



DRAFT

**PERMIT to OPERATE No. 9112 – R3
and
PART 70 OPERATING PERMIT**

**DOS CUADRAS - SOUTH COUNTY
PLATFORM C**

**PARCEL OCS-P-0241
DOS CUADRAS FIELD
SANTA BARBARA COUNTY, CALIFORNIA
OUTER CONTINENTAL SHELF**

OPERATOR

Dos Cuadras Offshore Resources, LLC. (“DCOR”)

OWNERSHIP

**Dos Cuadras Offshore Resources, LLC.
Venoco**

**Santa Barbara County
Air Pollution Control District
April 13, 2008**

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ABBREVIATIONS/ACRONYMS

| | |
|------------------|---|
| AP-42 | USEPA's <i>Compilation of Emission Factors</i> |
| APCD | Santa Barbara County Air Pollution Control District |
| API | American Petroleum Institute |
| ASTM | American Society for Testing Materials |
| BACT | Best Available Control Technology |
| CAM | compliance assurance monitoring |
| CEMS | continuous emissions monitoring |
| CO | carbon monoxide |
| dscf | dry standard cubic foot |
| °F | degree Fahrenheit |
| gal | gallon |
| gr | grain |
| HAP | hazardous air pollutant (as defined by CAAA, Section 112(b)) |
| H ₂ S | hydrogen sulfide |
| I&M | inspection & maintenance |
| k | kilo (thousand) |
| l | liter |
| lb | pound |
| lbs/day | pounds per day |
| lbs/hr | pounds per hour |
| LACT | Lease Automatic Custody Transfer |
| LPG | liquid petroleum gas |
| M | mille (thousand) |
| MACT | Maximum Achievable Control Technology |
| MM | million |
| MW | molecular weigh |
| NEI | net emissions increase |
| NG | natural gas |
| NO _x | Oxides of nitrogen |
| NSPS | New Source Performance Standards |
| NESHAP | National Emission Standards for Hazardous Pollutants |
| O ₂ | oxygen |
| OCS | outer continental shelf |
| ppm(vd or w) | parts per million (volume dry or weight) |
| psia | pounds per square inch absolute |
| psig | pounds per square inch gauge |
| PM/PM10 | Particulate matter; Particulate matter of 10 microns or less diameter |
| PRD | pressure relief device |
| PTO | Permit to Operate |
| RACT | Reasonably Available Control Technology |
| ROC | reactive organic compounds, same as "VOC" as used in this permit |
| RVP | Reid vapor pressure |
| scf | standard cubic foot |
| scfd (or scfm) | standard cubic feet per day (or per minute) |
| SIP | State Implementation Plan |
| SO _x | Sulfur oxides |
| STP | standard temperature (60°F) and pressure (29.92 inches of mercury) |
| THC | Total hydrocarbons |
| tpy, TPY | tons per year |
| TVP | true vapor pressure |
| USEPA | United States Environmental Protection Agency |
| VE | visible emissions |
| VRS | vapor recovery system |

***Executive Summary of Revisions of PTO 9112-R2 as Introduced in
PTO 9112-R3***

1. *Ownership/Operator Change:* DCOR has partial (75%) ownership while Venoco owns 25%. The equipment is solely operated by DCOR.
2. *Equipment Changes:* The equipment list has been revised incorporating removal and consequent depermitting of a number of equipment items (*see Section 10.8 for details*).
3. *Documents Incorporated by Reference:* Seven plans which have the full force and effect of a permit condition have been incorporated in this permit and listed in the *Documents Incorporated by Reference* condition (9.C.23). Two of these Plans need to be updated within 90 days of the final Part 70 permit issuance and submitted to the APCD for approval. The Rule 333 Inspection and Maintenance Plan needs to be updated and submitted to the APCD for approval by December 19, 2008.
4. *Stainless Steel Fittings:* Stainless steel fittings, ½-inch or less in diameter, have been included in this permit, including the equipment list. ROC Emission factors for these fittings are being assessed; and the actual/allowable emissions for these fittings will be included in the next renewal permit when the factors are determined. The fittings are subject to APCD Rule 331.
5. *Caterpillar Standby Fire Water Pump:* On March 17, 2005 APCD Rule 202 {*Exemptions to Rule 201*} was revised, removing the compression-ignited engine (e.g., diesel) permit exemption for units rated over 50 brake horsepower (bhp). That exemption was removed to allow the APCD to implement the State's Airborne Toxic Control Measure for Stationary Compression Ignition Engines (DICE ATCM). On August 6, 2005 Rule 202 was incorporated into 40 CFR Part 55, such that compression-ignited engines operated in the OCS must have permits. 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 Outer Continental Shelf (OCS). Therefore the Caterpillar Standby Fire Water Pump (APCD Device 004926) is no longer permit-exempt and is listed as a permitted piece of equipment with applicable conditions included in Section 9.C.1 of this permit.
6. *Crew and Supply Boat Use:* The Crew and Supply Boat allowable use at Platform C has been clarified in Section 9.C.4.

7. *Process Stream Sampling and Analysis*: In accordance with ATC/PTO 11249, the Process Stream Sampling and Analysis condition 9.C.14 and Table 4.2 have been revised to include the methods and frequencies of sampling and analysis for the specified process streams at the platform. Therefore, the Process Stream Sampling Plan is no longer required since the process stream sampling information has instead been built into the permit.
8. *Supply Boat NOx Emission Limit*: The Supply Boat NOx emission limit has been revised in accordance with ATC/PTO 11445. This limit was increased to 5.99 g/bhp-hr for each supply boat engine, which translates to 270 lbs of NOx per 1000 gallons of fuel used for the engines. Section 9.C.4, Tables 5.1-1 through 5.1-4, 5.2, 5.3, and 5.5, and Attachment 10.1. have been revised accordingly.
9. *Combustion – Flare*: The “Planned – other” and “Unplanned” flaring quarterly emissions tables have been revised to allow the maximum annual flaring to occur in one quarter, as requested by DCOR. The annual flaring limit remains unchanged.

