



air pollution control district
SANTA BARBARA COUNTY

DRAFT

PERMIT to OPERATE 9109-R5

and

PART 70 OPERATING PERMIT 9109

**CARPINTERIA FIELD – SOUTH COUNTY
OCS PLATFORM HOUCHIN**

**PARCEL OCS-P-0166
CARPINTERIA FIELD
OUTER CONTINENTAL SHELF**

OPERATOR

ConocoPhillips/Beacon West

**Santa Barbara County
Air Pollution Control District**

February 2023

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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
AQAP	Air Quality Attainment Plan
ASTM	American Society for Testing and Materials
ATC	Authority to Construct
bbl	barrel (42 gallons per barrel)
BS&W	Basic water and sediment
bhp	brake horsepower
bpd	barrels per day
BSFC	brake-specific fuel consumption
Btu	British thermal unit
CAAA	Clean Air Act Amendments of 1990
CAP	Clean Air Plan
CARB	California Air Resources Board
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
clp	component leak-path
CO	carbon monoxide
CO ₂	carbon dioxide
COA	corresponding offshore area
District	Santa Barbara County Air Pollution Control District
ERC	emission reduction credit
FHC	fugitive hydrocarbon
FR	Federal Register
gr	grain
g	gram
gal	gallon
GHG	greenhouse gases
HHV	higher heating value
H ₂ 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
MCC	motor control center
MM, mm	million
MSDS	Material Safety Data Sheet
MW	molecular weight
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGL	natural gas liquids
NO _x	oxides of nitrogen (calculated as NO ₂)
NSPS	New Source Performance Standards
PFD	process flow diagram
P&ID	piping and instrumentation diagram
ppmv	parts per million volume (concentration)

psia	pounds per square inch absolute
psig	pounds per square inch gauge
PM	particulate matter
PM ₁₀	particulate matter less than 10 µm in size
PM _{2.5}	particulate matter less than 2.5 µm in size
PSV	pressure safety valve
PTO	Permit to Operate
PRD	pressure relief device
PVRV	pressure vacuum relief valve
ROC	reactive organic compounds
scf	standard cubic feet
scfd	standard cubic feet per day
scfm	standard cubic feet per minute
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SO _x	sulfur oxides
TEG	triethylene glycol
TOC	total organic compounds
tpq	tons per quarter
tpy	tons per year
TVP	true vapor pressure
USEPA	United States Environmental Protection Agency or EPA
UPS	uninterrupted power supply
VRS	vapor recovery system
wt%	weight percent

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1.0 Introduction

1.1 Purpose

General. The Santa Barbara County Air Pollution Control District (District) is responsible for implementing all applicable federal, state and local air pollution requirements, which affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 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. This is a combined permitting action that covers both the Federal Part 70 permit (Part 70 Operating Permit 9109) and the District Operating Permit (Permit to Operate 9109-R5).

Santa Barbara County is designated as a non-attainment area for the state PM₁₀ and ozone ambient air quality standard.

Part 70 Permitting. This is the fifth renewal of the Outer Continental Shelf (OCS) Platform Houchin ("Houchin") Part 70 operating permit. The District triennial permit reevaluation has been combined with this Part 70 Permit renewal. Houchin is a part of the Carpinteria Field – South County Stationary Source and is a major source for NO_x. Conditions listed in this permit are based on federal, state or District rules and requirements. All three 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 references contained in these Sections refer 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 District and federally enforceable requirements for the facility. Second, the permit is a comprehensive document to be used as a reference by the permittee, the regulatory agencies, and the public to assess compliance.

Greenhouse Gases - Rule 810. This reevaluation incorporates greenhouse gas emission calculations for the stationary source. These emissions establish baseline conditions under Rule 810, *Federal Prevention of Significant Deterioration*.

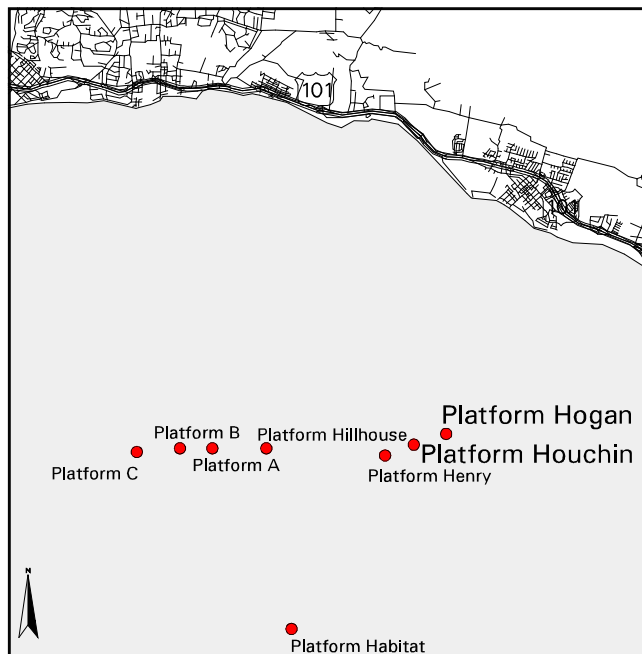
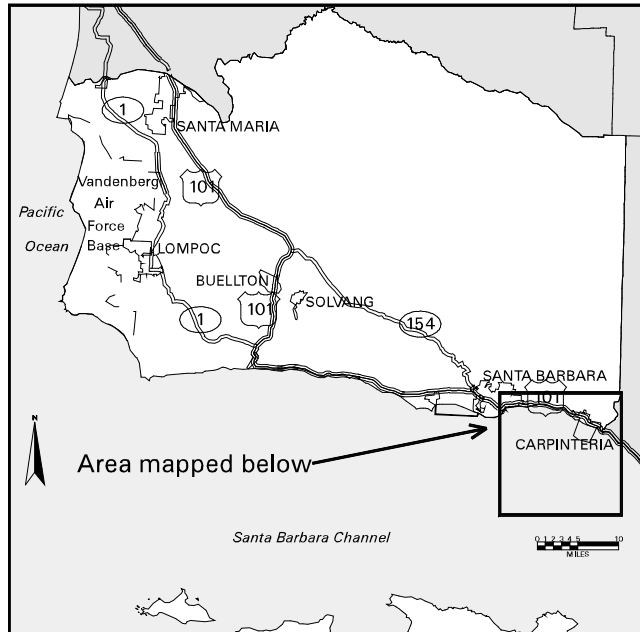
1.2 Facility Overview

- 1.2.1 Facility Overview: Platform Houchin, located on offshore lease tract OCS-P-0166, is approximately 7 miles southeast from the City of Santa Barbara, California (Latitude 34°20'4" North, Longitude 119°52'10" West. For District regulatory purposes, Platform Houchin is situated in the Southern Zone¹ of Santa Barbara County. Figure 1.1 shows the location of the facility off Santa Barbara County coast.

Platform Houchin is a nine leg, 60 wellhead slot, platform placed in a water depth of 163 feet. The platform was installed in 1968, drilling operations began in 1969, and the first phase (43

¹ District Rule 102, Definition: "Southern Zone"

Figure 1.1 Location Map for Coastal Platform Houchin
Carpinteria Field – South County



wells) was concluded in 1980. There are no active oil and gas operations on the platform which is currently being decommissioned.

During normal operations, oil and gas were transported via sub-sea pipelines to the La Conchita oil and gas plant in Ventura County. The platform was designed to produce 15,000 barrels per day of oil/water emulsion and 15 million standard cubic feet per day of natural gas. As of December 2014 Platform Houchin was not producing oil, water, or gas. When operating, the average API gravity of the produced crude oil is 24.5° API as measured in 2009 and the TVP is 3 psia (at 81° F).

The " Carpinteria Field - South County " stationary source consists of two OCS platforms, namely:

- Platform Hogan (FID = 8001)
- Platform Houchin (FID = 8002)

Operations at Platform Houchin included the following primary systems:

- Subsurface and wellhead production system
- Well cleanup system
- Gas lift production system
- Test separation system
- Oil and water shipping and metering system
- Gas shipping and metering system
- Low pressure compression system
- Wastewater injection system
- Electrical system
- Safety system

All equipment on Platform Houchin is powered electrically, except the cranes, the mud pump, the emergency equipment the well drilling rig and the well service rig which are powered by diesel-fired IC engines.

- 1.2.2 Facility New Source Overview: Since issuance of the initial operating permit PTO 9109 on September 4, 1994, the following NSR actions and permit modifications have been issued:

PTO 9109-04	PTO 9109-04	Lower allowable crew and service boat emissions.
PTO 9109-04	PTO 9109-04	Reduce north crane engine hours <200 hours/yr.
PTO 9109-04	PTO 9109-04	Increases the operating hours of the North crane to 2000 hours per year.
PTO 9109-04	PTO 9109-04	Replace the 318 hp IC engine driving the well kill pump with a 230 hp IC engine.
PTO 9109-04	PTO 9109-04	Replace fuel flow meters for the North Crane IC engine with hour meters.
PTO 11952	July 26,2006	Permit a 110 bhp firewater pump, a 510 bhp E/S generator, a 99 bhp crane engine and a 99 bhp south crane engine due to loss of Rule 202 exemption.
ATC 12388	August 7, 2008	Removal of the hydrocarbon vent stack and the installation of a production flare.
PTO 13107	April 14, 2010	Permit a 230 hp well kill pump engine and 400 hp well service rig engine due to a loss or Rule 202 exemption.
ATC-PTO 13370	February 16, 2010	Increase the permitted planned, unplanned and purge/pilot flaring volumes for the production flare.
ATC 12388-01	04/05/10	Modification to install the new GE Fuel Meter to the John Zink model KMI 8-1 open pipe flare.
ATC 13671	10/10/11	Replacement of the main and auxiliary engines on crew boat Matthew.
ATC 13966	04/01/13	Modify the Emergency Response Vessel equipment description.
ATC 13983	02/25/13	Increase the maximum purge/pilot and unplanned flare volume on Platforms Hogan and Houchin.
ATC/PTO 13575	05/16/12	Permitting of engine previously operating under PERP.
PTO 12388	04/19/2017	A John Zink model KMI 8-1 open pipe flare equipped with flare ionization monitoring system and an electronic ignition system.
PTO 13671	04/19/2017	Main and auxiliary engines on crew boat Matthew.
PTO 13966	04/19/2017	Modify the Emergency Response Vessel equipment description.
Trn O/O 9109-01	12/19/2020	Transfer of owner/operator from Pacific Operators Offshore to ConocoPhillips and Beacon West.
PT-70 ADM 16048	01/2023	Change of Responsible Official from Charles W. Cappel to Keith Wenal.
PTO 9109-04	The date of issuance of this permit renewal.	Modify language of specific permit conditions so that they apply only while applicable equipment is operational.

1.3 **Emission Sources**

Air pollution emissions from Platform Houchin are the result of 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, the platform as a whole; it also lists the potential emissions from non-permitted emission units.

The principal equipment components or activities that had the potential to cause the release of air contaminants from Platform Houchin or from equipment used in support of Platform Houchin operations are:

1. Crew boats used to transport personnel and cargo to and from the platform.
2. Supply boats used to transport equipment, fuel, and supplies to and from the platform.
3. Two pedestal cranes, each operated by a diesel fired internal combustion engine.
4. One mud pump (well kill pump) powered by a diesel fired internal combustion engine.
5. Various piping components, produced water tanks, and other evaporative sources that emit fugitive hydrocarbons to the atmosphere.
6. Well Service Rig, powered by a diesel fired IC engine that is used for well work over.
7. Well drilling rig, powered by two diesel fired IC engines that is used for well drilling and redrilling.
8. One (standby) diesel-fired firewater pump, which is operated in emergency situation;
9. One (standby) diesel-fired power generators, which are operated in emergency situations.
10. One pedestal crane with an IC engine rated at less than 100 bhp.
11. One production flare used to flare gas from unplanned casing blowdown and planned pipeline pigging operations.

A list of all permitted equipment is provided in Section 10, Attachment 10.4.

1.4 Emission Control Overview

Air quality emission controls were on Platform Houchin for a number of emission units to reduce air pollution emissions. Additionally, the use of onshore utility grid power allows Platform Houchin to operate without the use or need for large gas turbine-powered generators or compressors. The emission controls employed on the platform included:

- A Fugitive Hydrocarbon Inspection & Maintenance (I&M) 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%.
- Use of “N 60-type” nozzle and timing retard in the crane IC engines to lower NO_x emissions.
- Use of Tier 3 engines on the well drilling rig certified to meet a NO_x emission standard of 2.80 g/bhp-hr.
- Use of turbo-charging, enhanced seawater inter-cooling and 4° injection timing retard on supply boat main engines to achieve a NO_x emissions rate of 8.4 g/bhp-hr.
- Use of turbo-charging, inter-cooling, and 4° injection timing retard on the crew boat main engines to achieve a NO_x emissions rate of 8.4 g/bhp-hr.
- Use of Tier 2 main engines and Tier 4 auxiliary engines on the emergency response boats. The main engines on these boats achieve a NO_x emission rate of 6.76 g/bhp-hr. The NO_x emission rate for the auxiliary engines is 5.04 g/bhp-hr.
- Use of a production flare to combust gas from unplanned casing blowdown and gas produced during planned pipeline pigging operations.

1.5 Offsets/Emission Reduction Credit Overview

This facility does not provide any emission reduction credits (ERCs) to any other sources nor does it require any ERCs to operate the facility.

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 also 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 Hazardous Air Pollutants (HAPs), that are less than 2 tons per year based on the unit’s potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit’s potential to emit. Insignificant activities must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to insignificant units. (See Attachment 10.6 for the Insignificant Emissions Unit list.)
- 1.6.3 Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement which was in effect as of August 7, 1980, or (2) included in the 29-category source list specified in 40 CFR 51.66 or 52.21. Thus, its fugitive emissions are not listed in its federal PTE. The federal PTE does include all emissions from any insignificant emissions units. Three internal combustion engines Platform Houchin are subject to NESHAP per 40 CFR Part 63 {MACT Standards Subpart ZZZZ}. (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 granted indiscriminately with respect to all federal requirements. No request for a permit shield has been made.
- 1.6.5 Alternate Operating Scenarios: A major source may be permitted to operate under different operating scenarios, if appropriate descriptions of such scenarios are included in its Part 70 permit application and if such operations are allowed under federally-enforceable rules. No request has been made for alternative operating scenarios.
- 1.6.6 Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually on or before March 1st or on a more frequent schedule, as specified in the permit. Each certification is signed by a “responsible official” of the owner/operator company whose name and address is listed prominently in the Part 70 permit. (see Section 1.6.10 below)
- 1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The

permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data. (see Section 4.10.3, CAM Rule)

- 1.6.8 MACT/Hazardous Air Pollutants (HAPs): Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology (MACT), where applicable. See Sections 3.2.5 for specifics on 40 CFR 63, Subpart HH and Section 3.2.6 on 40 CFR 63, Subpart ZZZZ.
- 1.6.9 Compliance Assurance Monitoring (CAM): The CAM rule became effective on April 22, 1998. This rule affects emission units at the source subject to a federally enforceable emission limit or standard that uses a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds. Sources subject to CAM Rule must submit a CAM Rule Compliance Plan along with their Part 70 operating permit renewal applications. (see Section 4.9.3). The District has determined that no emissions unit at this facility is subject to CAM Rule.
- 1.6.10 Responsible Official: The designated responsible official and their mailing addresses are:

Keith Wenal
Beacon West Energy Group
1145 Eugenia Place, Suite 101
Carpinteria CA, 93013

2.0 Process Description

2.1 Process Summary

Platform Houchin has minimal production facilities. Historically, the only processing performed on the platform was the separation of the produced fluids and gas into separate streams. The following facility descriptions are of those which formerly occurred on the platform.

There is no oil/water separation or gas dehydration equipment on the platform. The production facilities consist of wells, gas/liquid separators, a low pressure vapor recovery compressor, a gas lift system and kick-off compressor, liquid shipping pumps, and surge tanks needed to ship the produced fluids and gas to the La Conchita treatment facility in Ventura County. The crude oil and natural gas produced are sweet and have low concentrations of H₂S and mercaptans.

Platform Houchin has a design production rate of 15,000 bpd of oil emulsion and 15 million scf/day of gas. Produced fluids and gas are shipped in two separate sub-sea pipelines to the La Conchita oil and gas plant.

- 2.1.1 Production: Platform Houchin has 60 allowed well slots. Forty-three wells were drilled. The wells are not free flowing; down hole pumps or gas lift was used to facilitate production. There were no gas lift wells on Platform Houchin. The wells are currently being plugged and abandoned.

The oil production flow line from each wellhead tied into four separate piping manifolds or headers: two production headers, a test header, and a well clean-up header. Normally, the flow from each well is initially directed into one of the production headers, and then to a production separator (6642 or 6643). Each of the two production header and separator systems can handle

the entire flow from all the wells. Two separate production systems are provided on the platform to allow for equipment maintenance and repair without having to shut in the production wells.

The test header and test separator (6642) are used to flow test individual production wells. For the flow test, the well is switched from the production header to the test header. Only one well is tested at a time.

The well clean-up header and separator are used to start-up a well after a work over is completed. The well clean-up separator (6646) is a horizontal vessel and has a high gas capacity. For the first few hours after a well is brought back on line, gas surge and contamination by drilling fluid or reservoir sand can occur. After the flow rate stabilizes and any drilling fluids are removed, the well is switched over to the production header and separator.

Produced oil and water from the production separators, the cleanup separator, and the test separator flows to one of two surge tanks (6445 and 6647). The surge tanks are used to provide surge capacity and ensure adequate suction pressure to the four oil shipping pumps (PAX 1, 2, 3, and 4). This extra capacity allows the pumps to run continuously without frequent starting and stopping that could upset the operation of downstream liquid handling equipment. The pipeline shipping pumps send the produced fluids directly to the sub-sea pipeline to the La Conchita facility. A turbine meter is provided on the pipeline to measure the fluid flow rate and totalize the volume of oil and water emulsion produced.

Platform Houchin has a small deck drain water collection system. There are no clarifiers or gas flotation units on the platform for water treating. Fluids collected by the deck drains flow to a deck drain tank and are pumped to the settling tank. Fluids from the settling tank are pumped to the surge tank and are mixed with the produced fluids from the separators.

- 2.1.2 Gas, Oil, and Water Separation: A mixture of oil, gas, and water is produced from the wells. The separation of the gas and the liquid phases is done in two production separators (6643 and 6644). The horizontal two-phase separators measure six feet in diameter by fifteen feet long, seam-to-seam. The wells are produced directly into the production separators, and the normal production from all the wells on Platform Houchin is handled by these separators. Normally both separators are in operation thereby maximizing the liquid retention time and providing the best possible gas/liquid separation.

The separators operate at approximately 70 psig and 100°F. The gas section (upper half) of the separator is designed to reduce the fluid velocity sufficiently to cause liquids to drop out. Both separators also have a mist extractor to promote removal of liquid droplets from the gas stream. Operating pressure of the separators is automatically controlled by a pressure control valve in the gas-to-shore pipeline.

The liquid section (lower half) of the separator is designed with sufficient retention time to allow entrained gas to bubble out of the liquid. The liquid section does not split the oil and water into two separate streams. Liquid level in the production separator is automatically controlled by a level control valve. Oil and water from the production separators flows to the surge tanks and is pumped to the La Conchita facility.

- 2.1.3 Waste Water Treatment: There are no wastewater treatment facilities on Platform Houchin. All produced fluids are shipped to the La Conchita facility for further processing.

- 2.1.4 Well Testing and Maintenance: In order to measure the oil, gas, and water flow rates from individual wells, the fluids from a well can be directed to the test separator (6642) by closing the well flow line valve to the production header and opening the well flow line valve to the test header. The test separator is a horizontal separator, three feet in diameter by eight feet long, seam-to-seam. Its capacity is smaller than the production separators because only one well is tested at a time. It also has a mist extractor to promote removal of liquid droplets from the gas stream. The test separator has its own backpressure control valve to operate at a higher pressure than the production separators. Gas from the separator is measured by an orifice meter in the outlet line, and is commingled with the gas from the production separator and to the gas-to-shore pipeline.

The combined flow of oil and water from the test separator is measured by a turbine meter. The water cut (fraction of water in the produced fluids) is determined by a capacitance probe in the liquid outlet line. Oil and water from the test separator flows to the oil surge tank.

After completion of a well work-over, the oil production from a well is sent to the clean-up separator (6646), which segregates the well from the rest of the platform's wells and prevents contamination of the production separators and piping. The initial production from a well can also have frequent flow surges or high gas flow rates, and producing the well into the well clean-up separator prevents upsetting the normal production from the platform. After the flow from the well has stabilized, it is switched back to the production header and separator.

The well clean-up separator is a horizontal two-phase separator, four feet in diameter by 15 feet long, seam-to-seam. Gas from the separator is measured by an orifice meter in the outlet line, and is commingled with the gas from the production separators and sent to the gas pipeline to shore.

The total fluid flow from the well clean-up separator is measured by a turbine meter and is sent to the oil surge tank.

- 2.1.5 Emulsion-Breaking Fluid and Crude Oil Storage: There are no emulsion-breaking fluid or crude oil storage facilities on Platform Houchin. The produced oil/water emulsion is shipped to the La Conchita facility for further processing.
- 2.1.6 Emulsion Shipping: The surge tanks (6645 and 6647) receive produced fluids from the production separators, the test separator, and the clean-up separator. The surge tanks are horizontal pressure vessels six feet in diameter by fifteen feet long, seam-to-seam. They operate at approximately 35 psig, with the operating pressure controlled by the vapor recovery compressor. Gas from the surge tanks is used by the vapor recovery compressor to regulate tank pressure, with excess going to the gas pipeline. There are no internal baffles or mist extractors inside the surge tanks. They provide surge capacity to stabilize the flow of fluids and prevent upsets in the downstream processing equipment. They also hold a sufficient volume of produced fluids to allow the shipping pumps to operate continuously. High and low level switches in the surge tanks automatically open and close make-up line valves to maintain proper fluid level and gas pressure.

Normally, one pump operates and three pumps are used as standby; the stand-by pumps are started manually when a high level alarm comes on for the oil surge tanks. Approximately 1,500 bpd of oil and 4,000 bpd of water can be pumped through a single pipeline to the La Conchita facility.

- 2.1.7 Drain Sumps: Platform Houchin is equipped with a deck drain system, which collects oil and water from the production and upper decks. The decks are equipped with curbs around the perimeter and curbs or seals around the deck penetrations to prevent any liquids from spilling overboard. Fluids from the production deck flow to the deck drain tank, with fluids from the upper deck flowing directly to the settling tank. The deck drain tank is a horizontal vessel with a surface area of 18 square feet that operates at atmospheric pressure. A sump pump (PBH-DK-1) sends the collected fluids to the settling tank. The settling tank is a horizontal vessel, 6 feet in diameter by 18 feet long, seam-to-seam that operates at atmospheric pressure. The liquids from the settling tank are pumped to the surge tanks, with overflow going to the disposal tube. The disposal tube is a vertical drainpipe that discharges fluids near the ocean floor.
- 2.1.8 Gas Compression, Dehydration, and Disposition: No gas processing, dehydration, or sweetening is done on Platform Houchin. Natural gas is removed from the crude oil by the production separators, test separator, well clean-up separator, and oil surge tanks. No additional compression is required to ship the gas, via sub-sea pipeline, to the La Conchita facility. A vapor recovery compressor is used to maintain the pressure in the surge tanks.
- 2.1.9 Gas Sweetening and Sulfur Recovery: The gas produced from Platform Houchin is sweet gas. There are no gas sweetening or sulfur recovery facilities on Platform Houchin.
- 2.1.10 Vapor Recovery Systems: Platform Houchin had a vapor recovery system rated at 1.2 MMscfd. Gas from the surge tank is compressed to approximately 90 psig and is directed to the onshore pipeline. All other produced gas from the platform flows to the onshore gas pipeline at casing head pressure of about 50 psig. The deck sump and settling tank are not connected to vapor recovery or the gas gathering system.
- 2.1.11 Fuel Gas System: Platform Houchin does not have a fuel gas system as there is no equipment on the platform that burns natural gas. Diesel #2 fuel, which contains less than 0.5% sulfur by weight, is used by the two pedestal cranes and other diesel fired equipment. Platform Houchin has one 10,400-gallon diesel storage tank located at the north pedestal crane.
- 2.1.12 Production Flare System: Platform Houchin has a produced gas flare system that is designed to combust gases from platform process equipment. During an emergency condition, this system flares these gases for safety reasons. For safety reasons and to comply with federal regulations, gas flaring is required during unplanned casing blowdown prior to well work over as well as during planned smart-pigging required for the pipeline. Planned events include (but are not limited to):
- Pipe line pigging operations
 - Compressor shutdowns/startups for routine maintenance
 - New well unloading and cleanup
 - Clearing of gas lines during equipment or process turnarounds
 - Episodic events such as equipment depressurization for maintenance, purging of vessels and gas pipeline blowdown
 - Bureau of Safety and Environmental Enforcement ordered safety tests
- Unplanned or emergency events include (but are not limited to) the following:
- Emergency shutdowns caused by safety devices
 - Well surges during drilling or production

- Unintentional pressure safety valve releases
- Well casing blowdown during work-over and rig operations (unplanned)
- Processing equipment or compressor failures
- Onshore facility failures that affect platform operations
- Faulty-sensor caused shutdowns
- High/low temperature and pressure indicated shutdowns
- Electrical equipment failures and power failure
- Pipeline failures
- Earthquakes or other unforeseeable emergency events

2.2 Support Systems

2.2.1 Piping Assemblies and Pipelines: The piping on Platform Houchin is designed, tested, and installed in general accordance with API 14C and 14E. In general, piping 2” or larger is of welded carbon steel construction; similarly, piping 1.5 inches and smaller is generally of threaded carbon steel construction.

Four sub-sea pipelines are associated with Platform Houchin. A 12-inch produced gas pipeline and a 10-inch oil and water pipeline run from the platform to the La Conchita facility. A 10-inch gas pipeline and a 4-inch wastewater pipeline run from the shore to the platform. The gas line to the platform supplies gas for gas lift operations, while the wastewater is stored in a 400 bbl kill water tank, is injected into a water disposal well or is disposed of per a NPDES permit. There are no gas lift wells on Platform Houchin.

2.2.2 Power Generation: Electrical power for Platform Houchin is provided from shore by SCE through a 34.5 kilovolt sub-sea cable. The platform has a 500 kW diesel stand-by generator, which is used in the event of a power outage from SCE. During such a power failure, the Motor Control Center (MCC) on Platform Houchin supplies standby power from the diesel generator to critical equipment. A 24-volt battery backup system is provided for the essential platform controls.

2.2.3 Crew Boat: The facility uses one crew/utility boat (hereinafter referred as “crew boat”) for a variety of purposes in support of Platform Houchin. The crew boat makes two to four round trips per day, seven days a week, to the platform from Casitas Pier in Carpinteria. The crew boat also services Platform Hogan. The crew boat is used for the following activities:

1. Load, transport (receipt, movement and delivery) and unload personnel, supplies, and equipment to and from the platforms and dock or pier locations for routine operations and special logistic situations, [Examples: transport of drilling/work-over fluid, casing, specialty chemicals, cement or other supplies].
2. Support supply/work boat while it is working at the platforms, [Examples: hold supply boat in position and transfer equipment or supplies].
3. Operate boat engines to maintain boat positioning while working at the platforms, docks, or piers or in open waters.
4. Support operations in conjunction with maintenance and/or repairs on platform components, [Examples: mooring buoy, boat dock, structural supports, diving operations and cathodic protection equipment].

5. Support operations in conjunction with surveys of platform and sub-sea components including pipelines and power cables, [Examples: side scan sonar, ROV inspection, diving inspections and marine biological inspections].
6. Support operations in conjunction with drilling and work-over operations, [Examples: perforation watch and marine safety zone surveillance].
7. Support/participate in oil spill drills and actual incidents, [Examples: deploying boom and recovery equipment, taking samples and personnel exposure measurements and other spill response activities].
8. Support/participate in safety, health, and emergency drills and actual incidents. [Examples: third party requests for assistance, Medi-vac and platform evacuation as well as other safety and health activities, fire and explosion, well control blowout, storm, vessel collision, bomb threat, support operations during periods of elevated Homeland Security Alert threat levels (orange or red) as requested by Federal Agencies, and man overboard].
9. Provide standby boat services when required due to limitations of platform survival craft capabilities and/or platform personnel count.
10. Supply marine support services to accommodate activities by local, state and federal agencies and special industry / public interest groups when requested.
11. Conduct engine source compliance tests as required by the permits or other rules and regulations.
12. Perform vessel and boat maintenance as required.
13. Travel to safe harbor from platforms, dock or pier during extreme weather or other emergency situations.

