1.23E-02</b>	<b>2.94E-01</b>	<b>2.19E-03</b>	<b>3.73E-03</b>	<b>2.19E-03</b>	<b>4.24E+01</b>	

Notes:  
 1. These are maximum daily, and are not averaged by reported emission levels.  
 2. Based on CAA, Section 112 (d) (1) (B) (i) (ii), the 1997 emissions limit shown can not be aggregated at the source for any pollutant, including determination of 1997 major source status for NSR applications.

## **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**

Santa Barbara County has not attained the state PM<sub>10</sub> air quality standards. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with progress toward attainment of federal and state ambient air quality standards. Under District regulations, any modifications at the source that result in an emission increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Increases above offset thresholds will 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 240 lbs/day for all attainment pollutants and precursors (except carbon monoxide and PM<sub>2.5</sub>) and 25 tons/year for all non-attainment pollutants and precursors (except carbon monoxide and PM<sub>2.5</sub>).

On July 1, 2020, Santa Barbara County achieved attainment for the State ozone standards. This change was initiated by the California Air Resources Board (CARB) at their December 2019 public hearing and it was later approved by the Office of Administrative Law.

### **7.2 Clean Air Plan**

The 2007 Clean Air Plan, adopted by the District Board on August 16, 2007, addressed both federal and state requirements, serving as the maintenance plan for the federal eight-hour ozone standard and as the state triennial update required by the Health and Safety Code to demonstrate how the District will expedite attainment of the state eight-hour ozone standard. The plan was developed for Santa Barbara County as required by both the 1998 California Clean Air Act and the 1990 Federal Clean Air Act Amendments.

In December 2019 the District Board adopted the 2019 Ozone Plan. The 2019 Plan provides a three-year update to the 2010 Clean Air Plan. The 2019 Clean Air Plan therefore satisfies all state triennial planning requirements.

### **7.3 Offset Requirements**

Increases in countywide emissions caused by a new project must be offset by commensurate reductions in emissions from another county source. District 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 that 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 District as third beneficiary, is required.

Chevron, the previous operator, entered into several agreements with the District 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 PTO 9104-20 (PANGL pipeline clps and pig receiver) and are summarized below in Tables 7.5-1 and 7.5-2.

In addition, the permittee is required offsets for the following:

- SO<sub>x</sub> offsets to comply with District Rule 359. These offsets were originally secured through the Marine Engine Repowering Program (MERC) that replaced engines on a number of small fishing boats with low-emission engines. The MERC emission reduction credits were subsequently replaced with ERCs generated by controlling emissions from three natural gas turbines on Platform Harvest. These ERCs were provided for the sulfur emission increases at Platforms Harvest, Hermosa and Hidalgo. See Section 7.4 below for details. Project offsets are detailed in Table 7.3-1
- ROC offsets were required for installation of a crude stabilization unit, conversion of vessel V-5, the installation of a low-pressure flare, and the permitting of deminimis project equipment.

ROC offsets were also required for the fugitive emission increase (11.82 tpq ROC) associated with the fugitive emission inventory corrections permitted under PTO 9104-18. The associated emissions were considered emissions formerly categorized as pre-existing NEI. Offsets for these emissions are identified in Table 7.5-2 below. NO<sub>x</sub> offsets were required for installation of the low-pressure flare. These emissions and offsets are detailed in Table 7.3-3.

### **7.4 Emission Reduction Credits**

- 7.4.1 Platform Hermosa generated 0.73 tons per year of ROC Emission Reduction Credits by implementing an enhanced Inspection & Maintenance Program on 675 gas valves and 1,350 associated connections. These ERCs are dedicated to offset the emissions from the vessel V-5 conversion project on Platform Hermosa. The enhanced program consists of monthly rather than



quarterly monitoring of the selected leak-paths. These ERCs are detailed in Table 7.4-1. The components in this program are listed in the Fugitive Inspection and Maintenance Plan.

- 7.4.2 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 used at platforms Harvest, Hidalgo and Hermosa (inter-pollutant trade).

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**Table 7.3-1  
Platform Hermosa  
Offset Requirements for Rule 359 Compliance**

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

<u>Emissions Liability</u>	<u>TPY</u>
Rule 359 Planned Flaring	4.70 SO <sub>x</sub>

<u>Emission Reduction Sources</u>	<u>Emission Reductions tons/yr</u>	<u>Uncertainty Factor</u>	<u>Offset Credit tons/yr</u>
ERC Certificate No. 0149	5.88 NO <sub>x</sub>	1.25	4.70 NO <sub>x</sub>

Provisions:

- (a) Offsets for SO<sub>x</sub> emissions are required for planned flaring pursuant to Rule 359 (3D.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) Uncertainty Factor 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  
Platform Hermosa ROC Emissions and Offsets**

**REACTIVE ORGANIC COMPOUNDS**

Emissions Liability

	<u>TPY</u>
Crude Stabilization Unit	0.280
Vessel V-5 Conversion	0.510
Permit Fugitive Emission Deminimis clps	0.426
Low Pressure Flare	<u>0.230</u>
<b>Project Total</b>	1.362

Emission Reduction Credits

	Emission Reductions	Distance Factor	Offset Credit
	<u>TPY</u>	<u>Factor</u>	<u>TPY</u>
ERC Certificate 0015-1003	0.336	1.2	0.280
ERC Certificate unknown	0.612	1.2	0.510
ERC Certificate 0283-0917	0.511	1.2	0.426
ERC Certificate 0135	0.345	1.5	<u>0.230</u>
<b>TOTAL</b>	1.804	1.2	1.446

**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: TPY = tons per year.

**Table 7.3-3**  
**FM O&G Platform Hermosa - PTO 9104**  
**Low-Pressure Flare**  
**Project Operation Emissions and Offsets**

**OXIDES OF NITROGEN (NO<sub>x</sub>)**

<u>Emissions Liability</u>				<u>TPY</u>
Platform Hermosa Low-Pressure Flare				0.130 ROC
<u>Emission Reduction Sources</u>	<u>Emission Reductions tons/yr</u>	<u>Distance Factor</u>	<u>Offset Credit tons/yr</u>	
ERC Certificate 0137 <sup>(a)</sup>	0.156	1.2	0.130	

(a) ERC Certificate 00137 contains 0.325 tpy NO<sub>x</sub> ERCs. Application of a 1.2:1 distance factor results in 0.271 tpy of available ERCs. 0.156 tpy ERCs are being used for this permit. The remaining 0.169 tpy ERCs are applied to the ROC liability at the GOHF.

**Table 7.4-1  
Platform Hermosa Gas-Side Fugitive Calculations  
Permitted Gas-Side Fugitive ROC Emissions/Calculations**

Column Type	A Component Leak Paths	B Emission Factor lb THC/comp-lp day	C Uncont. THC lb/day	D ROC/THC Ratio	E Control Efficiency	F lb/hr	G Controlled ROC Emissions lb/day	H ROC Emissions TPQ	I TPY
<u>Gas Service</u>									
Valves/Connections	7353	0.2230	1639.72	0.33	80%	4.51	108.22	4.94	19.75
Valves/Connections - unsafe	17	0.2230	3.79	0.33	0%	0.05	1.25	0.06	0.23
Valves: monthly	675	0.2230	150.53	0.33	84%	0.33	7.95	0.36	1.45
Valve Connections: monthly	1350	0.2230	301.05	0.33	82%	0.75	17.88	0.82	3.26
Valve Connections: unsafe	0	0.2230	0.00	0.33	0%	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
						5.64	135.30	6.17	24.69
<b>Gas Totals</b>	<b>9,395</b>		<b>2,095.09</b>			<u>5.64</u>	<u>135.30</u>	<u>6.17</u>	<u>24.69</u>
						<u>lb/hr</u>	<u>lb/day</u>	<u>TPQ</u>	<u>TPY</u>
						5.64	135.30	6.17	24.69
						Permitted Gas-Side Fugitive Emissions			

Sample Calculations:

GAS  
 $F = G/24$   
 $F = A*B*D*(1-E)$   
 $H = I/4$   
 $I = G*365/2000$

<u>lb/day</u>	<u>TPQ</u>	<u>TPY</u>
4.08	0.19	0.74
ERCs Due to Enhanced I&M Program		

Notes:

- 1) Baseline is from PTO 9104-05 (7/24/97). Gas controlled leak-paths = 9383 clp (valves/connections). 17 unsafe to monitor clps.
- 2) Gas service emission factors and ROC/THC ratio from APCD Policy and Procedure No. 6100-061-1996 Table 2, Offshore Platform.
- 3) Enhanced I&M program on specified valves and associated connections ("valve connections") provide ERCs that are registered pursuant to Rule 806.
- 4) The gas-side fugitive emissions listed in this table supercede the allowable gas-side fugitive emissions from PTO 9104-05.

Table 7.5-1 OCS NOx Emissions and Offsets

<u>OCS EMISSIONS FROM PROJECT</u>	<u>TPY</u>
OCS Mitigation Agreement Emission Limit	341.17
<u>EMISSION REDUCTION SOURCES (OCS)</u>	<u>TPY</u>
Control/Shutdown Engines at Phillips Tajiguas Gas Plant	2.76
Control IR Compressor Engines at Venoco Carpinteria Gas Plant	10.53
Control Cooper Compressor Engines at Venoco Carpinteria Gas Plant	76.70
Control/Shutdown Cooper Compressor Engine at Chevron Pt. Hope (CUSA)	118.84
Control/Shutdown Cooper Compressor Engine at Chevron Pt. Hope (ARCO)	14.28
Control Engines at Southern California Gas Co. Dehydration Plant - More Mesa <sup>b</sup>	96.06
E-4, E-7, E-9 Contract 30-Year Credit	<u>22.00</u>
<b>TOTAL</b>	<b>341.17</b>

Table 7.5-2 OCS ROC Emissions and Offsets

<u>OCS EMISSIONS FROM PROJECT</u>		<u>TPY</u>	
OCS Mitigation Agreement Emission Limit		153.66	
ROC Emissions from Fugitive I&M Corrections		58.88 <sup>a</sup>	
PANGL Pipeline & Pig Launch/Releiver ROC Emissions		3.83 <sup>d</sup>	
 <u>EMISSION REDUCTION SOURCES (OCS)</u>		 <u>TPY</u>	
Fugitive Hydrocarbon I&M Program/Shutdown at Phillips Tajiguas Gas Plant		74.09	
Fugitive Hydrocarbon I&M Program at Venoco Ellwood Oil and Gas Plant		56.05	
Fugitive Hydrocarbon I&M Program at Venoco Carpinteria Gas Plant		13.46	
Fugitive Hydrocarbon I&M Program/Shutdown at Chevron Pt. Hope (CUSA)		5.25	
Venoco Seep Containment Device		4.61	
E-4, E-7, E-9 Contract 30-Year Credit		0.20	
<b>TOTAL</b>		<b>153.66</b>	
Control Engines at Southern California Gas Co. Dehydration Plant - More Mesa <sup>b</sup>		57.48	
Fugitive Hydrocarbon I&M Program/Shutdown at Phillips Tajiguas Gas Plant <sup>c</sup>		1.4	
<b>TOTAL</b>		<b>58.88</b>	
	<u>Emission Reductions TPY</u>	<u>Distance Factor</u>	<u>Offset Credit TPY</u>
Fugitive Hydrocarbon I&M Program at Venoco Ellwood Oil and Gas Plant	5.75	1.5	3.83
<b>TOTAL</b>			<b>3.83</b>

Notes:

- This is an increase in actual emissions associated with corrections to the fugitive I&M inventories on Platforms Harvest (PTO 9013-14), Platform Hermosa (PTO 9104-18), and Platform Hidalgo (PTO 9105-15). The 153.66 tpy value is the limit of actual ROC emissions listed in the OMA.
- These are NO<sub>x</sub> ERCs taken from the total NO<sub>x</sub> ERCs provided to the project (formerly 341.17 tpy) and applied to the ROC emission increase associated with the corrections to the fugitive I&M component leakpaths. This value does not match the 58.88 tpy value listed above because FMO&G chose to apply the ERCs resulting from the decrease in ROC emissions (1.16 tpy) associated with the corrections to the fugitive I&M inventory at the GOHF.
- Corrections to the GOHF fugitive emission inventory resulted in a decrease of 1.16 tpy in fugitive emissions. The associated ERCs (1.4 tpy) were transferred to offset a portion of the fugitive emission increase at the platforms.
- These emissions are from the transfer of the PANGL pipeline fugitive components and pig launch/releiver from GOHF to Platform Hermosa following the shutdown of the GOHF.

## 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 that 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, this contract was supplemented with an *OCS Ozone Mitigation Agreement* to clarify and augment requirements on ozone precursors. The United States Department of Interior's Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), formerly the Mineral Management Service approved the *Development and Production Plan* for Platform Hermosa on January 15, 1985.

## 9.0 Permit Conditions

This section lists the applicable permit conditions for Platform Hermosa. 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., District only) permit conditions. Conditions listed in Sections A, B and C are enforceable by the USEPA, the District, the State of California and the public. Conditions listed in Section D are enforceable only by the District 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 be 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.



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## 9.A Standard Administrative Conditions

The following federally enforceable administrative permit conditions apply to Platform Hermosa. In the case of a discrepancy between the wording of a condition and the applicable District rule, the wording of the rule shall control.

- A.1 **Condition Acceptance.** Acceptance of this operating permit by FM O&G shall be considered as acceptance of all terms, conditions, and limits of this permit. [Re: PTO 9104]
- 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 9104]
- A.3 **Reimbursement of Costs.** All reasonable expenses, as defined in District Rule 210, incurred by the District, District contractors, and legal counsel for all activities that follow the issuance of this PTO permit, including but not limited to permit condition implementation, implementation of Regulation XIII (*Part 70 Operating Permits*), compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by FM O&G as required by Rule 210. [Re: PTO 9104, District Rule 210]
- A.4 **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the District or its agents, FM O&G shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. [Re: PTO 9104]
- A.5 **Compliance.** Nothing contained within this permit shall be construed to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment. [Re: PTO 9104]
- A.6 **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 District's project file) and the District's analyses under which this permit is issued as documented in the permit analyses included in this permit. [Re: PTO 9104]
- A.7 **Consistency with State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the Point Arguello Project by:
  - (a) The County of Santa Barbara in the *Chevron/Point Arguello Project Final Development Plan No. 85-DP-32-CZ* and any subsequent modifications (including the September 1992 *Ozone Mitigation Agreement for the Point Arguello Project*, 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 California Coastal Commission in the consistency determination for the Project with the California Coastal Act. [Re: PTO 9104]
- A.8 **Compliance with Department of Interior Permits.** FM O&G shall comply with all air quality control requirements imposed by the Department of the Interior in the *Development and Production Plan* for Platform Hermosa on January 15, 1985 and any subsequent modifications. Such requirements shall be enforceable by the District. [Re: PTO 9104]
- A.9 **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, the permittee shall furnish any information requested by the Control Officer, in writing, for 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), District Rules 1303.D.1]
- A.10 **Emergency Provisions.** The permittee shall comply with the requirements of the District, Rule 505 (Upset/Breakdown rule) and/or District Rule 1303.F, whichever is applicable to the emergency. In order to maintain an affirmative defense under Rule 1303.F, the permittee shall provide the District, 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), District Rule 1303.F]

A.11 **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: District Rule 1302.D.2*]

A.12 **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: District Rule 1303.D.2*]

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

A.14 **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 District. 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 District 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: District Rule 1304.D.1*]

A.15 **Payment of Fees.** The permittee shall reimburse the District 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 District and the USEPA pursuant to section 502(a) of the Clean Air Act. [*Re: District Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7)*]

A.16 **Prompt Reporting of Deviations.** The permittee shall submit a written report to the District documenting each 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 the District in accordance with Rule 505. Breakdown Conditions, or Rule 1303.F Emergency Provisions. [*District Rule 1303.D.1, 40 CFR 70.6(a)(3)*]

A.17 **Reporting Requirements/Compliance Certification.** The permittee shall submit compliance certification reports to the USEPA and the Control Officer every six-months. A paper copy, as well as, a complete PDF electronic copy of these reports, shall be in a format approved by the District. These reports shall be submitted on District 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: District Rules 1303.D.1, 1302.D.3, 1303.2.c*]

A.18 **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 District-only enforceable section of this permit is federally enforceable or subject to the public/USEPA review. [*Re: CAAA, § 502(b)(6), 40 CFR 70.6(b)*]

A.19 **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 District upon request. [*Re: District Rule 1303.D.1.f, 40 CFR 70.6(a)(3)*]

A.20 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:

- (a) Additional Requirements: If additional applicable requirements (e.g., NSPS or MACT) become applicable to the source that has an unexpired permit term of three (3) or more years, the permit shall be reopened. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. However, no such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been

extended. All such re-openings shall be initiated only after a 30-day notice of intent to reopen the permit has been provided to the permittee, except that a shorter notice may be given in case of an emergency.