1.0 Introduction

1.1 Purpose

General. The Santa Barbara County Air Pollution Control District (APCD) is responsible for implementing all applicable federal, state and local air pollution requirements which affect any stationary source of air pollution in Santa Barbara County. The County is designated as an ozone nonattainment area for the state ambient air quality standards. The County is also designated a nonattainment area for the state PM₁₀ ambient air quality standard. 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 APCD's Rules and Regulations. This is a combined permitting action that covers both the Federal Part 70 permit (*Part 70 Operating Permit No. 9112*) as well as the State Operating Permit (*Permit to Operate No. 9112*).

Part 70 Permitting. This is the *third* renewal of the DCOR OCS Platform C's Part 70 operating permit based on the permit renewal requirements of the APCD's Part 70 operating permit program. It contains any new applicable requirements and all equipment changes since the last Part 70 permit issuance (see "*Preface: Executive Summary of PTO 9112- R3*" of this permit). Platform C is a part of the *Dos Cuadras - South County* stationary source (SSID = 8003), which is a major source for VOC¹, NO_x and CO. Conditions listed in this permit are based on federal, state or local rules and requirements. Sections 9.A, 9.B and 9.C of this permit are enforceable by the APCD, the USEPA and the public since these sections are federally enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. Conditions listed in Section 9.D are "APCD-only" enforceable.

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

1.2 Facility Overview

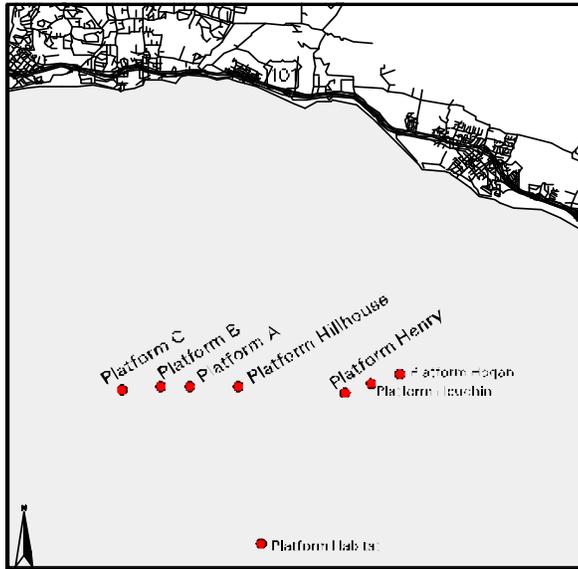
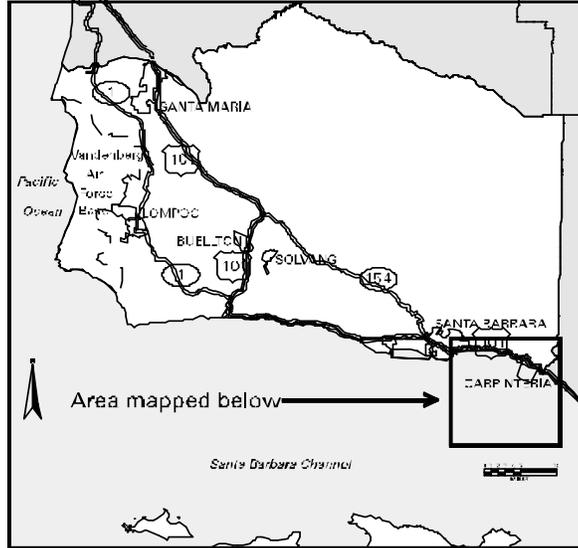
- 1.2.1 Facility Overview: Dos Cuadras Offshore Resources, LLC. ("DCOR") is the principal owner and operator of Platform C, located on offshore lease tract OCS-P-0241, approximately six miles south-southeast from the City of Santa Barbara, California (Lambert Zone coordinates x = 979,355 feet, y = 804,781 feet). Platform C is owned by the following groups: DCOR 75% and Venoco, U.S.A 25%. For APCD regulatory purposes, the facility location is in the Southern Zone of Santa Barbara County². Figure 1.1 shows the relative location of the facility within the county.

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

² APCD Rule 102, Definition: "Southern Zone"

Figure 1.1 Location Map for Platform C

Dos Cuadras - South County



Platform C (FID # 8006), a twelve leg, sixty well slot platform, was installed in a water depth of 190 feet in 1977; drilling operations began in 1977. Oil and natural gas produced from the platform are transported via two sub-sea pipelines to the Rincon Oil & Gas Plant in Ventura County for final processing. The average gravity and true vapor pressure of the produced crude oil in 2007 was 20.6° API and 1.5 psia (at 84° F), respectively. The platform was initially designed to produce 5 million standard cubic feet per day (MMscfd) of gas and 15,000 barrels per day (bpd) of wet crude oil (oil/water emulsion); in 2007, the platform's approximate production rates were 0.57 MMscfd of gas and 725 bpd of net oil. No water is produced on Platform C.

The *Dos Cuadras - South County* stationary source consists of the following 5 facilities:

- Platform A (FID=8003)
- Platform B (FID=8004)
- Platform C (FID=8006)
- Platform Hillhouse (FID=8005)
- Platform Henry (FID=8007)

Platform C consists of the following systems:

- Production wellhead and subsurface system
- Well cleanup system
- Test separation system
- Oil shipping, metering, and pipeline system
- Low pressure compression system
- Gas compression system
- Gas shipping and metering system
- Electrical system
- Safety system
- Flare relief system

The oil and gas undergo initial separation to reduce water and sediment content prior to being shipped to the Rincon facility. All equipment on Platform C, except the two pedestal cranes, standby fire water pump, and an emergency electrical generator, are powered by the SCE electric grid provided through a 34.5 kV sub-sea cable from shore.

1.2.2 Facility New Source Review Overview: Since the issuance of the initial OCS operating permit on 4 September 1994, there have been seven NSR permit actions along with three administrative permit actions and one operating permit revision. These are:

ATC/PTO Mod 9112-01: This permit added condition No. 34 (Crew and Supply Boat Stationary Source Maximum Permitted Emissions and Operational Limits). The purpose was to redefine the stationary source's annual potential to emit, which is used to determine fees for Air Quality Plans pursuant to Rule 210 (a non-SIP rule). This permit was issued on 5/96.