2.2.4 Supply Boat: The facility's permitted emissions are based on the operations of a supply boat used for a variety of purposes in support of Platform Houchin (Note: the facility is currently using its crew boat at this time as its supply boat). When the platform is in a production mode (i.e., no drilling or well repair), supply boat use is approximately 6-8 trips per month. During well drilling or well repair activity, the supply boat activity increases, but is expected not to exceed 100 trips per year. The supply boat, based in Port Hueneme, also services Platform Hogan. The supply boat is used for the following activities:

- 1 Load, transport (receipt, movement and delivery) and unload personnel, equipment and supplies to and from the platforms and Port Hueneme or other ports during routine operations to accommodate special logistic situations, [Examples: transport of drilling/work-over fluid, casing, specialty chemicals, cement or other supplies to a dock or pier to accommodate special needs of a vendor].
- 2 Support supply/work boat while it is working at the platforms, [Examples: hold supply boat in position and transfer equipment or supplies].
- 3 Operate boat engines to maintain boat positioning while working at the platforms, docks, or piers or in open waters.
- 4 Support operations in conjunction with maintenance and/or repairs on platform components, [Examples: mooring buoy, boat dock, structural supports, diving operations and cathodic protection equipment].
- 5 Support operations in conjunction with surveys of platform and sub-sea components including pipelines and power cables, [Examples: side scan sonar, ROV inspection, diving inspections and marine biological inspections].

- 6 Support operations in conjunction with drilling and work-over operations, [Examples: perforation watch and marine safety zone surveillance].
 - 7 Support/participate in oil spill drills and actual incidents. [Examples: deploying boom and recovery equipment, taking samples and personnel exposure measurements and other spill response activities].
 - 8 Support/participate in safety, health, and emergency drills and actual incidents, [Examples: third party requests for assistance, Medi-vac and platform evacuation as well as other safety and health activities, fire and explosion, well control blowout, storm, vessel collision, bomb threat, support operations during periods of elevated Homeland Security Alert threat levels (orange or red) as requested by Federal Agencies, and man overboard].
 - 9 Provide standby boat services when required due to limitations of platform survival craft capabilities and/or platform personnel count.
 - 10 Supply marine support services to accommodate activities by local, state and federal agencies and special industry/public interest groups when requested.
 - 11 Conduct engine source compliance tests as required by the permits or other rules and regulations.
 - 12 Perform vessel and boat maintenance as required.
- 2.2.5 Helicopter: There is a helipad on Platform Houchin; however, helicopters are not used for routine offshore transportation.
- 2.2.6 Emergency Drills: The facility conducts periodic and unannounced emergency response drills. Several plans have been developed for different types of emergency situations that could occur on or around the platform. The plans include the *Emergency Evacuation Plan* and *Oil Spill Contingency Plan*. All of the plans have been prepared to comply with applicable rules and regulations and guidelines set forth by the appropriate regulatory agencies. In addition, the following drills are practiced by the entire crew on a regular basis: (1) man overboard, (2) combustible gas, (3) abandon platform, and (4) emergency shut down.

2.3 Drilling Activities

- 2.3.1 Drilling Activities: Drilling activities including well work over periodically occurred on the platform. Engines with rated horsepower greater than or equal to 50 horsepower used in drilling activities must obtain District permits or qualify for the Rule 202.F.2 exemption. During active drilling operations Platform Houchin had two diesel fired drill rig engines rated at 665 bhp each, and one diesel fired Well Service Rig rated at 400 bhp.

2.4 Maintenance/Degreasing Activities

- 2.4.1 Paints and Coatings: Intermittent surface coating operations are conducted throughout the platform for occasional equipment maintenance needs. Normally only touch-up and equipment labeling or tagging is performed using spray cans.
- 2.4.2 Solvent Usage: Solvents not used for surface coating thinning may be used on the platform for daily operations. Usage includes cold solvent degreasing and wipe cleaning with rags.

2.5 Planned Process Turnarounds

The facility performs no planned process turnarounds on Platform Houchin. All production paths have bypass and redundant equipment to ensure no downtime in production. Major pieces of equipment undergo maintenance as specified by the manufacturer. Maintenance of critical

components is carried out according to the requirements of Rule 331 {Fugitive Emissions Inspection and Maintenance}.

2.6 Other Processes

Pigging: Pigging operations occurred between the facility and the La Conchita Plant in Ventura County. The oil lines were pigged approximately 3 times per week. The pigging system is connected to the La Conchita Plant's pig receiver.

Unplanned Activities/Emissions: The facility does not anticipate or foresee any circumstances that would require special equipment use and result in excess emissions. The permittee has stated that no other processes exist that would be subject to permit.

2.7 Detailed Process Equipment Listing

Refer to Section 10, Attachment 10.4 for a complete listing of all permitted and exempt equipment.

3.0 Regulatory Review

3.1 Rule Exemptions Claimed

- District Rule 202 (Exemptions to Rule 201): Section D.6 of the Rule requires the facility to report any *de minimis* modifications at the facility.
- District Rule 202 (Exemptions to Rule 201): Pursuant to the permittee request, the following equipment units are exempt from the requirements to obtain a District permit. An exemption from a District permit, however, does not grant relief from any federally applicable prohibitory rule (or permit) unless specifically exempted by that prohibitory rule.
 - Diesel fuel Tank: 10,400 gallon capacity (Section V.2)
 - Diesel Day Tank: 500 gallon capacity (Section V.2)

Note: The historical District Rule 202 (Section .F.1.6) drilling engine exemption for OCS sources expired on February 19, 2009, so drilling engines with a rated horsepower of 50 or greater are no longer permit exempt. However, drilling or other engines that qualify as portable and are registered in the State Portable Equipment Registration Program (PERP registration) may qualify for a permit exemption in accordance with Rule 202.F.2. District authorization is required prior to use of PERP registered equipment on the OCS.

- District Rule 325 (Crude Oil production and Separation): The facility obtained an exemption from Rule 325, Sections D.1 and D.2, in May 1999 for its deck drain tank and settling tank under the provisions of Rule 325.B.3 (ROC content of tank liquids less than 5mg/l)
- District Rule 331 (Fugitive Emissions Inspections and Maintenance): The following exemptions to Rule 331 were requested for and approved by the District:
 - Section B.2.b for components buried below the ground.
 - Section B.2.c for one-half inch stainless steel tube fittings.
- District Rule 333 (Control of Emissions from Reciprocating IC Engines): Under Section B.1.b, engines exempt per Rule 202 are also exempt from the requirements of this rule. Under Section B.2, engines with total aggregated operational periods less than 200 hours per

calendar year are exempt from the requirements of this rule, except section D.1, Section D.2, Section J.3, and Section K. The South Crane engine, the two (2) emergency standby generator engines, the well kill pump engine, and the firewater pump engine are all limited to less than 200 hours per calendar year.

3.2 Compliance with Applicable Federal Rules and Regulations

- 3.2.1 40 CFR Parts 51/52 {Non-attainment Area Review and Prevention of Significant Deterioration}: Platform Houchin was constructed and permitted prior to the applicability of these regulations. However, all permit modifications at Platform Houchin after September 4, 1992, are subject to District New Source Review requirements. Compliance with District Regulations VIII (*New Source Review*) ensures that any future modifications to the facility will comply with these regulations.
- 3.2.2 40 CFR Part 55 {OCS Air Regulations}: As an existing OCS source, Platform Houchin is operating in compliance with the requirements of this regulation.
- 3.2.3 40 CFR Part 60 {New Source Performance Standards}: NSPS Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines was published in the Federal Register on July 11, 2006. The two well drilling Rig 23 diesel engines (IDs 114676 and 114677) are subject to the requirements of this regulation. The use of Tier 3 certified engines ensures compliance with this regulation.
- 3.2.4 40 CFR Part 61 {National Emissions Standards for Hazardous Air Pollutants}: This facility is not currently subject to any of the provisions of Part 61.
- 3.2.5 40 CFR Part 63 {Maximum Achievable Control Technology (MACT)}: In September 2001, POO-LLC submitted data to the USEPA and to the District concerning their 'initial' gas-to-oil ratio (GOR) and the initial API gravity of their oil. The facility was determined to be exempt from the Oil and Gas Production MACT, Subpart HH under 40 CFR 63.760(e)(1) ['Black Oil Exemption']; however, it is subject to recordkeeping under the General Standards of Part 63, i.e., under 63.10(b)(3).
- 3.2.6 40 CFR Part 63 {MACT Standards Subpart ZZZZ}: The revised National Emission Standard for Hazardous Air Pollutants (NESHAP) for reciprocating internal combustion engines (RICE) was published in the Federal Register on January 18, 2008. An affected source under the NESHAP is any existing, new, or reconstructed stationary RICE located at a major source or area source.

Existing Non-Emergency Non-Black Start Compression Ignition RICE ≤ 300 hp. Two engines, the North Crane (ID 004873) and the South Crane (ID 004872) are subject to the requirements for engines rated less than or equal to 300 bhp. The following operating requirements apply:

- (1) Change the oil and filter every 1,000 hours of operation or annually, whichever comes first; and
- (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.

Existing Non-Emergency Non-Black Start Compression Ignition RICE $300 < hp \leq 500$. Two engines, the Well Service Rig (ID# 007108) and the Well Kill Pump (ID 102688) are subject to the requirements for existing, non-emergency, non-black start CI stationary engines rated

between 300 and 500 bhp. The annual hours of the Well Kill Pump engine have been reduced to 100 hours in order to qualify as a low use engine as defined by §63.6675. Table 2c of the Subpart specifies maintenance requirements for this engine which includes oil and filter changes, and inspections of the air cleaner, hoses, and belts. 40 CFR 63 Subpart ZZZZ requires a carbon monoxide reduction of 70 percent or limiting the concentration of CO in the exhaust gas to 49 ppmvd or less at 15 percent oxygen for the Well Service Rig engine. This regulation also requires the installation of a closed crankcase ventilation system or an open crankcase filtration emission control system.

Existing Emergency Compression Ignition RICE. One engine, the diesel fired 605 bhp standby emergency generator (ID# 102020) is subject to the following requirements:

- (1) Change the oil and filter every 500 hours of operation or annually, whichever comes first; and
- (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.

3.2.7 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998. None of the emission units at this facility are subject to the requirements of the CAM Rule, per 40 CFR 64.2 (Applicability). Pre-control emissions of any pollutant from the North Crane unit are less than 100 tpy; while the South Crane and the boat engines do not use any control device to comply with any federally enforceable emissions limit.

3.2.8 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to Platform Houchin. Table 3.1 lists the federally enforceable District promulgated rules that are “generic” and apply to the facility. Table 3.2 lists the federally enforceable District promulgated rules that are “unit-specific” that apply to the facility. These tables are based on data available from the District’s administrative files and the facility’s Part 70 Operating Permit Renewal Application 9109-R5.

In its Part 70 renewal application, the permittee certified compliance with all existing District rules and permit conditions. This certification is also required for the facility semi-annually. Issuance of this permit and compliance with all its terms and conditions will ensure that the facility complies with the provisions of all applicable Subparts.

3.3 Compliance with Applicable State Rules and Regulations

3.3.1 Division 26. Air Resources {California Health & Safety Code}: The administrative provisions of the Health & Safety Code apply to this facility and will be enforced by the 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 the Platform Houchin are required to conform to these standards. Compliance will be 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 California Administrative Code Title 17 Section 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. The crew boat and supply boat engines are subject to this ATCM. As part of the compliance with this ATCM, effective January 1, 2009, the crew boat and supply boat engines are required to burn CARB ultra-low sulfur diesel in all the engines onboard the vessel and install hour meters on all diesel engines. The crew boat and supply boat are not considered ferries, excursion vessels, tugboats, towboats, push boats, or multipurpose harbor craft, so they are not subject to the in use engine replacement requirements of section (e)(6).

- 3.3.4 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.

3.4 Compliance with Applicable Local Rules and Regulations

- 3.4.1 Applicability Tables: Tables 3.1 and 3.2 list the federally-enforceable District rules. Table 3.3 lists the non-federally-enforceable District rules that apply to this 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 Houchin:

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

Rule 302 (Visible Emissions): This rule prohibits the discharge from any single source any air contaminants for which a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of 1 on the Ringelmann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of 1 on the Ringelmann Chart. Equipment at Platform Houchin subject to this rule includes all diesel-fired, reciprocating internal combustion engines. Improperly maintained diesel engines have the potential to violate this rule. Compliance will be assured by requiring all engines to be

maintained according to manufacturer maintenance schedules. Also, the facility will perform quarterly visible emissions checks for all diesel-fired IC engines.

Rule 305 (Particulate Matter, Southern Zone): Platform Houchin 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. Emission units subject to this rule include: all diesel-fired IC engines on the platform. Improperly maintained diesel engines have the potential to violate this rule. PM₁₀ emissions from the diesel-fired IC engines will meet emission limitations through proper engine maintenance per Section 9.C permit conditions on maintenance.

Rule 309 (Specific Contaminants): Under Section "A," no source may discharge sulfur compounds and combustion contaminants in excess of 0.2% as SO₂ (by volume) and 0.3 gr/scf (at 12% CO₂) respectively. All diesel powered piston IC engines have the potential to exceed the combustion contaminant (gr/scf) limit if not properly maintained (see discussion on Rule 305 above for compliance). Note that all diesel-fired equipment have to comply with the fuel sulfur limits in District Rule 311 (see below), which keeps the SO₂ emission concentration well below 200 ppmv.

Rule 310 - Odorous Organic Compounds: This rule prohibits the discharge of H₂S and organic sulfides that result in a ground level impact beyond the property boundary in excess of 0.06 ppmv averaged over 3 minutes or 0.03 ppmv averaged over 1 hour. No measured data exists to confirm compliance with this rule; however, all produced gas from Platform A is sweet (*less than 4 ppmv S*). 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 at the Platform Houchin to 0.5% (by wt.) for liquids fuels {and 15 gr/100 scf (calculated as H₂S) or 239 ppmvd for gaseous fuels}. All reciprocating IC engines on the platform and on the crew and supply boats use CARB certified diesel fuel (total sulfur content of 0.0015 percent by weight), which is in compliance with the liquid fuel limits.

Rule 317 (Organic Solvent): This rule sets specific prohibitions against the usage of both photochemically and non-photochemically reactive organic solvents (40 lb./day and 3,000 lb./day respectively). Solvents may be used on the Platform Houchin 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. To demonstrate compliance with this rule, the facility is required to maintain detailed daily solvent usage records (along with the solvent's MSDS) and submit them semi-annually to the District.

Rule 321 (Solvent Cleaning Operations): This rule was revised to fulfill the commitment in the 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 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. The facility is required to maintain records 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 into the atmosphere. The facility is required to maintain records to ensure compliance with this rule.

Rule 325 (Crude Oil Production and Separation): This Rule adopted January 25, 1994, applies to equipment used in the production, gathering, storage, processing and separation of crude oil and gas prior to custody transfer. The primary requirements of this rule are 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. Production and test separators and the deck sump and settling tank on this platform are all connected to gas gathering systems. According to the application for this facility, produced gas is not vented to the atmosphere due to considerations such as: process equipment redundancy in the design, process control systems and operational procedures. Compliance with this exemption is verified by District inspections.

Previously, gas produced during planned pigging operations was “stacked” in an out of service pipeline and then sent to shore after completion of the pigging. The stacking option is no longer available to the operator. In order to comply with District Rule 325 installation of a flare was necessary to avoid venting of produced gas directly to atmosphere.

Rule 328 (Continuous Emissions Monitoring): This rule details the applicability and standards for the use of continuous emission monitoring systems (CEMS). Process monitoring systems (e.g., fuel meters) are used to track emissions. There are no CEMS in use on the platform.

Rule 331 (Fugitive Emissions Inspection and Maintenance): This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production fields. An I&M Plan was submitted for the facility and received District approval of this Plan on 1/15/95. Ongoing compliance with the many provisions of this rule will be assessed via platform inspection by District personnel using an organic vapor analyzer and through analysis of operator records.

The application for this facility stated in the application that Platform Houchin is designed in such a manner as to preclude the stack venting of any hydrocarbon gases from all planned events and the majority of unplanned events. For safety reasons and to comply with federal regulations, gas venting is required during unplanned casing blowdown prior to well work over. Thus, the only permitted vent stack activities are for unplanned well work over rig operations when casing gas blowdown occur prior to the well head being opened. Any other vent stack event will be called in as a breakdown event per District Rule 505. If routine venting of hydrocarbons was to occur then, pursuant to Sections D and E, the facility would be required to install BACT at the next process shutdown or within 12-months, whichever is sooner.

Rule 333 (Control of Emissions from Reciprocating IC Engine): This rule applies to all engines with a rated brake horsepower of 50 or greater that are fueled by liquid or gaseous fuels, unless such engines are permit-exempt. The 230 hp diesel-fired "North" pedestal crane engine, the two 665 bhp diesel-fired well drilling Rig 23 engines and the 400 hp diesel-fired Well Service Rig on Platform Houchin are subject to the NO_x standards under Section D.4 of 8.4 g/bhp-hr or 700 ppmvd (at 15% O₂). Ongoing compliance will be achieved through implementation of the

District-approved 'Rule 333, Section F - *Inspection and Maintenance Plan* (submitted to the District in July 2014 and subsequent updates) required under Section E and through biennial source testing. The 99 hp South Crane engine, the 510 hp emergency standby generator engine, the 2,874 hp emergency standby generator, 230 hp well kill pump engine and the 110 hp fire water pump engine are exempt from the requirements of this rule with the exception of Section D.1, Section D.2, Section J.3, and Section K of this rule because they operate under 200 hours per year.

On June 19, 2008 Rule 333 was revised. The NO_x emission limit for diesel-fired engines was reduced, and ROC and CO limits were added. In addition, the inspection and maintenance requirements of the Rule were changed. The preexisting emission limits of Rule 333 applied until two years after the revised Rule 333 was added to 40 CFR OCS Part 55. The revised Rule became effective on the OCS on November 21, 2008. In addition, operators of IC engines were required to submit new or revised *Compliance Plans* and *Inspection and Maintenance Plans* within six months after the Rule revision became effective on the OCS. These plans were submitted on May 21, 2009 and approved in June 2009.

Rule 352 (Natural Gas-Fired Fan-Type Central Furnaces and Small Water Heaters): This rule applies to new water heaters rated less than 75,000 Btu/hr and new fan-type central furnaces. It requires the certification of newly installed units.

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

Rule 359 (Flares and Thermal Oxidizers): The emission standards in 359.D.5.c do not apply to this project because the flare is not a thermal oxidizer or a ground-level enclosed flare as defined in the rule. A *Flare Minimization Plan* was approved for this facility on February 21, 2014. In order to demonstrate compliance with Rule 359.D.2.b and 359.G, the operator submitted and obtained District approval of a *Flare Process Monitoring and Calibration Plan* on February 21, 2014 to ensure a continuous pilot and that flare flow meters are properly located and accurate.

Rule 360 (Emissions of Nitrogen from Large Water Heaters and Small Boilers): The permittee shall comply with the requirements of this rule whenever a new boiler, process heater or other external combustion device is added or an existing unit is replaced. An ATC/PTO permit shall be obtained prior to installation of any grouping of Rule 360 applicable boilers or hot water heaters whose combined system design heat input rating exceeds 2.000 MMBtu/hr. An ATC shall be obtained for any size boiler or water heater if the unit is not fired on natural gas or propane. There is currently no units subject to this rule.

Rule 361 (Small Boilers, Steam Generators and Process Heaters): The permittee shall comply with the requirements of this rule whenever a new boiler, process heater or other external combustion device is added or an existing unit is replaced. An ATC permit shall be obtained prior to installation, replacement, or modification of any existing Rule 361 applicable boiler or water heater rated over 2.000 MMBtu/hr. An ATC shall be obtained for any size boiler or water heater if the unit is not fired on natural gas or propane. There is currently no units subject to this rule.

Rule 505 (Breakdown Conditions): This rule describes the procedures that the facility must follow when a breakdown condition occurs to any emissions unit associated with Platform

Houchin. A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment which causes a violation of an emission limitation or restriction prescribed in the 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 items.

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. The facility submitted such a plan in June 2002.

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

3.5.1 Facility Inspections. Platform Houchin is inspected by the District on a semi-annual basis. 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 and/or as a result of District review of the semi-annual compliance reports or from Deviation Report submittals. See Section 3.5.2 below for a summary of enforcement actions.

3.5.2 Enforcement Actions. The following enforcement actions have been issued since issuance of the previous permit renewal. Compliance has been achieved for each violation.

VIOLATION TYPE	NUMBER	ISSUE DATE	DESCRIPTION OF VIOLATION
NOV	9606	07/29/2010	Documents violations of District Rule 206, Conditions 9.C.6.(c)(i) and 9.C.6.(d)(i) of Part70/PTO 9109-R4 and Conditions 1.c, d, f, g, and h of ATC 12388-01
NOV	10426	12/20/2013	Failure to submit a revised Boat Monitoring and Reporting Plan within 30 days after a new spot charter boat was brought into service at Platforms Houchin.
NOV	10443	12/23/2014	Violation of Rule 331.D.1 by exceeding the number of allowable "other" component leaks per Table 1 during a District inspection.
NOV	10913	06/29/16	Violation of District Rule 331 by exceeding the number of allowable “other” component leaks per Table 1. This violation was documented during the fourth quarter 2015 CVR review.

3.5.3 Variances/Significant Hearing Board Actions: The following variances were issued for this facility since issuance of the previous permit renewal:

- 3.5.3.1
- Emergency Variance Order 2020-21-E: Emergency Variance for the pinhole leak and well depressurization with no emission controls at the Petitioner's facility causing a violation of Rules 325.D.1, 359.D.2.b, 206 and Conditions 9.C.6.b.ii, 9.C.6.b.iii, 9.C.6.b.iv and 9.C.9 of Permit to Operate 9109-R4 from December 17, 2020 through December 31, 2020.
 - Interim Variance Order 2021-02-I: This interim variance order was granted for the period of January 8, 2021 to April 7, 2021 to relieve the platform owner/operator of the obligations to maintain certain emission controls, monitoring and maintenance requirements associated with multiple District rules and permit conditions of PTO 9109 for the duration of the variance period. Relief was granted based on the deteriorated conditions of platform equipment and, based on these conditions, the limited ability of the facility operator to achieve compliance with multiple conditions of the facility permit.
 - Regular Variance Order 2021-04-R: This regular variance order was granted due to the temporary nature of Interim Variance Order 2021-03-I. This variance order was granted for the period of March 3, 2021 to February 7, 2022 to relieve the platform owner/operator of the obligations to maintain certain emission controls, monitoring and maintenance requirements associated with multiple District rules and permit conditions of PTO 9109 for the duration of the variance period. Relief was granted based on the deteriorated conditions of platform equipment and, based on these conditions, the limited ability of the facility operator to achieve compliance with multiple conditions of the facility permit.
 - Variance Order Modification 2021-04-M1: A Modification of Final Compliance Date and Modification of Conditions of Regular Variance 2021-04-R for the emission controls, monitoring, and maintenance requirements at the Petitioner's facility in violation of District Rules 331.D - I, 359.D.2.b, and 206, Part 70 Permit to Operate 9108-R4, Conditions 9.C.1.b.v, 9.C.1.b.vi, 9.C.1.c.i, 9.C.2.a, 9.C.2.b, 9.C.2.c, 9.C.2.d, 9.C.6.b.ii, 9.C.6.b.iii, and 9.C.6.b.iv from January 5, 2022 through January 4, 2023.

Table 3.1 - Generic Federally-Enforceable District Rules

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
<u>RULE 101</u> : Compliance by Existing Installations	All emission units	Emission of pollutants	June 21, 2012
<u>RULE 102</u> : Definitions	All emission units	Emission of pollutants	August 25, 2016
<u>RULE 103</u> : Severability	All emission units	Emission of pollutants	October 23, 1978
<u>RULE 201</u> : Permits Required	All emission units	Emission of pollutants	June 19, 2008
<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	August 25, 2016
<u>RULE 203</u> : Transfer	All emission units	Change of ownership	April 17, 1997
<u>RULE 204</u> : Applications	All emission units	Addition of new equipment of modification to existing equipment.	August 25, 2016
<u>RULE 205</u> : Standards for Granting Permits	All emission units	Emission of pollutants	April 17, 1997
<u>RULE 206</u> : Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules	October 15, 1991
<u>RULE 207</u> : Denial of Applications	All emission units	Applicability of relevant Rules	October 23, 1978
<u>RULE 208</u> : Action on Applications – Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment of modification to existing equipment.	April 17, 1997
<u>RULE 212</u> : Emission Statements	All emission units	Administrative	October 20, 1992
<u>RULE 301</u> : Circumvention	All emission units	Any pollutant emission	October 23, 1978
<u>RULE 302</u> : Visible Emissions	All emission units	Particulate matter emissions	June 1981
<u>RULE 303</u> : Nuisance	All emission units	Emissions that can injure, damage or offend.	October 23, 1978
<u>RULE 304</u> : Particulate Matter – Northern Zone	Each PM Source	Emissions of PM in effluent gas	October 23, 1978
<u>RULE 309</u> : Specific Contaminants	All emission units	Combustion contaminant emission	October 23, 1978
<u>Rule 310</u> : Odorous Organic Sulfides	All emission units	Combustion contaminant emission	October 23, 1978
<u>RULE 311</u> : Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur	October 23, 1978

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
<u>RULE 317</u> : Organic Solvents	Emission units using solvents	Solvent used in process operations.	October 23, 1978
<u>RULE 321</u> : Solvent Cleaning Operations	Emission units using solvents.	Solvent used in process operations.	June 21, 2012
<u>RULE 322</u> : Metal Surface Coating Thinner and Reducer	Emission units using solvents.	Solvent used in process operations.	October 23, 1978
<u>RULE 323.1</u> : Architectural Coatings	Paints used in maintenance and surface coating activities.	Application of architectural coatings.	June 19, 2014. Effective January 1, 2015.
<u>RULE 324</u> : Disposal and Evaporation of Solvents	Emission units using solvents.	Solvent used in process operations.	October 23, 1978
<u>RULE 353</u> : Adhesives and Sealants	Emission units using adhesives and solvents.	Adhesives and sealants used in process operations.	June 21, 2012
<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.	October 23, 1978
<u>RULE 603</u> : Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	Carpinteria Field - South County a major source.	June 15, 1981
<u>REGULATION VIII</u> : New Source Review	All emission units	Addition of new equipment of modification to existing equipment. Applications to generate ERC Certificates.	August 25, 2016
<u>REGULATION XIII (RULES 1301-1305)</u> : Part 70 Operating Permits	All emission units	Carpinteria Field - South County a major source.	January 18, 2001

Table 3.2 - Unit-Specific Federally-Enforceable District Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
<u>RULE 325</u> : Crude Oil Production and Separation	Storage tanks: Emission units capable of venting gases.	All pre-custody production and processing emission units	January 18, 2001
<u>RULE 331</u> : Fugitive Emissions Inspection & Maintenance	Components (valves, fittings, pumps, compressors, hatches, sight glasses, meters, pressure relief devices, etc.) used to handle oil and gas.	Components emit fugitive ROCs.	Dec 10, 1991
<u>RULE 333</u> : Control of Emissions from Reciprocating IC Engines	IC Engines not exempt from permitting under Rule 202	IC engines exceeding 50 bhp rating.	June 19, 2008
<u>RULE 359</u> : Flares and Thermal Oxidizers	Flare Relief System	Flaring.	June 28, 1994
<u>RULE 360</u> : Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers	None	NO _x emissions from external combustion units.	March 15, 2018

Table 3.3 - Non-Federally-Enforceable District Rules

Requirement	Affected Emission Units	Basis for Applicability	Adoption Date
<u>RULE 210</u> : Fees	All emission units	Administrative	March 17, 2005
<u>RULE 212: Emission Statements</u>	All emission units	Administrative	October 20, 1992
<u>RULE 310</u> : Odorous Organic Sulfides	All emission units	Emission of organic sulfides	October 23, 1978
<u>RULE 361</u> : Small Boilers, Steam Generators, and Process Heaters.	Any boiler, steam generator, and process heater with a rated heat input capacity greater than 2 MMBtu/hr and less than 5 MMBTU/hr.	Any equipment item covered by this rule must comply with the rule emission limits.	January 17, 2008
<u>RULES 501-504</u> : Variance Rules	All emission units	Administrative	October 23, 1978
<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.	October 23, 1978
<u>RULES 506-519</u> : Variance Rules	All emission units	Administrative	October 23, 1978

4.0 Engineering Analysis

4.1 General

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

- Facility process flow diagrams
- Emission factors and calculation methods for each emissions unit
- Emission control equipment/technology (including RACT, BACT, NSPS, NESHAP, MACT)
- Emission source testing, sampling, CEMS, CAM
- Existing process monitors needed to ensure compliance

A review and analysis of material balances, potential breakdown scenarios, and design considerations for safety and system reliability were not performed due to the lack of any regulatory mandate. 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 3/12/01 (version 1.2) was used to determine non-methane, non-ethane fraction of THC.