- (b) Inaccurate Permit Provisions: If the District 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 District 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 Hermosa 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 District 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 District Rule 303. [*Re: District Rule 301*]
- B.2 **Visible Emissions (Rule 302)**. FM O&G 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 that 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 pump, emergency generator and emergency air compressor FM O&G 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. FM O&G 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 Method 9 inspection will not constitute a violation if the attempted VEE cannot be performed in accordance with procedures of Section 2 of Method 9 due to existing ambient conditions at the platform during the inspection and FM O&G fully documents the conditions that preclude the performance of the VEE.

*Diesel ICEs and Turbines:* Once per calendar quarter FM O&G 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. FM O&G 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, FM O&G 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. FM O&G 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: District Rule 302]

- B.3 **PM Concentration - South Zone (Rule 305).** FM O&G 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: District Rule 305]
- B.4 **Specific Contaminants (Rule 309):** FM O&G 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: District Rule 309]



- B.5 **Sulfur Content of Fuels (Rule 311).** FM O&G 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 (colorimetric gas detection tubes, ASTM, or other District-approved) methods and diesel fuel billing records or other data showing the certified sulfur content for each shipment. [Re: District Rule 311]
- B.6 **Organic Solvents (Rule 317).** FM O&G shall comply with the emission standards listed in Rule 317.B. Compliance with this condition shall be based on FM O&G's compliance with Condition C.8 (*Solvent Usage*) of this permit. [Re: District Rule 317]
- B.7 **Vacuum Producing Devices or Systems - Southern Zone (Rule 318).** FM O&G 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: District Rule 318]
- B.8 **Solvent Cleaning Operations (Rule 321).** FM O&G 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 FMO&G's compliance with Condition C.8 (*Solvent Usage*) of this permit as well as District inspections. [Re: District 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 FMO&G's compliance with Condition C.8 (*Solvent Usage*) of this permit and facility inspections. [Re: District Rule 322]
- B.10 **Architectural Coatings (Rule 323.1).** FM O&G shall comply with the rule requirements for any architectural coating that is supplied, sold, offered for sale, or manufactured for use within the District.
- B.11 **Disposal and Evaporation of Solvents (Rule 324).** FM O&G 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 FMO&G's compliance with Condition C.8 (*Solvent Usage*) of this permit and facility inspections. [Re: District 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: District 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: District 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 FM O&G is required, and shall, maintain records in accordance with 40 CFR 63.10(b)(3). [Ref: 40 CFR 63, Subpart HH]

### **9.C Requirements and Equipment Specific Conditions**

Federally enforceable conditions, including emissions and operations limits, monitoring, and 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 is included in this emissions unit category:

<b>EQ Device No.</b>	<b>Name</b>
005029	West Pedestal Crane (400 bhp)
005030	East Pedestal Crane (400 bhp)

- (a) **Emission Limits:** Mass emissions from the east and west 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 7.4 g/bhp-hr or 700 ppmvd at 15-percent oxygen or 2,124 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 District, if quarterly portable NO<sub>x</sub> analyzer results show potential exceedances of the standard.
  - (ii) Emissions from the cranes included in the table above (Device Nos. 005029 and 005030) shall not exceed a CO concentration in the exhaust of 49 ppmvd @ 15% O<sub>2</sub> or alternatively, CO emissions must be reduced by 70% or more.

- (b) Operational Limits: The following operational limits apply:
- (i) Maintain each engine, oxidation catalyst and crankcase filtration emission control system in a manner consistent with safety and good air pollution control practices for minimizing emissions;
  - (ii) The idle time of each engine shall be minimized during startups to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes
  - (iii) *Emission Controls*: FM O&G shall implement the requirements of District Rule 333. NO<sub>x</sub> emissions from the cranes shall be reduced by using turbocharged engines with injection timing retarded by 4 degrees and shall each be equipped with a separate intercooling circuit.
  - (iv) *Liquid Fuel Sulfur Limit*: Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.0015 weight percent.
  - (v) *Fuel Use Limits*: FM O&G shall comply with the following fuel limits:
    - The west pedestal crane engine shall not use more than: 569 gallons per day; 18,851 gallons per quarter; 79,406 gallons per year of diesel fuel.
    - The east pedestal crane engine shall not use more than: 569 gallons per day; 18,851 gallons per quarter; 79,406 gallons per year of diesel fuel.
  - (vi) *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 District inspection of the IC engine.
- (c) Monitoring: The following source testing and periodic monitoring conditions shall apply:
- (i) *Fuel Meters*: The amount of fuel combusted in each engine shall be measured using permanently installed District-approved in-line fuel meters dedicated to each engine. As an alternative to in-line fuel meters, FM O&G may report individual engine hours of operation utilizing a District-approved elapsed time meter<sup>7</sup>. A monthly log shall be maintained that records the fuel usage (or hours of operation) of each engine.

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<sup>7</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 is used to determine the number of gallons of fuel consumed per time.

- (ii) *Inspection and Maintenance Plan (I&M Plan)*: FM O&G shall implement quarterly inspections on each engine according to the most current version of the District-approved *Engine Inspection and Maintenance Plan* consistent with the requirements of Rule 333.
  - (iii) *Source Testing*: For each pedestal crane engine, FM O&G shall perform source testing of air emissions and process parameters consistent with the requirements of the *Source Testing* permit condition below and in accordance with the requirements of Rule 333.
  - (iv) *Fuel Data*: FM O&G shall maintain documentation of the sulfur content (as determined by District-approved ASTM methods) of each diesel fuel shipment as certified in the fuel suppliers billing vouchers.
- (d) Recordkeeping: FM O&G 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 District upon request. Written information (logs) shall include:
- (i) Daily, quarterly and annual fuel usage in units of gallons for the pedestal crane engines.
  - (ii) A copy of each notification and report that the owner and operator submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that the owner and operator submitted, according to the requirement in 40 CFR 63 Subpart ZZZZ §63.10(b)(2)(xiv).
  - (iii) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) of the air pollution control and monitoring equipment.
  - (iv) Records of performance tests and performance evaluations as required in 40 CFR 63 Subpart ZZZZ §63.10(b)(2)(viii) and §63.6655(a)(3).
  - (v) Records of all required maintenance performed on the air pollution control and monitoring equipment.
  - (vi) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63 Subpart ZZZZ §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
  - (vii) The sulfur content (as determined by District-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.

- (viii) IC engine operations logs, including quarterly inspection results, consistent with the requirements of Rule 333.
- (ix) If an operator's tag number is used in lieu of an IC engine identification plate, documentation that 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 District. The report must list all data required by the *Compliance Verification Reports* condition of this permit. (Re: *District Rules 202, 311, 333 and 1303, PTO 9104, 40 CFR 70.6)C.2*

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

EQ Device No.	Name
005041	Turbine G-92 (2,800 kw)
005043	Turbine G-94 (2,800 kw)

- (a) **Emission Limits:** Except during start-up, shutdown and periods when maintenance on turbine monitoring equipment is occurring, mass emissions from the turbines 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) *Turbines G-92 and G-94:* Each turbine 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 as listed in Table 4.1.

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

$$ER_{fuel\ gas} = 1.0 + 0.02935 \times kW^{0.668}$$

$$ER_{diesel} = 2.5 + 0.00080 \times kW^{1.085}$$

For ROC emission calculations<sup>8</sup>:

$$ER_{fuel\ gas} = [0.5675 (kW)^{0.03}]$$

$$ER_{diesel} = 2.84 - (0.00058 \times kW)$$

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<sup>8</sup> Uncontrolled emissions are at operations less than 650 kW. Water injection starts for control purposes at 650 kW and the equation for controlled emissions is utilized.

For CO emission calculations:

$$ER_{fuel\ gas} = (0.0014 \times kW) + 0.6242$$

$$ER_{diesel} = 1.2475 * e^{(0.0007 \times kW)}$$

Where:

ER = emission rate (lbs/hour)

kW = kilowatts

- (ii) Controlled NO<sub>x</sub> concentrations from the G-92 and G-94 turbines shall not exceed 190 ppmvd (as NO<sub>2</sub>) at 15 percent O<sub>2</sub>.
- (b) Operational Limits: The following operational limits apply:
- (i) *Fuel Use Limits:* FM O&G shall comply with the following fuel limits:
    - *Turbines G-92 and G-94* shall each not use more than: 7,515 gallons per day; 274,001 gallons per quarter; 548,001 gallons per year of diesel fuel.
    - *Turbines G-92 and G-94* shall each not use more than: 979,843 standard cubic feet per day; 89.410 million standard cubic feet per quarter; 357.642 million standard cubic feet per year of fuel gas.
  - (ii) *Fuel Gas Sulfur Limit:* The sulfur content of fuel gas combusted as turbine generator fuel gas shall not exceed 50 ppm<sub>v</sub> total sulfur calculated as hydrogen sulfide (at standard conditions). Compliance shall be based on written verification that the fuel gas is PUC quality gas.
  - (iii) *ADGS System:* FMO&G shall comply with the requirements of the most current version of the District-approved *Point Arguello Project Turbine ADGS Quality Assurance Plan*.
  - (iv) *Emission Reduction Efficiency:*
    - (1) *Turbines G-92 and G-94:* At full safe load for fuel, either gas or diesel use modes, NO<sub>x</sub> emissions shall be controlled to a rate that is 30-percent or less of the uncontrolled emission levels at full safe load.
  - (v) *Water Injection:* Turbines G-92 and G-94 shall comply with the following water injection requirements:
    - (1) Water injection shall be used in these turbines (i.e. water injection rates shall be above the minimum detection limits of the water flow meters) when the operating load is 650 kilowatts or greater.

Notwithstanding the above, water injection is not required during the following turbine operational events and durations:

- a. Water injection start-up events (i.e. the period immediately following the turbine meeting or exceeding a load of 650 kilowatts), not to exceed six (6) minutes per event.
  - b. Turbine start-up and shutdown events, not to exceed thirty (30) minutes per event.
  - c. Fuel swapping events (i.e. swapping from fuel gas to diesel or vice versa), not to exceed thirty (30) minutes per event.
  - d. Water filter changeout events, not to exceed four (4) hours per year.
  - e. Any other operational event with written District approval.
- (2) FM O&G shall maintain a minimum water to fuel (W/F) ratio (mass basis) controller set point of 0.80 when operating turbines with either fuel gas or diesel at loads greater than or equal to those specified in item (ix)(1) above. FM O&G shall maintain water injection ratios of 0.80 or greater a minimum of 96-percent of the time (on an annual basis) when operating at loads greater than or equal to those specified in item (ix)(1) above.

(vi) *Diesel Use:*

- (1) *Turbines G-92 and G-94:* Diesel fuel use in turbines shall be limited to cases of emergency or when otherwise required for safety reasons, or when fuel gas is unavailable at volumes required to operate the turbine. Diesel fuel used by these turbines shall have a sulfur content no greater than 0.0015 weight percent.

(vii) *Meters:* All OCS turbine generators and compressors shall be equipped with elapsed time meters and fuel meters.

(viii) *Quality Assurance:* FM O&G shall implement the most current version of the District-approved *Process Monitor, Calibration, and Maintenance Plan* on water and fuel meters, and injection controllers, to ensure maintenance of proper water injection ratios.

The Automatic Data Gathering System (ADGS) system may be audited independently by the District, or District-approved representatives, once per year in order to ensure compliance with proper quality control procedures to verify the accuracy of the recording devices.

- (c) Monitoring: The following source testing and periodic monitoring conditions apply to the turbines:
- (i) *Water Injection*. FM O&Gs shall measure the water injection and fuel use rates for 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*.
  - (ii) *Source Testing*: FM O&G shall source test turbines G-92 and G-94 on Platform Hermosa at least once per calendar year, (except as noted below), with water injection at the injection ratio specified above. 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 set point shall be set such that the actual W/F ratio is as specified above. Turbines shall be tested at as-found loads, unless otherwise requested by the District. Any turbine operated on fuel gas less than 877 hours in the previous calendar year, or as otherwise approved by the District, may be exempted from source testing requirements. The minimum time between annual tests shall be 3-months.

If required by the District, uncontrolled emission factors may be confirmed during annual source testing as well.

If at the time of source testing, 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 inoperable 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 FM O&G must provide the District 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 Hermosa exceeds 10-percent of the total turbine generator 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.

- (iii) *Access to Source Tests*: Upon request, the permittee shall allow District personnel, or its designated agent to be present during source testing of the turbines. The permittee shall provide access and transportation to the District personnel or its designated agent for the purposes of observing the source tests.



- (d) Recordkeeping: The Automatic Data Gathering System (ADGS) shall collect and record instantaneous readings of the following parameters for each turbine every three minutes. This data shall be maintained for a period of one year.
- (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 0.80, 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 650 kw.
  - (vii) Mass emissions for each turbine.
  - (viii) Daily summaries containing hourly averages or totals of the above process parameters and hourly totals of emissions.

Upon request by the District, the Project shall provide logs of chronological three-minute data of the above parameters at operating loads below 1200 kW, including "run status," i.e., starting, stopping, or "running" (load transients).

The permittee shall make the best efforts to achieve a minimum data retrieval rate of 95-percent for each measurement, determined on a quarterly basis.

- (e) Reporting:
- (i) *Turbines G-92 and G-94*: Emissions reported shall be based on the following equations:

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

$$ER_{fuel\ gas} = 1.0 + 0.02935 \times kW^{0.668}$$

$$ER_{diesel} = 2.5 + 0.000801 \times kW^{1.085}$$

For ROC emission calculations<sup>9</sup>:

$$ER_{fuel\ gas} = (0.5675 \times kW)^{0.03}$$

Uncontrolled:

$$ER_{diesel} = 2.22 + (0.00016 \times kW)$$

Controlled:

$$ER_{diesel} = 2.84 - (0.00058 \times kW)$$

For CO emission calculations:

$$ER_{fuel\ gas} = (0.0014 \times kW) + 0.6242$$

$$ER_{diesel} = 1.2475 \times e^{(0.0007 \times kW)}$$

Where:

ER = emission rate (lbs/hour)

kW = kilowatts

- Uncontrolled emissions occur when no water injection is used.
- Controlled emissions occur when water injection is used.

- (ii) *Manual Calculations:* 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.
- (iii) On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Compliance Verification Reports* condition of this permit. (Re: *District Rules 202, 311, 333 and 1303, ATC/PTO 9946, ATC/PTO 10850; CFR 70.6*).

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

EQ Device No.	Name
005400	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.

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<sup>9</sup> Uncontrolled emissions are at operations less than 650 kW. Water injection starts for control purposes at 650 kW and the equation for controlled emissions is utilized.

(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:* FM O&G 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.

- (iii) *Flare Purge/Pilot Fuel Gas:* The flare purge and pilot gas shall be PUC-quality gas.
- (iv) *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.
- (v) *Flare Planned (other) Sulfur Limits:* The quarterly average sulfur concentration of produced gas flared as "planned - other" in the flare header shall not exceed 20,000 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 with the following formula:

$$\text{MMscf/quarter} = \{1.205 \text{ TPQ SO}_x \text{ (PTE basis)} \times 2,000\} / (0.169 \times \text{avg. sulfur ppmv})$$

However, at no time shall the gas flow volume exceed 1.43 MMscf/quarter.

Furthermore, FM O&G 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.

- (vi) *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).

- (vii) *Rule 359 Technology Based Standards*: FM O&G 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 District inspections.
- (c) Monitoring: The equipment in this section are subject to all the monitoring requirements listed in District Rule 359.G. The test methods In Rule 359.E. shall be used. In addition FM O&G:
  - (i) *Flare Volumes*: The volumes of gas flared during each event shall be monitored by use of District-approved flare header flow meters. The meters shall be calibrated and operated consistent with most recently issued version of the District-approved FM O&G's *Process Monitor Calibration and Maintenance Plan*.
  - (ii) *Pilot Flame Detection*: FM O&G 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 the entire recordkeeping requirement listed in Rule 359.H. In addition:
  - (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*: FM O&G shall record in a log each usage of propane in a District-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 District Rule 359.H. On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Compliance Verification Reports* condition of this permit. (*Re: District Rules 359 and 1303, PTO 9104, ATC/PTO 10330, 40 CFR 70.6*)

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

<b>EQ Device No.</b>	<b>Name</b>
	<i>Gas/Light Liquid Service Components</i>
394753	Fugitive Emission Components (PANGL)
103069	Gas - Valves/Connections
103069	Gas - Valves/Connections Unsafe
--	Gas - Valves Monitored Monthly
--	Gas - Connections Monitored Monthly
--	Gas - Valves/Connections - No Detectable Emissions

- (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 District 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, FM O&G shall meet the following requirements:
  - (i) *I&M Program:* The most current version of the District-approved *Rule 331 Inspection and Maintenance Plan* for Platform Hermosa shall be implemented for the life of the project.
  - (ii) *Leak-Path Count:* The component and leakpath count listed in the most recent FM O&G Fugitive I&M component and leakpath inventory shall not exceed the component and leakpath count line item subtotals 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.
  - (iii) *Venting:* All routine venting of hydrocarbons shall be routed to either the flare header or other District-approved control device.
  - (iv) *Fugitive Emission Decrease Calculation Re-Opener:* The value of the emission reduction credits due to the implementation of the Enhanced Fugitive I&M Program may be recalculated if the protocol for determining fugitive emissions at Platform Hermosa changes.