Change of Ownership 9112-01/02: Two ownership change notices were approved. The first one was filed on 4/15/96 changing ownership from Unocal to Torch; and, the second one was filed on 4/21/97 changing ownership from Torch to Nuevo (*Torch remained temporarily as operator*).

ATC/PTO Mod 9112-2: This revision allowed removal of the flotation cell from service and removing vapor recovery from the waste oil sump, the skimmer tank and the wastewater tank. The waste oil sump, the skimmer tank and the wastewater tank are exempt from ROC emissions control, per APCD SIP Rule 325.B.3. This permit was issued on 5/97.

ATC/PTO 10090: This permit authorized the replacement of the supply boat that serves OCS Platform C. There is no Net Emissions Increase associated with this project because the total emissions from the supply boat decrease. This permit was issued on 3/30/99.

ATC-Mod/PTO 10130-01: This permit authorized the installation of a chiller to condense ROCs and dry the sales gas in transmission pipe line. The project resulted in a ROC NEI. ATC 10130 was issued in 06/29/99; and modified to account for a clp increase and re-issued in 06/14/01.

ATC/PTO 10140: This permit authorized a change in the pigging frequency at Platform C, and revised the allowable boat fuel use. This permit was issued on 11/30/99.

Change of Partial Ownership 9112-03: A partial ownership change was approved in January 2002 transferring 25 percent partial ownership from Aera Energy to Dos Cuadras Offshore Resources LLC.

ATC/PTO 11249: This permit authorized a change in the process sampling plan requirements and clarified the uses for the crew and supply boats. This permit was issued on 3/28/05.

ATC/PTO 11445: This permit authorized a change in the NOx emission limit for supply boats. This permit was issued on 3/30/05.

Change of Operator 9112-09: An operator change was approved on 4/25/05 transferring the operator from PXP to DCOR.

1.3 Emission Sources

Air pollution emissions from Platform C are the result of combustion sources, storage tanks and piping components, such as valves and flanges. Section 4 of the permit provides the APCD's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit, the platform as a whole; it also lists the potential emissions from non-permitted emission units.

The emission sources include:

1. Crew boats used for personnel and cargo to and from the platform.
2. Supply boats used for transport of equipment, fuel, and supplies to and from the platform.
3. One North (25-ton) pedestal crane operated by a diesel internal combustion engine.
4. One South (15-ton) pedestal crane operated by a diesel internal combustion engine.
5. One standby diesel-fired generator that is operated in emergency situations.
6. One standby diesel-fired fire water pump that is operated in emergency situations.
7. Piping components, produced water tanks, and other evaporative sources that release fugitive hydrocarbons into the atmosphere.
8. Fugitive hydrocarbons that are emitted into the atmosphere from solvent use.
9. Flare relief system to combust hydrocarbon gases.

A list of all permitted equipment is provided in Section 10.5.

1.4 Emission Control Overview

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

- 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 percent.
- Use of turbo-charging, inter-cooling and a cleaner burning engine with computer-controlled injectors on supply boat main engines to achieve a NO_x emissions rate of 5.99 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, or 797 ppmv at 15% O₂.
- Use of Type "B" diesel fuel injectors on both the 15-ton and 25-ton pedestal crane engines; this allows the *North Crane engine (25-ton)* to achieve NO_x emissions of 8.4 g/bhp-hr, or 797 ppmv at 15% O₂, consistent with the Rule 333 limit.
- Use of a flare relief system to combust waste hydrocarbon gases that would otherwise be released directly to the atmosphere.

1.5 Offsets/Emission Reduction Credit Overview

This facility does not require emission offsets nor does it provide emission reduction credits.

1.6 Part 70 Operating Permit Overview

- 1.6.1. Federally-enforceable Requirements: All federally enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under “applicable requirements.” These include all SIP-approved APCD Rules, all conditions in the APCD-issued Authority to Construct permits and all conditions applicable to major sources under federally promulgated rules and regulations. All permits (and conditions therein) issued pursuant to the OCS Air Regulation are federally enforceable. All these requirements are 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 APCD Rule 1301 as any regulated air pollutant emitted from the unit, excluding Hazardous Air Pollutants (HAPs), that are less than 2 tons per year based on the unit’s potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit’s potential to emit. Insignificant activities must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to insignificant units. (*See Attachment 10.6 for the Insignificant Emissions Unit list*)

- 1.6.3. Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement, or (2) included in the 29-category source list specified in 40 CFR 51.66 or 52.21. The federal PTE does include all emissions from any insignificant emissions units. Platform C is not subject to any NSPS or NESHAP; thus, its fugitive emissions are not listed in its federal PTE. *(See Section 5.4 for the federal PTE for this source)*
- 1.6.4. Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the APCD. Permit shields cannot be granted indiscriminately with respect to all federal requirements. DCOR has not made a request for a permit shield.
- 1.6.5. Alternate Operating Scenarios: A major source may be permitted to operate under different operating scenarios, if appropriate descriptions of such scenarios are included in its Part 70 permit application and if such operations are allowed under federally-enforceable rules. DCOR has made no request for permitted alternative operating scenarios.
- 1.6.6. Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually on or before March 1st or on a more frequent schedule, 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. None of the emissions units at this facility are currently subject to any MACT (see section 3.2.5 for specifics on 40 CFR 63, Subpart HH). In addition, based on CAAA, Section 112(n)(4) stipulations, HAP emissions from any equipment at this facility cannot be aggregated with HAP emissions from other similar units at the facility. Thus, HAP emissions computations were not addressed in this permit.
- 1.6.9. Compliance Assurance Monitoring (CAM): The CAM rule became effective on April 22, 1998. This rule affects emission units at the source subject to a federally enforceable emission limit or standard that uses a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds. Sources subject to CAM Rule must submit a CAM Rule Compliance Plan along with their Part 70 operating permit renewal applications. *(See Section 4.9.3)*. The APCD has determined that no emissions unit at this facility is subject to CAM Rule.