4.2 Stationary Combustion Sources

All stationary combustion sources at Platform Houchin consist of diesel-fired internal combustion engines. Primary power on the platform is supplied by a submarine electric cable from SCE.

- 4.2.1 Reciprocating Stationary IC Engines: Stationary IC engines on the platform rated over 50 bhp include: the 230 hp North Crane engine, the 230 hp mud pump engine, the 400 hp Well Service Rig engine, two 665 hp well drilling rig engines, the 510 hp emergency electrical generator, the 2,847 hp emergency electrical generator, the 110 hp emergency firewater pump engine and the 99 hp South Crane engine (utilizing N-60 injectors). The 230 hp North Crane engine, the two 665 hp well drilling rig engines and the 400 hp Well Service Rig are subject to all Rule 333 requirements. The South Crane engine, the two (2) emergency generator engines, the mud pump engine and the emergency Fire Pump engine are all currently exempt from Rule 333 requirements except for Section D.1, Section D.2, Section J.3, and Section K.

The calculation methodology is similar for all stationary IC engines:

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

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)
LCF = liquid fuel correction factor, LHV to HHV
HPP = operating hours per time period (hrs/period)

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

The North Crane is driven by a Detroit Diesel Model 6-71 engine rated at 230 bhp, while the South Crane engine is driven by a Detroit Diesel Model 3-71 engine rated at 99 bhp (utilizing N-60 injectors) and the mud pump engine is driven by a Detroit Diesel Model 8-71 engine rated at 318 bhp and the well service rig engine is driven by a Detroit Diesel Model 8VF09351 engine rated at 400 bhp. These engines are equipped with "N-60"-type fuel injectors. The timing on the North Crane engine was adjusted in order to meet the NO_x standard of this rule. Low operating loads allow this engine to comply with the Rule 333 NO_x emission standard of either 8.4 g/bhp-hr or 700 ppmv at 15% oxygen. All NO_x emission factors (lb./MMBtu) used in emissions calculation are based on (a) manufacturer's brake-specific fuel consumption (BSFC), (b) default diesel fuel specifications and (c) either the Rule 333 emission standard of 8.4 g/bhp-hr or the AP-42 specified factor of 14 g/bhp-hr. The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1 (7/93). The CO emission factor for the Well Service Rig is reduced by 70 percent due to the installation of an oxidation catalyst in compliance with NESHAP Subpart ZZZZ. The SO_x emission factor is based on mass balance calculations.

The Rig 23 drilling rig is powered by two Detroit Diesel Model 60.10.0.L engines rated at 665 bhp each. These engines are certified to meet Tier 3 emission standards for engines built from 2006-2010 with a bhp rating of between 600 and 750 bhp. The emission factors for these engines are based on the USEPA Tier 3 engine emission standards per 40 CFR part 89. These engines are equipped with an electronic fuel use monitoring system, including two non-resettable, instantaneous totalizing fuel meters. These engines are also equipped with an electronic lockout system to ensure only one engine is operated at a time.

All diesel fired IC engines on the platform, except the Rig 23 drilling rig engines, are not equipped with diesel fuel flow metering devices. These IC engines are equipped with non-resettable hour meters. The actual engine usage time is logged monthly. The engine emissions are then calculated using total elapsed run time, the maximum rated engine bhp rating and BSFC data (from Table 5.1-1) to determine the number of gallons consumed per unit time. Ongoing compliance with Rule 333 by the North Crane IC engine will be accomplished by quarterly inspections per Section E of this rule and biennial source testing.

4.3 ***Fugitive Hydrocarbon Sources***

Fugitive Hydrocarbon Emissions: Emissions of reactive organic compounds from piping components such as valves, flanges and connections have been quantified using District P&P 6100.061 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts – Modified for the Revised ROC Definition*). The operator determined the number of emission leak-paths. District staff verified this data by checking a representative number of P&IDs and by site checks. A total of 4,984 controlled and 195 uncontrolled oil/emulsion component leak-paths and 1,177 controlled and 116 uncontrolled gas/light-liquid component leak-paths exist on the platform. 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)

An emission control efficiency of 80% is credited to all components that are safe to monitor (as defined per Rule 331) due to the implementation of a District-approved Inspection and Maintenance program for leak detection and repair consistent with Rule 331 requirements. Unsafe to monitor components are not eligible for I&M control credit. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

4.4 Flare System

Platform Houchin has a produced flare system that is designed to collect gases from platform process equipment. During an emergency condition, this system flares these gases for safety reasons. For safety reasons and to comply with District and federal regulations, gas flaring is required during unplanned casing blowdown prior to well work over, and during planned smart-pigging required for the pipeline. The calculation methodology for the vent flow is:

$$ER = [(SCFPP \times EF \times HHV)]$$

where: ER = emission rate (lb. /period)
 EF = emission factor (lb. /MMBtu)
 SCFPP = gas flow rate per operating period (MMscf/period)
 HHV = higher heating value of produced Natural Gas

Note: The previously installed Vent Relief System has been replaced by the Flare System, and has been removed from the platform. No venting is permitted on the platform.

4.5 Crew and Supply Vessels

The facility uses both crew boat and supply boats in support of Platform Houchin. For crew and supply boats, the facility has identified two types of boats. One type is for primary usage that is controlled for NO_x and the other is used as a spot-charter and is normally uncontrolled for NO_x. The spot-charter usage is limited to 10% of actual boat usage.

The primary supply boat is equipped with two-1,125 bhp main diesel-fired IC engines (CAT 399TA-91B type). These engines employ the following NO_x control measures: four-degree injection timing retard, turbo-charging and enhanced inter-cooling. Additional diesel-fired engines on this vessel include two-125 kW generators each powered by identical 230 bhp engines and one bow thruster powered by a 230 bhp engine (all three auxiliary engines are Detroit Diesel model 8V-71 type). These auxiliary engines are not controlled.

The primary crew boat is equipped with two Tier 2 certified main engines and one Tier 2 and one Tier 3 auxiliary engine. The main engines are Detroit Diesel Series 60 600 bhp engines. The auxiliary engines are Alaska Diesel Electric Northern Lights Engines model M944W3 39 bhp and model M33C 48 bhp engine. Controlled NO_x emissions of each diesel fired main engine shall not exceed 337 lb/1000 gallons (8.4 g/bhp-hr).

The permit assesses emission liability based solely on two emission factors (the cruise modes). For crew boat main engine with the controls listed above, a full load NO_x emission factor of 8.4 g/bhp-hr (337 lb/1000 gallons) is used. For supply boat main engine, this factor is 8.4 g/bhp-hr (337 lbs/1000 gal). Sulfur oxide emissions are based on mass balance calculations assuming 0.0015 weight percent sulfur CARB certified diesel fuel. Other boat main engine 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 NO_x main engine 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 crew and supply boat main engine emissions is:

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

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

The calculations for the auxiliary engines are similar, except that a 50% 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 a District-approved *Boat Monitoring and Reporting Plan* (approved February 20, 2014). Total mileage from Platform Houchin to Port Hueneme is approximately 25 miles.

Emergency Response Boats. One of four identical emergency response vessels (*M/Vs Ocean Scout, Ocean Guardian, Ocean Sentinel, and Ocean Defender*) is permanently assigned to Platform Houchin. The total engine horsepower, including auxiliary engines, is 2,978 bhp. Emissions are calculated in a prorated fashion among the eleven OCS platforms that utilize the vessel off the Santa Barbara coast. The auxiliary engines are interim Tier 4 engines, however, Tier 2 emission factors are used to establish the PTE of the auxiliary engines to provide flexibility for circumstances that may require use of a different boat. If other emergency response boats are used, boat fuel usage (and resulting emissions) shall be assessed against this emissions category.

4.6 Tanks/Vessels/Sumps

- 4.6.1 Tanks: Platform Houchin has a diesel fuel storage tank that is exempt from permit. The diesel storage tank services the crane IC engines on the platform and is not controlled. The tank emissions are small and are assumed to be less than 0.10 tpy (200 lb./yr.).
- 4.6.2 Vessels: Platform Houchin has pressure vessels (e.g., production separators, a test separator, clean-up separator, test treater, oil surge vessel, and suction scrubbers). Emissions from pressure vessels are due to fugitive hydrocarbon leaks from valves and connections.
- 4.6.3 Sumps/Settling Tanks: There is one deck sump tank, which recovers any liquids that spills on the deck (ABH-138), and a settling tank. The sump tank and settling tank are covered but are not controlled. The emissions from these tanks are based on the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983). These tanks are classified as being in secondary production and heavy oil service. The calculation is:

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

where: ER = emission rate (lb./period)
 EF = ROC emission factor (lb/ft²-day)

SAREA = unit surface area (ft²)
 CE = control efficiency
 HPP = operating hours per time period (hrs/period)

4.7 Vapor Recovery Systems

Platform Houchin has a vapor recovery system rated at 1.2 MMscfd. Gas from the surge tank is compressed to approximately 90 psig and is directed to the onshore pipeline. All other produced gas from the platform flows to the onshore gas pipeline at casing head pressure of about 50 psig. The deck sump and settling tank are not connected to vapor recovery or the gas gathering system.

4.8 Helicopters

Platform Houchin is equipped with a helicopter pad, but helicopters are not used for routine offshore transportation.

4.9 Other Emission Sources

- 4.9.1 Pigging: Oil emulsion pipeline pigging operations occur on the platform. These consist of an emulsion pipeline pig launcher to the La Conchita onshore facility. The oil pig launcher is de-pressurized to the platform's gas gathering system prior to and after each use. The small amounts of emissions that remain are vented to the atmosphere. The District has assumed that this remaining pressure does not exceed 5 psig. The calculation per period is:

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

where: ER = emission rate (lb./period)
 V₁ = volume of vessel (ft³)
 ρ = density of vapor at actual conditions (lb/ft³)
 wt% = weight percent ROC-TOC
 EPP = pigging events per time period (events/period)

Detailed calculation methodology for pigging emissions are shown in Attachment 10.1

- 4.9.2 General Solvent Cleaning/Degreasing: Solvent usage (not used as thinners for surface coating) occurring on Platform Houchin as part of normal daily operations includes small cold solvent degreasing and wipe cleaning. Mass balance emission calculations are used assuming all the solvent used evaporates to the atmosphere.
- 4.9.3 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 solvents evaporate into the atmosphere. Emissions of PM/PM₁₀/PM_{2.5} from paint over spray are not calculated due to the lack of established calculation techniques.
- 4.9.4 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 may be electric or diesel fired. If diesel fired, permits will be required unless the engine is registered with CARB. 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, PM₁₀, and, PM_{2.5}. A PM/PM₁₀/PM_{2.5} ratio of 1.0 is assumed.

4.10 BACT/NSPS/NESHAP/MACT

- 4.10.1 BACT: The Rig 23 well drilling engines are subject to Best Available Control Technology (BACT) requirements. The use of Tier 3 certified engines satisfied the District BACT requirements. See Table 4.2 and Permit Condition 9.C.1(h) for more details on BACT requirements.
- 4.10.2 NSPS: *40 CFR Part 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* was published in the Federal Register on July 11, 2006. The two well drilling Rig 23 diesel engines (IDs 114676 and 114677) are subject to the requirements of this regulation. The use of Tier 3 certified engines ensures compliance with this regulation.
- 4.10.3 NESHAP: This facility is not currently subject to any National Emissions Standards for Hazardous Air Pollutants (NESHAP).
- 4.10.4 MACT: The revised *National Emission Standard for Hazardous Air Pollutants* (NESHAP) for reciprocating internal combustion engines (RICE) was published in the Federal Register on January 18, 2008. An affected source under the NESHAP is any existing, new, or reconstructed stationary RICE located at a major source or area source. Two engines, the North Crane (ID 004873) and the South Crane (ID 004872) are subject to the requirements for engines rated less than or equal to 300 bhp.

4.11 CEMS/Process Monitoring

- 4.11.1 CEMS: There are no in-stack continuous emission monitors (CEMS) at Platform Houchin. Process monitors listed below are used to track emissions.
- 4.11.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the used of process monitoring system. Examples of these monitors include: engine hour meters, fuel usage meters, water injection mass flow meters, flare gas flow meters and hydrogen sulfide analyzers. Once these process monitors are in place, it is important that they be well maintained and calibrated to ensure that the required accuracy and precision of the devices are within specifications. At a minimum, the following process monitors will be required to be calibrated and maintained in good working order:
- Crew Boat Diesel Fuel meters (main engines)
 - Supply Boat Diesel Fuel Meters (main engines)
 - Hour Meters (cranes, well kill pump, emergency generators, fire water pump, Well Service Rig engine)
 - Vent Stack Monitoring System
 - Flare flow meters

To implement the above calibration and maintenance requirements, the facility shall execute its District-approved 'Process Monitoring Calibration and Maintenance Plan' (dated July 2002) and any subsequently District approved plans for flare metering.

4.12 Source Testing/Sampling

4.12.1 Source Testing/Calibration: Source testing and sampling are required in order to ensure compliance with permitted emission limits, prohibitory rules, control measures and the assumptions that form the basis of this operating permit. Table 4.1 details the pollutants, test methods and frequency of required testing. The facility 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:

- North Crane Engine
- Supply Boat Main Engines
- Crew Boat Main Engines
- Well Service Rig Engine
- Drilling Rig Engines

Details of the source testing requirements, e.g., the pollutants, the test methods and frequency of required testing for these emission units are listed in Section 9.C

4.12.2 Sampling: The facility shall sample and analyze the process streams by third party, as listed in the table below:

Process Stream	Sampling* Point	Specific Location*	Parameter to Sample/Test	Test/Sampling Method	Sampling Frequency
Produced gas	Production Separator Outlet	To be submitted by the facility to the District per a P&ID mark-up, within 60 days of receiving this permit	Composition TRS H ₂ S	D-1945/ D-3588 EPA Method 16 EPA Method 15	Annual Annual Annual
Produced Oil	La Conchita Onshore Plant or Sales Invoice	N/A	API Gravity	D-287-82	Biennial

*-- The above sampling locations, sampling and analytical methods may be revised upon written request from the permittee and its subsequent approval by the District.

All samples shall be collected in accordance with District-approved Methods as listed above, and shall be analyzed within 72 hours from the time of collection. All sampling and analysis shall be traceable by chain of custody procedures. All sampling and analysis data/results shall be submitted to the District in accordance with Permit Condition 9.C.17(e)(2). Except as allowed under Condition 9.C.14, sampling shall occur at the frequency listed above.

TABLE 4.1 - SOURCE TEST REQUIREMENTS

<u>Emission Points</u>	<u>Pollutants/ Parameters</u>	<u>Test Methods</u>
- Crane Engine (North)	NO _x	CARB 1-100 or
- Crew Boat Main Engines	(ppmv, lb/hr)	USEPA 7E
- Supply Boat Main Engines		
- Well Service Rig Engine	CO	CARB 1-100 or
- Drilling Rig Engines	(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 emissions tests to consist of three 40-minute runs. Crane engine tests to consist of three 20-minute runs. Crane engine to be tested at a 'representative' load condition, based on past 6 – 12 months historical lift data. Sufficient documentation supporting the proposed representative load shall be provided to the District in the source test plan for approval prior to source testing. Crew and supply boat main engines to be tested at cruise load. Crew boat test runs may be shortened if the boat is used on normal trips to/from the platform. Additional testing may be required if loads are not achieved.
- b. The specific project 'crew' and/or 'supply' boat to be tested shall be determined by the District.
- c. USEPA Methods 1-4 to be used to determine O₂, dry MW, moisture content, CO₂, and stack flow rate. Alternatively, USEPA Method 19 may be used to determine stack flow rate based on the heat input rate.
- d. Source testing shall be performed for all engines in "as found" conditions operating at District-approved, representative engine loads.
- e. The main engines from one 'crew' and/or one 'supply' boat shall be tested annually. The crane engine shall be tested biennially.
- f. Fuel meters shall meet the calibration and metered volume corrections specified in Rule 333.G.3.a. All fuel meters used for (Method 19) stack gas flow rate determination shall have sufficient resolution to measure fuel volumes consumed during each test run.
- g. Source testing shall be required for the drilling rig engines if the result from a portable analyzer reading (required by Condition C.3.(c).(iii) of this permit) exceeds a threshold of 223 ppmvd NO_x @ 15% O₂ as required by BACT, unless compliance with this threshold is demonstrated by a retest within 15 days of the initial reading. A source test shall be conducted within 60 days of the initial over-the-threshold reading if triggered by this criteria.

Table 4.2 BEST AVAILABLE CONTROL TECHNOLOGY

Emission Source	Pollutant	BACT Technology	BACT Performance Standard
Rig 23 Diesel Fired Internal Combustion Engines	NO _x	Tier 3 ICE: the latest "Tier" engine available for this engine based on the engine power rating.	223 ppmvd NO _x at 15% O ₂ .

5.0 Emissions

5.1 General

Past District permits PTO 9109-R4, ATC 13671, ATC 13966, ATC 13983, ATC-PTO 13575 and PTO 12388 are consolidated into this District re-evaluation permit 9109-R5 (also serving as a Part 70 permit). All provisions in these permits were analyzed to determine the permit conditions of PTO 9109-R5, including the permitted emission limits of criteria pollutants from all applicable emission units.

Emissions calculations are divided into "permitted" and "exempt" categories. Specific equipment to be exempt from District permit is determined by District Rule 202. The permitted emissions for each emissions unit are based on the equipment's potential-to-emit (as defined by Rule 102). Section 5.2 details the permitted emissions for each emissions unit. Section 5.3 details the overall permitted emissions for the facility based on reasonable worst-case scenarios using the potential-to-emit for each emissions unit. Section 5.4 provides the federal potential to emit calculation using the definition of potential to emit used in Rule 1301. HAP emissions from platforms Hogan and Houchin do not reach 'major source' thresholds; these emissions are detailed in Section 5.7 of this permit. Section 5.5 provides the emissions from permit exempt equipment at Platform Houchin. Section 5.6 serves as the Part 70 list of insignificant emission units. In order to accurately track emissions from a facility, the District uses a computer database. Attachment 10.3 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_x)²
- ⇒ Reactive Organic Compounds (ROC)
- ⇒ Carbon Monoxide (CO)
- ⇒ Sulfur Oxides (SO_x)³
- ⇒ Particulate Matter (PM)⁴
- ⇒ Particulate Matter smaller than 10 microns (PM₁₀)
- ⇒ Particulate Matter smaller than 2.5 microns (PM_{2.5})
- ⇒ Greenhouse Gases (GHG)

Permitted emissions are calculated for both short term (daily) and long term (annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachments 10.1 and 10.2 respectively. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Table 5.1-3 shows the permitted short-term and permitted long-term emissions for each unit or operation.

² Calculated and reported as nitrogen dioxide (NO₂)

³ Calculated and reported as sulfur dioxide (SO₂)

⁴ Calculated and reported as all particulate matter smaller than 100 µm

5.3 **Permitted Emission Limits - Facility Totals**

The total potential-to-emit for all emission units associated with the facility analyzed. This analysis looked at the reasonable worst-case operating scenarios for each operating period. The equipment operating in each of the scenarios are presented below. Unless otherwise specified, the operating characteristics defined in Table 5.1-1 for each emission unit are assumed. Table 5.2 shows the total permitted emissions for the facility.

Daily Scenario:

- North pedestal crane engine
- Well Service Rig engine
- Well kill pump engine
- Well drilling engines
- Spot charter, crew and/or supply boats
- Generator engines on supply boat provide half of maximum engine rating
- Bow thruster on supply boat does not operate during peak hour
- Fugitive components
- Oil pig launcher
- Deck sump
- Settling tank
- Diesel tank
- Solvent usage
- Production flare

Annual Scenario:

- North pedestal crane engine
- Well Service Rig engine
- Well kill pump engine
- Well drilling engines
- South pedestal crane engine
- Two emergency standby generator engine-Fugitive components
- Controlled and uncontrolled crew and/or supply boats
- Generator engines on supply boat provide half of maximum engine rating
- Bow thruster on supply boat
- Emergency response boat
- Oil pig launcher
- Deck sumps
- Settling tank
- Diesel tank
- Solvent usage
- Production flare

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 promulgated before August 7, 1980. All internal combustion engines on Platform Houchin greater than 50 bhp are subject to NESHAP per *40 CFR Part 63 {MACT Standards Subpart ZZZZ}*.

5.5 *District Permit-Exempt Emission Units*

The Platform also operates the following District permit-exempt unit with insignificant emissions:

- One (1) 10,400 gallon diesel fuel tank near the North Crane unit. (Ref: District Rule 202.V.8)

5.6 *Part 70 Insignificant Emission Units*

Part 70 insignificant emission units are defined under District Rule 1301. Insignificant activities such as maintenance operations using wipe-cleaning solvents, paints and coatings contribute to the facility emissions. Table 5.4 lists all insignificant emissions units and the expected emissions.

5.7 *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 5.4-1 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. HAPs emissions have been revised based on updated HAPs emission factors.

**Table 5.1-1
Platform Houchin: Permit to Operate 9109-R5
Operating Equipment Description**

Facility ID # 08002														
		Device Specifications					Usage Data		Maximum Load Schedule					References
Equipment Category	Emissions Unit	ID #	Fuel	% S	Size	Units	Capacity	Units	Load	hr	day	qtr	year	
Combustion -- IC Engines	North Crane Engine	004861	D-2	0.0015	230 bhp		1.750 MMBtu/hr		1.000	1	16	500	1,000	A
	South Crane Engine	004860	D-2	0.0015	99 bhp		0.790 MMBtu/hr		1.000	1	2	199	199	
	Emergency Power Generator	004862	D-2	0.0015	510 bhp		4.640 MMBtu/hr		1.000	1	2	199	199	
	Emergency Fire Pump	004863	D-2	0.0015	110 bhp		0.980 MMBtu/hr		1.000	1	2	199	199	
	Emergency Power Generator	112995	D-2	0.0015	2,847 bhp		18.990 MMBtu/hr		1.000	1	2	199	199	
	Well Kill Pump	102688	D-2	0.0015	318 bhp		2.451 MMBtu/hr		1.000	1	2	100	100	
	Well Service Rig	007108	D-2	0.0015	400 bhp		3.461 MMBtu/hr		1.000	1	24	2,190	8,760	
	Drill Rig Engine #1 (12384)	114676	D-2	0.0015	665 bhp		5.005 MMBtu/hr		1.000	1	7	625	2,500	
	Drill Rig Engine #2 (12385)	114677	D-2	0.0015	665 bhp		5.005 MMBtu/hr		1.000	1	7	625	2,500	
Combustion -- Flare	Planned - Other	111371	PG	0.0239	0.8500 MMSCF/day		4.250 MMSCF/year		1.000	1	1	1	1	
	Unplanned	--	PG	0.0239	0.8500 MMSCF/day		8.500 MMSCF/year		1.000	1	1	1	1	
	Pilot	--	PG	0.0239	0.0034 MMSCF/day		2.500 MMSCF/year		1.000	1	24	2,190	8,760	
Fugitive Components	Oil -- Controlled	102718	--	--	4,984 comp-leak paths		--	--	1.000	1	24	2,190	8,760	B
	Oil -- Unsafe	102719	--	--	301 comp-leak paths		--	--	1.000	1	24	2,190	8,760	
	Gas -- Controlled	102717	--	--	1,317 comp-leak paths		--	--	1.000	1	24	2,190	8,760	
	Gas -- Unsafe	105826	--	--	116 comp-leak paths		--	--	1.000	1	24	2,190	8,760	
Supply Boat	Main Engines -- Controlled	105140	D-2	0.0015	2,250 bhp		123.75 gal/hr		0.650	1	11	188	750	C
	Main Engines -- Uncontrolled	005484	D-2	0.0015	2,250 bhp		123.75 gal/hr		0.650	1	11	22	75	
	Auxiliary Engines	005485	D-2	0.0015	460 bhp		25.30 gal/hr		0.500	1	11	188	750	
	Bow Thruster	102699	D-2	0.0015	230 bhp		12.65 gal/hr		1.000	1	2	35	138	
Emergency Response Boat	Main Engines	005487	D-2	0.0015	2,900 bhp		159.50 gal/hr		0.650	**	**	18	72	C
	Auxiliary Engine	105827	D-2	0.0015	78 bhp		4.29 gal/hr		0.500	1	24	18	72	
Crew Boat	Main Engines -- Controlled (Tier 2)	113881	D-2	0.0015	1,800 bhp		99.00 gal/hr		0.850	1	10	380	1,520	D
	Main Engines -- Uncontrolled	105141	D-2	0.0015	1,530 bhp		74.97 gal/hr		0.850	1	10	38	152	
	Auxiliary Engine #1 (Tier 3)	113882	D-2	0.0015	39 bhp		2.15 gal/hr		0.500	1	10	380	1,520	
	Auxiliary Engine #2 (Tier 2)	113883	D-2	0.0015	48 bhp		2.64 gal/hr		0.500	1	10	380	1,520	
Pigging Equipment	Oil Launcher	102707		--	5.00 cu.ft		5.00 psig.		1.000	1	1	39	156	E
Sumps/Tanks/Separators	Deck Drain Tank	102721	--	--	30.00 sq.ft		18.00 sq.ft		1.000	1	24	2,190	8,760	F
	Settling Tank	005491	--	--	108.00 sq.ft		108.00 sq.ft		1.000	1	24	2,190	8,760	
Solvent Usage	Paints/Cleaning/Degreasing	102725	--	--	500 gal/yr of paints		4.00 gal/day		1.000	1	1	91	365	H