(c) Monitoring: The equipment listed in this section are subject to all the monitoring requirements listed in District Rule 331.F. The test methods in Rule 331.H shall be used, when applicable. In addition, the permittee shall meet the following requirements:

(i) *Monthly Monitoring*: FM O&G shall perform monthly monitoring on 675 standard (i.e., non-bellows seal and non-low emissions) valves and an associated 1,350 connections in order to generate the ERCs for ERC Certificate No. 0005. These valves/connections are identified in the Fugitive I&M Plan and inventory. FM O&G shall replace any valve/connection on the list with a replacement if the valve/connection is no longer in hydrocarbon service. The District shall be notified, in writing, of all such replacements within 90-days after the replacement. The notification shall include complete equipment description information and the reason for the replacement. Subsequent I&M records and reports shall include the replacement valve(s).

Monthly monitoring shall also be performed on the valves/connections associated with the PANGL pipeline and those associated with the pig launcher/receiver that has been relocated to Platform Hermosa from the GOHF. Notwithstanding the above, any valve/connection designated unsafe to monitor (UTM) is not subject to monthly monitoring requirements. These components will be identified in a revised Fugitive I&M Plan inventory required to be submitted under this permit action.

(ii) *No Detectable Emission Component Requirements*: Component-leak-paths classified as having no detectable emissions (NDE) shall achieve a mass emission control efficiency of 100-percent. NDEs are defined as component-leak-paths for which screening values are maintained at background concentrations as methane, monitored per EPA Reference Method 21. For such NDEs, screening values above background concentrations shall trigger the Rule 331 repair process per the minor leak schedule.

(d) Recordkeeping: The equipment listed in this section are subject to all the recordkeeping requirements listed in District Rule 331.G. In addition FM O&G:

(i) *I&M Log*: FM O&G 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 valves/connections monitored monthly as part of the Enhanced I&M Program, maintain on a monthly basis a record that all the valves/connections were monitored in accordance with item (c) above.

- For the valves/connections monitored monthly as part of the Enhanced I&M Program, maintain a record of information concerning leaks and repairs similar to that contained in FM O&G's "Leak Summary" table submitted with the Semi-Annual Compliance Verification Reports, to include location, P&ID number, tag number, component, leak rates (ppm and drop-per-minute), date inspected, date of repair, days to repair, and re-inspection data and results.

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 District Rule 331.G. On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. 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: District Rules 331 and 1303, ATC/PTO 10918, 40 CFR 70.6]

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

EQ Device No.	Name
<i>Supply Boat</i>	
005403	Supply Boat Main Engines
393353 <sup>1</sup>	Supply Boat Main Engines (Basis M/V Challenger)
393354 <sup>1</sup>	Supply Boat Generator Engines (Basis M/V Challenger)
103117	Supply Boat Auxiliary Engines
105053	Supply Bow Thruster
114331	Supply Boat Emergency Generator
<i>Emergency Response Boat</i>	
105057	Emergency Response Main/Aux Engines
102939	Marine Survival Craft
102940	Marine Survival Craft

<sup>1</sup> These devices are included only in the Equipment List for Platform Hidalgo since this vessel services all three platforms and Device ID numbers can be assigned only to a single facility.

- (a) **Emission Limits:** Mass emissions from the crew, 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.17 (*Source Testing*).

- (ii) The combined emissions from all supply boats serving the OCS platforms in the Point Arguello Project (Platforms Harvest, Hermosa and Hidalgo) 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*: Except for vessels with Dynamic Positioning Systems powered by generator engines, 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) *Supply Boat Auxiliary Engine Limits for Vessels with Dynamic Positioning Systems*: The combined fuel use for all Point Arguello Project supply boat main engines and generator engines on vessels with Dynamic Positioning Systems powered by generator engines shall not exceed: 2,206 gallons per day; 100,053 gallons per quarter; 400,403 gallons per year of diesel fuel
  - (iv) The auxiliary generators on the Adel Elise shall not be operated simultaneously at any time.
  - (v) The M/V Challenger or other approved supply vessel with Dynamic Positioning Systems powered by generator engines, shall not be operated simultaneously with any other supply boat at any time in support of the Pt. Arguello OCS Platforms.
  - (vi) *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.

- (vii) *Marine Survival Craft*. The marine survival crafts shall be limited to a total of 200 hours of operation per year.
- (viii) *Spot-Charter Limits*: The number of allowable annual spot charter crew boat trips shall not exceed one trip per year. 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).
- (ix) *Liquid Fuel Sulfur Limit*: Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.0015 weight percent.
- (x) *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 PM<sub>10</sub> 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 District 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 District 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 District for any new/replacement supply boat that

meets the requirements set forth in (1) - (3) above, and for new spot charters that have not been previously used on the Point Arguello 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 District (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 District 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 (2) above is met.
- Estimated fuel usage within 25-miles of Platform Hermosa.
- Any other information the District deems necessary to ensure the new boat will operate consistent with the analyses that form the basis for this permit.

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

(c) Monitoring: FM O&G shall comply with the following requirements:

- (i) The permittee shall implement the most current version of the District-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 Arguello 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 District-approved procedures. Emergency response boats shall, at a minimum, track fuel usage on a quarterly basis using District-approved procedures. These data shall be submitted in a District-approved format to the District.
- (ii) *Source Testing*: Source testing of the supply boat main engines shall occur on an annual basis. Source testing of supply boat generator engines used for dynamic positioning of the vessel shall occur upon District written request. FM O&G shall perform source testing of air emissions and process parameters consistent with the requirement of the *Source Testing* permit condition .

- (d) Recordkeeping: The following records shall be maintained in legible logs and shall be made available to the District 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 District 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 Hermosa'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 FM O&G 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 District. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. [Re: District Rule 1303, PTO 9104, 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>
394752	Pigging Equipment Launcher/Receiver - Gas (PANGGL)
103006	Gas Pig Receiver (Harvest)
103007	Gas Pig Receiver (Hidalgo)

- (a) **Emission Limits:** Mass emissions from the gas pig launchers and receivers 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 District Rule 325.E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition, FM O&G shall adhere to the following requirements:
  - (i) **Events:** The number of gas pig operations (events) shall not exceed the maximum operating schedule listed in Table 5.1-1.
  - (ii) **Pressure:** The pig receivers/launchers shall be depressurized to the flare prior to each hatch opening to the maximum extent feasible, but at no time shall the pig receiver/launcher hatches be opened when the pressure in these vessels is greater than 1 psig. Pressure readings shall be recorded prior to each opening of the receivers/launchers.
  - (iii) **Openings:** Access openings to the pig receivers/launchers shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the receivers/launchers or during inspection and maintenance. Prior to opening the pig receivers/launchers, the vessels 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 gas line pigging, the pressure shall be monitored by a pressure gauge at the receiver/launcher. Additionally, the District may request pig receiver/launcher gas sample analyses as necessary.
- (d) **Recordkeeping:** FM O&G 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 District. The report must list all data required by permit condition 9.C.6 (d) above. [Re: District Rules 325 and 1303, PTO 9104-12, 40 CFR 70.6]

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

EQ Device No.	Name	KVB Service
<i>Sumps and Wastewater Tanks</i>		
005415	Sump Tank (T-72)	Heavy Oil
005416	Sump Deck Tank (T-74)	Heavy Oil
005421	Oily Water Separator (M-70)	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: None.
- (c) Monitoring: The equipment listed in this section are subject to all the monitoring requirements of District Rule 325.H. The test methods outlined in District Rule 325.G shall be used, as applicable.
- (d) Recordkeeping: The equipment listed in this section is subject to all the recordkeeping requirements listed in District Rule 325.F.
- (e) Reporting: On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Compliance Verification Reports* condition of this permit. [Re: *District Rules 325 and 1303, PTO 9104, 40 CFR 70.6*]

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

EQ Device No.	Name
103082	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 District 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, FM O&G 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 District-approved *Point Arguello Solvent Reclamation Plan*. All solvent disposed of pursuant to the Plan will have the appropriate solvent recovery factor applied for solvent use recordkeeping.
- (c) Monitoring: None.
- (d) Recordkeeping: FM O&G 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 District-approved disposal; whether the solvent is photochemically reactive; and, the resulting emissions to the atmosphere in units of pounds per month and pounds per day. Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location on the platform.
- (e) Reporting: On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Compliance Verification Reports* condition of this permit. [Re: *District Rules 317, 321, 324 and 1303, PTO 9104, 40 CFR 70.6*]

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

<b>EQ Device No.</b>	<b>Name</b>
005570	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 District 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 District. 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 NO<sub>x</sub> and ROC emissions for each segment type, as well as total emissions for the reporting period. Helicopter emissions shall be calculated using the emission factors presented in Attachment 10.5 of this permit. Helicopter emissions shall be calculated by multiplying the total number of each segment by the standard emissions per segment presented in Attachment 10.5 or other more representative emission factors. [Re: PTO 9104 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
111557	IC Engine: Emergency Standby Generator (1425 bhp)
05031	IC Engine: Emergency Standby Air Compressor (145 bhp)
05034	IC Engine: Standby Fire Water Pump (408 bhp)

- (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.10(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>10</sup>, have no operational hours limitations.
  - (i) **Maintenance & Testing Use Limit:** The emergency standby generator and firewater pump diesel-fueled CI engines shall limit maintenance and testing<sup>11</sup> operations to no more than 2 hours per day and 200 hours per year. The emergency standby air compressor diesel-fueled CI engine, shall limit maintenance and testing<sup>12</sup> operations to no more than 2 hours per day and 40 hours per year.

<sup>10</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

<sup>11</sup> "maintenance and testing" is defined in Section (d)(41) of the ATCM

<sup>12</sup> "maintenance and testing" is defined in Section (d)(41) of the ATCM

- (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.
- (iii) *Maintenance Requirements:* Each engine shall comply with the following engine maintenance requirements:
- (1) change the oil and filter every 1,000 hours of operation or annually, whichever comes first;
  - (2) inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and
  - (3) inspect all hoses and belts every 500 hours of operation or annually, whichever comes first.

In lieu of changing the oil and filter, the permittee may analyze the oil of each engine every 1,000 hours of operation or annually, whichever occurs first. The analysis shall measure the Total Base Number, the oil viscosity, and the percent water content. The oil and filter shall be changed if any of the following limits are exceeded:

- The tested Total Base Number is less than 30 percent of the Total Base Number of the oil when new.
- The tested oil viscosity has changed by more than 20 percent from the oil viscosity when new.
- The tested percent water content (by volume) is greater than 0.5 percent.

- (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 District 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 District staff upon request. Log entries made from 25 to 36 months from most recent entry shall be made available to District staff within 5 working days from request. District 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 FM O&G or certified by the fuel supplier.
- (vi) The following maintenance records:
  - (1) The date of each oil and filter change, the number of hours of operation since the last oil change. If an oil analysis is performed, the records must include the date and results of each oil analysis and the Total Base Number and oil viscosity of the oil when new;
  - (2) The date of each air filter inspection and the number of hours of operation since the last air filter inspection. Indicate if the air filter was replaced as a result of the inspection;
  - (3) The date of each hose and belt inspection and the number of hours of operation since the last hose and belt inspection. Indicate if any hose or belt was replaced because of the inspection.
- (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-viii) listed herein are satisfied:
  - (i) The permitted engine that is being temporarily replaced is in need of routine repair or maintenance.
  - (ii) The permitted engine does not have a cracked block, unless the block will be replaced under manufacturer's warranty.

- (iii) Replacement parts are available for the permitted engine.
- (iv) The permitted engine is returned to its original service within 180 days of installation of the temporary engine.
- (v) 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. At the written request of the permittee, the District may approve a replacement engine with a larger rated horsepower 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.
- (vi) The temporary replacement engine shall comply with all rules and permit requirements that apply to the permitted engine.
- (vii) 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 may be sent hardcopy, or can be e-mailed (e-mail: [enr@sbcapcd.org](mailto:enr@sbcapcd.org)) to the District (Attn: Engineering Supervisor).
- (viii) Within 14 days of returning the original permitted engine to service, the permittee shall submit a completed *Temporary IC Engine Replacement Report* form (Form ENF-95). This form may be sent hardcopy, or can be e-mailed (e-mail: [enr@sbcapcd.org](mailto:enr@sbcapcd.org)) to the District (Attn: Engineering Supervisor).

Any engine in temporary replacement service shall be immediately shut down if the District determines that the requirements of this condition have not been met. If the requirements of this condition are not met, the permittee must obtain an ATC before installing or operating a temporary replacement

- (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 District immediately upon detection of the violation and shall be subject to District 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 District 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 District.

- C.11 **Offsets and Clean Air Plan Consistency.** FM O&G shall comply with requirements specified in Section 7.3 (Offset Requirements) and, specifically, 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 specified in Table 7.3-1 and the annual emissions specified in tables 7.3-2 and 7.3-3 shall be in place for the life of the project.

FM O&G shall provide emission reduction credits to offset project emissions listed in Tables 7.5-1 and 7.5-2. The "Contract for Implementation of Conditions E-4, E-7 and E-9 of the Arguello/Point Arguello Preliminary Development Plan No. 83-DP-32-CZ" ("Arguello/District Contract") as amended on September 8, 1992 provides for mitigation of the entire project emissions which impact onshore air quality. FM O&G shall implement the Arguello/District Contract and the 1992 "OCS Ozone Mitigation Agreement" (and all subsequent amendments), which provides for reductions in offshore project emissions as well as application of additional controls on existing emission sources onshore and within State waters in order to mitigate the impact of OCS emissions. Through the implementation of the Contract and Agreement stated above, the District is able to make the finding that the project will result in a Net Air Quality Benefit and is consistent with the Clean Air Plan, as necessary for the issuance of this operating permit. FM O&G shall ensure that the emission reduction credits listed in Table 7.5-1 and 7.5-2 are in place for the life of the project.

- C.12 **Facility Throughput Limitations.** Platform Hermosa production shall be limited to a monthly average of 100,000 barrels of oil emulsion (water and oil) per day and 30 million standard cubic feet of produced gas per day. FM O&G 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 9104-11]
- C.13 **Produced Gas.** FM O&G shall direct all extraneous gases to 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 Bureau of Ocean Energy, Management, Regulation and Enforcement (BOEMRE) ordered safety tests. [Re: District Rules 325, 331, PTO 9104]
- C.14 **Diesel IC Engines - Particulate Matter Emissions.** To ensure compliance with District Rules 205.A, 302, 304, 309 and the California Health and Safety Code Section 41701, FM O&G shall implement manufacturer recommended operational and maintenance procedures to ensure that all project diesel-fired engines minimize particulate emissions. FM O&G shall implement the most current version of the District-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 FM O&G 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: District Rules 205.A, 302, 304, 309, PTO 9104]

- C.15 **Abrasive Blasting Equipment.** All abrasive blasting activities performed on Platform Hermosa shall comply with the requirements of the California Administrative Code Title 17, Sub-Chapter 6, Sections 92000 through 92530. [*Re: District Rules 303, PTO 9104*]
- C.16 **Process Monitoring Systems - Operation and Maintenance.** All platform process monitoring devices listed in Section 4.12 of this permit shall be properly operated and maintained according to manufacturer recommended specifications. FM O&G shall implement the most current version of the District-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 9104*]
- C.17 **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). For supply vessels with generator engines used for dynamic positioning, source testing of the generator engines shall be performed upon written request.
  - 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 turbine 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 District for approval at least thirty (30) days prior to initiation of each source test. The source test plan shall be prepared consistent with the District's Source Test Procedures Manual (revised May 1990 and any subsequent revisions). The permittee shall obtain written District approval of the source test plan prior to commencement of source testing. The District 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 District personnel may observe the test.
- (c) Source test results shall be submitted to the District 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 District 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 District 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 District approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. If the test cannot be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the District. 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 District. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without District'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 District 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 District at least three (3) days in advance of the deadline, and approval for the extension is granted by the District.