1.6.10 Responsible Official: The designated responsible official and their mailing address are:

**Mr. Mike Finch, Director, ES & RC
DCOR, LLC
290 Maple Court, Suite 290
Ventura, California 93003**

2.0 Process Description

2.1 Process Summary

2.1 Process Summary: Platform C is an oil and gas production platform. Oil production equipment on the platform consists of an oil and gas separator, a free water knockout unit, a refrigerant-type gas dehydration unit, gas compressors, water treating equipment, oil shipping pumps and a flare relief system. The crude oil and natural gas produced are sweet and have minimal concentrations of H₂S and mercaptans.

Crude oil and natural gas are shipped through separate sub-sea pipelines: first to Platform B and then to Platform A, and finally to the Rincon onshore plant in Ventura County for final processing. All emulsion is shipped to Platform B. There is no water processed on Platform C.

2.1.1 Production: Platform C has 60 well slots located in three well rooms. There are currently 35 wells on Platform C. Twenty-seven (27) are producing wells. Additionally, there are seven (7) water injection wells. One well has been plugged and abandoned. An additional well was drilled in 1997. The wells are not free flowing; submersible pumps or hydraulic rod pumps have been installed in all wells to assist in production. Platform C has a design production rate of 15,000 bpd of crude oil and 5 MMscfd of gas. Crude oil and natural gas are metered at the inlet of the two separate sub-sea pipelines.

The oil production flow line from each wellhead ties into three separate piping manifolds or headers. These three manifolds are the gross oil header, the test oil header, and the well clean header. Normally, the flow from each well enters a gross oil header; two gross oil headers are provided for well room No. 1, which contains 42 of the 60 production well slots on the platform. The gross oil headers are piped to gross oil separator No. 1 (MBD-101). There are two separate test headers, one for well room No. 1 and one for well rooms No. 2 and No. 3.

From the gross oil separator, the crude oil flows to the free water knockout (MAM-121). Oil separated in the free water knockout flows to the oil shipping surge tank (MBJ-131) and is then pumped into the sub-sea pipeline to Platform B, on to Platform A, and then on to the Rincon onshore facility. A turbine meter at the pipeline inlet measures the oil flow rate and totals the amount of oil produced on Platform C. The produced water removed in the free water knockout drum is discharged in the ocean.

Two test separators (MBD-111 and MBD-112) are used to flow test the 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 in each test separator. Oil from the test separators is commingled with oil from the gross oil separators in the free water knockout tank. The well clean header and well clean tank (MBF-201) are used to start-up a well after testing or work over activities are completed. For the first few hours when a well is brought back on line, gas surges and contamination from drilling fluids or reservoir sand can occur. After the flow rate stabilizes and any drilling fluids are removed, the well is switched to the production header and separator.

- 2.1.2 Gas, Oil, and Water Separation: Fluid from the production wells is a mixture of oil, gas, and water. The separation of the liquid and gas streams is accomplished in the gross oil separator (MBD-101), which is a horizontal two-phase separator 6' in diameter by 16' 8" seam-to-seam length. Wells are produced directly into the gross oil separator, which has a capacity of 15,000 bpd of crude oil and 5 MMscfd of natural gas.

The gross oil separator operates at 35 psig and 100°F. The gas section (top half) of the separator is designed to sufficiently reduce the velocity of the gas to cause any liquid to drop out. The separator also has a mist extractor to promote removal of liquid droplets from the gas stream. Operating pressure of the separator is automatically controlled by a pressure control valve in the gas outlet line. Gas from the gross oil separator flows to the main gas scrubber, before being compressed by the Sullair main gas compressor.

The liquid section (bottom half) of the gross oil separator is designed with sufficient retention time to allow any entrained gas to bubble off from the liquid. The liquid section is not large enough, however, to allow complete separation of the oil and water into two separate streams. Liquid level in the separator is controlled by a level control valve. Oil and water discharged from the gross oil separator flows to the free water knockout.

The free water knockout is used to reduce the water cut (*i.e.*, water concentration) of the crude oil; oil and water separation in the free water knockout takes place through gravity separation. The water cut of the crude oil leaving the free water knockout is controlled at approximately 10 percent. Produced water from the free water knockout is discharged to the ocean by way of the cutting chutes; a turbine meter measures the amount of water. The separated oil flows to the oil shipping surge tank. The oil flow rate is measured by a turbine meter. Oil and water levels in the free water knockout are controlled independently by separate level controllers.

Treated high pressure water is received from Platform B through a 6" sub-sea pipeline. The water is filtered and metered and then disposed of via the injection wells.

- 2.1.3 Well Testing and Maintenance: To measure the oil, gas, and water flow rates from a well, the well is produced into either test separator No. 1 or No. 2 (MBD-11 and MBD-112) by closing the well flow line valve to the gross oil header and opening the well flow line valve to the test header. The test separator is a vertical two-phase separator, 3'5" in diameter by 20'4" seam-to-seam height, with a capacity of 5,000 bpd crude oil and 5 MMscfd of natural gas; its capacity is smaller than the gross oil separator since only one well is tested at a time. The test separators have a mist extractor to promote removal of liquid droplets from the gas stream, and each separator has a pressure control valve to maintain operating pressure at 60 psig. Gas separated in each test separator is measured by an orifice meter in the outlet line and is commingled with the gas from the gross oil separator

The liquid from the test separators is measured by a turbine meter which measures the total liquid flow of the combined oil and water stream. The water cut is determined by collection and analysis of samples. Oil and water from the test separators is combined with oil and water from the gross oil separator and then processed in the free water knockout.