** -- indicates data not available for these parameters

**Table 5.1-2
Platform Houchin: Permit to Operate 9109-R5
Equipment Emission Factors**

Facility ID # 08002

		Emission Factors										References
Equipment Category	Emissions Unit	ID#	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}	GHG	Units	
Combustion -- IC Engines	North Crane Engine	004861	2.43	0.30	0.95	0.000015	0.31	0.30	0.30	163.6	lb/MMBtu	A
	South Crane Engine	004860	14.06	1.12	3.03	0.0055	0.98	0.98	0.98	556.6	g/bhp-hr	
	Emergency Power Generator	004862	14.06	1.12	3.03	0.0055	0.98	0.98	0.98	556.6	g/bhp-hr	
	Emergency Fire Pump	004863	14.06	1.12	3.03	0.0055	0.98	0.98	0.98	556.6	g/bhp-hr	
	Emergency Power Generator	112995	14.06	1.12	3.03	0.0055	0.98	0.98	0.98	556.6	g/bhp-hr	
	Well Kill Pump	102688	14.06	1.12	3.03	0.0055	0.98	0.98	0.98	556.6	g/bhp-hr	
	Well Service Rig	007108	2.14	0.30	0.285	0.000015	0.31	0.30	0.30	163.6	lb/MMBtu	
	Drill Rig Engine #1 (12384)	114676	2.80	0.20	2.60	0.0055	0.15	0.15	0.15	556.6	g/bhp-hr	
	Drill Rig Engine #2 (12385)	114677	2.80	0.20	2.60	0.0055	0.15	0.15	0.15	556.6	g/bhp-hr	
Combustion -- Flare	Planned - Other	111371	0.068	0.057	0.37	0.037	0.02	0.02	0.02	117.1	lb/MMBtu	
	Unplanned	--	0.068	0.057	0.37	0.037	0.02	0.02	0.02	117.1	lb/MMBtu	
	Pilot	--	0.068	0.057	0.37	0.037	0.02	0.02	0.02	117.1	lb/MMBtu	
Fugitive Components	Oil -- Controlled	102718	—	0.0009	—	—	—	—	—	—	lb/day-clp	B
	Oil -- Unsafe	102719	—	0.0044	—	—	—	—	—	—	lb/day-clp	
	Gas -- Controlled	102717	—	0.0154	—	—	—	—	—	—	lb/day-clp	
	Gas -- Unsafe	105826	—	0.0769	—	—	—	—	—	—	lb/day-clp	
Supply Boat	Main Engines -- Controlled	005484	337.00	16.80	78.30	0.21	33.00	32.00	32.00	22,309.6	lb/1000 gal	C
	Main Engines -- Uncontrolled	105140	561.00	16.80	78.30	0.21	33.00	32.00	32.00	22,309.6	lb/1000 gal	
	Auxiliary Engines	005485	600.00	49.00	129.30	0.21	42.20	40.50	40.50	22,309.6	lb/1000 gal	
	Bow Thruster	102699	600.00	49.00	129.30	0.21	42.20	40.50	40.50	22,309.6	lb/1000 gal	
Emergency Response Boat	Main Engines	005487	271.00	16.80	148.00	0.21	6.00	6.00	6.00	22,309.6	lb/1000 gal	C
	Auxiliary Engine	105827	202.00	12.03	104.00	0.21	6.00	6.00	6.00	22,309.6	lb/1000 gal	
Crew Boat	Main Engines -- Controlled (Tier 2)	113881	234.50	26.06	167.00	0.21	9.02	9.02	9.02	22,309.6	lb/1000 gal	D
	Main Engines -- Uncontrolled	105141	561.00	42.30	99.70	0.21	33.00	32.00	32.00	22,309.6	lb/1000 gal	
	Auxiliary Engine #1 (Tier 3)	113882	600.00	49.00	99.70	0.21	42.20	40.50	40.50	22,309.6	lb/1000 gal	
	Auxiliary Engine #2 (Tier 2)	113883	600.00	49.00	99.70	0.21	42.20	40.50	40.50	22,309.6	lb/1000 gal	
Pigging Equipment	Oil Launcher	102707	—	0.152	—	—	—	—	—	—	lb/cf-event	E
Sumps/Tanks/Separators	Deck Drain Tank	102721	—	0.002	—	—	—	—	—	—	lb/sq.ft.-day	F
	Settling Tank	005491	—	0.002	—	—	—	—	—	—	lb/sq.ft.-day	
Solvent Usage	Paints/Cleaning/Degreasing	102725	—	420.00	—	—	—	—	—	—	gm/liter*	H

Table 5.1-3
Platform Houchin: Permit to Operate 9109-R5
Emission Limits by Emission Unit

Facility ID # 08002

			NO _x		ROC		CO		SO _x		PM		PM ₁₀		PM _{2.5}		GHG	
Equipment Category	Emissions Unit	ID#	lbs/hr	lbs/day	lbs/hr	lbs/day	lbs/hr	lbs/day	lbs/hr	lbs/day	lbs/hr	lbs/day	lbs/hr	lbs/day	lbs/hr	lbs/day	lbs/hr	lbs/day
Combustion -- IC Engines	North Crane Engine	004861	4.26	68.15	0.53	8.40	1.66	26.61	0.00	0.00	0.54	8.68	0.53	8.40	0.53	8.40	286.4	4,582.3
	South Crane Engine	004860	3.07	6.14	0.24	0.49	0.66	1.32	0.01	0.01	0.21	0.43	0.21	0.43	0.21	0.43	971.8	1,943.7
	Emergency Power Generator	004862	15.81	31.62	1.26	2.52	3.41	6.81	0.00	0.00	1.10	2.20	1.10	2.20	1.10	2.20	625.8	1,251.6
	Emergency Fire Pump	004863	3.41	6.82	0.27	0.54	0.73	1.47	0.03	0.07	0.24	0.48	0.24	0.48	0.24	0.48	135.0	270.0
	Emergency Power Generator	112995	88.25	176.49	7.03	14.06	19.02	38.04	0.00	0.01	6.15	12.30	6.15	12.30	6.15	12.30	3,493.5	6,986.9
	Well Kill Pump	102688	9.86	19.71	0.79	1.57	2.12	4.25	0.00	0.00	0.69	1.37	0.69	1.37	0.69	1.37	390.2	780.4
	Well Service Rig	007108	7.41	177.78	1.04	24.92	0.99	23.67	0.00	0.00	1.07	25.75	1.04	24.92	1.04	24.92	566.2	13,588.9
	Drill Rig Engine #1 (12384)	114676	4.10	28.73	0.29	2.05	3.81	26.68	0.01	0.06	0.11	1.54	0.22	1.54	0.22	1.54	816.0	5,712.0
	Drill Rig Engine #2 (12385)	114677	4.10	28.73	0.29	2.05	3.81	26.68	0.00	0.00	0.11	1.54	0.22	1.54	0.22	1.54	816.0	5,712.0
Combustion -- Flare	Planned - Other	111371	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Unplanned	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Pilot	--	0.01	0.24	0.01	0.20	0.05	1.31	0.01	0.13	0.00	0.07	0.00	0.07	0.00	0.07	17.2	413.1
Fugitive Components	Oil -- Controlled	102718	--	--	0.18	4.37	--	--	--	--	--	--	--	--	--	--	--	--
	Oil -- Unsafe	102719	--	--	0.06	1.32	--	--	--	--	--	--	--	--	--	--	--	--
	Gas -- Controlled	102717	--	--	0.84	20.25	--	--	--	--	--	--	--	--	--	--	--	--
	Gas -- Unsafe	105826	--	--	0.37	8.92	--	--	--	--	--	--	--	--	--	--	--	--
Supply Boat	Main Engines -- Controlled	005484	27.11	298.18	1.35	14.86	6.30	69.28	0.02	0.19	2.65	29.20	2.57	28.31	2.57	28.31	1,794.5	19,739.8
	Main Engines -- Uncontrolled	105140	45.13	496.38	1.35	14.86	6.30	69.28	0.02	0.19	2.65	29.20	2.57	28.31	2.57	28.31	1,794.5	19,739.8
	Worst Case	005488	45.13	496.38	1.35	14.86	6.30	69.28	0.02	0.19	2.65	29.20	2.57	28.31	2.57	28.31	1,794.5	19,739.8
	Auxiliary Engines	005485	7.59	83.49	0.62	6.82	1.64	17.99	0.00	0.03	0.53	5.87	0.51	5.64	0.51	5.64	282.2	3,104.38
	Bow Thruster	102699	7.59	15.18	0.62	1.24	1.64	3.27	0.00	0.01	0.53	1.07	0.51	1.02	0.51	1.02	282.2	564.43
Emergency Response Boat	Main Engines	005487	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Auxiliary Engine	105827	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Crew Boat	Main Engines -- Controlled (Tier 2)	113881	19.73	197.33	2.19	21.93	14.05	140.53	0.02	0.18	0.76	7.59	0.76	7.59	0.76	7.59	1,877.4	18,773.5
	Main Engines -- Uncontrolled	105141	35.75	357.49	2.70	26.96	6.35	63.53	0.01	0.13	2.10	21.03	2.04	20.39	2.04	20.39	1,421.7	14,216.7
	Worst Case		35.75	357.49	2.70	26.96	14.05	140.53	0.02	0.18	2.10	21.03	2.04	20.39	2.04	20.39	1,877.4	18,773.5
	Auxiliary Engine #1 (Tier 3)	113882	0.64	6.44	0.05	0.53	0.11	1.07	0.00	0.00	0.05	0.45	0.04	0.43	0.04	0.43	23.9	239.3
	Auxiliary Engine #2 (Tier 2)	113883	0.79	7.92	0.06	0.65	0.13	1.32	0.00	0.00	0.06	0.56	0.05	0.53	0.05	0.53	29.4	294.5
Pigging Equipment	Oil Launcher	102707	--	--	0.76	0.76	--	--	--	--	--	--	--	--	--	--	--	--
Sumps/Tanks/Separators	Deck Drain Tank	102721	--	--	0.00	0.03	--	--	--	--	--	--	--	--	--	--	--	--
	Settling Tank	005491	--	--	0.01	0.20	--	--	--	--	--	--	--	--	--	--	--	--
Solvent Usage	Paints/Cleaning/Degreasing	102725	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 5.1-4
Platform Houchin: Permit to Operate 9109-R5
Emission Limits by Emission Unit

Facility ID # 08002

Equipment Category	Emissions Unit	ID#	NO _x		ROC		CO		SO _x		PM		PM ₁₀		PM _{2.5}		GHG	
			TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY
Combustion -- IC Engines	North Crane Engine	004861	1.06	2.13	0.13	0.26	0.42	0.83	0.00	0.00	0.14	0.27	0.13	0.26	0.13	0.26	71.6	143.2
	South Crane Engine	004860	0.31	0.31	0.02	0.02	0.07	0.07	0.00	0.00	0.02	0.02	0.11	0.11	0.11	0.11	96.7	96.7
	Emergency Power Generator	004862	1.57	1.57	0.13	0.13	0.34	0.34	0.00	0.00	0.11	0.11	0.02	0.02	0.02	0.02	62.3	62.3
	Emergency Fire Pump	004863	0.34	0.34	0.03	0.03	0.07	0.07	0.00	0.00	0.02	0.02	0.61	0.61	0.61	0.61	13.4	13.4
	Emergency Power Generator	112995	8.78	8.78	0.70	0.70	1.89	1.89	0.00	0.00	0.61	0.61	0.03	0.03	0.03	0.03	347.6	347.6
	Well Kill Pump	102688	0.49	0.49	0.04	0.04	0.11	0.11	0.00	0.00	0.03	0.03	0.29	0.29	0.29	0.29	19.5	19.5
	Well Service Rig	007108	8.11	32.44	1.14	4.55	1.08	4.32	0.00	0.00	1.17	4.70	1.14	4.55	1.14	4.55	620.0	2,480.0
	Drill Rig Engine #1 (12384)	114676	1.28	5.13	0.09	0.37	1.19	4.76	0.00	0.01	0.07	0.27	0.07	0.27	0.07	0.27	255.0	1,020.0
	Drill Rig Engine #2 (12385)	114677	1.28	5.13	0.09	0.37	1.19	4.76	0.00	0.01	0.07	0.27	0.07	0.27	0.07	0.27	255.0	1,020.0
Combustion -- Flare	Planned - Other	111371	0.04	0.15	0.03	0.13	0.21	0.83	0.02	0.08	0.01	0.04	0.01	0.04	0.01	0.04	261.3	261.3
	Unplanned	--	0.30	0.30	0.25	0.25	1.65	1.65	0.16	0.16	0.09	0.09	0.09	0.09	0.09	0.09	522.6	522.6
	Pilot	--	0.02	0.09	0.02	0.07	0.12	0.49	0.01	0.05	0.01	0.03	0.01	0.03	0.01	0.03	38.4	153.7
Fugitive Components	Oil -- Controlled	102718	--	--	0.20	0.80	--	--	--	--	--	--	--	--	--	--	--	--
	Oil -- Unsafe	102719	--	--	0.06	0.24	--	--	--	--	--	--	--	--	--	--	--	--
	Gas -- Controlled	102717	--	--	0.92	3.70	--	--	--	--	--	--	--	--	--	--	--	--
	Gas -- Unsafe	105826	--	--	0.41	1.63	--	--	--	--	--	--	--	--	--	--	--	--
Supply Boat	Main Engines -- Controlled	005484	2.54	10.17	0.13	0.51	0.59	2.36	0.00	0.01	0.25	1.00	0.24	0.97	0.24	0.97	168.2	1,850.6
	Main Engines -- Uncontrolled	105140	0.50	1.69	0.01	0.05	0.07	0.24	0.00	0.00	0.03	0.10	0.03	0.10	0.03	0.10	19.7	67.3
	Worst Case	005488	2.54	10.17	0.13	0.51	0.59	2.36	0.00	0.01	0.25	1.00	0.24	0.97	0.24	0.97	168.2	1850.6
	Auxiliary Engines	005485	0.71	2.85	0.06	0.23	0.15	0.61	0.00	0.00	0.05	0.20	0.05	0.97	0.05	0.97	26.5	105.8
	Bow Thruster	102699	0.13	0.52	0.01	0.04	0.03	0.11	0.00	0.00	0.01	0.04	0.01	0.04	0.01	0.04	4.9	19.5
Emergency Response Boat	Main Engines	005487	0.25	1.01	0.02	0.06	0.14	0.55	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.02	20.8	83.3
	Auxiliary Engine	105827	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.4	1.7
Crew Boat	Main Engines -- Controlled (Tier 2)	113881	3.75	15.00	0.42	1.67	2.67	10.68	0.00	0.01	0.14	0.58	0.14	0.58	0.14	0.58	356.7	1,426.8
	Main Engines -- Uncontrolled	105141	0.68	2.72	0.05	0.20	0.12	0.48	0.00	0.00	0.04	0.16	0.04	0.15	0.04	0.15	27.0	108.0
	Worst Case		3.75	15.00	0.42	1.67	2.67	10.68	0.00	0.01	0.14	0.58	0.14	0.58	0.14	0.58	356.70	1,426.8
	Auxiliary Engine #1 (Tier 3)	113882	0.12	0.49	0.01	0.04	0.02	0.08	0.00	0.00	0.01	0.03	0.01	0.03	0.01	0.03	4.5	18.2
	Auxiliary Engine #2 (Tier 2)	113883	0.15	0.60	0.01	0.05	0.03	0.10	0.00	0.00	0.01	0.04	0.01	0.04	0.01	0.04	5.6	22.4
Pigging Equipment	Oil Launcher	102707	--	--	0.01	0.06	--	--	--	--	--	--	--	--	--	--	--	--
Sumps/Tanks/Separators	Deck Drain Tank	102721	--	--	0.00	0.01	--	--	--	--	--	--	--	--	--	--	--	--
	Settling Tank	005491	--	--	0.01	0.04	--	--	--	--	--	--	--	--	--	--	--	--
Solvent Usage	Paints/Cleaning/Degreasing	102725	--	--	0.65	2.60	--	--	--	--	--	--	--	--	--	--	--	--

Table 5.2
Platform Houchin: Permit to Operate 9109-R5
Total Permitted Facility Emissions

Facility ID # 08002

A. Peak Daily (lb/day)

Equipment Category	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}	GHG
Combustion -- IC Engines	544.18	56.60	155.53	0.15	54.29	53.18	53.18	40,827.9
Combustion -- Flare	0.24	0.20	1.31	0.13	0.07	0.07	0.07	413.1
Fugitive Emissions	--	34.87	--	--	--	--	--	--
Supply Boat	595.05	22.92	90.54	0.22	36.14	34.97	34.97	23,408.6
Emergency Response Boat	--	--	--	--	--	--	--	--
Crew Boat	363.93	27.48	141.60	0.18	21.48	20.83	20.83	19,012.8
Pigging Equipment	--	0.76	--	--	--	--	--	--
Sumps/Tanks/Separators	--	0.24	--	--	--	--	--	--
Paints/Cleaning/Degreasing	--	--	--	--	--	--	--	--
TOTALS (lb/day)	1,503.39	143.08	388.98	0.68	111.98	109.05	109.05	83,662.4

B. Peak Annual (Ton/yr)

Equipment Category	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}	GHG
Combustion -- IC Engines	56.33	6.46	17.16	0.02	6.32	6.43	6.43	5,202.7
Combustion -- Flare	0.54	0.46	2.96	0.29	0.16	0.16	0.16	937.5
Fugitive Emissions	--	6.36	--	--	--	--	--	--
Supply Boat	13.54	0.78	3.09	0.01	1.23	1.23	1.23	1,975.9
Emergency Response Boat	1.01	0.06	0.56	0.00	0.02	0.02	0.02	85.0
Crew Boat	15.60	1.72	10.78	0.01	0.62	0.62	0.62	1,449.2
Pigging Equipment	--	0.06	--	--	--	--	--	--
Sumps/Tanks/Separators	--	0.04	--	--	--	--	--	--
Paints/Cleaning/Degreasing	--	2.60	--	--	--	--	--	--
TOTALS (ton/yr)	87.02	18.54	34.55	0.34	8.36	8.46	8.46	9,650.3

Table 5.3
Platform Houchin: Permit to Operate 9109-R5
Federal Potential to Emit

Facility ID # 08002

A. Peak Daily (lb/day)

Equipment Category	NO_x	ROC	CO	SO_x	PM	PM₁₀	PM_{2.5}
Combustion -- IC Engines	544.18	56.60	155.53	0.15	54.29	53.18	53.18
Combustion -- Flare	0.24	0.20	1.31	0.13	0.07	0.07	0.07
Fugitive Emissions	--	5.46	--	--	--	--	--
Supply Boat	595.05	22.92	90.54	0.22	36.14	36.14	36.14
Emergency Response Boat	--	--	--	--	--	--	--
Crew Boat	363.93	27.48	141.60	0.18	21.48	20.83	20.83
Pigging Equipment	--	--	--	--	--	--	--
Sumps/Tanks/Separators	--	--	--	--	--	--	--
Paints/Cleaning/Degreasing	--	--	--	--	--	--	--
TOTALS (lb/day)	1,503.39	112.67	388.98	0.68	111.98	110.22	110.22

B. Peak Annual (Ton/yr)

Equipment Category	NO_x	ROC	CO	SO_x	PM	PM₁₀	PM_{2.5}
Combustion -- IC Engines	56.33	6.09	12.39	0.01	6.05	6.15	6.15
Combustion -- Flare	0.54	0.46	2.96	0.29	0.16	0.16	0.16
Fugitive Emissions	--	1.00	--	--	--	--	--
Supply Boat	13.54	0.78	3.09	0.01	1.23	1.23	1.23
Emergency Response Boat	1.01	0.06	0.56	0.00	0.02	0.02	0.02
Crew Boat	15.60	1.72	10.78	0.01	0.62	0.62	0.62
Pigging Equipment	--	--	--	--	--	--	--
Sumps/Tanks/Separators	--	--	--	--	--	--	--
Paints/Cleaning/Degreasing	--	--	--	--	--	--	--
TOTALS (ton/yr)	87.02	10.11	29.78	0.33	8.08	8.19	8.19

Table 5.4
Platform Houchin: Permit to Operate 9109-R5
Estimated Insignificant Emission Units' Emissions

Facility ID # 08002

Annual (Tons/yr)

Equipment Category	NO _x	ROC	CO	SO _x	PM	PM ₁₀	PM _{2.5}
Diesel Fuel Tank	--	0.10	--	--	--	--	--
Surface Coating - Maintenance	--	0.00	--	--	--	--	--
TOTALS (ton/yr)	0.00	0.10	0.00	0.00	0.00	0.00	0.00

Table 5.5-1
Platform Houchin: Part 70/PTO 9109-R5
Equipment Hazardous Air Pollutant Emission Factors

Equipment Category	Description	Dev No	Emission Factors																				Units	Reference				
			Hexane	Benzene	Toluene	Xylene	iso-Octane	Formaldehyde	PAHs (not incl. naphthalene)	Naphthalene	Acetaldehyde	Acrolein	1,3-Butadiene	Chlorobenzene	Ethylbenzene	Hydrogen Chloride	Ammonia	Beryllium	Cadmium	Total Chromium	Cobalt	Lead			Manganese	Mercury	Nickel	Selenium
Combustion – IC Engines	North Crane Engine	*004861	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	South Crane Engine	*004860	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Emergency Power Generator	*004862	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Emergency Fire Pump	*004863	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Emergency Power Generator	*12995	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Well Kd Pump	*10268	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Well Service Rig	*007108	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Drill Rig Engine #1 (12384)	114676	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
	Drill Rig Engine #2 (12385)	114677	0.0269	0.1863	0.1054	0.0424	--	1.7261	0.0362	0.0197	0.7833	0.0339	0.2174	0.0002	0.0109	0.1863	0.0016	--	0.0015	0.0006	--	0.0083	0.0031	0.0020	0.0039	0.0022	lb/1000 gal	A
Combustion – Flare ¹	Planned - Other	111371	0.029	0.159	0.058	0.029	--	1.169	0.003	0.011	0.043	0.010	--	--	1.444	--	2.0E-04	1.2E-05	1.1E-03	1.4E-03	8.4E-05	--	3.8E-04	2.6E-04	2.1E-03	2.4E-05	lb/MMScf	B
	Unplanned	--	0.029	0.159	0.058	0.029	--	1.169	0.003	0.011	0.043	0.010	--	--	1.444	--	2.0E-04	1.2E-05	1.1E-03	1.4E-03	8.4E-05	--	3.8E-04	2.6E-04	2.1E-03	2.4E-05	lb/MMScf	B
	Pilot	--	0.029	0.159	0.058	0.029	--	1.169	0.003	0.011	0.043	0.010	--	--	1.444	--	2.0E-04	1.2E-05	1.1E-03	1.4E-03	8.4E-05	--	3.8E-04	2.6E-04	2.1E-03	2.4E-05	lb/MMScf	B
Fugitive Components ²	Oil – Controlled	102718	0.3000	0.0030	--	--	0.1554	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ²	C
	Oil – Unsafe	102719	0.3000	0.0030	--	--	0.1554	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ²	C
	Gas – Controlled	102717	0.1576	0.0030	--	--	0.1494	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ³	D
	Gas – Unsafe	100826	0.1576	0.0030	--	--	0.1494	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ³	D
Supply Boat ³	Main Engines – Controlled	*005484	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Main Engines – Uncontrolled	105140	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Auxiliary Engines	*005485	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Bow Thruster	102699	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
Emergency Response Boat ³	Main Engines	*005487	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Auxiliary Engine	105827	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
Crew Boat ³	Main Engines – Controlled (Tier 1)	*113881	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Main Engines – Uncontrolled	*105141	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Auxiliary Engine #1 (Tier 3)	*113882	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
	Auxiliary Engine #2 (Tier 2)	*113883	1.96E-04	9.33E-04	4.09E-04	2.85E-04	--	1.18E-03	8.32E-05	8.48E-05	7.67E-04	9.25E-05	3.91E-05	1.46E-06	7.96E-05	1.36E-03	1.17E-05	--	1.09E-05	4.38E-06	--	6.06E-05	2.26E-05	1.46E-05	2.85E-05	1.61E-05	lb/MMBu	E
Pigging Equipment ⁴	Oil Launcher	102700	0.1768	0.0018	--	--	0.1554	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ²	C
Sumps/Tanks/Separators ⁵	Deck Drain Tank	*102721	0.0528	0.0264	0.0165	--	0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ⁴	F
	Settling Tank	*005491	0.0528	0.0264	0.0165	--	0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC ⁴	F
Solvent Usage	Paints/Cleaning/Degreasing	102725	--	0.0500	0.0500	0.0500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	G

References:

A - VCAPCD AB 2588 Combustion Emission Factors (2001) - Diesel Combustion Factors (internal combustion)

<http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf>

A1 - South Coast Air Quality Management District, December 2016, Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Table B-2: Default EF for Diesel/Distillate Oil Fuel Combustion.

<http://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/supplemental-instructions-for-ab2588-facilities.pdf>

B1 - VCAPCD AB 2588 Combustion Emission Factors (2001) - Natural Gas Fired External Combustion Equipment (flare)

<http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf>

B2 - USEPA, AP-42 Table 1.4-4. Emission Factors for Metals from Natural Gas Combustion

<https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf>

C - CARB Speciation Manual Second Edition (1991) Profile Number 756 - Oil & Gas Production Fugitives - Liquid Service.

<https://www.ourair.org/wp-content/uploads/CARB-VOC-Species-Profiles.pdf>

D - CARB Speciation Manual Second Edition (1991), Profile Number 757 - Oil & Gas Production Fugitives - Gas Service

<https://www.ourair.org/wp-content/uploads/CARB-VOC-Species-Profiles.pdf>

E1 - USEPA, AP-42 Table 3.3-2. Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines
<http://www.epa.gov/pubs/Engineering/AirToxics/eombom.pdf>

<http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf>
E2 - VCAPCD AB 2588 Combustion Emissions Factors (2001)

<https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf>

F - CARB Speciation Manual Second Edition (1991) Profile Number 532 - Oil & Gas Extraction - Well Heads & Cellars/Oil & Water Separators

G - California Air Resources Board, August 1991, Identification of Volatile Organic Compound Species Profiles, Profile #802: Mineral Spirits.

U - California Air Resources Board, August 1991, Identification of Volatile Organic Compound Species (Tables 1-10), Volume #302, Winter/Spring.

Notes

¹ The load emission factor is from AP-42 Table 1.4-2: Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion

² The emission factors, originally in units of lb/lb-TOC, were converted to lb/lb-BOC using an BOC/TOC fraction of 0.33 from Table 2 of the District's P&P 6100.061.

³ Emission factors from USEPA's AP-42 were supplemented with emission factors from Ventura County Air Pollution Control District for pollutants not included in AP-42 Table 3.3-2.

⁴ For the BOC/TOC ratio of 0.885 reference CABB VOC Speciation Profile 297 (storage tanks).

⁵ The emission factors, originally in units of lb/lb-TOC, were converted to lb/lb-BOC using an BOC/TOC fraction of 0.606 from Table 3.2.3 of the District's P&P 6100.060.