- C.18 **Recordkeeping.** All records and logs required by this permit and any applicable District, 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 District upon request. [*Re: District Rule 1303, PTO 9104, 40 CFR 70.6*]
- C.19 **Semi-Annual Compliance Verification Reports.** Twice a year, FM O&G shall submit a compliance verification report to the District. A paper copy, as well as, a complete PDF electronic copy of these reports, shall be in a format approved by the District. 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 District. All logs and other basic source data not included in the report shall be available to the District 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 *District Annual Emissions Inventory* questionnaire. The report shall include the following information:

(a) *Internal Combustion Engines.*

- (i) A copy of each notification and report that the owner and operator submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that the owner and operator submitted, according to the requirement in 40 CFR 63 Subpart ZZZZ §63.10(b)(2)(xiv).
- (ii) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) of the air pollution control and monitoring equipment.
- (iii) Records of performance tests and performance evaluations as required in 40 CFR 63 Subpart ZZZZ §63.10(b)(2)(viii) and §63.6655(a)(3).
- (iv) Records of all required maintenance performed on the air pollution control and monitoring equipment.
- (v) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63 Subpart ZZZZ §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
- (vi) If any crane engine experienced a malfunction during the reporting period, the following shall be provided: (1) the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded and (2) a description of actions taken by an owner or operator during a malfunction of a crane engine to minimize emissions in accordance with 40 CFR 63 Subpart ZZZZ §63.6605(b), including actions taken to correct a malfunction.
- (vii) For each deviation: (1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period, and (2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.
- (viii) The daily, quarterly and annual fuel use for each pedestal crane in units of gallons, and resultant mass emissions for each.
- (ix) The monthly and cumulative annual hours of operation for the firewater pump and the emergency power generator (by ID number), and resultant mass emissions for each.
- (x) 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.

- (xi) Results of the quarterly Rule 333 portable NO<sub>x</sub> analyzer readings.
  - (xii) Total sulfur content of each diesel fuel shipment. Annually, the higher heating value of the diesel fuel (Btu/gal).
  - (xiii) Summary results of all compliance emission source testing performed.
  - (xiv) 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
    - e. Records of oil and filter changes, air cleaner, hoses, and belts inspections
- (b) *Turbines:* FM O&G 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. In addition, the summary shall include the daily hours of operation for turbines G-92 and G-94.
- (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) Water/fuel ratio.
  - (vi) For each turbine, requiring water injection the total cumulative time for each quarter that the water to fuel ratio fell below 0.80, 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 650 kw.
  - (vii) Mass emissions for each turbine
  - (viii) Summary results of all compliance emission source testing performed.
  - (ix) ADGS failures and downtime. FM O&G 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) Written verification from the provider that the fuel gas is PUC-quality gas.
- (d) *Fugitive Hydrocarbons: Rule 331 Enhanced Monitoring Fugitive Hydrocarbon I&M Program Data (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 District Rule 331 as approved by the District.
- (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 Hermosa, 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 Arguello's OCS platforms as detailed in Permit Condition 9.C.5 above.



- (iv) If requested by the District 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 (crew and 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) *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.
- (h) *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.
- (i) *General Reporting Requirements*:
  - (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) A summary of each and every occurrence of non-compliance with the provisions of this permit, District rules, and any other applicable air quality requirement.
  - (v) Documentation verifying that all natural gas delivered to the platform is PUC-quality gas.
  - (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 Minims Log for the stationary source. [Re: PTO 9104]
- C.20 **Emergency Episode Plan.** FM O&G shall implement the most recently issued version of the District-approved Emergency Episode Plan during emergency episodes. [Re: District Rule 1303, PTO 9104]
- C.21 **Permitted Equipment.** Only those equipment items listed in Attachment 10.3 are covered by the requirements of this permit and District Rule 201.B. [Re: District Rule 1303, PTO 9104]
- C.22 **Mass Emission Limitations.** Mass emissions for each equipment item (i.e., emissions unit) associated with Platform Hermosa 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: District Rule 1303, PTO 9104, 40 CFR 70.6]
- C.23 **Documents Incorporated by Reference.** FM O&G shall implement, and operate in accordance with, each of the plans listed below. The documents listed below, including any District-approved updates thereof, are incorporated herein and shall 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 December 2018)*
  - c) *Rule 333 Inspection and Maintenance Plan (approved September 2002)*
  - d) *Turbine ADGS Quality Assurance Plan (approved September 2002)*
  - e) *Rule 359 Flare Minimization Plan (approved September 2002)*
  - f) *Fugitive I&M Plan (approved August 2013)*
  - g) *Diesel IC Engine Particulate Matter Operation and Maintenance Plan (approved September 2002)*
  - h) *Process Monitor Calibration and Maintenance Plan (approved December 2002)*
  - i) *Flare Gas Sulfur Reporting Plan (approved December 2002)*
  - j) *Source Test Plan (approved January 2008)*
  - k) *Emergency Episode Plan (approved June 2008)*

C.24 **Facility Shutdown Due to Pipeline Failure.** The permit conditions listed in Table 1 below shall not apply to equipment units that are non-operational during facility shutdown conditions caused by the failure and shutdown of Plains All American Pipeline Lines 901 and 903. In addition, the otherwise applicable requirements of the District Prohibitory Rules listed in Table 2 below shall not apply to equipment units that are non-operational during facility shutdown conditions caused by the failure and shutdown of Plains All American Pipeline Lines 901 and 903. All permit conditions and District Prohibitory Rules applicable to an equipment unit that was non-operational, with the exception of source testing conditions, relative accuracy test audit and relative accuracy audit shall be considered fully enforceable immediately upon startup of the equipment unit. All permit conditions related to source testing, relative accuracy test audit and relative accuracy audit shall be enforceable 90 calendar days following startup of the equipment unit. The permittee shall submit a written notification to the District no less than 30 calendar days prior to the startup of each equipment unit. Notwithstanding the above, the permittee shall retain the obligation to comply with all other permit conditions and local, state and federal rules and regulations not specifically referenced in Table 1 and Table 2 below.

**Platform Hermosa Table 1:**

<i>Condition</i>	<i>Condition</i>	<i>Sub-Condition Name</i>	<i>Permit Requirement</i>
9.B.2	Visible Emissions (Rule 302)	N/A	N/A
9.C.2(c)(ii)	Turbines	Monitoring	Source Testing
9.C.3(b)(iii)	Combustion Equipment - Flare	Operational Limits	Flare Purge/Pilot Fuel Gas Sulfur Limits
9.C.17	Source Testing	N/A	N/A
9.C.23(e)	Documents Incorporated by Reference	Rule 359 Flare Minimization Plan	N/A
9.C.23(h)	Documents Incorporated by Reference	Process Monitor Calibration and Maintenance Plan	N/A
9.C.23(i)	Documents Incorporated by Reference	Flare Gas Sulfur Reporting Plan	N/A

**Platform Hermosa Table 2:**

<i>Rule</i>	<i>Rule Name</i>	<i>Rule Section</i>
359	Flares and Thermal Oxidizers	N/A

## 9.D District-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 District and the State of California. These conditions are issued pursuant to District 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 District-only enforceable for this permit ←

**AIR POLLUTION CONTROL OFFICER**

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

Notes:

- a. Permit Reevaluation Due Date: July 2023
- b. This permit supersedes Part 70/PTO 9104-R6, PTO 15270, PTO 9104-20 and Part 70 ADM 15587

## **Attachments**

**10.1 Emission Calculation Documentation**

**10.2 IDS Tables**

**10.3 Equipment List**

**10.4 Helicopter Emission Tables**

***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 = 6,811 Btu/bhp-hr
  - Energy based value using LHV
  - Caterpillar 3408 DITA engine specification basis = 0.37 lb/bhp-hr
- Emission factors units (lb/MMBtu) are based on HHV.
- LCF (LHV to HHV) value of 6-percent used.
- NO<sub>x</sub> emission factor for crane engine based on Rule 333 limit (8.4 g/bhp-hr)
 
$$E_{\text{lb/MMBtu}} = [(8.4 \text{ g/bhp}) \times (10^6)] / [(6811 \text{ Btu/bhp-hr}) \times (1.06) \times (453.6)]$$
- ROC and PM emission factors based on USEPA AP-42, Table 3.3-1 (7/93)
- CO emission factor is based on 40 CFR 63 subpart ZZZZZ and is 30 percent of the factor listed in USEPA AP-42, Table 3.3-1
- SO<sub>x</sub> emissions based on mass balance
 
$$\text{SO}_x \text{ (as SO}_2\text{)} = (\%S) (\rho_{\text{oil}}) \times (20,000) / (\text{HHV})$$
- Allowable sulfur content of 0.0015 wt. %
- PM<sub>10</sub>:PM ratio = 0.96; PM<sub>10</sub>:PM<sub>2.5</sub> ratio = 1.0; ROC:TOC ratio = 1.0
- Crane engine operational limits: General Equation
 
$$Q = (\text{BSFC}) \times (\text{bhp}) \times (\text{LCF}) \times (\text{hours/time period}) / (\text{HHV, Btu/gal})$$

East and West crane engines (each engine)

$$Q = (6,811 \text{ Btu/bhp-hr}) \times (475 \text{ bhp}) \times (1.06) \times (24 \text{ hours/day}) / (138,200 \text{ Btu/gal})$$

$$= 596 \text{ gallons per day}$$

$$Q = (6,811 \text{ Btu/bhp-hr}) \times (475 \text{ bhp}) \times (1.06) \times (800 \text{ hours/qtr}) / (138,200 \text{ Btu/gal})$$

$$= 19,851 \text{ gallons per quarter}$$

$$Q = (6,811 \text{ Btu/bhp-hr}) \times (475 \text{ bhp}) \times (1.06) \times (3,200 \text{ hours/yr}) / (138,200 \text{ Btu/gal})$$

$$= 79,406 \text{ gallons per year}$$

## 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 volumes and rates reported by Chevron (July 18, 1994)
- HHV = 1,535 Btu/scf for all flare gas
- All purge and pilot fuel gas is PUC-quality 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:
  - Flare meter: Fluid Components LT 81A mass flow detection
  - Minimum flow detection limit of flow element: 0.25 standard feet per second
  - Flare header outside: 18-inches (per Chevron July 18, 1994 letter)
  - Minimum detection limit: 1,458 scfh (per Chevron July 18, 1994 letter)
  - Half the minimum detection limit: 729 scfh
  - Calculation spreadsheet backs out the purge volume of 1000 scfh to properly assess sulfur emissions (pilot flow rate = 100 scfh).
  - Therefore, the planned continuous flaring volume equals zero.
- No planned continuous flaring assessed, as the HP flare purge is greater than half the minimum detect value of the meter. All purge and pilot emissions (1,100 scfh) 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; PM<sub>10</sub>:PM<sub>2.5</sub> 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 mass destruction rate efficiency. Unsafe to monitor components (as defined in Rule 331) are considered uncontrolled.
- Monthly monitoring of the valves qualifies for an Enhanced I&M credit. The District assigns a control efficiency of 84-percent for the regular valves for implementation of monthly monitoring. This is consistent with District 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. Connections associated with the subject valves in the enhanced I&M program have a control efficiency of 82-percent.
- 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

Supply boat engine data based on a (1) composite of the *M/V Victory Seahorse* and *M/V Santa Cruz*, with the largest engines on each boat used in the emission calculations and (2) operation of the *MV Challenger*

- 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 with 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 with turbo-charging, enhanced inter-cooling and 4° timing retard. This emission factor equates to 270 lb/gal.

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

- Operation of the *M/V Challenger* represents the worst case daily and annual emissions scenario for CO as the dedicated supply boat. The CO emission factor (185.39 lb/1000 gal) CO is based on EPA Marine Tier 3 factors for Category 1 vessels. A 1.25 Not-To-Exceed multiplier is applied to ensure the worst case emissions are representative across all operating loads.

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; PM<sub>10</sub>:PM<sub>2.5</sub> ratio = 1.0; ROC:TOC ratio = 1.0

- Sulfur content basis of 0.0015 wt %

- All SO<sub>x</sub> emissions based on mass balance:

$$SO_x \text{ (as SO}_2\text{)} = (\%S) \times (\rho_{oil}) \times (20,000) / (HHV)$$

- 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 equal to main supply boat.

- Emergency response vessel is permanently assigned to Torch Platform Irene and 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:

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

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

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

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

Auxiliary engines – Generators:

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

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

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

Auxiliary engines - Bow Thruster:

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (600 \text{ bhp}) \times (2 \text{ hours/day}) \\ &= 66 \text{ gallons per day} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (600 \text{ bhp}) \times (78 \text{ hours/qtr}) \\ &= 2574 \text{ gallons per quarter} \end{aligned}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (6005 \text{ bhp}) \times (312 \text{ hours/yr})$$

$$= 10,296 \text{ gallons per year}$$

Auxiliary engines - Emergency Generator<sup>1</sup>:

$$Q = (0.055 \text{ gal/bhp-hr}) \times (115 \text{ bhp}) \times (2 \text{ hours/day})$$

$$= 13 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (115 \text{ bhp}) \times (78 \text{ hours/qtr})$$

$$= 493 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (115 \text{ bhp}) \times (312 \text{ hours/yr})$$

$$= 1,973 \text{ gallons per year}$$

<sup>1</sup> The emergency generator engine is a Tier III engine (4.5 g/bhp-hr/179 lb/1,000 gal) as reflected in Table 5.1-1.

<sup>1</sup>The increase in allowable fuel use for the auxiliary and bow thruster engines is a result of the increased bhp of these engines on the supply boat *M/V Adel Elise*. However, these engines are Tier II engines (5.99 g/bhp-hr/270 lb/1,000 gal) as compared to the auxiliary and bow thruster engines on the former supply boat vessels which were Tier 0 engines 14.0 g/bhp-hr (557 lb/1,000 gal). Thus, the total permitted emissions from these auxiliary and bow thruster engines on the *M/V Adel Elise* are less than the total emissions associated with the auxiliary and bow thruster engines on the former vessels, and as such, meet the requirement of permit condition 9.C.5(b)(viii) of this permit. Based on this and the remaining two requirements of condition 9.C.5(b)(viii), the *M/V Adel Elise* was approved as a replacement for the former supply boat without the need for a permit as required by permit condition 9.C.5(b)(viii). These revised fuel use values, as well as, the reduced values associated with the main engines (based on smaller main engines in the *M/V Adel Elise*) and associated supply boat emissions are reflected here, in permit condition 9.C.5 and in Table 5.0.

## Reference E - Pigging Equipment

- Maximum operating schedule is in units of events
- Gas launcher/receiver volume based on application
- All gas in launchers/receivers is blown down to the flare relief system prior to opening the vessel to the atmosphere
- The remaining vessel pressure is no greater than 1psig.
- Gas Pig launcher/receiver Gas ROC density based on sample analysis: (see permit file)

$$\text{ROC} = .13\% \text{ by weight; Specific Gravity} = 0.9776$$

Gas Density = specific gravity of gas x density of air (0.0763)

ROC Density = Gas Density x ROC%

ROC density =  $9.7 \times 10^{-5}$  lbs ROC/acf

### **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)
- Oil/water separator uncontrolled emission factor is 381 lb ROC/MM gallons throughput per CARB report. Vapor recovery efficiency of 95 percent is assumed. The emission factors reflect controlled factors.
- Sump calculations are based on surface area of emissions unit as supplied by the applicant
- 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 applicn
- 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 - Turbines**

- The maximum operating schedule is in units of hours
- Refer to section 4 for turbine specific turbine emission factors algorithms for CO, NO<sub>x</sub> and ROC.
- Emission factors for SO<sub>2</sub> and PM are based on ATC 5704-11. Original emission factor units of lb/kW-hr converted to pound per hour by multiplying factor by engine rating of 2800 kW.
- PM<sub>10</sub>/PM ratio = 0.96; ROC/TOC ratio = 1.0
- Emission calculations are based upon turbine operating at max load

- General Equation for Turbine Operational Limits:

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

For Turbines G-92 and G-94 (NG):

$$Q = (14,581 \text{ Btu/kW-hr}) \times (2,800 \text{ kW}) \times (1.10) \times (24 \text{ hours/day}) / (1,100 \text{ Btu/scf}) \\ = 979,843 \text{ scf per day}$$

$$Q = (14,581 \text{ Btu/kW-hr}) \times (2,800 \text{ kW}) \times (1.10) \times (2190 \text{ hours/qtr}) / (1,100 \text{ Btu/scf}) \\ = 89.410 \text{ million scf per quarter}$$

$$Q = (14,581 \text{ Btu/kW-hr}) \times (2,800 \text{ kW}) \times (1.10) \times (8760 \text{ hours/yr}) / (1,100 \text{ Btu/scf}) \\ = 357.642 \text{ million scf per year}$$

For Turbines G-92 and G-94 (Diesel):

$$Q = (14,581 \text{ Btu/kW-hr}) \times (2,800 \text{ kW}) \times (1.06) \times (24 \text{ hours/day}) / (138,200 \text{ Btu/gal}) \\ = 7,515 \text{ gallons per day}$$

$$Q = (14,581 \text{ Btu/kW-hr}) \times (2,800 \text{ kW}) \times (1.06) \times (875 \text{ hours/qtr}) / (138,200 \text{ Btu/gal}) \\ = 274,001 \text{ gallons per quarter}$$

$$Q = (14,581 \text{ Btu/kW-hr}) \times (2,800 \text{ kW}) \times (1.06) \times (1750 \text{ hours/yr}) / (138,200 \text{ Btu/gal}) \\ = 548,001 \text{ gallons per year}$$

## Reference I – Emission Factors

For external combustion equipment (flare) the emission factor is:

$$(53.02 \text{ kg/MMbtu}) (2.205 \text{ lb / kg}) = 116.89 \text{ lbs / MMBtu as}$$

For diesel fuel combustion in ICEs, the g/bhp-hr emission factor is:

$$(53.02 \text{ kg/MMbtu}) (7500 \text{ btu/bhp-hr}) (1,000 \text{ g/kg}) (MM/10^6) = 397.65 \text{ g/bhp-hr}$$

For the G-92 and G-94 turbines operating on NG, the lb/hr emission factor is:

$$(53.02 \text{ kg/MMbtu}) (2.205 \text{ lb/kg}) (14,581 \text{ Btu/kW-hr}) (2800 \text{ kW}) (MM/10^6) = 4,773 \text{ lb/hr}$$

For the G-92 and G-94 turbines operating on diesel, the lb/hr emission factor is:

$$(159.07 \text{ lb/MMbtu}) (14,581 \text{ Btu/kW-hr}) (2800 \text{ kW}) (MM/10^6) = 6,494 \text{ lb/hr}$$

## Reference J – GHG

GHG emissions from combustion sources are calculated using emission factors found in Tables C-1 and C-2 of 40 CFR Part 98 and global warming potentials found in Table A-1 of 40 CFR Part 98. CO<sub>2</sub> equivalent emission factors are calculated for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O individually, then summed to calculate a total CO<sub>2</sub>e emission factor. Annual CO<sub>2</sub>e emission totals are presented in short tons.