- 2.1.4 Emulsion Breaking and Crude Oil Storage: There are no emulsion breaking or crude oil storage facilities on Platform C. The produced oil/water emulsion is shipped to the Rincon onshore facility for final processing.
- 2.1.5 Emulsion Shipping: The oil shipping surge tank (MBJ-131) receives oil from the free water knockout and from the skimmer tank via the waste oil pumps; it is a vertical pressure vessel 6' in diameter by 16' seam-to-seam height operating at 12-14 psig. The tank provides surge capacity to stabilize the flow of oil and allow the shipping pumps to operate continuously. Oil is pumped from the tank by one of three oil shipping pumps; the pump flow rate is controlled by a level controller that modulates a control valve in the pump discharge line, thereby maintaining the level in the oil shipping surge tank within an acceptable operating range. The oil shipping pumps discharge into the six inch sub-sea pipeline to Platform B; the oil flow rate to the pipeline is measured by a turbine meter.
- 2.1.6 Drain Sumps: The well clean tank (MBF-201) was originally designed to receive oil contaminated with sediment or drilling mud after a well work over is completed. Contaminated oil production rarely occurs, and, as a result, the well clean tank can also operate as a scrubber for the gas from the oil shipping surge tank.

The skimmer tank (ABJ-441) receives oil skimming; water from the platform deck drains is collected in the wastewater tank (ABJ-431). Well room and vessel drains are routed to the waste oil tank (ABJ-451). Oily waste collected in the wastewater tank is pumped to the oil surge tank or boat landing. Oil from the skimmer tank is pumped by the waste oil pumps (PBA-442A, B) to the oil shipping surge tank (MBJ-131). Natural gas from the tanks is gathered by the flotation deck vapor recovery compressor (CBA-291) and routed to the well clean tank. A vacuum truck is periodically transported to the platform on the supply boat to remove solids from the wastewater tank and/or the skimmer tank.

- 2.1.7 Gas Compression, Dehydration, and Disposition: Natural gas from the well rooms, oil shipping surge tank, and the flotation deck vapor recovery compressor are commingled in the well clean tank (MBF-201). Gas from the well clean tank is commingled with natural gas that is removed from the crude oil in the gross oil separator, test separators, and free water knockout and is compressed, dehydrated, and shipped to Platform B, and then to the Rincon onshore facility in a 6" sub-sea pipeline.

Natural gas from the gross oil separator, test separators, free water knockout, well rooms, oil shipping surge tank, and the flotation deck vapor recovery compressor flows to the main gas scrubber (MBF-211) for liquid removal and is then compressed by the Sullair main gas compressor (CBA-225) to 75 psig. The discharge from the compressor is cooled by a fin fan cooler (HBA-228); any condensed liquid is removed in the liquid knockout vessel (MBF-231), and the wet gas then flows to the gas chiller (HBA-601).

The gas dehydration system is used to lower the water content of the gas to the sales gas pipeline requirement. It consists of the gas chiller, refrigerant compressor (CBA-611), refrigerant condenser (HBA-621), and refrigerant surge drum (MBJ-631). The gas chiller is a heat exchanger in which liquid refrigerant is used to cool the natural gas and cause condensation of most of the entrained water. After chilling, the gas flows to the final gas scrubber (MBF-261) where the condensed water and hydrocarbon liquids are removed. Dehydrated gas from the final gas scrubber flows directly to the 6" sub-sea pipeline to Platform B; an orifice meter records the gas flow rate from Platform C.

- 2.1.8 Gas Sweetening and Sulfur Recovery: The gas produced from Platform C is sweet gas. There are no gas sweetening or sulfur recovery facilities on Platform C.
- 2.1.9 Vapor Recovery Systems: Gas from the waste water, skimmer, and waste oil tanks is compressed by the flotation deck vapor recovery compressor (CBA-291) and is discharged to the well clean tank (which also receives gas from the oil shipping surge tank). Entrained liquids from the gas streams are removed in the well clean tank; the gas then flows to the main gas scrubber where it is commingled with the gas from the gross oil separator, test separators, and free water knockout.

Pressure relief valves on pressure vessels, compressors, and other equipment handling hydrocarbon liquids or vapors all discharge to a ten-inch relief header. The pressure relief valves only open during emergency situations or required safety testing. The relief header flows into the flare gas scrubber which removes any liquid discharged from the pressure relief valves. A back pressure control valve on the gas gathering header can also release natural gas to the flare gas scrubber. This control valve will only release gas if the AC main gas compressors have a mechanical failure or the gas pipeline to shore is shut-in. Gas from the flare scrubber goes to the platform flare stack, while liquid flows to the waste water tank.

- 2.1.10 Fuel Gas System: Platform C does not have an operational fuel gas system; the former fuel gas system is out of service. There is no gas-fired equipment such as turbines or heaters on the platform.

Platform C is equipped with two 3,200 gallon diesel storage tanks, one located in each of the crane pedestals. Diesel fuel is used by the two pedestal cranes and emergency equipment; CARB diesel fuel is used and contains less than 0.0015 percent sulfur by weight.

- 2.1.11 Flare Relief System: Platform C is equipped with a flare system to minimize emissions of ROCs that would otherwise be emitted to the atmosphere.
- 2.1.11.1 Flare System Design: The flare system receives gas from relief valves and piping vents which are first routed to the flare header. The equipment connected to the flare header is as follows:

- Gross oil separator (MBD-101)
- Test separators (MBD-111 and 112)
- Free water knockout (MAM-121)
- Oil shipping surge tank (MBJ-131)
- Well clean tank (MBF-201)
- Man gas scrubber (MBF-211)
- Final gas scrubber (MBF-261)
- Flotation deck vapor recovery compressor (CBA-291)

- Refrigerant compressor (CBA-611)
- Flotation deck vapor recovery compressor (CBA-291)

All gas collected in the flare header is routed to the flare boom and on to the flare tip where it is burned. A Daniels ten-inch orifice meter is used to measure and record the gas that is flared. Its range of operation is 0.012 MMscfd minimum to 10 MMscfd maximum.

2.1.11.2 Planned Flaring Events: Flaring emissions to the atmosphere are due to both planned and unplanned events. Planned events include (but are not limited to):

- pipeline pigging operations
- compressor shutdowns/startups for routine maintenance
- well casing blow downs during work over and rig operations
- 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 blow downs
- MMS ordered safety tests

2.1.11.3 Unplanned Flaring Events: Unplanned flaring events are defined as all flaring that does not meet the definition of planned flaring under Rule 359. 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
- 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 C 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. Three pipelines are associated with the platform: a 6-inch oil and a 6-inch gas line to Platform B; additionally, a 6-inch pipeline transports wastewater from Platform B.