Table 5.5-2
Platform Houchin: Part 70/PTO 9109-R5
Annual Hazardous Air Pollution Emissions (TPY)

Equipment Category	Description	Dev No	Hexane	Benzene	Toluene	Xylene	iso-Octane	Formaldehyde	PAHs (not incl. naphthalene)	Naphthalene	Acetaldehyde	Acrolein	1,3-Butadiene	Chlorobenzene	Ethylbenzene	Hydrogen Chloride	Arsenic	Beryllium	Cadmium	Total Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Selenium
Combustion – IC Engines	North Crane Engine	004861	1.76E-04	1.22E-03	6.90E-04	2.78E-04	--	1.13E-02	2.37E-04	1.29E-04	5.13E-03	2.22E-04	1.42E-03	1.31E-06	7.14E-05	1.22E-03	1.05E-05	--	9.82E-06	3.93E-06	--	5.43E-05	2.03E-05	1.31E-05	2.55E-05	1.44E-05
	South Crane Engine	004860	1.51E-05	1.04E-04	5.91E-05	2.38E-05	--	9.68E-04	2.03E-05	1.10E-05	4.39E-04	1.90E-05	1.22E-04	1.12E-07	6.11E-06	1.04E-04	8.97E-07	--	8.41E-07	3.36E-07	--	4.65E-06	1.74E-06	1.12E-06	2.19E-06	1.23E-06
	Emergency Power Generator	004862	7.77E-05	5.38E-04	3.05E-04	1.22E-04	--	4.99E-03	1.05E-04	5.69E-05	2.26E-03	9.79E-05	6.28E-04	5.78E-07	3.15E-05	5.38E-04	4.62E-06	--	4.33E-06	1.73E-06	--	2.40E-05	8.96E-06	5.78E-06	1.13E-05	6.36E-06
	Emergency Fire Pump	004863	1.68E-05	1.16E-04	6.57E-05	2.64E-05	--	1.08E-03	2.26E-05	1.23E-05	4.88E-04	2.11E-05	1.35E-04	1.25E-07	6.79E-06	1.16E-04	9.97E-07	--	9.35E-07	3.74E-07	--	5.17E-06	1.93E-06	1.25E-06	2.43E-06	1.37E-06
	Emergency Power Generator	112995	4.34E-04	3.00E-03	1.70E-03	6.84E-04	--	2.78E-02	5.84E-04	3.18E-04	1.26E-02	5.47E-04	3.51E-03	3.23E-06	1.76E-04	3.00E-03	2.58E-05	--	2.42E-05	9.68E-06	--	1.34E-04	5.00E-05	3.23E-05	6.29E-05	3.55E-05
	Well Kill Pump	102688	2.44E-05	1.69E-04	9.54E-05	3.84E-05	--	1.56E-03	3.28E-05	1.78E-05	7.09E-04	3.07E-05	1.97E-04	1.81E-07	9.87E-06	1.69E-04	1.45E-06	--	1.36E-06	5.43E-07	--	7.51E-06	2.81E-06	1.81E-06	3.53E-06	1.99E-06
	Well Service Rig	007108	2.68E-03	1.86E-02	1.05E-02	4.23E-03	--	1.72E-01	3.61E-03	1.97E-03	7.81E-02	3.38E-03	2.17E-02	1.99E-05	1.09E-03	1.86E-02	1.60E-04	--	1.50E-04	5.98E-05	--	8.28E-04	3.09E-04	1.99E-04	3.89E-04	2.19E-04
	Drill Rig Engine #1 (12384)	114676	1.27E-03	8.82E-03	4.99E-03	2.01E-03	--	8.17E-02	1.71E-03	9.32E-04	3.71E-02	1.60E-03	1.03E-02	9.47E-06	5.16E-04	8.82E-03	7.57E-05	--	7.10E-05	2.84E-05	--	3.93E-04	1.47E-04	9.47E-05	1.85E-04	1.04E-04
Drill Rig Engine #2 (12385)	114677	1.27E-03	8.82E-03	4.99E-03	2.01E-03	--	8.17E-02	1.71E-03	9.32E-04	3.71E-02	1.60E-03	1.03E-02	9.47E-06	5.16E-04	8.82E-03	7.57E-05	--	7.10E-05	2.84E-05	--	3.93E-04	1.47E-04	9.47E-05	1.85E-04	1.04E-04	
Combustion – Flare	Planned - Other	111371	6.16E-05	3.38E-04	1.23E-04	6.16E-05	--	2.48E-03	6.38E-06	2.34E-05	9.14E-05	2.13E-05	--	3.07E-03	--	4.25E-07	2.55E-08	2.34E-06	2.98E-06	1.79E-07	--	8.08E-07	5.53E-07	4.46E-06	5.10E-08	
	Unplanned	--	1.23E-04	6.76E-04	2.47E-04	1.23E-04	--	4.97E-03	1.28E-05	4.68E-05	1.83E-04	4.25E-05	--	6.14E-03	--	8.50E-07	5.10E-08	4.68E-06	5.95E-06	3.57E-07	--	1.62E-06	1.11E-06	8.93E-06	1.02E-07	
	Pilot	--	3.63E-05	1.99E-04	7.25E-05	3.63E-05	--	1.46E-03	3.75E-06	1.38E-05	5.38E-05	1.25E-05	--	1.81E-03	--	2.50E-07	1.50E-08	1.38E-06	1.75E-06	1.05E-07	--	4.75E-07	3.25E-07	2.63E-06	3.00E-08	
Fugitive Components	Oil – Controlled	102718	2.40E-01	2.40E-03	--	--	1.24E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Oil – Unsafe	102719	7.23E-02	7.23E-04	--	--	3.75E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Gas – Controlled	102717	5.83E-01	1.11E-02	--	--	5.52E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Gas – Unsafe	105826	2.57E-01	4.88E-03	--	--	2.43E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Supply Boat	Main Engines – Controlled	005484	8.40E-04	3.99E-03	1.75E-03	1.22E-03	--	5.05E-03	3.56E-04	3.63E-04	3.28E-03	3.96E-04	1.67E-04	6.24E-06	3.40E-04	5.82E-03	5.00E-05	--	4.68E-05	1.87E-05	--	2.59E-04	9.68E-05	6.24E-05	1.22E-04	6.87E-05
	Main Engines – Uncontrolled	105140	8.40E-05	3.99E-04	1.75E-04	1.22E-04	--	5.05E-04	3.56E-05	3.63E-05	3.28E-04	3.96E-05	1.67E-05	6.24E-07	3.40E-05	5.82E-04	5.00E-06	--	4.68E-06	1.87E-06	--	2.59E-05	9.68E-06	6.24E-06	1.22E-05	6.87E-06
	Worst Case	005488	8.40E-04	3.99E-03	1.75E-03	1.22E-03	--	5.05E-03	3.56E-04	3.63E-04	3.28E-03	3.96E-04	1.67E-04	6.24E-06	3.40E-04	5.82E-03	5.00E-05	--	4.68E-05	1.87E-05	--	2.59E-04	9.68E-05	6.24E-05	1.22E-04	6.87E-05
	Auxiliary Engines	005485	1.32E-04	6.28E-04	2.75E-04	1.92E-04	--	7.94E-04	5.60E-05	5.70E-05	5.16E-04	6.22E-05	2.63E-05	9.82E-07	5.35E-05	9.15E-04	7.86E-06	--	7.37E-06	2.95E-06	--	4.08E-05	1.52E-05	9.82E-06	1.92E-05	1.08E-05
	Bow Thruster	102699	2.43E-05	1.15E-04	5.06E-05	3.53E-05	--	1.46E-04	1.03E-05	1.05E-05	9.49E-05	1.15E-05	4.84E-06	1.81E-07	9.85E-06	1.68E-04	1.45E-06	--	1.36E-06	5.42E-07	--	7.50E-06	2.80E-06	1.81E-06	3.52E-06	1.99E-06
Emergency Response Boat	Main Engines	005487	1.04E-04	4.94E-04	2.16E-04	1.51E-04	--	6.25E-04	4.40E-05	4.49E-05	4.06E-04	4.90E-05	2.07E-05	7.73E-07	4.21E-05	7.20E-04	6.18E-06	--	5.80E-06	2.32E-06	--	3.21E-05	1.20E-05	7.73E-06	1.51E-05	8.50E-06
	Auxiliary Engine	105827	2.15E-06	1.02E-05	4.48E-06	3.12E-06	--	1.29E-05	9.11E-07	9.29E-07	8.40E-06	1.01E-06	4.28E-07	1.60E-08	8.71E-07	1.49E-05	1.28E-07	--	1.20E-07	4.80E-08	--	6.63E-07	2.48E-07	1.60E-07	3.12E-07	1.76E-07
Crew Boat	Main Engines – Controlled	113881	1.78E-03	8.46E-03	3.71E-03	2.58E-03	--	1.07E-02	7.55E-04	7.69E-04	6.96E-03	8.39E-04	3.55E-04	1.32E-05	7.22E-04	1.23E-02	1.06E-04	--	9.93E-05	3.97E-05	--	5.49E-04	2.05E-04	1.32E-04	2.58E-04	1.46E-04
	Main Engines – Uncontrolled	105141	1.51E-04	7.19E-04	3.15E-04	2.20E-04	--	9.10E-04	6.41E-05	6.54E-05	5.91E-04	7.13E-05	3.01E-05	1.13E-06	6.13E-05	1.05E-03	9.00E-06	--	8.44E-06	3.38E-06	--	4.67E-05	1.74E-05	1.13E-05	2.19E-05	1.24E-05
	Worst Case	113882	1.78E-03	8.46E-03	3.71E-03	2.58E-03	--	1.07E-02	7.55E-04	7.69E-04	6.96E-03	8.39E-04	3.55E-04	1.32E-05	7.22E-04	1.23E-02	1.06E-04	--	9.93E-05	3.97E-05	--	5.49E-04	2.05E-04	1.32E-04	2.58E-04	1.46E-04
	Auxiliary Engine #1	113882	2.27E-05	1.08E-04	4.73E-05	3.29E-05	--	1.36E-04	9.62E-06	9.80E-06	8.87E-05	1.07E-05	4.52E-06	1.69E-07	9.20E-06	1.57E-04	1.35E-06	--	1.27E-06	5.06E-07	--	7.00E-06	2.62E-06	1.69E-06	3.29E-06	1.86E-06
	Auxiliary Engine #2	113883	2.79E-05	1.33E-04	5.82E-05	4.05E-05	--	1.68E-04	1.18E-05	1.21E-05	1.09E-04	1.32E-05	5.56E-06	2.08E-07	1.13E-05	1.93E-04	1.66E-06	--	1.56E-06	6.23E-07	--	8.62E-06	3.22E-06	2.08E-06	4.05E-06	2.28E-06
Pigging Equipment	Oil Launcher	102707	1.05E-02	1.06E-04	--	--	9.23E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sumps/Tanks/Separators	Deck Drain Tank	102721	3.28E-04	1.64E-04	1.02E-04	--	3.07E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Settling Tank	005491	1.97E-03	9.83E-04	6.14E-04	--	1.84E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solvent Usage	Paints/Cleaning/Degreasing	102725	--	1.30E-01	1.30E-01	1.30E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HAPs (TPY):			1.17E+00	2.07E-01	1.60E-01	1.44E-01	9.66E-01	4.10E-01	9.30E-03	5.73E-03	1.86E-01	8.99E-03	4.89E-02	6.62E-05	1.46E-02	6.17E-02	5.31E-04	9.15E-08	5.05E-04	2.09E-04	6.41E-07	2.75E-03	1.03E-03	6.64E-04	1.31E-03	7.29E-04

Notes:

- These are estimates only, and are not intended to represent emission limits.
- Based on CAAA, Section 112 (n) (4) stipulations, the HAP emissions listed above can not be aggregated at the source for any purpose, including determination of HAP major source status for MACT applicability.
- Default fuel properties for diesel are from Tables 5 and 6 of the SBCAPCD's Piston IC Engine Technical Reference Document (2002). <https://www.ourair.org/wp-content/uploads/sbcapcdicerefcod.pdf>

**Table 5.5-3
Pt70/PTO 9109-R5 Platforms Hogan and Houchin
Stationary Source Hazardous Air Pollutant Emissions (TPY)**

Facility	Permit #	Hexane	Benzene	Toluene	Xylene	isoOctane	Formaldehyde	PAHs (not incl. naphthalene)	Naphthalene	Acetaldehyde	Acrolein	1,3-Butadiene	Chlorobenzene	Ethylbenzene	Hydrogen Chloride	Arsenic	Beryllium	Cadmium	Total Chromium	Cobalt	Lead	Manganese	Mercury	Nickel	Selenium	Total - All HAPs
8001 - Platform Hogar	PTO 9108-R5	9.67E-01	1.84E-01	1.49E-01	1.39E-01	8.47E-01	2.18E-01	5.29E-03	3.54E-03	9.90E-02	5.23E-03	2.48E-02	4.41E-05	1.31E-02	4.11E-02	3.54E-04	8.86E-08	3.39E-04	1.43E-04	6.20E-07	1.83E-03	6.86E-04	4.43E-04	8.75E-04	4.85E-04	2.70E+00
8002 - Platform Houch	PTO 9109-R5	1.17E+00	2.07E-01	1.60E-01	1.44E-01	9.66E-01	4.10E-01	9.30E-03	5.73E-03	1.86E-01	8.99E-03	4.89E-02	6.62E-05	1.46E-02	6.17E-02	5.31E-04	9.15E-08	5.05E-04	2.09E-04	6.41E-07	2.75E-03	1.03E-03	6.64E-04	1.31E-03	7.29E-04	3.40E+00
Total Stationary Source - By Polluta		2.14E+00	3.90E-01	3.09E-01	2.83E-01	1.81E+00	6.28E-01	1.46E-02	9.27E-03	2.85E-01	1.42E-02	7.36E-02	1.10E-04	2.77E-02	1.03E-01	8.85E-04	1.80E-07	8.44E-04	3.52E-04	1.26E-06	4.58E-03	1.72E-03	1.11E-03	2.18E-03	1.21E-03	6.10E+00

Notes:

1. These are estimates only, and are not intended to represent emission limits.
2. Based on CAAA, Section 112 (n) (4) stipulations, the HAP emissions listed above can not be aggregated at the source for any purpose, including determination of HAP major source status for MACT applicability.

6.0 Air Quality Impact Analyses

6.1 Modeling

Air quality impact analyses were not performed since this renewal is not subject to District New Source Review or Prevention of Significant Deterioration review.

6.2 Increments

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

6.3 Monitoring

Air quality monitoring has not been required for this stationary source.

6.4 Health Risk Assessment

An air toxics Health Risk Assessment was not performed for this permitting action.

7.0 CAP Consistency, Offset Requirements and ERCs

7.1 General

Santa Barbara County has not attained the state PM₁₀ and ozone 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_{2.5}) and 25 tons/year for all non-attainment pollutants and precursors (except carbon monoxide and PM_{2.5}).

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

The Carpinteria Field – South County Stationary Source exceeds the emission offset thresholds of Regulation VIII for NO_x and ROC. Any future new source review projects at Platform Houchin will require offsets for the emissions associated with the project.

7.4 Emission Reduction Credits

Platform Houchin does not generate emission reduction credits.

8.0 Lead Agency Permit Consistency

The United States Department of Interior's Minerals Management Service approved the *Plan of Development* for Platform Houchin on October 27, 1967. The installation of Platform Houchin predates the California Environmental Quality Act (CEQA) as the platform installation started in 1967 while the act was adopted in 1970.

9.0 Permit Conditions

This section lists the applicable permit conditions for OCS Platform Houchin. 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. Conditions listed in these Sections are enforceable by the USEPA, the District, the State of California and the public. 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. In case of a discrepancy between the wording of a condition and the applicable federal or District rule(s), the wording of the rule shall control.

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

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9.A **Standard Administrative Conditions**

The following federally enforceable administrative permit conditions apply to the Platform Houchin:

- A.1 **Condition Acceptance.** Acceptance of this operating permit by the facility shall be considered as acceptance of all terms, conditions, and limits of this permit. [Re: PTO 9109]
- 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 9109]
- 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 related to the implementation of Regulation XIII (*Part 70 Operating Permits*) that follow the issuance of this PTO permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the facility as required by Rule 210. [Re: PTO 9109, 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, the facility 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 9109]
- 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 9109]
- A.6 **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all written data, specifications and assumptions included with the application and supplements thereof (as documented in the District's project file), and with the District's analyses under which this permit is issued. [Re: PTO 9109]
- A.7 **Consistency with State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the Platform Houchin by the State of California or the California Coastal Commission in any consistency determination for the Project with the California Coastal Act. [Re: PTO 9109]
- A.8 **Compliance with Department of Interior Permits.** The facility shall comply with all air quality control requirements imposed by the Department of the Interior in the *Plan of Development* approved for Platform Houchin on October 27, 1967, and any subsequent modifications. Such requirements shall be enforceable by the District. [Re: PTO 9109]
- A.9 **Compliance with Permit Conditions.**
 - (a) The facility shall comply with all permit conditions.
 - (b) This permit does not convey property rights or exclusive privilege of any sort to the facility.
 - (c) Noncompliance with any permit conditions is grounds for permit termination, revocation and re-issuance, modification, enforcement action, or for denial of permit renewal. Any permit non-compliance constitutes a violation of the Clean Air Act and its implementing regulations or of District Rules or both, as applicable.

- (d) The permittee shall not use the "need to halt or reduce a permitted activity in order to maintain compliance" as a defense for noncompliance with any permit condition.
- (e) A pending permit action or notification of anticipated noncompliance by Nuevo does not stay any permit condition.
- (f) Within a reasonable time period, the facility shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:
 - (i) compliance with the permit, or
 - (ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.
 - (g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible.

[Re: 40 CFR Part 70.6.(a)(6), District Rule 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 situation. 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 working days of the emergency. The "notice of emergency" shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F. [Re: 40 CFR 70.6(g), District Rule 1303.F]

A.11 **Compliance Plan.**

- (a) The permittee shall comply with all federally enforceable requirements that become applicable during the permit term in a timely manner.
- (b) For all applicable equipment, the permittee shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards.

[Re: 40 CFR 70.6(c)(3), 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: 40 CFR 70.6(c), District Rule 1303.D.2]

A.13 **Severability.** The provisions of this Permit to Operate are severable and if any provision of this Permit to Operate is held invalid, the remainder of this Permit to Operate shall not be affected thereby. [Re: 40 CFR 70.6(c), 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 submit an application for renewal of the Part 70 permit not later than 6 months before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. [Re: *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 and every deviation from the requirements of this permit or any applicable federal requirements within 7 days after discovery of the violation, but not later than 180 days after the date of occurrence. The report shall clearly document 1) the probable cause and extent of the deviation; 2) equipment involved; 3) the quantity of excess pollutant emissions, if any; and, 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to 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 annually, i.e., along with the March 1 Annual Report; the reports shall be provided to the Control Officer every six months. 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, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1 and March 1, respectively, each year. Supporting monitoring data shall be submitted in accordance with the “Semi-Annual Monitoring/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 are 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 and time of sampling or measurements or maintenance activity ;
 - (b) Operating conditions at the time of sampling or measurement or maintenance activity;
 - (c) Date, place, name of company or entity that performed the analyses or measurement or maintenance activity and the methods used; and
 - (d) Results of the analyses or measurement or maintenance. Additionally, records must be kept that document the date of analysis and the analytical techniques or methods used.

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)(ii)(A)]

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 which has an unexpired permit term of three (3) or more years, the permit shall be reopened. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. However, no such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended. All such re-openings shall be initiated only after a 30 day notice of intent to reopen the permit has been provided to the permittee, except that a shorter notice may be given in case of an emergency.
- (b) Inaccurate Permit Provisions: If the 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, it will be reissued with the expiration date that was listed in the permit before the re-opening. [Re: 40 CFR 70.7(f), 40 CFR 70.6(a)]

9.B Generic Conditions

The generic conditions listed below apply to all emission units, regardless of their category or emission rates. In case of a discrepancy between the wording of a condition and the applicable federal or District rule(s), the wording of the rule shall control.

- B.1 **Circumvention (Rule 301).** A person shall not build, erect, install, or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Division 26 (Air Resources) of the Health and Safety Code of the State of California or of these Rules and Regulations. This Rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California, or of District Rule 303. [Re: District Rule 301]
- B.2 **Visible Emissions (Rule 302).** The facility shall not discharge into the atmosphere from any single source of emission any air contaminants for a period or periods aggregating more than three minutes in any one hour which is:
 - (a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

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

The facility shall determine compliance with this Rule per Condition 9.C.12.

- B.3 **PM Concentration - South Zone (Rule 305).** The facility 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).** The facility 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 **Odorous Organic Sulfides (Rule 310).** The facility shall not discharge into atmosphere H₂S and organic sulfides that result in a ground level impact beyond the facility property boundary in excess of either 0.06 ppmv averaged over 3 minutes or 0.03 ppmv averaged over 1 hour. [Re: *District Rule 310*]
- B.6 **Sulfur Content of Fuels (Rule 311).** The facility shall not burn fuels with sulfur content in excess of 0.5% (by weight) for liquid fuels. Compliance with this condition shall be based on diesel fuel billing records or other data showing the certified sulfur content for each shipment. The facility shall submit such statement *semi-annually* as a part of its semi-annual Part 70 compliance verification report to the District. [Re: *District Rule 311*]
- B.7 **Organic Solvents (Rule 317).** The facility shall comply with the emission standards listed in Section B of Rule 317. Compliance with this condition shall be based on facility compliance with Condition C.7 of this permit. [Re: *District Rule 317*]
- B.8 **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 facility compliance with Condition C.7 of this permit and facility inspections. [Re: *District Rule 322*]
- B.9 **Architectural Coatings (Rule 323.I).** The facility shall comply with the coating ROC content and handling standards listed in Section D of Rule 323 as well as the Administrative requirements listed in Section F of Rule 323.I. Compliance with this condition shall be based on facility compliance with Condition C.7 of this permit and facility inspections. [Re: *District Rules 323, 317, 322, 324*]
- B.10 **Disposal and Evaporation of Solvents (Rule 324).** The facility 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 facility compliance with Condition C.7 of this permit and facility inspections. [Re: *District Rule 324*]
- B.11 **Emergency Episode Plan.** During emergency episodes, the facility shall implement the Emergency Episode Plan as approved by the District in July 2002. [Re: *District Rule 1303, 40 CFR 70.6*]
- 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 any person who supplies, sells, offers for sale, installs, or solicits the installation of any new water heater, boiler, steam generator or process heater for use within the District with a rated heat input capacity greater than or equal to 75,000 Btu/hour up to and including 2,000,000 Btu/hour.

B.14 Small Boilers, Steam Generators, and Process Heaters (Rule 361): The permittee shall comply with the requirements of District Rule 361: *Small Boilers, Steam Generators, and Process Heaters* whenever a new boiler, process heater or other external combustion device is added or an existing unit is replaced.

B.15 Oil and Natural Gas Production MACT. The facility is exempt from this MACT under 40 CFR 63.760(e)(1) [*Black Oil Exemption*]; however, it is subject to recordkeeping required under the General Standards of 40 CFR 63.10(b)(3). [Re: 40 CFR 63, Subpart HH]

9.C Equipment Specific Conditions

This section includes non-generic federally enforceable conditions, incorporating emissions and operations limits, and monitoring, recordkeeping and reporting requirements. This section may also contain other non-generic conditions.

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

Table C.1-1

District ID #.	Name: HP, Model and Serial Number, if applicable
004861	North Crane, 230 hp, diesel-fired: DD 6-71,6A168663
004860	South Crane, 99 hp, diesel-fired: DD 3-71(N-60 nozzle), 3A68303
004862	Emergency Generator, 510 hp, diesel-fired: Cat D-379, 76B298
112995	Emergency Generator (2MW), 2847 hp, diesel-fired: Cat 3516B, 1HZ0048
004863	Emergency Fire Water Pump, 110 hp, diesel-fired: Cat D-330, 85B1492
102688	Well Kill Pump, 230 hp, diesel-fired: DD 8-71, 7083-7200
007108	Well Service Rig, 400 hp, diesel-fired: DD 8VF 00734, 8038-7000
114676	Drill Rig 23 Engine 1, 665 hp, diesel fired, DD 60.14.0.L
114677	Drill Rig 23 Engine 2, 665 hp, diesel fired, DD 60.14.0.L

- (a) **Emission Limits:** Mass emissions IC engines listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping, and reporting conditions listed below. In addition, the following specific emission limits apply:
- (i) *North Crane Engine* - NO_x, ROC, and CO concentration in the exhaust from the North Crane engine shall not exceed Rule 333 concentration limits. Compliance shall be based on quarterly portable analyzer inspections and biennial source tests in accordance with Rule 333.
(Reference: District Rule 333, ATC 10357-02 and OCS PTO 9108)
- (ii) *Well Service Rig Engine* - NO_x and ROC concentration in the exhaust from the North Crane engine shall not exceed Rule 333 concentration limits. Compliance shall be based on quarterly portable analyzer inspections and biennial source tests in accordance with Rule 333. The oxidation catalyst shall reduce CO emissions by at least 70 percent or limit CO emissions in the exhaust to 49 ppmvd at 15% O₂ at all times except during startups.
(Reference: District Rule 333, ATC 14164)
- (iii) *Emission Concentration Limit for Drill Rig Engines* - The NO_x concentration in the exhaust from the Drill Rig engines (IDs# 114676 and 114677) shall not exceed 223 ppmvd, corrected to 15% O₂, the ROC concentration shall not exceed 46 ppmvd, corrected to 15% O₂ and the CO concentration shall not exceed 340 ppmvd, corrected to 15% O₂. Compliance shall be based on portable analyzer monitoring and source testing as required by this permit.
(Reference: ATC-PTO 13575)

(b) Operational Limits: The following operational limits apply to the IC engine:

(i) *Fuel Use:*

North Crane Engine: The North Crane engine shall not use more than 200 gallons per day and 12,503 gallons per year of diesel fuel. In addition, the heat input to this engine is restricted to 1.7505 MMBtu/hour and 1,750.5 MMBtu/year.

Drill Rig 23 Engines: The cumulative daily fuel use for both the diesel-fueled CI engines shall not exceed 250.2 gallons per calendar day. The cumulative annual fuel use for both the diesel-fueled CI engines shall not exceed 89,371.3 gallons per calendar year.

(ii) *Engine Use:*

North Crane Engine: The North Crane engine shall not operate more than: (a) 16 hours on any calendar day and (b) 1,000 hours during the calendar year.

Emergency Generators: The Standby Emergency Generators shall limit maintenance and testing⁵ operations to no more than 200 hours per year. Emergency use operations, as defined in Section 93115.4 (30) of the ATCM⁶, have no operational hour limitations.

South Crane Engine and Fire Pump Engines: Annual operation of the South Crane engine and Fire Pump engines shall not exceed 200 hours per year.

Well Kill Pump Engine: Annual operation of the Well Kill Pump engine shall not exceed 100 hours per year.

Drill Rig Engine Lockout: The Rig 23 diesel engines shall be equipped with an electronic lock-out that prevents simultaneous operation of both diesel engines. This lockout requirement shall be demonstrated upon request of a District inspector.

(iii) *Fuel and Fuel Additive Requirements:* The permittee may only add CARB Diesel, or an alternative diesel fuel that meets the requirements of the Stationary Diesel ATCM Verification Procedure, or CARB Diesel fuel used with additives that meet the requirements of the Stationary Diesel ATCM Verification Procedure, or any combination of the above to each IC engine or any fuel tank directly attached to each IC engine. Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.0015 weight percent.

(iv) *Engine Identification:* The IC engines listed in Table C.1-1 shall be identified with permanently-affixed plates, tags 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. (*Reference: District Rules 333, OCS PTO 9109, and ATC 10357-02*)

(v) *Crane Operating Maintenance Requirements* - The North Crane engine (ID 004849) and the South Crane engine (ID 004848) are each subject to the following operating requirements:

1. Change the oil and filter every 1,000 hours of operation or annually, whichever comes first. In place of changing the oil every 1,000 hours of operation or

⁵ "maintenance and testing" is defined in Section (d)(41) of the ATCM

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

annually, the operator 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:

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

(vi) *Emergency Backup Generator, Emergency Fire Water Pump, and Well Kill Pump Maintenance Requirements* - Three engines, the diesel fired 510 bhp Standby Emergency Generator (ID 004850), the diesel fired 110 bhp Fire Water Pump (ID 004851), and the 318 bhp Well Kill Pump (ID 004856) are subject to the following requirements:

1. Change the oil and filter every 500 hours of operation or annually, whichever comes first. In place of changing the oil every 500 hours of operation or annually, the operator may analyze the oil of each engine every 500 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:
 - (a) The tested Total Base Number is less than 30 percent of the Total Base Number of the oil when new.
 - (b) The tested oil viscosity has changed by more than 20 percent from the oil viscosity when new.
 - (c) The tested percent water content (by volume) is greater than 0.5 percent.
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.

(vii) *Well Service Rig Engine Requirements*:

1. The Well Service Rig engine shall be equipped with an oxidation catalyst. The oxidation catalyst shall reduce CO emissions by at least 70 percent or limit CO emissions in the exhaust to 49 ppmvd at 15 percent oxygen at all times except during startups.
2. The owner and operator must operate and maintain each engine and oxidation catalyst in a manner consistent with safety and good air pollution control practices for minimizing emissions.
3. The operator shall minimize each engine's time at idle during startups to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

4. Install a closed crankcase ventilation system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates and metals on the Well Service Rig engine.
- (c) Monitoring: The following source testing and periodic monitoring conditions shall apply:
- (i) *North Crane Source Testing*: The facility shall source test the air emissions and process parameters of the North Crane IC Engine and Well Service Rig engine in accordance with Table 4.1 and Condition 9.C.15 and the requirements of Rule 333 Section I for compliance with applicable emission limits.
 - (ii) *I&M Plan*: The facility shall implement its District-approved “Rule 333, Section F – Inspection and Maintenance Plan (“I&M” Plan)” (May 2009) and any subsequent District-approved updates). The I&M Plan may be revised only upon written District-approval.
 - (iii) *Inspections of IC Engines*: The facility shall conduct inspections of the North Crane engine exhaust and well kill engine exhaust for NO_x and CO, in accordance with District Rule 333 requirements and the approved I&M Plan. All portable analyzer calibration and repairs shall be logged. The procedures outlined in Section F of Rule 333 shall be followed for facility use of the portable analyzer. The calibration and repairs of this instrument shall be done in accordance with the manufacturer’s requirements.
 - (iv) *Hourly Use Meters*: The facility shall report the engine hours of operation for each engine listed above utilizing District-approved dedicated, non-resettable, elapsed time meters. A monthly log shall be maintained that records the hours of operation of the engine each day it is operated along with the monthly and annual hours. The facility shall record in a log the following: ID number of the equipment; the number of operating hours on each day the engine is operated; and, the cumulative total monthly and annual hours.
 - (v) *Emergency Generator Fuel Use Meter*: The facility shall report the fuel usage for the Emergency Generator (2MW) (District Dev. No. 112995) through the use of a dedicated District-approved fuel flow meter. A monthly log shall be maintained that records the monthly and annual fuel consumption. The meter shall be calibrated according to manufacturer’s specifications and the calibration records shall be made available to the District upon request.
 - (vi) *Drilling Rig Non-Resettable Fuel Meters*: Each drilling rig engine shall be equipped with two non-resettable fuel meters, as specified in the *Equipment List* attachment to this permit. The fuel meters shall be calibrated biennially pursuant to the recommendations of the manufacturer and shall be maintained in proper operating condition. The permittee must obtain an authority to construct permit prior to making any modifications to the fuel use metering system.
 - (vii) *Drilling Rig Fuel Usage Monitoring*. The volume of diesel fuel (in gallons) burned in each engine shall be measured through the use of District-approved calibrated non-resettable fuel meters. A log shall be maintained that records the daily fuel usage for each engine. Each daily fuel use observation shall be taken at 12:00 am (midnight). The facility shall use the *Fuel Use Monitoring Log* attachment to this permit unless an

alternate log format has been approved by the District in writing. If at any time the District determines the fuel usage monitoring requirements are inadequate to ensure the emissions limitations and operational restrictions of this permit are not exceeded, a data-logging fuel use monitoring system may be required by the District. Within 60 days of this determination, the facility shall submit a permit modification application for the installation of a fuel use data-logging system.