For IC engines, the emission factor in lb/MMBtu heat input is converted to g/bhp-hr output based on a standard brake-specific fuel consumption.

### **For natural gas combustion the emission factor is:**

$(53.06 \text{ kg CO}_2/\text{MMBtu}) (2.2046 \text{ lb/kg}) = 116.97 \text{ lb CO}_2/\text{MMBtu}$   
 $(0.001 \text{ kg CH}_4/\text{MMBtu}) (2.2046 \text{ lb/kg})(25 \text{ lb CO}_2\text{e/lb CH}_4) = 0.055 \text{ lb CO}_2\text{e/MMBtu}$   
 $(0.0001 \text{ kg N}_2\text{O/MMBtu}) (2.2046 \text{ lb/kg})(298 \text{ lb CO}_2\text{e/lb N}_2\text{O}) = 0.066 \text{ lb CO}_2\text{e/MMBtu}$   
Total CO<sub>2</sub>e/MMBtu = 116.89 + 0.046 + 0.068 = 117.10 lb CO<sub>2</sub>e/MMBtu

### **For diesel fuel combustion the emission factor is:**

$(73.96 \text{ kg CO}_2/\text{MMBtu}) (2.2046 \text{ lb/kg}) = 163.05 \text{ lb CO}_2/\text{MMBtu}$   
 $(0.003 \text{ kg CH}_4/\text{MMBtu}) (2.2046 \text{ lb/kg})(25 \text{ lb CO}_2\text{e/lb CH}_4) = 0.165 \text{ lb CO}_2\text{e/MMBtu}$   
 $(0.0006 \text{ kg N}_2\text{O/MMBtu}) (2.2046 \text{ lb/kg})(298 \text{ lb CO}_2\text{e/lb N}_2\text{O}) = 0.394 \text{ lb CO}_2\text{e/MMBtu}$   
Total CO<sub>2</sub>e/MMBtu = 163.05 + 0.139 + 0.410 = 163.61 lb CO<sub>2</sub>e/MMBtu

### **Converted to g/hp-hr:**

$(163.60 \text{ lb/MMBtu})(453.6 \text{ g/lb})(7500 \text{ Btu/hp-hr})/1,000,000 = 556.60 \text{ g/hp-hr as CO}_2$

For turbineG94 operating on NG, the lb/hr emission factor is:

$(117.10 \text{ lb CO}_2\text{e/MMBtu})(12,010 \text{ Btu/kW-hr})(3,695 \text{ kW})(\text{MM}/10^6) = 5,188 \text{ lb/hr}$

For turbineG94 operating on diesel, the lb/hr emission factor is:

$(163.61 \text{ lb/MMBtu})(11,849 \text{ Btu/kW-hr})(3,584 \text{ kW})(\text{MM}/10^6) = 6,755 \text{ lb/hr}$

**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>2.5/10</sub></b>
<b>PTO 9104 – Pt-70 Permit to Operate</b>						
lb/day	2,072.80	346.14	917.41	68.84	222.16	218.06
tons/year	174.34	42.66	96.87	10.97	15.12	14.96

**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 9104 – Pt-70 Permit to Operate</b>						
lb/day	2,072.80	346.14	917.41	68.84	222.16	218.06
tons/year	174.34	42.66	96.87	10.97	15.12	14.96

**Table 10.2-3  
Stationary Source Potential to Emit (SSPTE)**

	<b>NO<sub>x</sub></b>	<b>ROC</b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM</b>	<b>PM<sub>2.5/10</sub></b>
<b>Pt. Arguello Project Stationary Source</b>						
lb/day	6,548.86	1,059.44	2,549.84	151.28	681.61	667.80
tons/year	536.15	103.80	243.91	32.47	44.75	43.19

***ATTACHMENT 10.3. Equipment List***

**Air Pollution Control District – Equipment List**  
**Santa Barbara County Air Pollution Control District – Equipment List**

PT-70/Reeval 09104 R6 / FID: 08014 Platform Hermosa / SSID: 01325

**A PERMITTED EQUIPMENT**

**1 Oxidation Catalyst 1**

<i>Device ID #</i>	<b>386473</b>	<i>Device Name</i>	<b>Oxidation Catalyst 1</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Clean Emission Products Inc.	<i>Operator ID</i>	
<i>Model</i>	P/N IC-10-600	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Reduces carbon monoxide emissions from crane engine, 8,000 to 12,000		
<i>Description</i>	engine hour estimated lifespan		

**2 Oxidation Catalyst 2**

<i>Device ID #</i>	<b>386474</b>	<i>Device Name</i>	<b>Oxidation Catalyst 2</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Clean Emission Products Inc.	<i>Operator ID</i>	
<i>Model</i>	P/N IC-10-600	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Reduces carbon monoxide emissions from crane engine, 8,000 to 12,000		
<i>Description</i>	engine hour estimated lifespan		

**3 Stationary Internal Combustion Engines**

**3.1 IC Engine: West Crane**

<i>Device ID #</i>	<b>005029</b>	<i>Device Name</i>	<b>IC Engine: West Crane</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	400.00 Brake Horsepower
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	E-SB-30-5001E-4
<i>Model</i>	3408 DITA	<i>Serial Number</i>	G-360
<i>Location Note</i>	Upper deck		
<i>Device</i>			
<i>Description</i>			

### 3.2 IC Engine: East Crane

<i>Device ID #</i>	<b>005030</b>	<i>Device Name</i>	<b>IC Engine: East Crane</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	400.00 Brake Horsepower
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	E-SB-30-5001E-4
<i>Model</i>	3408 DITA	<i>Serial Number</i>	G-360
<i>Location Note</i>	Upper deck		
<i>Device Description</i>	Rated BHP at 2100 rpm.		

### 3.3 IC Engine: Standby Fire Water Pump

<i>Device ID #</i>	005034	<i>Maximum Rated BHP</i>	408.00
<i>Device Name</i>	IC Engine: Standby Fire Water Pump	<i>Serial Number</i>	P-050
<i>Engine Use</i>	Fire Water Pump	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model Year</i>	1980	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3406		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>		<i>Annual Hours</i>	
<i>Location Note</i>	Wellhead deck		
<i>Device Description</i>	No emissions controls. Operating hours limited to less than 200 hours per quarter and per year.		

### 3.4 Emergency Air Compressor

<i>Device ID #</i>	<b>386851</b>	<i>Device Name</i>	<b>Emergency Air Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	142.00 Brake Horsepower
<i>Manufacturer</i>	Perkins	<i>Operator ID</i>	
<i>Model</i>	3638	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Rated BHP @ 2200 rpm, Tier 4 Interim engine, maintenance and testing hours limited to 2 hr/day; 40 hrs/qtr; 40 hrs/yr. Engine Family: DPKXL04.4MK1		

### 3.5 IC Engine: Standby Emergency Generator

<i>Device ID #</i>	<b>111557</b>	<i>Device Name</i>	<b>IC Engine: Standby Emergency Generator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1425.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>			
<i>Description</i>			

## 4 Pigging Equipment

### 4.1 Gas Pig Launcher

<i>Device ID #</i>	<b>103003</b>	<i>Device Name</i>	<b>Gas Pig Launcher</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	33.40 Cubic Feet
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-95-500C-5
<i>Model</i>		<i>Serial Number</i>	M-006
<i>Location Note</i>	Mezzanine deck		
<i>Device</i>	Pig unit diameter 2.0 ft, length 10.67 ft.		
<i>Description</i>			

### 4.2 Gas Pig Receiver (Harvest)

<i>Device ID #</i>	<b>103006</b>	<i>Device Name</i>	<b>Gas Pig Receiver (Harvest)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	9.80 Cubic Feet
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-016
<i>Location Note</i>	Mezzanine deck		
<i>Device</i>	Pig unit diameter 1.0 ft, length 9.4 ft.		
<i>Description</i>			

### 4.3 Gas Pig Receiver (Hidalgo)

<i>Device ID #</i>	<b>103007</b>	<i>Device Name</i>	<b>Gas Pig Receiver (Hidalgo)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	13.50 Cubic Feet
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-017
<i>Location Note</i>	Mezzanine deck		
<i>Device Description</i>	Pig unit diameter 1.67 ft, length 9.67 ft.		

### 4.4 Pigging Equipment Receiver-gas (Onshore PANGL)

<i>Device ID #</i>	<b>394752</b>	<i>Device Name</i>	<b>Pigging Equipment Receiver-gas</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Modco, Inc.	<i>Operator ID</i>	F-002
<i>Model</i>		<i>Serial Number</i>	L-502
<i>Location Note</i>	Gaviota Area 10-A		
<i>Device Description</i>	Equipment Type: Receiver Service: Sweet Gas Pig Unit dia x length (ft): 2.0 x 12 Attached Pipe dia x length (ft): 1.7 x 12 Operating Press (psig): 575 Operating Temp (F): 56 Vapor mol wt (lb/lb-mol): 21.65 Pigging Events: 1/da; 60/yr Device Grouping No: D-503-22-21		

## 5 Flares and Thermal Oxidizers

### 5.1 Flare Relief System

<i>Device ID #</i>	<b>005400</b>	<i>Device Name</i>	<b>Flare Relief System</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	John Zink	<i>Operator ID</i>	E-SB-50-500D-5
<i>Model</i>	SAB-16	<i>Serial Number</i>	M-12
<i>Location Note</i>	Flare boom		
<i>Device Description</i>	Low radiation flare with 1535 Btu/scf design heat release. Volume of gas flared per day (maximum expected) = 86.96 Mscf. 31.740 MMscf.		

## 6 Turbines

### 6.1 Turbine Generator (G-92)

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<i>Device ID #</i>	<b>005041</b>	<i>Device Name</i>	<b>Turbine Generator (G-92)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.80 Megawatts
<i>Manufacturer</i>	SOLAR/CENTAUR	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>	T-4501	<i>Serial Number</i>	G-092
<i>Location Note</i>	Main deck		
<i>Device Description</i>	Electrical power generation turbine with peak operating design rating of 2800 kW. Uses PUC-quality gas or diesel. Fuel HHV 1,350 Btu/CF or 19620 Btu/lb. Emission controls: water injection at 0.8/1 W/F. No ammonia injection.		

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### 6.2 Turbine Generator (G-94)

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<i>Device ID #</i>	<b>005043</b>	<i>Device Name</i>	<b>Turbine Generator (G-94)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.80 Megawatts
<i>Manufacturer</i>	SOLAR/CENTAUR	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>	T-4000	<i>Serial Number</i>	G-094
<i>Location Note</i>	Main deck		
<i>Device Description</i>	Electrical power generation turbine with peak operating design rating of 2800 kW. Uses PUC-quality gas or diesel. Fuel HHV 1,350 Btu/CF or 19620 Btu/lb. Emission controls: water injection at 0.8/1 W/F. No ammonia injection.		

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## 7 Fugitive HC Components - CLP

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<i>Device ID #</i>	<b>102930</b>	<i>Device Name</i>	<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>			

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## 7.1 Gas/Condensate Service Components - Accessible

<i>Device ID #</i>	<b>103069</b>	<i>Device Name</i>	<b>Gas/Condensate Service Components - Accessible</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	See Table 5.1-1 for clp totals.
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Various locations on Platform		
<i>Device Description</i>			

## 7.2 Fugitive Emission Components (PANGL Pipeline)

<i>Device ID #</i>	<b>394753</b>	<i>Device Name</i>	<b>Fugitive Emission Components</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	See Table 5.1-1 for clp totals.
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Onshore Gaviota		
<i>Device Description</i>	PANGL pipeline components		

## 8 Sumps and Wastewater Tanks

### 8.1 Sump Tank

<i>Device ID #</i>	<b>005415</b>	<i>Device Name</i>	<b>Sump Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	8.00 Square Feet Surface Area
<i>Manufacturer Model</i>	C.E. Natco Co.	<i>Operator ID Serial Number</i>	E-SB-30-500A-5 T-72
<i>Location Note</i>	Sump deck		
<i>Device Description</i>	Storage/surge service, covered secondary vessel.		



## 8.2 Sump Deck Tank

<i>Device ID #</i>	<b>005416</b>	<i>Device Name</i>	<b>Sump Deck Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	48.00 Square Feet Surface Area
<i>Manufacturer Model</i>		<i>Operator ID</i>	E-SB-30-500A-5
<i>Location Note</i>	Sump deck	<i>Serial Number</i>	T-74
<i>Device Description</i>	Drainage, overflow service covered secondary vessel.		

## 8.3 Oily Water Tank

<i>Device ID #</i>	<b>005421</b>	<i>Device Name</i>	<b>Oily Water Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Square Feet Surface Area
<i>Manufacturer Model</i>	Pace Setter	<i>Operator ID</i>	
<i>Location Note</i>	Mezzanine deck	<i>Serial Number</i>	M-70
<i>Device Description</i>	Covered secondary vessel in wastewater service.		

## 9 Supply Boats

### 9.1 Supply Boat (basis: M/V Adel Elise)

<i>Device ID #</i>	<b>103075</b>	<i>Device Name</i>	<b>Supply Boat (basis: M/V Adel Elise)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>			

#### 9.1.1 Main Engines

<i>Device ID #</i>	<b>005403</b>	<i>Device Name</i>	<b>Main Engines</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	4000.00 Brake Horsepower
<i>Manufacturer Model</i>	Catepillar 3516C Low-NOx	<i>Operator ID</i>	
<i>Location Note</i>		<i>Serial Number</i>	
<i>Device Description</i>	Two main engines at 2000 bhp each. Tier II engines.		

### 9.1.2 Generator Engine

<i>Device ID #</i>	<b>103077</b>	<i>Device Name</i>	<b>Generator Engine</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1510.00 Brake Horsepower
<i>Manufacturer Model</i>	Cummins QSK-19	<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Two generator engines at 755 bhp ea., uncontrolled for NOx. Tier II.		

### 9.1.3 Bow Thruster Engine

<i>Device ID #</i>	<b>105089</b>	<i>Device Name</i>	<b>Bow Thruster Engine</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Brake Horsepower
<i>Manufacturer Model</i>	Cummins QSK-M	<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	One bow thruster engine at 600 bhp, uncontrolled for NOx.		

### 9.1.4 Emergency Generator

<i>Device ID #</i>	<b>114332</b>	<i>Device Name</i>	<b>Emergency Generator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	115.00 Brake Horsepower
<i>Manufacturer Model</i>	John Deere 4045TF275D	<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Emergency Generator, Tier II		

### 9.2 Marine Survival Craft

<i>Device ID #</i>	<b>102939</b>	<i>Device Name</i>	<b>Marine Survival Craft</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	36.00 Brake Horsepower
<i>Manufacturer Model</i>	Perkins 4-154	<i>Operator ID Serial Number</i>	E-SB-30-500D-5 M-121
<i>Location Note</i>	Main deck		
<i>Device Description</i>	No emissions controls. Operating hours limited to less than 200 hours per quarter and per year.		