2.2.2 Power Generation: Electrical power for Platform C is provided from shore by Southern California Edison through a 34.5 kV sub-sea cable. The platform has a 15-kW diesel stand-by generator which is used in the event of a power outage from Southern California Edison. During such a power failure, the Motor Control Center (MCC) on Platform C 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 Boats: One crew boat is used for crew and light supply transport in support of Platform C. The crew boat is shared with DCOR's Platforms A, B, Henry, and Hillhouse and Habitat.
- 2.2.4 Supply Boats: Two supply boats are used for supply and equipment transport in support of Platform C. The supply boats, based in Port Hueneme, also service Platforms Henry, Hillhouse, Habitat, A, B, Gina, Gilda, and Irene.
- 2.2.5 Helicopter: There is a helipad on Platform C, but helicopters are not used for routine offshore transportation. *Information on the estimated emissions (less than 2 tpy) from this activity has been provided to the APCD. However, this emissions unit is not included in the permit.*
- 2.2.6 Emergency Response Drills: DCOR 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 Program: Platform C has a resident electric drilling rig, which is used for drilling oil-gas production wells.
- 2.3.2 Well Work-over Program: The resident electric drilling rig is used for servicing wells. Well work-over programs have been conducted in the past on Platform C and may likely occur in the future.

2.4 Maintenance/Degreasing Activities

- 2.4.1 Paints and Coatings: Maintenance painting on Platform C is conducted on an intermittent basis. Normally only touchup and equipment labeling or tagging is done with cans of spray paint.
- 2.4.2 Solvent Usage: Solvents not used for surface coating thinning may be used on the platform for daily operations. Usages include cold solvent degreasing and wipe cleaning with rags.

2.5 Planned Process Turnarounds

Process turnarounds on platform equipment are scheduled to occur when the onshore receiving facilities are required to shut down for maintenance. There are approximately one or two turnarounds per year, each of which lasts from two to three days. Major pieces of equipment such as gas compressors 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}. The emissions from planned process turnarounds are incorporated in the emissions category for planned flaring.

2.6 Other Processes

2.6.1 Pigging: Two (2) pig launchers, gas and oil, are installed at Platform C. Pigging operations (launching) occur between this platform and platform B. Both lines are pigged at least three times a week. All pig launchers are connected both to the blanket gas system and to the platform's vapor recovery system. This ensures an ROC removal efficiency of 90 percent and a low ROC/TOC ratio (= 0.19).

2.6.2 Other processes: DCOR has stated that no other processes exist that would be subject to permit.

2.7 Detailed Process Equipment Listing

Refer to the tables in Attachment 10.5 for a complete listing of all permitted emission units.

Permit-exempt emission units are specifically listed in Tables 10.6 and 10.7

3.0 Regulatory Review

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

3.1 Rule Exemptions Claimed

- ☐ APCD Rule 202 (*Exemptions to Rule 201*): DCOR has requested a number of exemptions under this rule. An exemption from permit, however, does not necessarily grant relief from any applicable prohibitory rule. Specific exemptions are noted below:
 - Section 202.F.1.e for a stand-by electrical generator driven by a diesel-fired piston internal combustion engine rated at 21.6 bhp.
Note: This IC engine does not qualify as 'insignificant' unit, based on its annual 'potential to emit' NOx; thus, it must be included in the federal Part 70 permit.
 - Section 202.F.1.e for a 49 bhp, "John Deere, Model 70-DPO-JD" diesel-fired piston IC engine driving a "Sullair" (100 – 125 psig, 100 – 170 cfm) portable air compressor; *the compressor is used at all DCOR South County OCS platforms, and is included in PTO 9110.*
Note: This IC engine does not qualify as an 'insignificant' unit, based on its annual 'potential to emit' NOx; thus, it must be included in the federal Part 70 permit.
 - Section 202.V.2 for two diesel fuel #2 storage tanks, with 3,200 gallons capacity.
 - Section D.6 (*De Minimis Exemption*). DCOR has documented three (3) de minimis projects (including a roll-off bin in 2003) that has resulted in an increase of 0.82 lb./day of ROC emissions for Platform C (re: DCOR's September 2, 2008 CVR submittal (De Minimus Tables) to the APCD). This increase is below the 2.4 lb/day exemption threshold; and, the aggregate for the stationary source is below the 24 lb/day exemption threshold.
 - Section D.8 for routine repair or maintenance of permitted equipment.
 - Section D.14 for application of architectural coating in the repair and maintenance of a stationary structure.
 - Section U.3 for wipe cleaning using solvents as long as the solvents meet other applicable requirements and the use does not exceed 55 gallons/year.
 - Section F.6 for drilling equipment at the platform provided emissions are less than 25 tons in a consecutive 12 month period (*demonstrated by record-keeping per APCD Rule 202*).

- ☐ APCD Rule 331 (*Fugitive Emissions Inspection and Maintenance*): The following exemptions were applied for and approved by the APCD:
 - Section B.2.b for components buried below the ground.
 - Section B.2.c for ½-inch or smaller stainless steel tube fittings.
 - Section B.3.b for components handling liquids or gases with ROC concentrations less than 10 percent by weight.

- APCD Rule 333 (*Control of Emissions from Reciprocating Internal Combustion Engines*): Under Section B.1.b, engines exempt per Rule 202 are also exempt from the requirements of this rule. Therefore, the generator and air compressor engines listed above under the Rule 202 exemption are not required to comply with Rule 333. Furthermore, the south pedestal crane (15-ton), driven by a diesel-fired piston internal combustion engine rated at 109 bhp, and the emergency standby fire water pump driven by a Caterpillar diesel-fired piston internal combustion engine rated at 85 bhp are exempt per Section 333.B.2 (less than 200 hours per year of operation) from Sections E (emission limits), F (engine inspections), G (compliance plan) and I (testing).