- (viii) *Diesel Fuel Sulfur Content.* Compliance with the *Diesel Fuel Sulfur Limit* condition shall be based upon information provided on the diesel fuel by fuel vendor analysis, or documentation for each fuel shipment that the fuel meets California Code of Regulations, Title 13, Section 2281 standards (i.e., ARB "Clean Diesel"). Alternately, the permittee shall annually sample and perform a fuel total sulfur analysis consistent with appropriate ASTM procedures.
- (ix) *Drilling Rig Portable Analyzer Monitoring.* The permittee shall perform initial portable analyzer NO_x and CO monitoring as well as quarterly monitoring during each calendar quarter in which a source test is not performed and the engine is operated in excess of 20 hours per quarter. The compliance procedures outlined in Rule 333F.3 shall be followed for the portable analyzer monitoring. Portable analyzer instrument readings shall not exceed the limits specified in Condition 9.C.1.(a)(ii) of this permit.
- (x) *Drilling Rig Source Testing.* Source testing shall be required for NO_x, CO, and ROC if the result from a portable analyzer reading (required by Condition C.1(c)(ix) of this permit) exceeds a threshold of 223 ppmvd NO_x @ 15% O₂ as required by BACT, unless compliance with this threshold is demonstrated by a retest within 15 days of the initial reading. A source test shall be conducted within 60 days of the initial over-the-threshold reading if triggered by this criteria. If source testing of the engine demonstrates compliance with the NO_x, CO, and ROC emission limits specified in Table 3 of this permit, the engine shall not be subject to another source test for two years from the date of the initial compliant source test. After two years, source testing may again be triggered based on the result of a portable analyzer reading, unless compliance is demonstrated by a retest within 15 days of the initial reading. If the engine does not demonstrate compliance with the NO_x, CO, and ROC emission limits specified in Table 3 of this permit in any source test, it shall be source tested every two years thereafter.

If requested in writing by the District, a source test for PM shall be conducted within 60 days of the written request. The PM emission rate from the engine shall be determined using EPA Method 5 or a District-approved alternate method. The source test may demonstrate compliance with the permitted PM emission limit directly by sampling at the outlet of each engine exhaust. Source testing shall be conducted at typical engine operating conditions.

- (d) Recordkeeping: The following recordkeeping requirements shall apply:

The facility must keep the required logs and analyses results, as applicable to this permit, which demonstrate compliance with operation limits (9.C.1.(b)) and monitoring requirements (9.C.1.(c)) above. All logs and analyses results shall be available to the District upon request. The facility shall keep all such data for a minimum of five (5) years from the date of information collection and log entry. Information shall include, but may not be limited to:

- (i) Written ICE operations logs, including quarterly inspection results, consistent with the requirements of Rule 333;
- (ii) Written records documenting individual IC Engine fuel use (gallons) on a monthly basis, and the number of days of operation per month for each engine⁷;
- (iii) Written records documenting each IC Engine operating hours on a daily/monthly basis.
- (iv) For the emergency generators, mud pump and firewater pump, monthly and annual maintenance and testing hours of operation.
- (v). On an annual basis, the heating value of the diesel fuel (Btu/gal) shall be recorded based on measurement by the facility or certified by the fuel supplier.
- (vi). The owner or operator shall document fuel use through the retention of fuel purchase records that demonstrate that the only fuel purchased and added to the engine, or to any fuel tank directly attached to the engine, meets the requirements of the State's Stationary Diesel Engine ATCM (title 17, California Code of Regulations section 93115).
- (vii) If an operator's tag number is used in lieu of an IC Engine identification plate, written documentation which references the operator's unique IC Engine ID number to a list containing the make, model, serial number, rated maximum BHP and the corresponding RPM.
- (viii) Drilling Rig Operating Hours. A log shall be maintained that details the number of operating hours each day and total days of operation throughout the month for each engine, separately. In addition, the cumulative total annual hours for each engine shall be recorded.
- (ix) Drilling Rig Fuel Use. The total amount of diesel fuel combusted in each engine shall be recorded on a daily, monthly and annual basis in units of gallons. The permittee shall record each daily fuel use observation at 12:00 am (midnight). The permittee shall use the *Fuel Use Monitoring Log* attachment to this permit unless an alternate log format has been approved by the District in writing. The operator performing each daily recordkeeping inspection must write and sign their name in the appropriate boxes of the log.
- (x) Drilling Rig Portable Analyzer Monitoring Results. Results of the portable analyzer monitoring required by Rule 333 and specified in Condition C.3.e (*Portable Analyzer Monitoring*) of this permit and the District approved ICE Inspection and Maintenance (I&M) Plan.
- (xi) Source Test Reports. Source test reports for all District-required stack emission tests.
- (xii) Engine Inspection and Maintenance Logs. IC engine inspection and maintenance logs shall be maintained, including quarterly inspection results, consistent with the reporting requirements incorporated in the District approved Rule 333 I&M Plan.

⁷ The hours of operation, along with the engine horsepower rating and BSFC data as listed in Table 5.1-1 of this permit, a fuel correction factor of 1.06, and a high heating value of 138,200 Btu/gal will be used to determine the number of gallons of fuel consumed per time period for all engines except the Emergency Generator (2MW) (District Dev. No. 112995) and the Rig 23 drilling rig engines (District Dev. Nos. 114676 and 114677) [see Condition 9.C.1.(d)(ii)].

- (xiii) Fuel Meter Calibration. All records of required biennial fuel meter calibrations.

(Reference: *District Rule 333, 40 CFR 70.6.a.3.(ii), OCS PTO 9108, District ATC 10357-02, PTO 11950-01 and ATC/PTO 13575*)

- (e) Reporting: The facility shall report to the District all information required under the *Semi-Annual Compliance Verification Report* condition of this permit (see permit condition 9.C.17).
[References: *40 CFR 70.6(a)(3), OCS PTO 9109 and District Rule 333*]

- (f) Temporary Engine Replacements - DICE ATCM. Any reciprocating internal combustion engine subject to this permit 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: engr@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: engr@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. This condition does not apply to engines that have experienced a cracked block (unless under manufacturer’s warranty), to engines for which replacement parts are no longer available, or new engine replacements {including “reconstructed” engines as defined in the ATCM. Such engines are subject to the provisions of New Source Review and the new engine requirements of the ATCM.

- (g) Permanent Engine Replacements. Any E/S engine, firewater pump engine or engine used for an essential public service that breaks down and cannot be repaired may install a new replacement engine without first obtaining an ATC permit only if the requirements (i – vi) listed herein are satisfied.
- (i) The permitted stationary diesel IC engine is an E/S engine, a firewater pump engine or an engine used for an essential public service (as defined by the District).
 - (ii) The permitted engine breaks down, cannot be repaired, and needs to be replaced by a new permanent engine.
 - (iii) The facility provides “good cause” (in writing) for the need to install a new permanent engine before an ATC can be obtained for a new engine.
 - (iv) The new permanent engine must comply with the requirements of the ATCM for new engines. A temporary replacement engine may be used while the new permanent engine is being procured only if it meets the requirements of the *Temporary Engine Replacements - DICE ATCM* permit condition.
 - (v) An ATC application for the new permanent engine must be submitted to the District within 15 days of the existing engine being replaced and the ATC must be obtained no later than 180 days from the date of engine replacement (these timelines include the use of a temporary engine).
 - (vi) For each new permanent engine installed pursuant to this condition, the permittee shall submit a completed *Permanent IC Engine Replacement Notification* form (Form ENF-96) within 14 days of the new engine being installed. This form may be sent hardcopy, or can be e-mailed (e-mail: enr@sbcapcd.org) to the District (Attn: Engineering Supervisor).
- Any engine installed (either temporarily or permanently) pursuant to this permit condition shall be immediately shut down if the District determines that the requirements of this condition have not been met.
- (h) Best Available Control Technology (BACT). The permittee shall apply emission control technology and plant design measures that represent Best Available Control Technology (BACT) to the operation of the Drill Rig 23 engines as described in this permit. Table 4.2 and the Emissions, Operational, Monitoring, Recordkeeping and Reporting Conditions of this permit define the specific control technology and performance standard emission limits for BACT. The BACT shall be in place, and shall be operational at all times, for the life of the project. BACT related monitoring, recordkeeping and reporting requirements are defined in those specific permit conditions.

C.2 **Fugitive Hydrocarbon Emissions Components.** The following equipment is included in this emissions unit category:

ID No.	Equipment. Item Name, Number of Component Leak Paths/item
	<i>Oil Service Components</i>
102718	Components -- Controlled (4,984 component leak paths)
102719	Components -- Unsafe (301 component leak paths)
	<i>Gas/Light Liquid Service Components</i>
102717	Components -- Controlled (1,317 component leak paths)
105826	Components -- Unsafe (116 component leak paths)

- (a) **Emission Limits:** Emissions from equipment items listed in the table above shall meet the limits listed for these items in Tables 5.1-3 and 5.1-4 of this permit. Compliance with these limits shall be assessed through compliance with the monitoring, record-keeping and reporting (MRR) conditions listed in this permit. (*Reference: OCS PTO 9109*)
- (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 the facility shall meet the following specific requirements:
- (i) The District-approved I&M Plan for Platform Houchin shall be implemented for the life of the facility. The Plan, and any subsequent District-approved revisions, is incorporated by reference as an enforceable part of this permit.
 - (ii) The total leak-path component counts listed in the facility's most recent I&M component leak-path inventory (*e.g., Avanti Report to the District dated 8/6/2001*) shall not exceed the total leak-path component counts listed in the Table above (Section 9.C.2) and the Table 5.1-1 by more than five percent.
 - (iii) All routine venting of hydrocarbons shall be routed to either the sales compressor, flare header, injection well or other District-approved control device.
(*References: District Rule 331, 40 CFR 70.6.a.3.(iii), OCS PTO 9109*)
- (c) **Monitoring:** The equipment listed in this section is subject to all the monitoring requirements listed in District Rule 331.F. The test methods in Rule 331.H shall be used, when applicable.
(*References: District Rule 331, 40 CFR 70.6.a.3.(iii)*)
- (d) **Recordkeeping:** All inspection and repair records shall be retained at the source for a minimum of five years. The equipment listed in this section is subject to all the recordkeeping requirements listed in District Rule 331.G. In addition, the facility shall do the following:

The facility shall record in a log the following:

- a record of leaking component-leak-paths found (including name, location, type of component-leak-path, date of leak detection, the ppmv reading, date of repair attempt, method of detection, date of re-inspection and ppmv reading after leak is repaired);
- a record of the total component leak paths inspected and the total number and percentage found leaking by component-leak-path type;

- a record of leaks from critical component-leak-paths;
- a record of leaks from component-leak-paths that incur five repair actions within a continuous 12-month period;
- a record of component-leak-path repair actions including dates of component-leak-path re-inspections; and
- calibration records of Organic Vapor Analyzer including dates and methods of calibration and repair

[References: District Rule 331]

- (e) **Reporting:** The facility shall report to the District all information required under the *Semi-Annual Compliance Verification Report* condition of this permit (see permit condition 9.C.17).

[References: 40 CFR 70.6(a)(3), OCS PTO 9109 and District Rule 331]

C.3 Crew and Supply Boats. The crew boat is diesel-powered, equipped with three (3) 600 hp main engines, one (1) 39 bhp auxiliary engine and one (1) 48 bhp auxiliary engine. The supply boat engine data corresponds to a diesel-powered boat, equipped with two (2) 1125 bhp main engines, two (2) 230 bhp auxiliary engines and one (1) 230 bhp bow thruster engine. The following equipment are included in this category:

ID No.	Equipment Name and Description
<i>Crew Boat</i>	
113881	Crew Boat Main Engines (3), 600 hp each - Controlled
105141	Crew Boat Main Engines – Uncontrolled
113882	Crew Boat Auxiliary Engine - 90 bhp
<i>Supply Boat</i>	
105140	Supply Boat Main Engines (2), 1,125 hp each – Controlled
005484	Supply Boat Main Engines – Uncontrolled
005485	Supply Boat – Auxiliary Engines (2), 230 hp each
102699	Supply Boat – Bow Thruster Engine (1), 230 hp
<i>Emergency Response Boat</i>	
005487/105827	Emergency Response Main/Aux Engines

- (a) **Emission Limits:** The facility shall comply with the short term and long term mass emission rate limits in Tables 5.1-3 and 5.1-4. Compliance with the quarterly and annual mass emission limits for the main engines on the combined ‘controlled crew and supply boats and spot charter crew and supply boats’ shall be based on the subtotal emission limits in Table 5.1-4. Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit. The facility shall also comply with the following:

NO_x Emissions - Controlled emissions of NO_x from each diesel fired main engine in each controlled crew boat and each controlled supply boat shall not exceed 337 lb/1000 gallons (8.4 g/bhp-hr). Controlled emissions of NO_x from each diesel fired main engine and auxiliary in each controlled emergency boat shall not exceed 271 lb/1000 gal (6.76 g/bhp-hr) and 202 lb/1000 gal (5.04 g/bhp-hr), respectively. These values for controlled emission factors shall be used *for all emissions reporting*. Spot charter crew and supply boats shall not be required to comply with this controlled NO_x emission rate. Compliance shall be based on annual source testing of the crew and supply boat main engines consistent with the requirements listed in Table 4.1 and the Source Testing permit Condition 9.C.15 of this

permit. (*Reference: OCS PTO 9108, ATC 13966, BMRP Update on 2 July 1998 per POO-LLC Request to District*)

- (b) Operating Limits: Facility 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) *Fuel Use*:
- The combined controlled and spot charter supply boat main engines shall not use more than: 973 gallons per day; 24,333 gallons per quarter; 97,418 gallons per year of diesel fuel.
 - The supply boat auxiliary engines shall not use more than: 166 gallons per day; 3,745 gallons per quarter; 14,966 gallons per year of diesel fuel.
 - The supply boat auxiliary engines shall not use more than: 166 gallons per day; 3,745 gallons per quarter; 14,966 gallons per year of diesel fuel.
 - The emergency response boat engines shall not use more than: 12,500 gallons per quarter; 50,000 gallons per year of diesel fuel. Facility allocation of allowable emergency response boat fuel usage shall not exceed: 1,137 gallons per quarter; 4,546 gallons per year of diesel fuel.
 - The combined controlled and spot charter crew boat main engines shall not use more than: 788 gallons per day; 32,899 gallons per quarter; 129,980 gallons per year of diesel fuel
 - The crew boat auxiliary engines shall not use more than: 25 gallons per day; 941 gallons per quarter; 3,762 gallons per year of diesel fuel.
- (ii) *Crew and/or Supply Boat Use* – The crew, supply and spot charter boats shall be for the activities specified in Sections 2.2.3 and 2.2.4. Any boats used for or in support of activities not specified in Section 2.2.3 or 2.2.4 of this PTO will be considered as new projects, and the boat emissions associated with such projects will be considered in the project potential to emit.
- (iii) *Spot Charter Boat Use* – The number of allowable annual spot charter crew boat trips shall not exceed ten percent of the actual annual number of trips made by the controlled (i.e., primary, see Section 4.5) crew boat. 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, see Section 4.5) supply boats. A trip is defined as any time the boat makes a trip from the port to the platform and back (i.e., a round trip).
- (iv) *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 each engine or any fuel tank directly attached to each engine.
- (v) *New/Replacement Boats* – The facility may utilize any new/replacement project boat without the need for a permit revision if that boat meets the following conditions:
- (a) The main engines are of the same or less bhp rating; and
 - (b) 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

- (c) The NO_x, ROC, CO, PM and PM₁₀ emission factors are the same or less for the main and auxiliary engines. For the crew boat main engines, NO_x emissions must meet the 337 lb/1000 gallons emission standard. For the emergency boat main and auxiliary engines, NO_x emissions must meet the 271 lb/1000 gallons and 202 lb/1000 gallons emission standards, respectively.

The above criteria also apply to spot charter boats, except for the NO_x emission standard noted in (c) above. Any proposed new/replacement crew, supply or spot charter boat that does not meet the above requirements (a) - (c) 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_x emission standard.

The facility 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 the facility 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/re-submittal of the boat plan.

Prior to bringing the boat into service for the first time, the facility shall submit the information listed below to the District for any new/replacement crew and supply boat that meets the requirements set forth in (a) - (c) above, and for new spot charters that have not been previously used by platforms Hogan and Houchin. For spot charters, this information shall be submitted within thirty (30) calendar days after the boat is first brought into service. The facility shall notify the District Project Manager (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.

- (i) Boat description, including the type, size, name, engine descriptions and emission control equipment.
- (ii) Engine manufacturers' data on the emission levels for the various engines and applicable engine specification curves.
- (iii) A quantitative analysis using the operating and emission factor assumptions given in tables 5.1-1 and 5.1-2 of this permit that demonstrates criteria (b) above is met.
- (iv) Estimated fuel usage within 25-miles of Platform Hogan/Houchin.
- (v) 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.

(Reference: OCS PTO 9109, ATC 13671, 40 CFR 70.6 (a)(3)(b))

- (c) **Monitoring:** The facility shall adhere to the guidelines of the District's *Data Reporting Protocol for Crew and Supply Boat Activity Monitoring* document (June 21, 1991) in order to document and report boat activity, fuel usage and emissions associated with the platform — via a *Boat Monitoring and Reporting Plan* or any of its updates.
- (i) The facility shall comply with the provisions of their District-approved *Boat Monitoring and Reporting Plan* (May 1998) and any subsequent approved updates.
 - (ii) The data collected under the *Boat Monitoring and Reporting Plan* shall demonstrate that the boats are being operated consistent with the emission assumptions used in the issuance of this operating permit. Fuel use for all the engines must be collected while the boats are within 25-miles of the platform. 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.
 - (iii) The facility shall log in data on injector timing, setting adjustments, major engine overhauls, and routine engine maintenance for the boat engines.
(Reference: OCS PTO 9109)
- (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. For each main and auxiliary engine with timing retard, a District Form – 10 (IC Engine Timing Certification Form) must be completed each time the engine is serviced with a timing change. These logs and summaries shall be made available to the District upon request.
 - (ii) *Crew Boat Fuel Usage* - Daily, quarterly and annual fuel use for the crew boat main engines and auxiliary engines.
 - (iii) *Supply Boat Fuel Usage* - Daily, quarterly and annual fuel use for the supply boat (or for the crew boat when it is used as supply boat) main engines, generator engine and bow thruster engine.
 - (iv) *Spot Charter Usage* – Cumulative number of trips for the calendar year.
 - (v) *Emergency Response Boat Fuel Usage* - Total quarterly and annual fuel use for the emergency response boat and Platform Houchin's allocation of that total.
 - (vi) *Diesel Fuel Sulfur* - The facility shall maintain documentation of the sulfur content of each diesel fuel shipment as certified in the fuel suppliers billing vouchers.
 - (vii) In addition to the recordkeeping requirements of the approved *Boat Monitoring and Reporting Plan*, the following log shall be maintained and shall be provided to the District in the semi-annual `Compliance Verification Reports:
 - The number of boat trips made by the primary crew and supply boats, itemized by the date of the trip and the boat name.

- The number of boat trips made by the spot-charter crew and supply boats, itemized by the date of the trip and the boat name.

[References: 40 CFR 70.6(a)(3), and OCS PTO 9109]

- (e) **Reporting:** The facility shall report to the District all information required under the *Semi-Annual Compliance Verification Report* condition of this permit (see permit condition 9.C.17).
[References: 40 CFR 70.6(a)(3), and OCS PTO 9109]

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

ID No.	Name, Serial No., if applicable, size, events/week, release pressure
102707	Oil launcher: 5 acf volume; 165 launches/yr.; release pressure 5 psig

- (a) **Emission Limits:** Mass emissions for the equipment item (i.e., emissions unit) shall not exceed the values listed in Tables 5.1-3 and 5.1-4. Compliance with these limits is assumed to be met through compliance with the operating limit and monitoring condition listed below.
- (b) **Operational Limits:** Operation of the equipment listed in this section shall conform to the requirements listed in District Rule 325.E. In addition, the facility shall meet the following requirements:

Openings – Access openings to the oil pig launcher shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the launcher. The gas pig launcher unit shall be locked out of service.

Events – The number of oil and gas pig operations (events) shall not exceed the maximum operating schedule listed in Table 5.1-1.

- (c) **Monitoring:** The facility shall maintain a log for oil pigging operations. The log shall include the date each pigging operation occurred.
- (d) **Recordkeeping:** The facility shall keep a written record of all pigging operations at the facility pursuant to Condition 9.C.4.(c) above. This record shall contain all permit-required pigging operations data including operations data extending back to five years from the last pigging operation date.
- (e) **Reporting:** The facility shall report to the District all information required under the *Semi-Annual Compliance Verification Report* condition of this permit (see permit condition 9.C.17).
(Reference: 40 CFR 70.6.(a).(iii), OCS PTO 9109)

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

ID No.	Equipment Name; Serial #, if applicable, Capacity, size
102721	Deck drain sump tank, surface area 18 sq.ft.; vents to atmosphere
005491	Settling sump tank, surface area 108 sq.ft.; vents to atmosphere

- (a) **Emission Limits:** Mass emissions for the equipment item (i.e., emissions unit) shall not exceed the values listed in Tables 5.1-3 and 5.1-4. Compliance with these limits is assumed to be met through compliance with the monitoring condition listed below.

- (b) **Monitoring:** The equipment listed in this section shall be subject to all the monitoring requirements of District Rule 325.H. The test methods outlined in District Rule 325.G shall be used, when applicable.
- (c) **Recordkeeping:** The equipment listed in this section is subject to all the recordkeeping requirements listed in District Rule 325.F
- (d) **Reporting:** The facility shall report to the District all information required under the *Semi-Annual Compliance Verification Report* condition of this permit (see permit condition 9.C.17). (Reference: 40 CFR 70.6.(a).(iii), OCS PTO 9109)

C.6 **Combustion Equipment - Flare.** The following equipment are included in this emissions unit category:

ID No.	Name
111640	Production Flare

- (a) **Emission Limits:** Mass emissions from the flare system listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:**
 - (i) *Flaring Volumes* - Flaring volumes from the flare pilots, planned-other, and unplanned events shall not exceed the volumes in Table 5.1-1.
 - (ii) *Ignition System* - The outlet shall be equipped with an automatic ignition system including a pilot-light gas source or equivalent system, or, shall operate with a pilot flame present at all times - with the exception of purge periods for automatic-ignition equipped flares or thermal oxidizers.
 - (iii) *Flame Monitoring* - The presence of the flame in the pilot of the flare shall be continuously monitored using a thermocouple or an equivalent device that detects the presence of a flame.
 - (iv) *Flame Operation* - The flame shall be operating at all times when combustible gases are vented through the flare.
 - (v) *Purge Gas* - Only an inert gas shall be used as purge gas.
 - (vi) *Flare Fuel Gas Sulfur Limit* - The sulfur content of produced gas combusted in the pilot and during flaring events shall not exceed 15 gr/100 scf (239 ppmv) total sulfur calculated as hydrogen sulfide at standard conditions. Planned flaring is defined in District Rule 359. Compliance shall be based on annual lab analyses. The operator shall perform additional testing/analyses of the sulfur content, using approved test methods, as requested by the District. The operator shall submit all such lab analyses reports to the District.
- (c) **Monitoring:** The following monitoring conditions apply to the flare system:
 - (i) *Flare Volumes* - The volumes of gas flared shall be monitored by use of the District-approved flare flow meter. The equipment shall be operated in accordance with the

District-approved *Flare Process Monitor and Calibration Plan*, which is incorporated by reference as an enforceable part of this permit.

- (ii) *Purge and Pilot Volumes*: The volume of purge and pilot gas shall be monitored by use of a District approved flow meter. The equipment shall be operated in accordance with the District-approved *Flare Process Monitor and Calibration Plan*, which is incorporated by reference as an enforceable part of this permit.
 - (iii) *Sulfur Content* – For each flare event *lasting more than one hour*, the H₂S concentration of the flared gas shall be measured by detection tube. The operator shall perform additional testing of the sulfur content, using approved test methods, as requested by the District. The operator shall submit all such lab analyses reports to the District.
- (d) Recordkeeping: The following recordkeeping conditions apply to the flare system:
- (i) *Flare Volumes* - All flaring events shall be recorded in a log. The log shall include: date; duration of flaring events (start and stop times); quantity of gas flared; reason for flaring events; and the type of event (e.g., planned or unplanned).
 - (ii) *Sulfur Content* - A log of the total sulfur content of gas combusted during flaring events shall be maintained.
 - (iii) All requirements of District Rules 331.G and 359.G.
- (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 Rules 359 and 1303, 40 CFR 70.6*)

C.7 **Solvent Usage.** The following emissions unit is included in this category:

ID No.	Emissions Unit Name
102725	Cleaning/Degreasing

- (a) Operational Limits: The facility shall use no more than 500 gallons/year of solvents. In addition, the facility shall comply with the requirements listed below for all solvent usage:
- (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* - The facility may submit a Plan to the District for the disposal of any reclaimed solvent. If the Plan is approved by the District, all solvent disposed of pursuant to the Plan will not be assumed to have evaporated as emissions into the air and, therefore, will not be counted as emissions from the source. The facility shall obtain District approval of the procedures used for such a disposal Plan. The Plan shall detail all procedures used

for collecting, storing, and transporting the reclaimed solvent. Further, the ultimate fate of these reclaimed solvents must be stated in the Plan.

- (b) Recordkeeping: The facility shall record in a log the following on a monthly basis:

For each solvent used:

- (i) Amount used;
- (ii) The percentage of ROC by weight (as applied);
- (iii) The solvent density;
- (iv) The amount of solvent reclaimed for District-approved disposal; whether the solvent is photochemically reactive; and
- (v) The resulting emissions to the atmosphere in units of pounds per month and pounds per day (computed based on monthly emissions divided by the number of days in that month). Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location on the platform. All applicable logs and MSDS data must be retained for a minimum of five years from the date of the last use of the solvent(s) concerned.

For each coating used:

- (i) Coating type and manufacturing ID;
- (ii) The ROC content as applied; and
- (iii) The resulting emissions to the atmosphere in pounds per month.

- (c) Reporting: The facility shall report to the District all information required under the *Semi-Annual Compliance Verification Report* condition of this permit (see Condition 9.C.17). (*Reference: 40 CFR 70.6.(a).(iii), OCS PTO 9109*)

C.8 **Facility Throughput Limitations.** Platform Houchin production shall be limited to 15,000 barrels of oil emulsion and 15 million standard cubic feet of produced gas per day, averaged on a monthly basis. The facility shall record in a log the volumes of crude oil, produced water 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. (*Reference: OCS PTO 9109*)

C.9 **Produced Gas.** The facility shall direct all produced gases to the sales compressors, the flare header or other permitted control device when de-gassing, purging or blowing down any oil and gas well or tank, vessel or container that contains reactive organic compounds or reduced sulfur compounds due to activities that include, but are not limited to, process or equipment turnarounds, process upsets (e.g., well spikes), well blowdown and Bureau of Safety and Environmental Enforcement ordered safety tests. [*Reference: District Rules 325, 331, PTO 9109*]

C.10 **Abrasive Blasting Equipment.** All abrasive blasting activities performed on Platform Houchin shall comply with the requirements of the California Administrative Code Title 17, Sub-Chapter 6, Sections 92000 through 92530, and with all applicable District Rules approved by the USEPA under the State Implementation Plan (SIP). [*Reference: PTO 9109*]

C.11 **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, the facility shall implement manufacturer recommended operational and maintenance procedures to ensure that all diesel-fired engines at the platform minimize particulate emissions. The facility shall implement

their District-approved *IC Engine Particulate Matter Operation and Maintenance Plan* (May 23, 2002 and all District-approved updates thereof) for the life of the project. All diesel-fired engines at the platform, regardless of exemption status, shall be included in this Plan. [Reference: District Rules 205.A, 302, 304, 309, PTO 9109]

- C.12 **Visible Emissions Rule Compliance for Diesel Fueled IC Engine(s).** The facility shall not discharge any visible emissions into the atmosphere from its IC engines for a period or periods aggregating more than three minutes in any one hour. Once per calendar quarter, the facility shall perform a visible emissions observation for a six-minute period on each permitted and exempt engine when operating. If an engine does not operate during a calendar quarter, no monitoring is required. Visible emission observations shall be documented using a District-approved Visible Emissions Recordkeeping Log. If no visible emissions are detected during the six-minute observation period, no further monitoring is required. If visible emissions are detected during the six-minute period, then the visible emission inspection shall continue in accordance with the "Monitoring Procedure" listed below.