### 9.3 Marine Survival Craft

<i>Device ID #</i>	<b>102940</b>	<i>Device Name</i>	<b>Marine Survival Craft</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	36.00 Brake Horsepower
<i>Manufacturer</i>	Perkins	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>	4-154	<i>Serial Number</i>	M-122
<i>Location Note</i>	Upper deck		
<i>Device Description</i>	No emissions controls. Operating hours limited to less than 200 hours per quarter and per year.		

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

<i>Device ID #</i>	<b>005406</b>	<i>Device Name</i>	<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 Description</i>	Total engine horsepower 4400 bhp, uncontrolled for NOx.		

### 9.5 Spot Charter Boat Engines

<i>Device ID #</i>	<b>105090</b>	<i>Device Name</i>	<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 Description</i>	Total engine horsepower 5000 bhp, uncontrolled for NOx.		

## 10 Helicopters

### 10.1 Helicopter

<i>Device ID #</i>	<b>005570</b>	<i>Device Name</i>	<b>Helicopter</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Sikorski Helicopters	<i>Operator ID</i>	300
<i>Model</i>	SK-76	<i>Serial Number</i>	
<i>Location Note</i>	SMA to Platforms		
<i>Device Description</i>			

## 11 Maintenance Activities

### 11.1 Maintenance Supply

<i>Device ID #</i>	<b>103083</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 Hermosa		
<i>Device Description</i>	Coating/solvent brand name	MEK	
	Application	Solvent	
	Annual usage (gal per year)	150	
	Regulatory VOC content (g/l)	na	
	ROC emission factor (lb/gal)	6.7	
	Emission controls used?	Yes	
	Emission controls description	Product recycled.	

### 11.2 Maintenance Supply

<i>Device ID #</i>	<b>103084</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>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Hermosa		
<i>Device Description</i>	Coating/solvent brand name	Chemco 211C	
	Application	Detergent	
	Annual usage (gal per year)	3000	
	Regulatory VOC content (g/l)	836	
	ROC emission factor (lb/gal)	7.11	
	Emission controls	No emissions controls.	

## 12 Flare Condensate Knockout Drum

<i>Device ID #</i>	<b>103028</b>	<i>Device Name</i>	<b>Flare Condensate Knockout Drum</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-024
<i>Location Note</i>	Wellhead deck		
<i>Device Description</i>	Horizontal type gas condensate knockout, diameter 8.0 ft, length 16.0 ft.		

## 13 Low Volume Sump Pump

<i>Device ID #</i>	<b>102973</b>	<i>Device Name</i>	<b>Low Volume Sump Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Frederick	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>	1FOG91-SSQ-AXA	<i>Serial Number</i>	P-072
<i>Location Note</i>	Cap truss, sump deck		
<i>Device Description</i>	Oil recovery service, pumps wastewater (oily water), rated at 100 gpm, powered by 5 hp electric motor.		

## 14 High Volume Sump Pump

<i>Device ID #</i>	<b>102974</b>	<i>Device Name</i>	<b>High Volume Sump Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Goulds	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>	3996 MT	<i>Serial Number</i>	P-073
<i>Location Note</i>	Cap truss, sump deck		
<i>Device Description</i>	In oil recovery service, pumps wastewater (oily water), rated at 400 gpm, powered by 10 hp electric motor.		

## 15 Fuel Gas Scrubber

<i>Device ID #</i>	<b>103034</b>	<i>Device Name</i>	<b>Fuel Gas Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-090
<i>Location Note</i>	Wellhead deck		
<i>Device Description</i>	Vertical type, diameter 2.5 ft, length 6.0 ft		

## 16 Standby Diesel Generator Day Tank

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<i>Device ID #</i>	<b>103036</b>	<i>Device Name</i>	<b>Standby Diesel Generator Day Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-5001C-5
<i>Model</i>		<i>Serial Number</i>	V-092
<i>Location Note</i>	Main deck		
<i>Device Description</i>	Vertical type diesel storage tank, diameter 4.5 ft, length 5.0 ft. Not connected to gas gathering or vapor recovery.		

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## 17 Diesel Pump

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<i>Device ID #</i>	<b>102987</b>	<i>Device Name</i>	<b>Diesel Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.50 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001A-4
<i>Model</i>	LMV-901	<i>Serial Number</i>	P-090
<i>Location Note</i>	Cap truss, sump deck		
<i>Device Description</i>	Diesel fuel transfer pump rated at 25 gpm, powered by 7.5 hp electric motor.		

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## 18 Diesel Pump

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<i>Device ID #</i>	<b>102988</b>	<i>Device Name</i>	<b>Diesel Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	25.00 gal/Minute
<i>Manufacturer</i>	Frederick	<i>Operator ID</i>	E-SB-30-5001A-4
<i>Model</i>		<i>Serial Number</i>	P-091
<i>Location Note</i>	Cap truss, sump deck		
<i>Device Description</i>	Diesel fuel transfer pump rated at 25 gpm, powered by 7.0 hp electric motor.		
	RDM NOTE: This is an electric powered pump that pumps diesel, right? So the fee should be based on 25 hp electric motor!		

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**19 Diesel Pump**

<i>Device ID #</i>	<b>102993</b>	<i>Device Name</i>	<b>Diesel Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	7.50 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001A-4
<i>Model</i>	LMV-801	<i>Serial Number</i>	P-096
<i>Location Note</i>	Cap truss, sump deck		
<i>Device Description</i>	Pumps diesel fuel, rated at 25 gpm, powered by 7.5 hp electric motor.		

**B EXEMPT EQUIPMENT**

**1 Diesel Storage Tank Day Tank**

<i>Device ID #</i>	<b>102942</b>	<i>Device Name</i>	<b>Diesel Storage Tank Day Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Gallons
<i>Manufacturer</i>	Byron-Jackson	<i>Operator ID</i>	E-SB-30-5001E-4
<i>Model</i>		<i>Serial Number</i>	T-816
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.V.2 Storage Of Refined Fuel Oil W/Grav <=40 Api	
<i>Location Note</i>	Wellhead deck		
<i>Device Description</i>	Horizontal type diesel fuel storage.		

**2 Diesel Storage Tank**

<i>Device ID #</i>	<b>102943</b>	<i>Device Name</i>	<b>Diesel Storage Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3230.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-30-5001A-4
<i>Model</i>		<i>Serial Number</i>	T-90
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.V.2 Storage Of Refined Fuel Oil W/Grav <=40 Api	
<i>Location Note</i>	Upper deck (northeast cap truss)		
<i>Device Description</i>	Horizontal tank type, diameter 5.0 ft, flat roof, average liquid height 3.83 feet.		

### 3 Diesel Storage Tank

<i>Device ID #</i>	<b>102944</b>	<i>Device Name</i>	<b>Diesel Storage Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	26796.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-30-5001A-4
<i>Model</i>		<i>Serial Number</i>	T-90
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.V.2 Storage Of Refined Fuel Oil W/Grav <=40 Api	
<i>Location Note</i>	Upper deck (west cap truss)		
<i>Device Description</i>	Horizontal tank type 5.0 feet diameter, average liquid height 3.83 feet.		

### 4 Firewater Pump

<i>Device ID #</i>	<b>102997</b>	<i>Device Name</i>	<b>Firewater Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	Tons of Product
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-051
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.F.1.d. Spark ignition piston-type ICEs for emergency electrical power generation	
<i>Location Note</i>	Wellhead deck		
<i>Device Description</i>	Rated at 1250 gpm, powered by electric motor at 175 hp, utilizes dual seals.		

### 5 Firewater Pump

<i>Device ID #</i>	<b>102998</b>	<i>Device Name</i>	<b>Firewater Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-052
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.F.1.d. Spark ignition piston-type ICEs for emergency electrical power generation	
<i>Location Note</i>	Wellhead deck		
<i>Device Description</i>	Rated at 1250 gpm, powered by 175 hp electric motor, utilizes dual seals.		



**E DE-PERMITTED EQUIPMENT**

**1 Air Flotation Cell**

<i>Device ID #</i>	<b>005418</b>	<i>Device Name</i>	<b>Air Flotation Cell</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	750.00 gal/Minute
<i>Manufacturer</i>	U.S. Filter	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	M-31
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Covered and connected to vapor recovery system. Throughput: 1.08		
<i>Description</i>	MMgal/day, 98.6 MMgal/qtr, 394.2 MMgal/yr.		

**2 Production Separator**

<i>Device ID #</i>	<b>103009</b>	<i>Device Name</i>	<b>Production Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	V-002
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type flow splitter, diameter 7.5 ft, length 35.0 ft. Connected to		
<i>Description</i>	gas gathering or vapor recovery.		

**3 Wellhead**

<i>Device ID #</i>	<b>103072</b>	<i>Device Name</i>	<b>Wellhead</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	13.00 Active Wells
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	No plugged and abandoned oil and gas wells, no gas injection wells, and		
<i>Description</i>	no water injection wells.		
	Active wells are: B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9, B-10, B-11, B-12, B-13.		

**4 Crew Boat (basis: M/V Price Tide)**

<i>Device ID #</i>	<b>103078</b>	<i>Device Name</i>	<b>Crew Boat (basis: M/V Price Tide)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	M/V Price Tide
<i>Model</i>		<i>Serial Number</i>	
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Three main engines (510 bhp each) for 1530 bhp total. Two gensets at		
<i>Description</i>	109 bhp each for 218 bhp.		

## 5 Production Separator

<i>Device ID #</i>	<b>103008</b>	<i>Device Name</i>	<b>Production Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-001
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type 3-phase flow splitter, diameter 7.5 ft, length 35.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

## 6 Unicel Vessel

<i>Device ID #</i>	<b>386630</b>	<i>Device Name</i>	<b>Unicel Vessel</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>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>			
<i>Description</i>			

## 7 Compressor Lube Oil Tank

<i>Device ID #</i>	<b>102941</b>	<i>Device Name</i>	<b>Compressor Lube Oil Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	70.00 Gallons
<i>Manufacturer</i>	Bluewater M.I.	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	T-10
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Tank diameter 2.0 feet.		
<i>Description</i>			

## 8 Large Test Separator

<i>Device ID #</i>	<b>103010</b>	<i>Device Name</i>	<b>Large Test Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-003
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type 3-phase test separator, diameter 5.0 ft, length 20.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

## 9 West Bay Test Separator

<i>Device ID #</i>	<b>103011</b>	<i>Device Name</i>	<b>West Bay Test Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-004
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type 3-phase test separator, diameter 3.5 ft, length 15.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

## 10 Methanol Storage Tank

<i>Device ID #</i>	<b>102945</b>	<i>Device Name</i>	<b>Methanol Storage Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	177.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	R-SB-0062
<i>Model</i>		<i>Serial Number</i>	
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Rectangular tote tank, not connected to vapor recovery. Vapor molecular weight 32 lb/lb-mole;		
<i>Description</i>	vapor pressure 2.0 psia; annual net throughput 100 barrels/year.		

## 11 East Bay Test Separator

<i>Device ID #</i>	<b>103012</b>	<i>Device Name</i>	<b>East Bay Test Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-005
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type 3-phase test separator, diameter 3.5 ft, length 15.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

## 12 Compressors

<i>Device ID #</i>	<b>102922</b>	<i>Device Name</i>	<b>Compressors</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>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>			
<i>Description</i>			

**13 Wet Oil Surge Tank**

<i>Device ID #</i>	<b>103013</b>	<i>Device Name</i>	<b>Wet Oil Surge Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Longview	<i>Operator ID</i>	E-SB-30-5001C-5
<i>Model</i>		<i>Serial Number</i>	V-008
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type tank, diameter 10.0 ft, length 26.0 ft. Connected to gas		
<i>Description</i>	gathering or vapor recovery.		

**14 Pumps**

<i>Device ID #</i>	<b>102923</b>	<i>Device Name</i>	<b>Pumps</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>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>			
<i>Description</i>			

**15 Well Cleanup Separator**

<i>Device ID #</i>	<b>103014</b>	<i>Device Name</i>	<b>Well Cleanup Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Arkla Equipment	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-009
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type oil separator, diameter 6.0 ft, length 19.5 ft. Connected to		
<i>Description</i>	gas gathering or vapor recovery.		

**16 Vapor Rec. Compressor Suction Scrubber**

<i>Device ID #</i>	<b>103015</b>	<i>Device Name</i>	<b>Vapor Rec. Compressor Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-010
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas compressor inlet scrubber, diameter 3.0 ft, length 9.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**17 Vapor Rec. Compressor 1st Stage Suction Scrubber**

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<i>Device ID #</i>	<b>103016</b>	<i>Device Name</i>	<b>Vapor Rec. Compressor 1st Stage Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-011
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas compressor inlet scrubber,		
<i>Description</i>	diameter 3.0 ft., length 9.5 ft. Connected to gas gathering or vapor recovery.		

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**18 Heat Exchangers**

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<i>Device ID #</i>	<b>102926</b>	<i>Device Name</i>	<b>Heat Exchangers</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>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>			
<i>Description</i>			

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**19 Main Gas Compressor 2nd Stage Suction Scrubber**

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<i>Device ID #</i>	<b>103017</b>	<i>Device Name</i>	<b>Main Gas Compressor 2nd Stage Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-012
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas compressor inlet scrubber, diameter 4.0 ft, length 9.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

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**20 Specialty Units and Packages**

<i>Device ID #</i>	<b>102927</b>	<i>Device Name</i>	<b>specialty Units and Packages</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>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>			
<i>Description</i>			

**21 Main Gas Compressor 3rd Stage Suction Scrubber**

<i>Device ID #</i>	<b>103018</b>	<i>Device Name</i>	<b>Main Gas Compressor 3rd Stage Suction Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-013
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas compressor inlet scrubber, diameter 4.6 ft, length 12.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**22 Main Gas Compressor 3rd Stage Discharge Scrubber**

<i>Device ID #</i>	<b>103019</b>	<i>Device Name</i>	<b>Main Gas Compressor 3rd Stage Discharge Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Santa Fe Tank	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-014
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas compressor discharge scrubber, diameter 4.0 ft., length 11.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**23 Drain Pot**

<i>Device ID #</i>	<b>103020</b>	<i>Device Name</i>	<b>Drain Pot</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-015
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas condensate drain pot, diameter 3.0 ft, length 3.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

## 24 Glycol Contactor

<i>Device ID #</i>	<b>103021</b>	<i>Device Name</i>	<b>Glycol Contactor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-016
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical trayed column type gas/glycol container, diameter 3.0 ft.,		
<i>Description</i>	length 19.5 ft. Connected to gas gathering or vapor recovery.		

## 25 Dry Gas Scrubber

<i>Device ID #</i>	<b>103022</b>	<i>Device Name</i>	<b>Dry Gas Scrubber</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Arkla Equipment	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-017
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas scrubber, diameter 3.5 ft, length 9.0 ft. Connected to gas		
<i>Description</i>	gathering or vapor recovery.		

## 26 Glycol Flash Tank

<i>Device ID #</i>	<b>103023</b>	<i>Device Name</i>	<b>Glycol Flash Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-018
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type glycol flash/surge tank, diameter 3.0 ft, length 11.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

## 27 Glycol Regenerator

<i>Device ID #</i>	<b>103024</b>	<i>Device Name</i>	<b>Glycol Regenerator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>		<i>Serial Number</i>	V-019
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal reboiler and vertical stripping column glycol reboiler/stripper,		
<i>Description</i>	diameter 4.0 and 1.5 ft, length 12.0 and 28.5 ft. Connected to gas		
	gathering or vapor recovery.		

**28 CPI Separator**

<i>Device ID #</i>	<b>005419</b>	<i>Device Name</i>	<b>CPI Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	375.00 gal/Minute
<i>Manufacturer</i>	Pace Setter	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	M-32
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Covered and connected to vapor recovery system.		
<i>Description</i>	Throughput: 0.54 MMgal/day, 49.3 MMgal/qtr, 197.1 MMgal/yr).		

**29 Amine Contactor**

<i>Device ID #</i>	<b>103025</b>	<i>Device Name</i>	<b>Amine Contactor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-020
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical trayed column type gas/amine contactor, diameter 2.2 ft,		
<i>Description</i>	length 57.5 ft. Connected to gas gathering or vapor recovery.		

**30 Amine Flash Tank**

<i>Device ID #</i>	<b>103026</b>	<i>Device Name</i>	<b>Amine Flash Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-021
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type tank, diameter 4.0 ft, length 15.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**31 Amine Regenerator**

<i>Device ID #</i>	<b>103027</b>	<i>Device Name</i>	<b>Amine Regenerator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>		<i>Serial Number</i>	V-022
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal reboiler and vertical stripping column amine reboiler/stripper,		
<i>Description</i>	diameter 2.2 and 5.0 ft, length 26.0 and 12.0 ft. Connected to gas gathering or vapor recovery.		