3.2 Compliance with Applicable Federal Rules and Regulations

- 3.2.1 40 CFR Parts 51/52 {New Source Review (Nonattainment Area Review and Prevention of Significant Deterioration)}: Platform C was constructed and permitted prior to the applicability of these regulations. However, all permit modifications after September 4, 1992 are subject to APCD NSR requirements. [*Note: Some equipment installed after September 4, 1992 were identified earlier in the OCS Compliance Plans, and thus were not subject to NSR requirements*] Compliance with APCD Regulation VIII (New Source Review) ensures that future modifications to the facility will comply with these regulations.
- 3.2.2 40 CFR Part 55 {OCS Air Regulation}: DCOR is operating Platform C in compliance with the requirements of this regulation.
- 3.2.3 40 CFR Part 60 {New Source Performance Standards}: None of the equipment items in this permit are subject to NSPS requirements.
- 3.2.4 40 CFR Part 61 {NESHAP}: None of the equipment items in this permit are subject to any NESHAP requirement.
- 3.2.5 40 CFR 63 {MACT}: This facility submitted to the USEPA its 'Notice of Applicability' of *40 CFR 63: Subpart HH, (Oil & Gas Production MACT)*, on October 18, 2000. None of the emissions units at this facility are currently subject to any MACT, specifically to 40 CFR 63, Subpart HH. (*Reference: APCD letter to Nuevo on 11/15/2001 and Nuevo response on 12/10/2001 for Platforms A, B, C, Henry, and Hillhouse*) A 'black oil' exemption was claimed and validated. However, DCOR must maintain adequate recordkeeping, as specified in 40 CFR63, Subpart A to affirm its exemption from this MACT under the 'black oil' provisions of the MACT.
- 3.2.6 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.

- 3.2.7 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to Platform C. Table 3.1 lists the federally enforceable APCD promulgated rules that are “generic” and apply to DCOR OCS. Table 3.2 lists the federally enforceable APCD promulgated rules that are “unit-specific” that apply to DCOR OCS. These tables are based on data available from the APCD’s administrative files and DCOR’s Part 70 Operating Permit *Renewal* Application No. 9112 filed submitted on October 13, 2006. Table 3.4 includes the APCD’s adoption dates of these rules.

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

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

3.3 Compliance with Applicable State Rules and Regulations

- 3.3.1 Division 26. Air Resources {California Health & Safety Code}: The administrative provisions of the Health & Safety Code apply to this facility and will be enforced by the APCD. These provisions are APCD-enforceable only.
- 3.3.2 California Administrative Code Title 17: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at Platform C are required to conform to these standards. Compliance will be assessed through onsite inspections. These standards are APCD-enforceable only. However, CAC Title 17 does not preempt enforcement of any SIP-approved rule that may be applicable to abrasive blasting activities.
- 3.3.3 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, APCD Rule 202 was revised to remove the compression-ignited engine (e.g. diesel) permit exemption for units rated over 50 bhp to allow the APCD to implement the State’s ATCM for Stationary Compression Ignition Engines. Compliance shall be assessed through onsite inspections and reporting. The operating requirements and emission standards outlined in the ATCM do not apply to stationary diesel-fueled engines solely used on the OCS. However these OCS engines are required to meet fuel, recordkeeping, reporting, and monitoring requirements outlined in the ATCM. On January 30, 2006 the DICE ATCM was incorporated into 40 CFR Part 55, making the requirements of the DICE ATCM federally enforceable in the OCS.

3.4 Compliance with Applicable Local Rules and Regulations

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

3.4.2 Rules Requiring Further Discussion: The last facility inspections occurred on June 20, 2008. The inspector reported that the facility was in compliance with all APCD rules and PTO conditions. 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 C:

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

Rule 302 - Visible Emissions: This rule prohibits the discharge from any single source any air contaminants for which a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of 1 on the Ringelmann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of 1 on the Ringelmann Chart. Sources subject to this rule include: the flare and all diesel-fired piston internal combustion engines. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules, and through visible emissions monitoring requirements in Condition 9.B.2. Rule 359 addresses the need for the flares to operate in a smokeless fashion.

Rule 305 - Particulate Matter, Southern Zone: DCOR OCS Platform C is considered a Southern Zone source. This rule prohibits the discharge into the atmosphere from any source particulate matter in excess of specified concentrations measured in gr/scf. The maximum allowable concentrations are determined as a function of volumetric discharge, measured in scfm, and are listed in Table 305(a) of the rule. Sources subject to this rule include: the flares and all IC engines including all diesel-fired units. Improperly maintained diesel engines have the potential to violate this rule. Compliance will be assured by requiring all engines to be maintained according to an *IC engine Particulate Matter Operation and Maintenance Plan* (similar to the one submitted to the APCD for Platform Habitat in May 2002, and addressing the stand-by diesel engines) to be submitted by DCOR within 90 days of issuance of the final Part 70/APCD PTO 9112-R3. The Plan will require APCD approval and immediate full implementation upon such approval.

Rule 309 - Specific Contaminants: Under Section "A", no source may discharge sulfur compounds and combustion contaminants in excess of 0.2 percent as SO₂ (by volume) and 0.3 gr/scf (at 12% CO₂) respectively. Sulfur emissions due to flaring of sweet gases (less than 4 ppm sulfur) at Platform C will comply with the SO₂ limit due to stoichiometric combustion requirements. All diesel powered piston IC engines have the potential to exceed the combustion contaminant limit if not properly maintained (see discussion on Rule 305 above for compliance).

Rule 310 - Odorous Organic Compounds: This rule prohibits the discharge of H₂S and organic sulfides that result in a ground level impact beyond the property boundary in excess of 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 C 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 on Platform C to 0.5 percent (by weight) for liquids fuels and 15 gr/100 scf (calculated as H₂S) {or 239 ppmvd} for gaseous fuels. All piston IC engines on the platform and on the crew and supply boats are expected to be in compliance with the liquid fuel limit as determined by fuel analysis documentation. The flare relief system is not subject to this rule (see discussion under Rule 359).