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

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

- C.13 **Process Monitoring Systems - Operation and Maintenance.** All platform process monitoring devices listed in Section 4.11 of this permit shall be properly operated and maintained according to the District-approved *Process Monitor Calibration and Maintenance Plan* as approved by the District in July 2014 (and any subsequent District-approved updates). (Reference: PTO 9109).

- C.14 **Process Stream Sampling and Analysis.** The facility shall sample and analyze the process streams listed in Section 4.12.2 of this permit according to the methods and frequency detailed in that Section. All process stream samples shall be taken according to District approved ASTM methods and must follow traceable chain of custody procedures. Notwithstanding the above, sampling and analysis of the process streams listed in Section 4.12.2 is not required in any reporting period during which no oil or gas processing occurred at the Platform. (Re: District Rules 325, 331, 333, PTO 9109)

- C.15 **Source Testing.** The following source testing provisions shall apply:

- (i) The facility shall conduct source testing of air emissions and process parameters listed in Section 4.12 and 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 North Crane engine shall be performed on a biennial schedule using October 2001 as the initial test date. Source testing of the Well Service Rig engine shall be performed biennially, using December 2008 as the initial test date. The crane and rig engines shall be loaded to the maximum safe load obtainable. Source testing of one crew boat and one supply boat shall occur on an annual basis, and testing shall be completed by December 31 each year. The crew and supply boat main engines shall be tested at normal cruise speeds (minimum of 70% of maximum engine load). Notwithstanding the above, a source test shall not be required for equipment that is documented to be in an out-of-service status and is not operational at the time of source testing. However, when such equipment becomes operational, a source test shall be performed within 30 calendar days of start-up.

- (ii) Source testing for the Drill Rig 23 engines shall be required for NO_x, CO, and ROC if the result from a portable analyzer reading (required by Condition 9.C.1.(c)(ix) of this permit) exceeds a threshold of 223 ppmvd NO_x @ 15% O₂ as required by BACT, unless compliance with this threshold is demonstrated by a retest within 15 days of the initial reading. A source test shall be conducted within 60 days of the initial over-the-threshold reading if triggered by this criteria. If source testing of the engine demonstrates compliance with the NO_x, CO, and ROC emission limits specified in by Condition 9.C.1.(a)(ii) of this permit, the engine shall not be subject to another source test for two years from the date of the initial compliant source test. After two years, source testing may again be triggered based on the result of a portable analyzer reading, unless compliance is demonstrated by a retest within 15 days of the initial reading. If the engine does not demonstrate compliance with the NO_x, CO, and ROC emission limits specified in Condition 9.C.1.(a)(ii) of this permit in any source test, it shall be source tested every two years thereafter.
- (iii) If requested in writing by the District, a source test for the Drill Rig 23 engines for PM shall be conducted within 60 days of the written request. The PM emission rate from the engine shall be determined using EPA Method 5 or a District-approved alternate method. The source test may demonstrate compliance with the permitted PM emission limit directly by sampling at the outlet of each engine exhaust. Source testing shall be conducted at typical engine operating conditions.
- (iv) The facility shall submit a written source test plan to the District for approval at least thirty (30) calendar 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 facility 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.
- (v) 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. 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. 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. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without District's prior authorization, except in the case of an emergency, shall constitute a violation of this permit. If a test is postponed due to an emergency, written documentation of the emergency event shall be submitted to the District by the close of the business day following the scheduled test day.

- (vi) 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 demonstrate compliance with emission rates in Section 5 and applicable permit conditions. All District costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by the facility as provided for by District Rule 210. The timelines in (ii), (iii), and (iv) 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.

[Reference: PTO 9109, ATC/PTO 13575, 40 CFR 70.6(a)(3)]

- C.16 **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 9109, 40 CFR 70.6]

- C.17 **Semi-Annual Compliance Verification Reports.** Twice a year, the facility shall submit a compliance verification report to 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. The second report shall cover calendar quarters 3 and 4 (July through December) and shall be submitted no later than March 1. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit (if applicable for that quarter). These reports shall be in a format approved by the 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.*

- (1) The daily and annual computed fuel use for each pedestal crane engine in units of gallons [Ref: Condition 9.C.1.(c) (iv)].
- (2) The monthly and cumulative annual hours of operation for the emergency firewater pump, the emergency generator, and the South Crane engine (by ID numbers or Serial Numbers).
- (3) The number of operating hours each day and total days of operation throughout the month for each drill rig engine, separately. In addition, the cumulative total annual hours for each drill rig engine.
- (4) The total amount of diesel fuel combusted in each drill rig engine on a daily, monthly and annual basis in units of gallons.

- (5) All records of required biennial fuel meter calibrations.
- (6) Results of the Rule 333 portable NO_x analyzer readings.
- (7) A statement that all fuel delivered to the boats or the platform was ultra-low sulfur diesel. The District may request the records per condition 9.C.1.(c)(v).
- (8) On an annual basis, the heating value of all diesel fuel, in units of Btu/gal.
- (9) Summary results of the most recent compliance emission source testing performed.
- (10) A log for any engine subject to 40 CFR 63 Subpart ZZZZ that had a malfunction. The log shall include the date, number, duration, and a brief description for each type of malfunction that occurred and what caused or may have caused any applicable emission limitation to be exceeded. The log must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with 40 CFR 63 Subpart ZZZZ §63.6605(b), including actions taken to correct a malfunction.
- (8) Records of maintenance conducted pursuant to 40 CFR 63 Subpart ZZZZ.

(b) *Fugitive Hydrocarbons.*

[Rule 331 fugitive hydrocarbon I&M program data (summarized on a quarterly basis)]:

- (1) Inspection summary.
- (2) Record of leaking components.
- (3) Record of leaks from critical components.
- (4) Record of leaks from components that incur five repair actions within a continuous 12-month period.
- (5) Record of component repair actions including dates of component re-inspections.
- (6) An updated FHC I&M inventory due to change in component list or diagrams.
- (7) Listing of components installed as BACT under District Rule 331 as approved by the District.

(c) *Crew and/or Supply Boats.*

- (1) Daily, quarterly and annual fuel use for the crew boat main engines and auxiliary engines while operating within 25 miles of Platform Houchin, itemized by controlled boat usage and uncontrolled boat usage.
- (2) Daily, quarterly and annual fuel use for the supply boat main engines and auxiliary engines (including the bow thruster engine) while operating within 25 miles of Platform Houchin, itemized by controlled boat usage and uncontrolled boat usage.
- (3) The sulfur content of diesel fuel used by the crew and/or supply boats (the latest dealer certification will be acceptable).
- (4) Information regarding any new project boats servicing the platforms as detailed in Permit Condition 9.C.3(c) above.
- (5) 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.
- (6) Summary results of all compliance emission source testing performed.
- (7) Any helicopter trips (by type and trip segments with emission calculations) to transport facility personnel assisting facility operations.

- (8) Fuel Use by ‘spot charter’ crew/supply boats and this number as a percentage compared to the stationary source’s total crew and/or supply boat fuel use.
- (d) *Pigging.*
 - (1) For each pig receiver and launcher, the number of pigging events per day, quarter and year.
- (e) *Tanks/Sumps/Separators.*
 - (1) On a monthly basis, the crude oil, produced water and produced gas production along with the number of days per month of production.
 - (2) Process stream analyses data as required by the *Process Stream Sampling and Analysis* permit condition No. 9.C.14 above (see also Section 4.12.2 of the permit).
- (f) *Production Flare.*
 - (1) The volumes of gas combusted and resultant mass emissions for each flare category (i.e., pilot, planned – other, or unplanned), shall be presented as a cumulative summary for each quarter and year.
 - (2) The hydrogen sulfide concentration for each flare event lasting more than one hour.
- (g) *Solvent Usage.*
 - (1) On a monthly basis: the amount of solvent used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed; whether the solvent is photochemically reactive; and, the resulting emissions of ROC and photochemically reactive solvents to the atmosphere in units of pounds per month.
- (h) *General Reporting Requirements.*
 - (1) On quarterly basis, the emissions from each permitted emission unit for each criteria pollutant.
 - (2) On quarterly basis, the emissions from each exempt emission unit for each criteria pollutant.
 - (3) A summary of each and every occurrence of non-compliance with the provisions of this permit, District rules, and any other applicable requirement.
 - (4) Breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence
 - (5) Helicopter trips, if any, (by type and trip segments with emission calculations)
 - (6) On an annual basis, the ROC and NO_x emissions from all permit exempt activities.
 - (7) 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).
 - (8) A copy of the Rule 202 De Minimis Log for the stationary source, summarized bi-annually.

[Re: District Rule 212, 40 CFR 70.6, PTO 9109, PTO 9109-01, ATC 9556, ATC 10367-02]

C.18 **Permitted Equipment.** Only those equipment items listed in Attachment 10.4 are covered by the requirements of this permit and District Rule 201.B. [Re: District Rule 1303, PTO 9109]

- C.19 **Mass Emission Limitations.** Mass emissions for the entire facility shall not exceed the total limits listed in Table 5.2. [Re: District Rule 1303, PTO 9109, ATC 10357-02, 40 CFR 70.6]
- C.20 **Documents Incorporated by Reference.** The documents listed below, including any District-approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition for this operating permit:
- (a) *Boat Monitoring and Reporting Plan for Platform Houchin* (approved February 20, 2014).
 - (b) *Flare Minimization Plan* (approved February 21, 2014).
 - (c) *Flare Process Monitor Calibration Plan* (submitted February 21, 2014).
 - (d) *Diesel ICE Particulate Matter Operation and Maintenance Plan* (submitted May 22, 2002).
 - (e) *Fuel Use Monitoring Plan* (submitted May 22, 2002).
 - (f) *Fugitive Emission Monitoring Plan* (approved February 3, 1999)
 - (g) *Rule 333 Inspection and Maintenance Plan* (approved October 21, 2014)
 - (h) *Rule 333, Section F – Inspection and Maintenance Plan* (approved June 2009)
 - (i) *Process Monitor Calibration and Maintenance Plan* (approved July 2002)
 - (j) *Data Reporting Protocol for Crew /Supply Boat Activity Monitoring* (approved July 2002)
 - (k) *Rig 23 Engine I&M Plan* (approved October 7, 2012)

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.

- D.1 **California Administrative Code Title 17 Section 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. The crew and supply boat engines shall comply with the following ATCM requirements:

- (1) Only CARB ultra-low sulfur (0.0015%) diesel shall be burned in the engines onboard the vessel.
- (2) Hour meters shall be installed and operated on each diesel engine.

In addition, the ATCM requires that all newly acquired engines on the crew and supply vessels, or any newly acquired crew or supply vessels, shall adhere to the Tier standards as specified in the California Code of Regulations Section 9.118.5 Airborne Toxic Control Measure for Commercial Harbor Craft.

D.2 External Combustion Units - Permits Required.

- (1) An ATC/PTO permit shall be obtained prior to installation of any grouping of Rule 360 applicable boilers or hot water heaters whose combined system design heat input rating exceeds 2.000 MMBtu/hr.
- (2) An ATC permit shall be obtained prior to installation, replacement, or modification of any existing Rule 361 applicable boiler or water heater rated over 2.000 MMBtu/hr.
- (3) An ATC shall be obtained for any size boiler or water heater if the unit is not fired on natural gas or propane except as provided for by District Rule 202.L.15 and L.16.

AIR POLLUTION CONTROL OFFICER

Date

NOTES:

- (a) This permit supersedes PTO 9109-R4, Trn O/O 9109-01 and PTO Mod 9109-04
- (b) District Permit to Operate 9109 Reevaluation Due Date: April 2023
- (c) Part 70 Operating Permit 9109 Expiration Date: April 2023

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10.0 Attachments

10.1 *Emission Calculation Documentation*

10.2 *Fee Calculations*

10.3 *IDS Database Emission Tables*

10.4 *Equipment List*

10.5 *Insignificant Activities List*

10.1 EMISSION CALCULATION DOCUMENTATION - PLATFORM HOUCHIN:

This attachment contains all relevant emission calculation documentation used for the emission tables in Section 5. Refer to Section 4 for the general equations. Detailed calculation spreadsheets are attached in Section 10.2, where necessary. The letters A-H refer to Tables 5.1-1, 5.4-1, and 5.1-2.

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 = 18,753 Btu/lb. (132,075 Btu/gal)
 - HHV = 19,878 Btu/lb. (140,000 Btu/gal)
- BSFC = 7,180 Btu/bhp-hr (230 bhp North Crane engine)
 - energy based value-using LHV
 - Detroit Diesel 6-71 engine specification basis = 0.390 lb./bhp-hr
- BSFC = 7,272 Btu/bhp-hr (230 bhp well kill pump engine)
 - energy based value using LHV
 - Detroit Diesel 8-71 engine specification basis = 0.395 lb./bhp-hr
- BSFC = 7,548 Btu/bhp-hr (99 bhp South Crane engine)
 - energy based value using LHV
 - Detroit Diesel 3-71 (N-60) engine specification basis = 0.410 lb./bhp-hr
- BSFC = 8,581 Btu/bhp-hr (510 bhp emergency generator engine)
 - energy based value using LHV
 - Caterpillar D-379 engine specification basis = 0.466 lb./bhp-hr
- BSFC = 8581 Btu/bhp-hr (2847 bhp emergency generator engine)
 - energy based value using LHV
 - Caterpillar 3516B engine specification basis = 0.334 lb./bhp-hr
- BSFC = 8,382 Btu/bhp-hr (110 bhp fire water pump engine)
 - energy based value using LHV
 - Caterpillar D-330 engine specification basis = 0.455 lb./bhp-hr
- BSFC = 8,162 Btu/bhp-hr (400 bhp Well Service Rig engine)
 - energy based value using LHV
 - Detroit Diesel 8VF 00734 engine specification basis = 0.443 lb./bhp-hr
- Emission factors units (lb./MMBtu) are based on HHV.
- FCF (LHV to HHV) value of 6% used for diesel.
- NO_x emission factors for North Crane engine and Well Service Rig engine are based on Rule 333 emission limit of 700 ppmv or 8.4 g/bhp-hr.

- NO_x emission factors for all IC engines based on USEPA AP-42, table 3.3-1 (7/93)
- Similarly, ROC, CO and PM emission factors based on USEPA AP-42, table 3.3-1 (7/93)
- SO_x emissions based on mass balance

$$\text{SO}_x \text{ (as SO}_2\text{)} = (\%S) \times (\rho_{\text{oil}}) \times (20,000) \div (\text{HHV})$$
- PM₁₀:PM ratio = 0.96; PM₁₀:PM_{2.5} ratio = 1.0; ROC:TOC ratio = 1.0
- Drill Rig 23 engine emission factors are based on USEPA Tier 3 emission standards per 40 CFR Part 89. The emission factors were converted from units of g/bhp-hr to units of lb/1000 gal using the following equation:

$$\text{EF}_{\text{lb/1000 gal}} = \text{EF}_{\text{g/bhp-hr}} \times 1/\text{CF1} \times 1/\text{BSFC} \times \text{HHV} \times 1000 \text{ gal/1000 gal}$$

where:

$\text{EF}_{\text{lb/1000 gal}}$ = emission factor in units of “lb/1000 gallons”
 $\text{EF}_{\text{g/bhp-hr}}$ = emission factor in units of “g/bhp-hr”
 CF1 = grams to pounds conversion factor (453.6 g/lb)
 BSFC = engine brake-specific fuel consumption - HHV based (Btu/bhp-hr)
 HHV = fuel higher heating value (Btu/gallon)

- The Drill Rig 23 engine NO_x BACT concentration limit in units of ppmvd @ 15% O₂ was calculated using the following equation:

$$\text{ppmvd} = [\text{EF}_{\text{g/bhp-hr}} \times \text{mv} \times 10^{12}] / [\text{F}_D \times \text{EAC} \times \text{BSFC} \times \text{CF1} \times \text{MW}_p]$$

where:

EF = pollutant emission factor (g/bhp-hr)
 mv = molar volume (379 std ft³ S/lb-mol S -- assumes std temp of 60°F)
 F_D = F-factor exhaust volume at 0% O₂ and 60°F (dscf/MMBtu)
 EAC = excess air correction (0% O₂ to 15% O₂ => EAC = 3.5424)
 BSFC = engine brake-specific fuel consumption - HHV based (Btu/bhp-hr)
 CF1 = grams to pounds conversion factor (453.6 g/lb)
 MW_p = molec. weight of pollutant (lb/lb-mol=> NO_x= 46, CO = 28, VOC=16)

$$\text{ppmvd} = \frac{[2.8 \text{ g/bhp-hr} \times 379 \text{ std ft}^3 \text{ S/lb-mol S} \times 10^{12}]}{[9080 \text{ dscf/MMBtu} \times 3.5424 \times 7100 \text{ Btu/bhp-hr} \times 453.6 \text{ g/lb} \times 46 \text{ lb/lb-mol}]}$$

$$\text{ppmvd} = 223 \text{ ppmv}$$

- North Crane engine operational limits: General Equation

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

North Crane Engine

$$Q = (7180 \text{ Btu/bhp-hr}) \times (230 \text{ bhp}) \times (1.06) \times (16 \text{ hours/day}) \div (140,000 \text{ Btu/gal})$$

$$= 200.06 \text{ gallons per day}$$

$$Q = (7180 \text{ Btu/bhp-hr}) \times (230 \text{ bhp}) \times (1.06) \times (1000 \text{ hours/yr.}) \div (140,000 \text{ Btu/gal})$$

$$= 12,503 \text{ gallons per year}$$

- All IC engines, *except the North Crane engine, drill rig engines, and the Well Service Rig engine*, are restricted to 199 hours/year.

Reference B - Fugitive Components

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

Reference C - Supply Boat

- The maximum operating schedule is in units of hours
- Supply boat engine data based on Tidewater Marine's *Toby Tide* (primary boat)
- Two 1,125 bhp main engines (i.e., 2,250 bhp), two 230 bhp auxiliary engines (i.e., 460 bhp) and one 230 bhp 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, either with one engine at full load or both engines at half load
- The District has standardized the total time a supply boat operates (per trip) within 25 miles of platform is 11 hours. A trip includes time to, from, and at the platform. This is based on a typical trip consisting of: 8 hours cruise, 2 hours maneuver and 1 hour idle. Annual supply boat usage time is based on 91 trips. Spot charter trips add 100 hours per year to the PTE.

- Main engine emission factors are based only on cruise mode values.
- Supply boat main engines achieve a controlled NO_x emission rate of 8.4 g/bhp-hr through the use of turbo-charging, enhanced inter-cooling, sea water scrubbing and 4° timing retard. This emission factor equates to 337 lb/1000 gallons.

$$EF_{NO_x} = (6.73 \text{ g/bhp-hr}) \div (0.055 \text{ gal/bhp-hr}) \times (453.6 \text{ g/lb.}) \times (1000)$$
- Spot charter supply boat usage limited to 10% of actual annual controlled supply boat usage.
- Spot charter and Emergency Response vessels are uncontrolled for NO_x.
- 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, 1500 bhp engine}
- Uncontrolled NO_x emissions from spot charter supply and emergency response boat main engines based on an emission rate of 14 g/bhp-hr. This emission factor equates to 561 lb/1000gallons:

$$EF_{NO_x} = (14 \text{ g/bhp-hr}) \div (0.055 \text{ gal/bhp-hr}) \times (453.6 \text{ g/lb.}) \times (1000)$$
- PM emission factors for the main engines are based on *Kelly, et. al.* (1981)
- PM₁₀:PM ratio = 0.96; PM₁₀:PM_{2.5} ratio = 1.0; ROC:TOC ratio = 1.0
- All SO_x emissions based on mass balance

$$SO_x \text{ (as SO}_2\text{)} = (\%S) \times (\square_{oil}) \times (20,000) \div (HHV)$$
- 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:

$$EF_{lb/1000 \text{ gal}} = (EF_{lb/MMBtu}) \div (19,300 \text{ Btu/lb.}) \times (7.05 \text{ lb./gal}) \times (1000)$$
- Spot charter engine set-up assumed to be equal to main supply boat.
- Emergency response vessel is permanently assigned to Platforms Henry, Hillhouse, A, B, C, Houchin, Hogan, Habitat, Hondo, Heritage, and Harmony. Vessel total bhp is 1,770 bhp. Short-term emissions from this vessel are not assessed. Long-term emissions are assessed equally amongst the eleven affected platforms.
- Emergency response vessel emissions calculated as an aggregate (main and auxiliary engines) using the uncontrolled supply boat emission factors. The long term hours of operating are back-calculated based on the fuel usage allocation for this platform of 4,546 gallons per year (50,000 gal/yr. basis).

$$T_{yr} = \{(4,546 \text{ gal/yr.}) \div (0.055 \text{ gal/bhp-hr} \div 1770 \text{ bhp} \div 0.65)\} = 72 \text{ hr/yr.}$$
- Main and auxiliary engine operational limits: General Equation

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

Main engines

$$Q = (0.055 \text{ gal/bhp-hr}) \times (2250 \text{ bhp}) \times (11 \text{ hours/day}) \times (0.65) \\ = 885 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (2250 \text{ bhp}) \times (275 \text{ hours/qtr}) \times (0.65) \\ = 22,121 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (2250 \text{ bhp}) \times (1101 \text{ hours/yr.}) \times (0.65) \\ = 88,562 \text{ gallons per year}$$

Auxiliary engines - Generators

$$Q = (0.055 \text{ gal/bhp-hr}) \times (460 \text{ bhp}) \times (11 \text{ hours/day}) \times (0.50) \\ = 140 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (460 \text{ bhp}) \times (250 \text{ hours/qtr}) \times (0.50) \\ = 3,163 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (460 \text{ bhp}) \times (1001 \text{ hours/yr.}) \times (0.50) \\ = 12,663 \text{ gallons per year}$$

Auxiliary engines - Bow Thruster

$$Q = (0.055 \text{ gal/bhp-hr}) \times (230 \text{ bhp}) \times (2 \text{ hours/day}) \\ = 26 \text{ gallons per day}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (230 \text{ bhp}) \times (46 \text{ hours/qtr}) \\ = 582 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) \times (230 \text{ bhp}) \times (182 \text{ hours/yr.}) \\ = 2,303 \text{ gallons per year}$$

Reference D - Crew Boat

- The maximum operating schedule is in units of hours
- Crew boat engine data based on *MV Matthew* (primary boat)
- Three 600 bhp main engines (i.e., 1,800 bhp), one 48 bhp auxiliary engine, one 39 bhp auxiliary engine
- Main engine load factor based on District *Crew and Supply Boat* study
- Crew boat auxiliary engine provides half of the total rated load
- The total time a crew boat operates (per trip) is 2.0 hours. A trip includes time to, from, and at the platform. This is based on a typical trip consisting of: 1 hour cruise, 0.5 hour maneuver, and 0.5 hour idle. Annual crew boat usage time is based on 760 trips at 2.0 hrs/trip for a total of 1,520 hours per year. Spot charter adds 152 hours per year to the PTE.
- Crew boat main engines achieve a controlled NO_x emission rate of 8.4 g/bhp-hr through the use of turbo-charging, enhanced inter-cooling, sea-water scrubbing and 4° timing retard. This emission factor equates to 337 lb/1000 gallons:

$$EF_{NOx} = (8.4 \text{ g/bhp-hr}) \div (0.055 \text{ gal/bhp-hr}) \times (453.6 \text{ g/lb.}) \times (1000)$$

- 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, 500 bhp engine}
- Uncontrolled NO_x emissions from spot charter crew boat main engines based on an emission rate of 14 g/bhp-hr. This emission factor equates to 561 lb/1000gallons:

$$EF_{NOx} = (14 \text{ g/bhp-hr}) \div (0.055 \text{ gal/bhp-hr}) \times (453.6 \text{ g/lb.}) \times (1000)$$
- PM emission factors for the main engines are based on *Kelly, et. al.* (1981)
- PM₁₀:PM ratio = 0.96; PM₁₀:PM_{2.5} ratio = 1.0; ROC:TOC ratio = 1.0
- All SO_x emissions based on mass balance

$$SO_x \text{ (as SO}_2\text{)} = (\%S) \times (\rho_{oil}) \times (20,000) \div (HHV)$$
- Auxiliary engine emission factors (uncontrolled) are based on USEPA AP-42, Table 3.3-1 (7/93). Table emission factors converted to fuel basis using:

$$EF_{lb/1000 \text{ gal}} = (EF_{lb/MMBtu}) \div (19,300 \text{ Btu/lb.}) \times (7.05 \text{ lb./gal}) \times (1000)$$
- Main and auxiliary engine operational limits: General Equation

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

Main engines

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (1530 \text{ bhp}) \times (10 \text{ hours/day}) \times (0.85) \\ &= 716 \text{ gallons per day} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (1530 \text{ bhp}) \times (418 \text{ hours/qtr}) \times (0.85) \\ &= 29,899 \text{ gallons per quarter} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (1530 \text{ bhp}) \times (1652 \text{ hours/yr.}) \times (0.85) \\ &= 118,164 \text{ gallons per year} \end{aligned}$$

Auxiliary engines - Generators

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (90 \text{ bhp}) \times (10 \text{ hours/day}) \times (0.50) \\ &= 25 \text{ gallons per day} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (90 \text{ bhp}) \times (380 \text{ hours/qtr}) \times (0.50) \\ &= 941 \text{ gallons per quarter} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) \times (90 \text{ bhp}) \times (1520 \text{ hours/yr.}) \times (0.50) \\ &= 3,762 \text{ gallons per year} \end{aligned}$$

Reference E - Pigging Equipment

- Maximum operating schedule is in units of events (e.g., thrice/week for launcher)

- Gas launcher is locked out of service. Only the oil line launcher operates.
- Pressure and temperature are assumed to be 5 psig and 100°F
- All gas in launcher blown down back into the process per POO-LLC operating procedures prior to opening the pig launcher unit.
- The $MW_{oil} = 50 \text{ lb./lb.-mol}$ for oil. (*Reference: District file data*)
- Average ROC weight percent is = 88.5 % for oil launchers [*Reference: CARB VOC Speciation Profile 297 (storage tanks) for ROC/TOC ratio of 0.885*];
- Pig vessel volume is 5 acf, as indicated in Table 5.1-1 in the PTO
- Density $\rho = (\text{pressure} \times MW) \div (R \times T)$, density of vapor remaining in the vessel (lbs. VOC/acf)
- Site-specific pigging emission factor $EF = (\rho \times \text{ROC weight \%})$, in (lb. ROC/acf-event) units
- $\rho_{oil} = (20.7 \times 50) \div (10.73 \times 560) = 0.1722 \text{ lb./cu.ft}$, density of THC vapor remaining in vessel i.e., 0.1722 lb./cubic feet TOC for oil launchers;
- $EF (\text{oil}) = 0.1722 \times 0.885 = 0.1524 \text{ lb. of ROC/acf-event}$ for oil launchers.