**32 Amine Reflux Drum**

<i>Device ID #</i>	<b>103029</b>	<i>Device Name</i>	<b>Amine Reflux Drum</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-025
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type amine surge drum, diameter 2.5 ft, length 12.25 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**33 Production Drain Receiver**

<i>Device ID #</i>	<b>103030</b>	<i>Device Name</i>	<b>Production Drain Receiver</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Howe-Baker Engineering	<i>Operator ID</i>	E-SB-30-5001A-4
<i>Model</i>		<i>Serial Number</i>	V-070
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type, diameter 5.0 ft, length 15.5 ft. Connected to gas		
<i>Description</i>	gathering or vapor recovery.		

**34 Dirty Oil Storage Vessel**

<i>Device ID #</i>	<b>103031</b>	<i>Device Name</i>	<b>Dirty Oil Storage Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-071
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type, diameter 11.5 ft, length 18.5 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**35 Dirty Oil Storage Vessel**

<i>Device ID #</i>	<b>103032</b>	<i>Device Name</i>	<b>Dirty Oil Storage Vessel</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	C.E. Natco Co.	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-072
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type, diameter 11.5 ft, length 18.5 ft. Connected to gas gathering		
<i>Description</i>	or vapor recovery.		

**36 CPI Separator**

<i>Device ID #</i>	<b>005420</b>	<i>Device Name</i>	<b>CPI Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	375.00 gal/Minute
<i>Manufacturer</i>	Pace Setter	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	M-33
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Covered and connected to vapor recovery system.		
<i>Description</i>	Throughput: 0.54 MMgal/day, 49.3 MMgal/qtr, 197.1 MMgal/yr.		

**37 Low Temperature Separator**

<i>Device ID #</i>	<b>103033</b>	<i>Device Name</i>	<b>Low Temperature Separator</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	V-086
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type gas/liquid separator, diameter 4.0 ft,		
<i>Description</i>	length 15.0 ft. Connected to gas gathering or vapor recovery.		

**38 Heat Medium Expansion Tank**

<i>Device ID #</i>	<b>103035</b>	<i>Device Name</i>	<b>Heat Medium Expansion Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	General Welding	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>		<i>Serial Number</i>	V-091
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Horizontal type expansion/storage tank, diameter 5.0 ft, length 20.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**39 Freewater Knockout**

<i>Device ID #</i>	<b>103037</b>	<i>Device Name</i>	<b>Freewater Knockout</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	National Tank Co.	<i>Operator ID</i>	E-SB-30-5001C-5
<i>Model</i>	421461	<i>Serial Number</i>	V-096
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type fuel gas/freewater knockout, diameter 2.5 ft, length 10.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**40 Water Wash Tower**

<i>Device ID #</i>	<b>103038</b>	<i>Device Name</i>	<b>Water Wash Tower</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	BS&E Inc.	<i>Operator ID</i>	
<i>Model</i>	1964T4	<i>Serial Number</i>	V-095
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type fuel gas/water wash tower, diameter 5.0 ft, length 20.0 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery?		

**41 Crude Stabilizer**

<i>Device ID #</i>	<b>103039</b>	<i>Device Name</i>	<b>Crude Stabilizer</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Mark Steel	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	V-67
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Vertical type vessel, diameter 3.5 ft, length 55.5 ft.		
<i>Description</i>	Connected to gas gathering or vapor recovery.		

**42 Vapor Recovery Compressor**

<i>Device ID #</i>	<b>102947</b>	<i>Device Name</i>	<b>Vapor Recovery Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	400.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Worthington Compressor Company	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	6H-2 Supercub	<i>Serial Number</i>	K-011
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Rated capacity 2152.8 scfm, powered by 400 hp electric motor.		
<i>Description</i>			

**43 Main Gas Compressor**

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<i>Device ID #</i>	<b>102948</b>	<i>Device Name</i>	<b>Main Gas Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Worthington Compressor Company	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	6XH-4 Supercub	<i>Serial Number</i>	K-012
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In produced gas service. Rated capacity 8750 scfm. Powered by 2000 hp		
<i>Description</i>	electric motor.		

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**44 Vapor Recovery Compressor**

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<i>Device ID #</i>	<b>102946</b>	<i>Device Name</i>	<b>Vapor Recovery Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	400.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Worthington Compressor Company	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	6H-2 Supercub	<i>Serial Number</i>	K-010
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Rated capacity 2,152.8 scfm, powered by 400 bhp electric motor.		
<i>Description</i>			

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**45 Main Gas Compressor**

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<i>Device ID #</i>	<b>102949</b>	<i>Device Name</i>	<b>Main Gas Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Worthington Compressor Company	<i>Operator ID</i>	
<i>Model</i>	6XH-4 Supercub	<i>Serial Number</i>	K-013
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Produced gas service, rated at 8750 scfm, powered by 2000 hp electric		
<i>Description</i>	motor.		

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**46 Main Gas Compressor**

<i>Device ID #</i>	<b>102950</b>	<i>Device Name</i>	<b>Main Gas Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Worthington Compressor Company	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	6XH-4 Supercub	<i>Serial Number</i>	K-014
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In produced gas service, rated capacity 8750 scfm, powered by 2000 hp electric motor.		

**47 Oil Shipping Pump**

<i>Device ID #</i>	<b>102952</b>	<i>Device Name</i>	<b>Oil Shipping Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Warren	<i>Operator ID</i>	E-SB-05-500C
<i>Model</i>		<i>Serial Number</i>	P-002
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In crude oil shipping service, rated at 560 gpm, powered by 600 hp electric motor.		

**48 Oil Shipping Pump**

<i>Device ID #</i>	<b>102953</b>	<i>Device Name</i>	<b>Oil Shipping Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Warren	<i>Operator ID</i>	E-SB-05-500C
<i>Model</i>		<i>Serial Number</i>	P-003
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In crude oil shipping service, rated at 560 gpm, powered by 600 hp electric motor.		

**49 Oil Shipping Pump**

<i>Device ID #</i>	<b>102951</b>	<i>Device Name</i>	<b>Oil Shipping Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	600.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Warren	<i>Operator ID</i>	E-SB-05-500C
<i>Model</i>		<i>Serial Number</i>	P-001
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In crude oil shipping service, rated at 560 gpm, powered by 600 hp electric motor.		

**50 Oil Charge Pump**

<i>Device ID #</i>	<b>102954</b>	<i>Device Name</i>	<b>Oil Charge Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	125.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Bingham-Williamette	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	4X6X10B-VCR	<i>Serial Number</i>	P-004
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In crude oil shipping service, rated at 560 gpm, powered by 125 hp		
<i>Description</i>	electric motor.		

**51 Oil Charge Pump**

<i>Device ID #</i>	<b>102955</b>	<i>Device Name</i>	<b>Oil Charge Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	125.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Bingham-Williamette	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	4X6X10B-VCR	<i>Serial Number</i>	P-005
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In crude oil shipping service, rated at 560 gpm, powered by 125 hp		
<i>Description</i>	electric motor. Fitted with dual seals.		

**52 Oil Charge Pump (spare)**

<i>Device ID #</i>	<b>102956</b>	<i>Device Name</i>	<b>Oil Charge Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	125.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Bingham-Williamette	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	4X6X10B-VCR	<i>Serial Number</i>	P-006
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In crude oil shipping service, rated at 560 gpm, powered by 125 hp		
<i>Description</i>	electric motor.		

**53 Glycol Circulation Pump**

<i>Device ID #</i>	<b>102957</b>	<i>Device Name</i>	<b>Glycol Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Union	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-010
<i>Device Description</i>	Rated at 17 gpm, powered by 20 hp electric motor.		

**54 Glycol Circulation Pump (spare)**

<i>Device ID #</i>	<b>102958</b>	<i>Device Name</i>	<b>Glycol Circulation Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Union	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-011
<i>Device Description</i>	Rated at 17 gpm, powered by 20 hp electric motor.		

**55 Amine Circulation Pump**

<i>Device ID #</i>	<b>102959</b>	<i>Device Name</i>	<b>Amine Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Sundstrand LMV-332	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-012
<i>Device Description</i>	Rated at 55 gpm, powered by 50 hp electric motor.		

**56 Amine Circulation Pump**

<i>Device ID #</i>	<b>102960</b>	<i>Device Name</i>	<b>Amine Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	LMV-332	<i>Serial Number</i>	P-013
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 55 gpm, powered by 50 hp electric motor.		

**57 Flare Condensate Pump**

<i>Device ID #</i>	<b>102961</b>	<i>Device Name</i>	<b>Flare Condensate Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	40.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	3X7W	<i>Serial Number</i>	P-015
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 50 gpm, powered by 40 hp electric motor.		

**58 Amine Reflux Pump**

<i>Device ID #</i>	<b>102962</b>	<i>Device Name</i>	<b>Amine Reflux Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	LMV-801	<i>Serial Number</i>	P-016
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 6 gpm, powered by 3 hp electric motor.		



**59 Amine Reflux Pump (spare)**

<i>Device ID #</i>	<b>102963</b>	<i>Device Name</i>	<b>Amine Reflux Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	LMV-801	<i>Serial Number</i>	P-017
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 6 gpm, powered by 3 hp electric motor.		

**60 Flare Condensate Pump (spare)**

<i>Device ID #</i>	<b>102964</b>	<i>Device Name</i>	<b>Flare Condensate Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	40.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Ingersoll-Rand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	3X7W	<i>Serial Number</i>	P-020
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 50 gpm, powered by 40 hp electric motor.		

**61 Produced Water Circulation Pump**

<i>Device ID #</i>	<b>102965</b>	<i>Device Name</i>	<b>Produced Water Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Goulds	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-030
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 750 gpm, powered by 20 hp electric motor.		

**62 Produced Water Circulation Pump (spare)**

<i>Device ID #</i>	<b>102966</b>	<i>Device Name</i>	<b>Produced Water Circulation Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Goulds	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-031
<i>Device Description</i>	Wastewater pump rated at 750 gpm, powered by 20 hp electric motor.		

**63 Produced Water Sand Pump**

<i>Device ID #</i>	<b>102967</b>	<i>Device Name</i>	<b>Produced Water Sand Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Gregory	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-033
<i>Device Description</i>	Produced water/wastewater pump rated at 100 gpm, powered by 20 hp electric motor.		

**64 Produced Water Sand Pump**

<i>Device ID #</i>	<b>102968</b>	<i>Device Name</i>	<b>Produced Water Sand Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Gregory	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-034
<i>Device Description</i>	Produced water/wastewater pump rated at 100 gpm, powered by 20 hp electric motor. Utilizes dual seals.		

**65 Jet Water Pump**

<i>Device ID #</i>	<b>102969</b>	<i>Device Name</i>	<b>Jet Water Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	LMV-801	<i>Serial Number</i>	P-035
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Produced water/jet water pump rated at 100/150 gpm, powered by 50 hp electric motor.		

**66 Jet Water Pump (spare)**

<i>Device ID #</i>	<b>102970</b>	<i>Device Name</i>	<b>Jet Water Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Sundstrand	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	LMV-801	<i>Serial Number</i>	P-036
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Produced water/jet water pump rated at 100/150 gpm, powered by 50 hp electric motor.		

**67 Production Drain Pump**

<i>Device ID #</i>	<b>102971</b>	<i>Device Name</i>	<b>Production Drain Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Robbins & Meyers	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>	3L10-SSQ-AXA	<i>Serial Number</i>	P-070
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Production drain/oil recovery service, pump dirty oil and sea water, rated at 50 gpm, powered by 15 hp electric motor.		

**68 Production Drain Pump (standby)**

<i>Device ID #</i>	<b>102972</b>	<i>Device Name</i>	<b>Production Drain Pump (standby)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	15.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Robbins & Meyers	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>	3L10-SSQ-AXA	<i>Serial Number</i>	P-071
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Production drain/oil recovery service, pumps dirty oil and sea water, rated at 50 gpm, powered by 15 hp electric motor.		

**69 Dirty Oil Transfer Pump**

<i>Device ID #</i>	<b>102975</b>	<i>Device Name</i>	<b>Dirty Oil Transfer Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Frederick	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>	4HOHA1-SSQ-AXA	<i>Serial Number</i>	P-074
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In production drain/oil recovery service, pumps dirty oil and produced water, rated at 210 gpm, powered by 50 hp electric motor.		

**70 Disposal Pile Pump**

<i>Device ID #</i>	<b>102976</b>	<i>Device Name</i>	<b>Disposal Pile Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	Tons of Product
<i>Manufacturer</i>	Frederick	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>		<i>Serial Number</i>	P-075
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In sand and water treatment service, pumps wastewater, rated at 20 gpm, pneumatic powered.		

**71 Dirty Oil Drain Pump**

<i>Device ID #</i>	<b>102977</b>	<i>Device Name</i>	<b>Dirty Oil Drain Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	25.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gregory	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>		<i>Serial Number</i>	P-076
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In production drain/oil recovery service, pumps wastewater, rated at 150 gpm, powered by 25 hp electric motor. Utilizes dual seals.		

**72 Oily Water Sand Pump**

<i>Device ID #</i>	<b>102978</b>	<i>Device Name</i>	<b>Oily Water Sand Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gregory	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>		<i>Serial Number</i>	P-077
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In deck drain/oil recovery, pumps wastewater, rated at 100 gpm, powered by 20 hp electric motor.		

**73 Oily Water Sand Pump (spare)**

<i>Device ID #</i>	<b>102979</b>	<i>Device Name</i>	<b>Oily Water Sand Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	20.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gregory	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-078
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In deck drain/oil recovery, pumps wastewater, rated at 100 gpm, powered by 20 hp electric motor. Utilizes dual seals.		

**74 Dirty Oil Drain Pump (spare)**

<i>Device ID #</i>	<b>102980</b>	<i>Device Name</i>	<b>Dirty Oil Drain Pump (spare)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Wilden	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-079
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In production drain/oil recovery service, pumps wastewater, rated at 150 gpm, pneumatic powered (25 hp).		

**75 Dirty Oil Transfer Pump**

<i>Device ID #</i>	<b>102981</b>	<i>Device Name</i>	<b>Dirty Oil Transfer Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Frederick	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	4HOHA1-SSQ-AXA	<i>Serial Number</i>	P-080
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In production drain/oil recovery service, pumps dirty oil, rated at 210 gpm, powered by 50 hp electric motor.		

**76 Production Drain Sand Pump**

<i>Device ID #</i>	<b>102982</b>	<i>Device Name</i>	<b>Production Drain Sand Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	25.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gregory	<i>Operator ID</i>	E-SB-30-500A-4
<i>Model</i>		<i>Serial Number</i>	P-081
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In production drain/oil recovery service, pumps wastewater, rated at 100		
<i>Description</i>	gpm, powered by 25 hp electric motor.		

**77 Turbo Expander Lube Oil Pump**

<i>Device ID #</i>	<b>102983</b>	<i>Device Name</i>	<b>Turbo Expander Lube Oil Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	T.H. Russell	<i>Operator ID</i>	E-SB-30-500C-5
<i>Model</i>		<i>Serial Number</i>	P-084
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In turbo expander utility system service, pumps lube oil, rated at 10.5		
<i>Description</i>	gpm, powered by 5 hp electric motor.		

**78 Turbo Expander Lube Oil Pump**

<i>Device ID #</i>	<b>102984</b>	<i>Device Name</i>	<b>Turbo Expander Lube Oil Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	T.H. Russell	<i>Operator ID</i>	E-SB-30-500C-5
<i>Model</i>		<i>Serial Number</i>	P-085
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In turbo expander utility system service, pumps lube oil, rated at 10.5		
<i>Description</i>	gpm, powered by 5 hp electric motor.		

**79 Degasser Lube Oil Pump**

<i>Device ID #</i>	<b>102985</b>	<i>Device Name</i>	<b>Degasser Lube Oil Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	T.H. Russell	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-088
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In turbo expander utility system service, pumps lube oil, rated at 10.5		
<i>Description</i>	gpm, powered by 10 hp electric motor.		

**80 Lube Oil Fill Pump**

<i>Device ID #</i>	<b>102986</b>	<i>Device Name</i>	<b>Lube Oil Fill Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	T.H. Russell	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>		<i>Serial Number</i>	P-089
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In turbo expander utility system service, pumps lube oil, pneumatic		
<i>Description</i>	powered.		

**81 Heat Medium Circulation Pump**

<i>Device ID #</i>	<b>102989</b>	<i>Device Name</i>	<b>Heat Medium Circulation 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>	E-SB-30-5001B-5
<i>Model</i>	6X18WN	<i>Serial Number</i>	P-092
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In power generation/waste heat recovery service, pumps hot oil, rated at		
<i>Description</i>	1500 gpm, powered by 200 hp electric motor.		

**82 Heat Medium Circulation Pump**

<i>Device ID #</i>	<b>102990</b>	<i>Device Name</i>	<b>Heat Medium Circulation 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>	E-SB-30-5001B-5
<i>Model</i>	6X18WN	<i>Serial Number</i>	P-093
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	In power generation/waste heat recovery service, pumps hot oil, rated at		
<i>Description</i>	1500 gpm, powered by 200 hp electric motor.		

**83 Auxiliary Heat Medium Circulation Pump**

<i>Device ID #</i>	<b>102991</b>	<i>Device Name</i>	<b>Auxiliary Heat Medium Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	United Centrifugal	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-094
<i>Device</i>		<i>Facility Transfer</i>	
<i>Description</i>	In power generation/waste heat recovery service, pumps hot oil, rated at 700 gpm, powered by 30 hp electric motor.		

**84 Auxiliary Heat Medium Circulation Pump**

<i>Device ID #</i>	<b>102992</b>	<i>Device Name</i>	<b>Auxiliary Heat Medium Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	United Centrifugal	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Depermitted</i>		<i>Serial Number</i>	P-095
<i>Device</i>		<i>Facility Transfer</i>	
<i>Description</i>	In power generation/waste heat recovery service, pumps hot oil, rated at 700 gpm, powered by 30 hp electric motor.		

**85 Water Wash Circulation Pump**

<i>Device ID #</i>	<b>102994</b>	<i>Device Name</i>	<b>Water Wash Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	E-SB-30-5001D-4
<i>Depermitted</i>		<i>Serial Number</i>	P-097
<i>Device</i>		<i>Facility Transfer</i>	
<i>Description</i>	Pumps gas/condensate water, rated at 25 gpm, powered by electric motor. Utilizes dual seals.		

**86 Water Wash Circulation Pump**

<i>Device ID #</i>	<b>102995</b>	<i>Device Name</i>	<b>Water Wash Circulation Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	E-SB-30-5001D-4
<i>Depermitted</i>		<i>Serial Number</i>	P-098
<i>Device</i>		<i>Facility Transfer</i>	
<i>Description</i>	Pumps gas/condensate water, rated at 25 gpm, powered by electric motor.		



**87 Well Utility Pump**

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<i>Device ID #</i>	<b>102996</b>	<i>Device Name</i>	<b>Well Utility Pump</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Kobe	<i>Operator ID</i>	E-SB-30-5001B-5
<i>Model</i>	Size 3, type E	<i>Serial Number</i>	P-109
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	In fuel supply service, pumps diesel fuel, powered by 50 hp electric motor.		

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**88 Methanol Injection Pump #1**

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<i>Device ID #</i>	<b>102999</b>	<i>Device Name</i>	<b>Methanol Injection Pump #1</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Bran-Lubbe	<i>Operator ID</i>	E-SB-05-500B
<i>Model</i>	A7696	<i>Serial Number</i>	N-P33
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 4 gpm, powered by 1 hp electric motor.		

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**89 Methanol Injection Pump #2**

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<i>Device ID #</i>	<b>103000</b>	<i>Device Name</i>	<b>Methanol Injection Pump #2</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Bran-Lubbe	<i>Operator ID</i>	E-SB-05-500B
<i>Model</i>	A7696	<i>Serial Number</i>	N-P33
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 4 gpm, powered by 1 hp electric motor.		

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**90 Methanol Injection Pump #3**

<i>Device ID #</i>	<b>103001</b>	<i>Device Name</i>	<b>Methanol Injection Pump #3</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Bran-Lubbe	<i>Operator ID</i>	E-SB-05-500B
<i>Model</i>	A7696	<i>Serial Number</i>	N-P33
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Rated at 4 gpm, powered by 1 hp electric motor.		

**91 Oil Pig Launcher**

<i>Device ID #</i>	<b>103002</b>	<i>Device Name</i>	<b>Oil Pig Launcher</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	50.60 Cubic Feet
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-95-500C-5
<i>Model</i>		<i>Serial Number</i>	M-005
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Pig unit diameter 2.33 ft, length 11.25 ft.		

**92 Oil Pig Receiver (Harvest)**

<i>Device ID #</i>	<b>103004</b>	<i>Device Name</i>	<b>Oil Pig Receiver (Harvest)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	18.50 Cubic Feet
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-95-500C-5
<i>Model</i>		<i>Serial Number</i>	M-013
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Pig unit diameter 1.3 ft, length 9.75 ft. Connected to gas gathering or vapor recovery.		

**93 Oil Pig Receiver (Hidalgo)**

<i>Device ID #</i>	<b>103005</b>	<i>Device Name</i>	<b>Oil Pig Receiver (Hidalgo)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	31.00 Cubic Feet
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-95-500C-5
<i>Model</i>		<i>Serial Number</i>	M-014
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Pig unit diameter 1.67 ft, length 9.83 ft. Connected to gas gathering or vapor recovery.		

**94 Production Preheater**

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<i>Device ID #</i>	<b>103041</b>	<i>Device Name</i>	<b>Production Preheater</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-02
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type crude heater, heat medium Caloria.		
<i>Description</i>			

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**95 Production Preheater**

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<i>Device ID #</i>	<b>103040</b>	<i>Device Name</i>	<b>Production Preheater</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-01
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type crude heater, heat medium Caloria.		
<i>Description</i>			

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**96 Large Test Preheater**

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<i>Device ID #</i>	<b>103042</b>	<i>Device Name</i>	<b>Large Test Preheater</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-03
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type crude heater, heat medium Caloria.		
<i>Description</i>			

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**97 West Bay Test Preheater**

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<i>Device ID #</i>	<b>103043</b>	<i>Device Name</i>	<b>West Bay Test Preheater</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-04
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type crude heater, heat medium Caloria.		
<i>Description</i>			

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**98 East Bay Test Preheater**

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<i>Device ID #</i>	<b>103044</b>	<i>Device Name</i>	<b>East Bay Test Preheater</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-05
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type crude heater, heat medium Caloria.		
<i>Description</i>			

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**99 Shipping Pump Recycle Oil Cooler**

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<i>Device ID #</i>	<b>103045</b>	<i>Device Name</i>	<b>Shipping Pump Recycle Oil Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Benecia Fabricating and Machinery, Inc.	<i>Operator ID</i>	E-SB-05-500B-7
<i>Model</i>		<i>Serial Number</i>	E-30; E-31
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type oil cooler, heat medium seawater.		
<i>Description</i>			

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**100 VRC, Vapor Recovery Discharge Cooler**

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<i>Device ID #</i>	<b>103046</b>	<i>Device Name</i>	<b>VRC, Vapor Recovery Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Futura Metal	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-10
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas cooler, heat medium seawater.		
<i>Description</i>			

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**101 VRC 1st Stage Discharge Cooler**

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<i>Device ID #</i>	<b>103047</b>	<i>Device Name</i>	<b>VRC 1st Stage Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Futura Metal	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-11
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas cooler, heat medium seawater.		
<i>Description</i>			

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**102 Main Gas Compressor 2nd Stage Discharge Cooler**

<i>Device ID #</i>	<b>103048</b>	<i>Device Name</i>	<b>Main Gas Compressor 2nd Stage Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Futura Metal	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-12
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas cooler, heat medium seawater.		
<i>Description</i>			

**103 Main Gas Compressor 3rd Stage Discharge Cooler**

<i>Device ID #</i>	<b>103049</b>	<i>Device Name</i>	<b>Main Gas Compressor 3rd Stage Discharge Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Futura Metal	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-13
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas cooler, heat medium seawater.		
<i>Description</i>			

**104 Dry Gas/Lean Glycol Exchanger**

<i>Device ID #</i>	<b>103050</b>	<i>Device Name</i>	<b>Dry Gas/Lean Glycol Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500B-7
<i>Model</i>		<i>Serial Number</i>	E-14
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas heater, heat medium lean glycol.		
<i>Description</i>			

**105 Lean/Rich Glycol Exchanger**

<i>Device ID #</i>	<b>103051</b>	<i>Device Name</i>	<b>Lean/Rich Glycol Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500B-7
<i>Model</i>		<i>Serial Number</i>	E-15
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type rich glycol heater, heat medium lean glycol.		
<i>Description</i>			

**106 Glycol Regenerator Reboiler**

<i>Device ID #</i>	<b>103052</b>	<i>Device Name</i>	<b>Glycol Regenerator Reboiler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-16
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type glycol reboiler, heat medium Caloria.		
<i>Description</i>			

**107 Glycol Regenerator Condenser**

<i>Device ID #</i>	<b>103053</b>	<i>Device Name</i>	<b>Glycol Regenerator Condenser</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-17
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type glycol condenser, heat medium gas.		
<i>Description</i>			

**108 Lean Amine Cooler**

<i>Device ID #</i>	<b>103054</b>	<i>Device Name</i>	<b>Lean Amine Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-05-500B-7
<i>Model</i>		<i>Serial Number</i>	E-18
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type amine cooler, heat medium seawater.		
<i>Description</i>			

**109 Amine Regenerator Reboiler**

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<i>Device ID #</i>	<b>103055</b>	<i>Device Name</i>	<b>Amine Regenerator Reboiler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-500B-7
<i>Model</i>		<i>Serial Number</i>	E-19
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Tube type amine reboiler, heat medium DEA.		
<i>Description</i>			

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**110 Amine Regenerator Condenser**

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<i>Device ID #</i>	<b>103056</b>	<i>Device Name</i>	<b>Amine Regenerator Condenser</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Futura Metal	<i>Operator ID</i>	E-SB-05-5001C-5
<i>Model</i>		<i>Serial Number</i>	E-20
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type amine condenser, heat medium seawater.		
<i>Description</i>			

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**111 Lean/Rich Amine Exchanger**

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<i>Device ID #</i>	<b>103057</b>	<i>Device Name</i>	<b>Lean/Rich Amine Exchanger</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Western	<i>Operator ID</i>	E-SB-05-5001B-5
<i>Model</i>		<i>Serial Number</i>	E-21
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type rich amine exchanger, heat medium lean DEA.		
<i>Description</i>			

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**112 MGC Vapor Recovery Stage Suction Cooler**

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<i>Device ID #</i>	<b>103058</b>	<i>Device Name</i>	<b>MGC Vapor Recovery Stage Suction Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Futura Metal	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-23
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas cooler, heat medium seawater.		
<i>Description</i>			

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**113 Lube Oil Cooler**

<i>Device ID #</i>	<b>103059</b>	<i>Device Name</i>	<b>Lube Oil Cooler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	T.H. Russell	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	E-84
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Fin/fan type cooler, heat medium forced air.		
<i>Description</i>			

**114 Fuel Gas Preheater**

<i>Device ID #</i>	<b>103060</b>	<i>Device Name</i>	<b>Fuel Gas Preheater</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	E-SB-05-500D-5
<i>Model</i>		<i>Serial Number</i>	E-90
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type gas preheater, heat medium Caloria.		
<i>Description</i>			

**115 Stabilizer Reboiler**

<i>Device ID #</i>	<b>103061</b>	<i>Device Name</i>	<b>Stabilizer Reboiler</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Excell	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	E-67B
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type crude reboiler, heat medium Caloria.		
<i>Description</i>			

**116 Stabilizer Condenser**

<i>Device ID #</i>	<b>103062</b>	<i>Device Name</i>	<b>Stabilizer Condenser</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Excell	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	E-67A
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Shell/tube type overhead condenser.		
<i>Description</i>			



**117 LACT Unit**

<i>Device ID #</i>	<b>103063</b>	<i>Device Name</i>	<b>LACT Unit</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Daniel Industries	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-01
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Crude oil service, 650 gpm capacity.		
<i>Description</i>			

**118 LACT Unit**

<i>Device ID #</i>	<b>103064</b>	<i>Device Name</i>	<b>LACT Unit</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Daniel Industries	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-02
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Crude oil service, 650 gpm capacity.		
<i>Description</i>			

**119 LACT Unit**

<i>Device ID #</i>	<b>103065</b>	<i>Device Name</i>	<b>LACT Unit</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Daniel Industries	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-03
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Crude oil service, 650 gpm capacity.		
<i>Description</i>			

**120 Meter Prover**

<i>Device ID #</i>	<b>103066</b>	<i>Device Name</i>	<b>Meter Prover</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Daniel Industries	<i>Operator ID</i>	E-SB-05-500B-7
<i>Model</i>		<i>Serial Number</i>	M-04
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Crude oil service, 650 gpm capacity.		
<i>Description</i>			

**121 Turbo Expander/ Compressor**

<i>Device ID #</i>	<b>103067</b>	<i>Device Name</i>	<b>Turbo Expander/ Compressor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	T.H. Russell	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-086
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Gas service, capacity 24 MMsd. Mechanical (gas expansion) driver		
<i>Description</i>	type, rated at 585 hp.		

**122 Cyclone Sand Separators**

<i>Device ID #</i>	<b>103068</b>	<i>Device Name</i>	<b>Cyclone Sand Separators</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	SWECO	<i>Operator ID</i>	E-SB-05-500C-5
<i>Model</i>		<i>Serial Number</i>	M-104
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Dirty oil/sand/produced water service, capacity 150 gpm.		
<i>Description</i>			

**123 Turbine Generator (G-91)**

<i>Device ID #</i>	<b>005040</b>	<i>Device Name</i>	<b>Turbine Generator (G- 91)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.10 Megawatts
<i>Manufacturer</i>	SoLoNOx	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>	T-4701S	<i>Serial Number</i>	G-091
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Electrical power generation turbine with peak operating design rating of		
<i>Description</i>	2,800 kW. PUC-quality gas only. Emission controls: water injection at 0.8/1 W/F. No ammonia injection, no backup fuel.		

**124 Turbine Generator (G-93)**

<i>Device ID #</i>	<b>005042</b>	<i>Device Name</i>	<b>Turbine Generator (G-93)</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	2.80 Megawatts
<i>Manufacturer</i>	SOLAR/CENTAUR	<i>Operator ID</i>	E-SB-30-500D-5
<i>Model</i>	T-4000	<i>Serial Number</i>	G-093
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Electrical power generation turbine with peak operating design rating of		
<i>Description</i>	2800 kW. Uses PUC-quality gas or diesel. Fuel HHV 1,350 Btu/CF or 19620 Btu/lb. Emission controls: water injection at 0.8/1 W/F. No ammonia injection.		

**125 Gas/Condensate Service Components - Unsafe to Monitor**

<i>Device ID #</i>	<b>103070</b>	<i>Device Name</i>	<b>Gas/Condensate Service Components - Unsafe to Monitor</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	17.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Depermitted Device</i>		<i>Serial Number</i>	
<i>Description</i>		<i>Facility Transfer</i>	

**126 Oil Service Components - Accessible**

<i>Device ID #</i>	<b>103071</b>	<i>Device Name</i>	<b>Oil Service Components - Accessible</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	6317.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Depermitted Device</i>		<i>Serial Number</i>	
<i>Description</i>		<i>Facility Transfer</i>	

**127 Disposal Pile**

<i>Device ID #</i>	<b>005414</b>	<i>Device Name</i>	<b>Disposal Pile</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	8.00 Square Feet Area
<i>Manufacturer Model</i>	N.K.K	<i>Operator ID</i>	E-SB-30-500A-5
<i>Depermitted Device</i>		<i>Serial Number</i>	T-75
<i>Description</i>	Produced water emergency overflow service, covered secondary vessel, not connected to vapor recovery system.		

**128 Produced Water Surge Tank**

<i>Device ID #</i>	<b>005413</b>	<i>Device Name</i>	<b>Produced Water Surge Tank</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Square Feet Surface Area
<i>Manufacturer</i>	C.E. Natco. Co	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>		<i>Serial Number</i>	T-31
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Covered secondary vessel connected to vapor recovery system.		

**129 Marine Survival Craft**

<i>Device ID #</i>	<b>102938</b>	<i>Device Name</i>	<b>Marine Survival Craft</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	36.00 Brake Horsepower
<i>Manufacturer</i>	Perkins	<i>Operator ID</i>	E-SB-30-500B-7
<i>Model</i>	4-154	<i>Serial Number</i>	M-120
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	No emissions controls. Operating hours limited to less than 200 hours per quarter and per year.		

**130 Main Engines**

<i>Device ID #</i>	<b>005407</b>	<i>Device Name</i>	<b>Main Engines</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	1530.00 Brake Horsepower
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model</i>	12V71TI	<i>Serial Number</i>	
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Three main engine (510 bhp each) totaling 1530 bhp.		

**131 Generator Engines**

<i>Device ID #</i>	<b>103079</b>	<i>Device Name</i>	<b>Generator Engines</b>
<i>Rated Heat Input</i>		<i>Physical Size</i>	218.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device Description</i>	Two generator engines (109 bhp each) totaling 218 bhp, uncontrolled for NOx.		



***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