Reference F - Sumps/Tanks/Separators

- Maximum operating schedule is in units of hours
- There are no oil/water separators (Wemco) on Platform Houchin
- Emission calculation methodology based on the CARB/KVB report *Emissions Characteristics of Crude Oil Production Operations in California* (1/83).
- Calculations are based on surface area of emissions unit as supplied by the applicant. A control efficiency of 85% is allowed since the vessels are equipped with covers.
- All non-oil/water separator emission units are classified as secondary production and heavy oil service

Reference G - Production Flaring:

- The maximum operating schedule for production flare is in units of volume of gas flared. These maximum volumes are:
 Daily: 0.850 MMscf/day (planned)
 Daily: 0.850 MMscf/day (unplanned)
 Annual: 4.250 MMscf/yr (planned)
 Annual: 8.500 MMscf/yr. (unplanned)

Emission Factors	lb/MMBtu	Reference
NO _x	0.0680	AP-42, Table 13.5-1
ROC	0.0570	AP-42, Tables 13.5-1 & 13.5-2/District
SO _x	0.0370	Mass Balance Calculation
CO	0.3700	AP-42, Table 13.5-1
PM	0.0200	District
PM ₁₀	0.0200	District
PM _{2.5}	0.0200	District

Reference H - Paints/thinners/degreasing solvents

- Solvents are used for daily operations such as wipe cleaning or cold solvent degreasing. A low VOC cleaner, D-5, is used. Solvents used to thin surface coatings are not included in this equipment category.
- To compute ROC emissions from paints and thinners under the *worst-case scenario*, the maximum allowable ROC content in such paints/thinners (420 g/l) has been used as the emission factor for the entire group of chemicals.
- In the absence of specific permit conditions, the annual estimated use of 1,500 gallons is assumed to consist of paints and thinners alone — as the *worst-case scenario*.
- The annual use has been extrapolated to daily use numbers; thus, **the daily emissions are estimates only.**

10.2 Fee Basis

All work performed with respect to implementing the requirements of the Part 70 Operating Permit program and District permit reevaluation are assessed on a "cost reimbursement basis" pursuant to District Rules 1304.D.11 and 210.I.C.

10.3 IDS Database Emission Tables

Table 1
Permitted Potential to Emit (PPTE)

Houchin	NO_x	ROC	CO	SO_x	TSP	PM	PM_{2.5/10}	GHG
lb./day	1,503.39	143.08	388.98	0.68	111.98	109.05	109.05	83,662.4
tons/year	87.02	18.54	34.55	0.34	8.36	8.36	8.36	9,650.3

Reference: Table 5.2

Table 2
Facility Potential to Emit (FPTE)

Houchin	NO_x	ROC	CO	SO_x	TSP	PM	PM_{2.5/10}	GHG
lb./day	1,503.39	143.08	388.98	0.68	111.98	109.05	109.05	83,662.4
tons/year	87.02	18.54	34.55	0.34	8.36	8.36	8.36	9,650.3

Reference: Table 5.2

Table 3
Federal Potential to Emit

Houchin	NO_x	ROC	CO	SO_x	TSP	PM	PM_{2.5/10}	GHG
lb./day	1,503.39	112.67	388.98	0.68	111.98	110.22	110.22	--
tons/year	87.02	18.54	34.55	0.34	8.36	8.19	8.19	--

Reference: Table 5.3

Table 4
Exempt Emissions

Houchin	NO_x	ROC	CO	SO_x	TSP	PM	PM_{2.5/10}	GHG
lb./day	--	0.10	--	--	--	--	--	--
tons/year	--	0.00	--	--	--	--	--	--

Reference: Table 5.4

Table 5
Stationary Source Potential to Emit (FPTE)

	NO_x	ROC	CO	SO_x	PM	PM₁₀	PM_{2.5}	GHG
OCS Platform Hogan								
lb./day	1,268.51	119.88	297.60	0.59	96.60	93.57	93.67	59,692.7
tons/year	67.95	16.30	23.03	0.33	7.19	6.99	6.99	5,260.8
OCS Platform Houchin								
lb./day	1,503.39	143.08	388.98	0.68	111.98	109.05	109.05	83,662.4
tons/year	87.02	18.54	34.55	0.34	8.36	8.36	8.36	9,650.3
Pacific Operators – Carpinteria Stationary Source Total								
lbs./day	2,771.90	262.96	686.58	1.27	208.58	202.62	202.72	143,355.1
tons/year	154.97	34.84	57.58	0.67	15.55	15.35	15.35	14911.1

Reference: Table 5.5

10.4 Santa Barbara County Air Pollution Control District – Equipment List

PT-70/Reeval 09109 R5 / FID: 08002 Platform Houchin / SSID: 08001

A PERMITTED EQUIPMENT

1 Stationary Internal Combustion Engines

1.1 IC Engine: North Crane

<i>Device ID #</i>	004861	<i>Device Name</i>	IC Engine: North Crane
<i>Rated Heat Input</i>		<i>Physical Size</i>	230.00 Brake Horsepower
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model</i>	6-71:RA #6055c	<i>Serial Number</i>	6A-180412
<i>Location Note</i>	Platform Houchin north drill deck		
<i>Device Description</i>	Operation limited to 24 hr/day, 365 hr/qtr, 1460 hr/year. No emission controls used.		

1.2 IC Engine: Emergency Generator

<i>Device ID #</i>	004862	<i>Maximum Rated BHP</i>	510.00
<i>Device Name</i>	IC Engine: Emergency Generator	<i>Serial Number</i>	6881301
<i>Engine Use</i>		<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>		<i>Fuel Type</i>	
<i>Model</i>	D-379		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>		<i>Annual Hours</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device Description</i>	Rated bhp at 1200 rpm. Operating hours limited to 24 hr/day, 50 hr/quarter and 200 hr/year. No emission controls used.		

1.3 IC Engine: Emergency Fire Water Pump

<i>Device ID #</i>	004863	<i>Maximum Rated BHP</i>	110.00
<i>Device Name</i>	IC Engine: Emergency Fire Water Pump	<i>Serial Number</i>	85B1471
<i>Engine Use</i>		<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>		<i>Fuel Type</i>	
<i>Model</i>	D330		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>		<i>Annual Hours</i>	
<i>Location</i>	Platform Houchin south production deck		
<i>Note</i>			
<i>Device</i>	Rated BHP at 2000 rpm. Operating hours limited to 24 hr/day, 50 hr/quarter, 200		
<i>Description</i>	hr/year. No emission controls used.		

1.4 IC Engine: Well Service Rig

<i>Device ID #</i>	007108	<i>Device Name</i>	IC Engine: Well Service Rig
<i>Rated Heat Input</i>		<i>Physical Size</i>	400.00 Brake Horsepower
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model</i>	8VA163811	<i>Serial Number</i>	7087-7000
<i>Location Note</i>	Platform Houchin drill deck		
<i>Device</i>	Rated BHP at 2100 rpm. Operating hours limited to 24 hr/day, 300		
<i>Description</i>	hr/quarter, and 1200 hr/year. No emission controls used.		

1.5 Well Kill Pump

<i>Device ID #</i>	102688	<i>Device Name</i>	Well Kill Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	230.00 Brake Horsepower
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model</i>	6-71	<i>Serial Number</i>	6A227221
<i>Location Note</i>	Platform Houchin center drill deck		
<i>Device</i>	Rated BHP (max) at 2100 rpm. Operating hours limited to 24		
<i>Description</i>	hr/day, 30 hr/quarter and 200 hr/year. No emission controls used.		

2 Fixed Roof Storage Tanks

2.1 Solvent Storage

<i>Device ID #</i>	102691	<i>Device Name</i>	Solvent Storage
<i>Rated Heat Input</i>		<i>Physical Size</i>	250.00 Gallons
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin		
<i>Device</i>	D-5 (mixed) liquid stored, not connected to vapor recovery.		
<i>Description</i>			

3 IC Engine: South Crane

<i>Device ID #</i>	004860	<i>Maximum Rated BHP</i>	99.00
<i>Device Name</i>	IC Engine: South Crane	<i>Serial Number</i>	3A-72372
<i>Engine Use</i>	Mechanical Work	<i>EPA Engine Family</i>	
		<i>Name</i>	
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model Year</i>	1990	<i>Fuel Type</i>	
<i>Model</i>	3-71 (N-60)		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>		<i>Annual Hours</i>	
<i>Location</i>	Platform Houchin south drill deck		
<i>Note</i>			
<i>Device</i>	Rated BHP at 2100 rpm. Operating hours limited to 24 hr/day, 50 hr/quarter, and		
<i>Description</i>	200 hr/yr. No emissions controls used.		

4 Vapor Recovery

4.1 Vapor recovery compressor

<i>Device ID #</i>	105818	<i>Device Name</i>	Vapor recovery compressor
<i>Rated Heat Input</i>		<i>Physical Size</i>	60.00 Horsepower
<i>Manufacturer</i>	Joy	<i>Operator ID</i>	
<i>Model</i>	WB-8	<i>Serial Number</i>	85768
<i>Location Note</i>	Platform Houchin		
<i>Device</i>	This compressor is rated at 168 scfm, powered by a 60 hp electric		
<i>Description</i>	motor. Its housing/seals are not connected to any VRU.		

5 Pumps

5.1 Sump Pump #2

<i>Device ID #</i>	102695	<i>Device Name</i>	Sump Pump #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Crane Deming	<i>Operator ID</i>	
<i>Model</i>	4521	<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Submersible pump pumps oil/water, rated capacity 100 gpm,		
<i>Description</i>	powered by 5 hp electric motor.		

5.2 Diesel Transfer #1

<i>Device ID #</i>	102696	<i>Device Name</i>	Diesel Transfer #1
<i>Rated Heat Input</i>		<i>Physical Size</i>	6.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Teco	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Pumps diesel, rated capacity 9 gpm, powered by 6 hp electric		
<i>Description</i>	motor. Utilizes dual seals.		

5.3 Sump Pump #1

<i>Device ID #</i>	102694	<i>Device Name</i>	Sump Pump #1
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Crane Deming	<i>Operator ID</i>	
<i>Model</i>	4521	<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Submersible pump pumps oil/water, rated capacity 100 gpm,		
<i>Description</i>	powered by 5 hp electric motor.		

5.4 Diesel Transfer #2

<i>Device ID #</i>	102697	<i>Device Name</i>	Diesel Transfer #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	6.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Teco	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Pumps diesel, rated capacity 9 gpm, powered by 6 hp electric		
<i>Description</i>	motor, utilizes dual seals.		

5.5 Settling Tank

<i>Device ID #</i>	102701	<i>Device Name</i>	Settling Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	5.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	P-3082-0-95-8
<i>Model</i>	3L8	<i>Serial Number</i>	AS54634
<i>Location Note</i>	Platform Houchin production deck; SW side		
<i>Device</i>	Pumps oil/water, rated capacity 200 gpm, powered by 5 hp electric		
<i>Description</i>	motor, utilizes dual seals.		

5.6 Pipeline Shipping Pump

<i>Device ID #</i>	102702	<i>Device Name</i>	Pipeline Shipping Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gasco	<i>Operator ID</i>	#1
<i>Model</i>	1743	<i>Serial Number</i>	34208
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Pumps oil/water, rated capacity 175 gpm, powered by 75 hp		
<i>Description</i>	electric motor, utilizes dual seals.		

5.7 Pipeline Pump

<i>Device ID #</i>	102703	<i>Device Name</i>	Pipeline Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gasco	<i>Operator ID</i>	#2
<i>Model</i>	1743	<i>Serial Number</i>	34201
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Pumps oil/water, rated capacity 175 gpm, powered by 75 hp		
<i>Description</i>	electric motor, utilizes dual seals.		

5.8 Pipeline Pump

<i>Device ID #</i>	102704	<i>Device Name</i>	Pipeline Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	100.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gasco	<i>Operator ID</i>	#3
<i>Model</i>	1742	<i>Serial Number</i>	34202
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Pumps oil/water, rated capacity 128 gpm, powered by 100 hp		
<i>Description</i>	electric motor, utilizes dual seals.		

5.9 Pipeline Pump

<i>Device ID #</i>	102705	<i>Device Name</i>	Pipeline Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	75.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Gasco	<i>Operator ID</i>	#4
<i>Model</i>	1743	<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Pumps oil/water, rated capacity 337 gpm, powered by 75 hp		
<i>Description</i>	electric motor, utilizes dual seals.		

5.10 Settling Tank Pump

<i>Device ID #</i>	102706	<i>Device Name</i>	Settling Tank Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	10.00 Horsepower (Electric Motor)
<i>Manufacturer</i>	Balador	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device</i>	Rated capacity 200 gpm, powered by 10 hp electric motor.		
<i>Description</i>			

6 Pigging Equipment

6.1 Oil/Water Pig Launcher

<i>Device ID #</i>	102707	<i>Device Name</i>	Oil/Water Pig Launcher
<i>Rated Heat Input</i>		<i>Physical Size</i>	6.10 Cubic Feet
<i>Manufacturer</i>	McDermott	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin east production deck		
<i>Device</i>	In oil water service, diameter, 0.83 feet, length 8 feet, diameter of		
<i>Description</i>	attached pipe 0.83 feet, length of attached pipe 3.38 feet. Not connected to gas gathering or vapor recovery.		

7 Pressure Vessels

7.1 Production Test Separator

<i>Device ID #</i>	102709	<i>Device Name</i>	Production Test Separator
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	P-3082-0-95-1
<i>Model</i>	Div.1x2910	<i>Serial Number</i>	6642
<i>Location Note</i>	Platform Houchin production mezzanine		
<i>Device</i>	Horizontal separator in testing service.		
<i>Description</i>	Diameter 6 feet, length 15 feet. Operating pressure 160-40 psig, MAWP 255 psig. Operating temperature 65 deg F. Connected to gas gathering or vapor recovery.		

7.2 Production Separator #1

<i>Device ID #</i>	102710	<i>Device Name</i>	Production Separator #1
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	P-3082-0-95-4
<i>Model</i>	Div.1x2905	<i>Serial Number</i>	6644
<i>Location Note</i>	Platform Houchin production mezzanine		
<i>Device</i>	Horizontal separator type in gas separation service, diameter 6		
<i>Description</i>	feet, length 15 feet, operating pressure 160-40 psig, MAWP 255 psig. Operating temperature 65 deg F. Connected to gas gathering or vapor recovery.		

7.3 Production Separator #2

<i>Device ID #</i>	102711	<i>Device Name</i>	Production Separator #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	P-3082-0-95-3
<i>Model</i>	Div.1x2906	<i>Serial Number</i>	6643
<i>Location Note</i>	Platform Houchin production mezzanine		
<i>Device</i>	Horizontal separator in gas separation service. Diameter 6 feet,		
<i>Description</i>	length 15 feet. Operating pressure 160-40 psig, MAWP 255 psig. Operating temperature 65 deg F. Connected to gas gathering or vapor recovery.		

7.4 Clean Up/Test Separator

<i>Device ID #</i>	102712	<i>Device Name</i>	Clean Up/Test Separator
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	
<i>Model</i>	Div.1x2903	<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production mezzanine		
<i>Device</i>	Horizontal separator in testing service. Diameter 6 feet,		
<i>Description</i>	length 15 feet. Operating pressure 160-40 psig, operating temperature 65 deg F. Connected to gas gathering or vapor recovery. PSVs vented to atmosphere.		

7.5 Surge Tank #1

<i>Device ID #</i>	102713	<i>Device Name</i>	Surge Tank #1
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	P-3082-0-95-6
<i>Model</i>	Div.1x2912	<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production mezzanine		
<i>Device</i>	Horizontal pump suction type, diameter 6 feet, length 15 feet,		
<i>Description</i>	operating pressure 80-20 psig, MAWP 138 psig. Operating temperature 65 deg F. Connected to gas gathering or vapor recovery; PSVs vent to atmosphere.		

7.6 Surge Tank #2

<i>Device ID #</i>	102714	<i>Device Name</i>	Surge Tank #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Rheem Superior	<i>Operator ID</i>	P-3082-0-95-5
<i>Model</i>	Div.1x2911	<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin production mezzanine		
<i>Device</i>	Horizontal pump suction, diameter 6 feet, length 15 feet.		
<i>Description</i>	Operating pressure 80-20 psig, MAWP 138 psig. Operating temperature 65 deg F. Connected to gas gathering or vapor recovery; PSVs vent to atmosphere.		

7.7 Vapor Recovery Scrubber

<i>Device ID #</i>	102715	<i>Device Name</i>	Vapor Recovery Scrubber
<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 Houchin production deck		
<i>Device</i>	Vertical separator in vapor compressor suction. Diameter 2		
<i>Description</i>	feet, length 5 feet. Connected to gas gathering or vapor recovery; PSVs vent to atmosphere.		

7.8 Automatic Well Tester

<i>Device ID #</i>	102716	<i>Device Name</i>	Automatic Well Tester
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Accuflow	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	00023
<i>Location Note</i>	Platform Houchin Mezzanine Deck		
<i>Device Description</i>	Multi-phase metering skid horizontal separator in testing of oil/water/gas service. Diameter 12", length 15". Operating pressure 160-40 psig, operating temperature 65 deg F. Connected to gas gathering or vapor recovery; PSVs vent to atmosphere.		

8 Fugitive HC Components - CLP

<i>Device ID #</i>	102682	<i>Device Name</i>	Fugitive HC Components - CLP
<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</i>			
<i>Description</i>			

8.1 Gas/Condensate Service Components - Accessible

<i>Device ID #</i>	102717	<i>Device Name</i>	Gas/Condensate Service Components - Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	1317.00 Component Leakpath
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Platform Houchin		
<i>Device</i>			
<i>Description</i>			

8.2 Oil Service Components - Accessible

<i>Device ID #</i>	102718	<i>Device Name</i>	Oil Service Components - Accessible
<i>Rated Heat Input</i>		<i>Physical Size</i>	4984.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Houchin		
<i>Device Description</i>			

8.3 Oil Service Components - Unsafe to Monitor

<i>Device ID #</i>	102719	<i>Device Name</i>	Oil Service Components - Unsafe to Monitor
<i>Rated Heat Input</i>		<i>Physical Size</i>	301.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Platform Houchin		
<i>Device Description</i>			

8.4 Gas/Condensate Service Components - Unsafe to Monitor

<i>Device ID #</i>	105826	<i>Device Name</i>	Gas/Condensate Service Components - Unsafe to Monitor
<i>Rated Heat Input</i>		<i>Physical Size</i>	116.00 Component Leakpath
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Platform Houchin		
<i>Device Description</i>			

9 Emergency Backup Generator (2 MW)

<i>Device ID #</i>	112995	<i>Device Name</i>	Emergency Backup Generator (2 MW)
<i>Rated Heat Input</i>		<i>Physical Size</i>	2847.00 Brake Horsepower
<i>Manufacturer Model</i>	Caterpillar 3516B	<i>Operator ID Serial Number</i>	1HZ00487
<i>Location Note</i>	Platform Hogan, Drilling Deck		
<i>Device Description</i>	This device is currently not in service. Used for drilling, if necessary		

10 Wellheads

10.1 Oil and Gas Wellheads

<i>Device ID #</i>	102720	<i>Device Name</i>	Oil and Gas Wellheads
<i>Rated Heat Input</i>		<i>Physical Size</i>	31.00 Active Wells
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Platform Houchin		
<i>Device Description</i>	No gas injection or water injection wells.		
	31 oil and gas wells : B-2A, B-1, B-3, B-4, B-8, B-9, B-11, B-12, B-13, B-15, B-16, B-17, B-18, B-19, B-21, B-27, B-28, B-29A, B-30, B-33, B-34, B-35, B-36, B-37, B-38, B-39, B-43, B-45, B-46, and B-47, B-40		
	11 plugged and abandoned wells : B-5A, B-2, B-5, B-7, B-10, B-22, B-23, B-26, B-29, B-31, and B-32.		

11 Sumps and Wastewater Tanks

11.1 Deck Sump

<i>Device ID #</i>	102721	<i>Device Name</i>	Deck Sump
<i>Rated Heat Input</i>		<i>Physical Size</i>	30.00 Square Feet Sump Area
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Platform Houchin Below production deck		
<i>Device Description</i>	Covered secondary vessel in deck drainage service, surface area 3 feet by 10 feet, not connected to vapor recovery.		

11.2 Settling Tank

<i>Device ID #</i>	005491	<i>Device Name</i>	Settling Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	108.00 Square Feet Surface Area
<i>Manufacturer Model</i>	Rheem Superior	<i>Operator ID Serial Number</i>	
<i>Location Note</i>	Platform Houchin production deck		
<i>Device Description</i>	Covered secondary vessel in storm/spill recovery service. Not connected to vapor recovery.		

12 Supply Boats

12.1 Supply Boat (basis: M/V Toby Tide)

12.1.1 Main Engines

<i>Device ID #</i>	005484	<i>Device Name</i>	Main Engines
<i>Rated Heat Input</i>		<i>Physical Size</i>	2250.00 Brake Horsepower
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2 main engines at 1125 bhp each, controlled at 8.4 g/hp-hr or 337 lb/1000 gal for NOx. Load factor is 0.65 for emission calculation		

12.1.2 Generator Engines

<i>Device ID #</i>	005485	<i>Device Name</i>	Generator Engines
<i>Rated Heat Input</i>		<i>Physical Size</i>	460.00 Brake Horsepower
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	2 generator engines at 230 bhp each, uncontrolled for NOx. The load factor for each engine is 0.50 for emission calculation.		

12.1.3 Bow Thruster Engine

<i>Device ID #</i>	102699	<i>Device Name</i>	Bow Thruster Engine
<i>Rated Heat Input</i>		<i>Physical Size</i>	230.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	1 bow thruster engine at 230 bhp. Uncontrolled for NOx. load		
<i>Description</i>	factor is 1.0 for emission calculation purposes.		

12.2 Emergency Response Boat Engines

<i>Device ID #</i>	005487	<i>Device Name</i>	Emergency Response Boat Engines
<i>Rated Heat Input</i>		<i>Physical Size</i>	1770.00
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Total engine horsepower 1770 bhp, uncontrolled for NOx.		
<i>Description</i>			

12.3 Spot Charter Boat Engines

<i>Device ID #</i>	105140	<i>Device Name</i>	Spot Charter Boat Engines
<i>Rated Heat Input</i>		<i>Physical Size</i>	2250.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Two main engines, w/horsepower = 1125 bhp each, uncontrolled		
<i>Description</i>	for NOx.		

12.4 Auxiliary Engine to Emergency Response Boats

<i>Device ID #</i>	105827	<i>Device Name</i>	Auxiliary Engine to Emergency Response Boats
<i>Rated Heat Input</i>		<i>Physical Size</i>	1005.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	The engine is uncontrolled for NOx. Load factor is 0.5 for		
<i>Description</i>	emission calculation		

13 Crew Boats

13.1 Crew Boat (basis: M/V Matthew)

13.1.1 Crew Boat Main Engines

<i>Device ID #</i>	113881	<i>Device Name</i>	Crew Boat Main Engines
<i>Rated Heat Input</i>		<i>Physical Size</i>	1800.00 Brake Horsepower
<i>Manufacturer</i>	Detroit Diesel Corp.	<i>Operator ID</i>	
<i>Model</i>	Series 60	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	- Engine Family: BDDXW14.0MLK		
<i>Description</i>	- 3 Crew Main Engines		

13.1.2 Crew Boat Auxiliary Engine #2

<i>Device ID #</i>	113883	<i>Device Name</i>	Crew Boat Auxiliary Engine #2
<i>Rated Heat Input</i>		<i>Physical Size</i>	48.00 Brake Horsepower
<i>Manufacturer</i>	Alaska Diesel Electric	<i>Operator ID</i>	
<i>Model</i>	M33C	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	- Tier 2		
<i>Description</i>			

13.1.3 Crew Boat Auxiliary Engine #1

<i>Device ID #</i>	113882	<i>Device Name</i>	Crew Boat Auxiliary Engine #1
<i>Rated Heat Input</i>		<i>Physical Size</i>	39.00 Brake Horsepower
<i>Manufacturer</i>	Alaska Diesel Electric	<i>Operator ID</i>	
<i>Model</i>	M944W3	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	- Tier 3		
<i>Description</i>			

13.2 Spot Charter Boat Engines

<i>Device ID #</i>	105141	<i>Device Name</i>	Spot Charter Boat Engines
<i>Rated Heat Input</i>		<i>Physical Size</i>	1530.00 Brake Horsepower
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Main engines (3), horsepower 510 bhp each, uncontrolled for NOx.		
<i>Description</i>	Generator engine hp = 90, also uncontrolled for NOx.		

14 Maintenance Activities

14.1 Maintenance Supply

<i>Device ID #</i>	102725	<i>Device Name</i>	Maintenance Supply
<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 Houchin		
<i>Device</i>	Coating/solvent brand name		D-5 degreaser
<i>Description</i>	Application wipe clean		
	Annual usage (gal per year)<250		
	Regulatory VOC content (g/l)		none
	ROC emission factor (lb/gal)		none
	Emission controls used? yes		
	Emission controls description none		

15 Diesel Day Tank

<i>Device ID #</i>	390367	<i>Device Name</i>	Diesel Day Tank
<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 Houchin		
<i>Device</i>	500 Gallons		
<i>Description</i>			

16 Surface Coating / Maintenance Activities

<i>Device ID #</i>	390368	<i>Device Name</i>	Surface Coating / Maintenance Activities
<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 Houchin		
<i>Device</i>	Use of paints, primers, coatings: 250 gal/year; solvents: 500 gal/year, for maintenance activities.		
<i>Description</i>			

B EXEMPT EQUIPMENT**1 Maintenance Supply**

<i>Device ID #</i>	102723	<i>Device Name</i>	Maintenance Supply
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance	
<i>Location Note</i>	Platform Houchin		
<i>Device</i>	Coating/solvent brand name	DuPont Actuator	
<i>Description</i>	Application architectural		
	Annual usage (gal per year)	100	
	Regulatory VOC content (g/l)	340	
	ROC emission factor (lb/gal)	5.5	
	Emission controls used?	yes	
	Emission controls description	HVLP/Airless or Electrostatic	

Coating/solvent brand name DuPont Primer
 Application architectural
 Annual usage (gal per year)50
 Regulatory VOC content (g/l) 350
 ROC emission factor (lb/gal) 5.5
 Emission controls used? yes
 Emission controls description HVLP/Airless or Electrostatic

Coating/solvent brand name DuPont Coating
 Application architectural
 Annual usage (gal per year)100
 Regulatory VOC content (g/l) 340
 ROC emission factor (lb/gal) 3
 Emission controls used? yes
 Emission controls description HVLP/Airless or Electrostatic

2 Diesel Day Tank

<i>Device ID #</i>	102692	<i>Device Name</i>	Diesel Day Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	500.00 Gallons
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<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>	Platform Houchin		
<i>Device Description</i>	Horizontal tank type, 5' x 7', not connected to vapor recovery.		

3 Maintenance Supply

<i>Device ID #</i>	102724	<i>Device Name</i>	Maintenance Supply
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance	
<i>Location Note</i>	Platform Houchin		
<i>Device Description</i>	Coating/solvent brand name DuPont Primer Application architectural Annual usage (gal per year)50		

Regulatory VOC content (g/l)	350
ROC emission factor (lb/gal)	5.5
Emission controls used?	yes
Emission controls description	HVLP/Airless or Electrostatic

4 Diesel Fuel Tank

<i>Device ID #</i>	102690	<i>Device Name</i>	Diesel Fuel Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	10400.00 Gallons
<i>Manufacturer</i>	McDermott	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	No. Crane Pedestal
<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>	Platform Houchin No crane pedestal		
<i>Device Description</i>	Not connected to vapor recovery.		

5 Maintenance Supply

<i>Device ID #</i>	102722	<i>Device Name</i>	Maintenance Supply
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>District Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance	
<i>Location Note</i>	Platform Houchin		
<i>Device Description</i>	Coating/solvent brand name DuPont Coating Application architectural Annual usage (gal per year)100 Regulatory VOC content (g/l) 340 ROC emission factor (lb/gal) 3 Emission controls used? yes Emission controls description HVLP/Airless or Electrostatic		

6 Diesel Fuel Tank

<i>Device ID #</i>	390366	<i>Device Name</i>	Diesel Fuel Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	10400.00 Gallons
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<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>	Platform Houchin, North Crane Pedestal		
<i>Device Description</i>			

10.5 **Insignificant Emissions Units/Activities:**

Table 10.5 below lists insignificant emission units at Platform Houchin that fall under the federal category of "insignificant emissions units/activities."

Table 10.5 List of Insignificant Emission Units and Applicable Requirements

EMISSION UNITS <i>Maintenance Activities</i>	Rule 303	Rule 317	Rule 321	Rule 323	Rule 324	Rule 505	Reg. XIII
Surface Coating: facility-wide, for equipment maintenance and for structural coating. Including solvents used for thinning and cleanup.	√	√	√	√	√	√	√