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

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

Rule 323 - Architectural Coatings: This rule sets standards for the application of surface coatings. The primary coating standard that will apply to the platform is for Industrial Maintenance Coatings which has a limit of 340 gram ROC per liter of coating, as applied. DCOR will be required to comply with the Administrative requirements under Section F for each container on the platform.

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

Rule 325 - Crude Oil Production and Separation: This rule 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 waste water tanks, oil/water separators, waste oil tanks, skimmer tanks and flotation cells. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. All production and test vessels and tanks are connected to gas gathering systems and all relief valves are connected to the flare relief system. Also, vapor recovery units have been installed on all equipment subject to this rule. Compliance with Section E is met by directing all produced gas to a sales compressor, injection well or to the flare relief system.

Rule 330 - Surface Coating of Metal Parts and Products: This rule sets standards for many types of coatings applied to metal parts and products. In addition to the ROC standards, this rule sets operating standards for application of the coatings, labeling and recordkeeping.

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 updated I&M Plan was submitted in July 2001 followed by a revised one in June 2002 based on detailed APCD comments; the final Plan received APCD approval in September 2002. Ongoing compliance with the many provisions of this rule will be assessed via platform inspection by APCD personnel using an organic vapor analyzer and through analysis of operator records. Platform C does not perform any routine venting of hydrocarbons to the atmosphere. All gases routinely vented are directed to the flare relief system or vapor recovery system. *Note: Nuevo informed the APCD in June 2002 that the 502 stainless steel fittings on Platform C, 1/2-inch or less in diameter, are no longer exempt from Rule 331, since they could not demonstrate the leak-free nature of these fittings. These fittings are included in the I&M Plan inventory for Platform C.*

Rule 333 - Control of Emissions from Reciprocating Internal Combustion Engines: This rule applies to all engines with a rated brake horsepower of 50 or greater that are fueled by liquid or gaseous fuels. However, per Section B.1.b any engine exempt from the requirement to obtain a permit under Rule 202 is also exempt from this rule (see Section 3.1 above). Furthermore, the South pedestal crane engine and the emergency standby fire water pump driven by a Caterpillar diesel-fired piston internal combustion engine rated at 85 bhp are exempt from Sections E, F, G, and I of the Rule per Section 333.B.2. The North diesel-fired pedestal crane engine on Platform C is not subject to the revised compression ignition engine emission standards of revised Rule 333 (adopted June 19, 2008) until June 19, 2010. Until such time, the preexisting 8.4 g/bhp-hr or 797 ppmvd (at 15% O₂) NO_x standard applies. However, the NO_x portable monitoring and source testing as specified in the June 19, 2008 rule revision apply. These monitoring requirements are addressed in this permit. In addition, DCOR is required per the Rule to submit the following two Plans for APCD approval by December 19, 2008:

- 1) A new or revised Rule 333 Engine Inspection and Maintenance (I&M) Plan.
- 2) A new or revised Compliance Plan per Section G. of Rule 333.

Ongoing compliance is achieved through implementation of Ongoing compliance is achieved through implementation of the *IC Engine Rule 333 Inspection and Maintenance Plan*. The Plan will require APCD approval and immediate full implementation upon such approval. This Plan is required under Section E of Rule 333. Compliance of the North Crane engine is verified by source testing on a biennial schedule and NO_x and CO measurements with a portable emissions analyzer.

Rule 359 - Flares and Thermal Oxidizers: This rule applies to flares for both planned and unplanned flaring events. A detailed review of compliance with this Rule follows:

- D.1 - Sulfur Content in Gaseous Fuels: Compliance with this rule is anticipated since the produced gas from Platform C is sweet.
- D.2 - Technology Based Standard: The flare on Platform C is in compliance with this section.
- D.3 - Flare Minimization Plan: DCOR has fully implemented their Flare Minimization Plan.

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. DCOR currently has 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. DCOR currently has no units subject to this rule.

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

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

Rule 603 - Emergency Episode Plans: Section "A" of this rule requires the submittal of *Stationary Source Curtailment Plan* for all stationary sources that can be expected to emit more than 100 tons per year of hydrocarbons, nitrogen oxides, carbon monoxide or particulate matter. Such a plan was submitted on July 23, 1994. This Plan was approved in November 1994. (*Note: This plan was updated on November 30, 1998*).

3.5 Compliance History

This section contains a summary of the compliance history for this facility since 1998 and was obtained from documentation contained in the APCD's Administrative file.

3.5.1 Variations: No variations are currently in effect for OCS Platform C.

3.5.2 Violations: Two Notices of Violation (NOV's) were issued since the last permit renewal was issued on April 13, 2004:

NOV No. 8290: Violation of Rule 206. Issued on 12/9/2004. Specifically, failing to measure the H₂S concentration of gas flared lasting more than one hour during several days in 2004. Resolved 7/14/2005.

NOV No. 8306: Violation of Rule 206. Issued 10/10/2005. Specifically, failing to measure the H₂S concentration of gas flared for over one hour during planned event. Resolved 12/2/2005.

3.5.3 Significant Historical Hearing Board Actions/NOV's: There are no significant historical Hearing Board actions or NOV's.

Table 3.1 - Generic Federally-Enforceable APCD Rules

| Generic Requirements | Affected Emission Units | Basis for Applicability |
|---|--|--|
| <u>RULE 101</u> : Compliance by Existing Installations | All emission units | Emission of pollutants |
| <u>RULE 102</u> : Definitions | All emission units | Emission of Pollutants |
| <u>RULE 103</u> : Severability | All emission units | Emission of pollutants |
| <u>RULE 201</u> : Permits Required | All emission units | Emission of pollutants |
| <u>RULE 202</u> : Exemptions to Rule 201 | Applicable emission units, as listed in form 1302-H of the Part 70 application | Insignificant activities/emissions, per size/rating/function |
| <u>RULE 203</u> : Transfer | All emission units | Change of ownership |
| <u>RULE 204</u> : Applications | All emission units | Addition of new equipment or modification to existing equipment. |
| <u>RULE 205</u> : Standards for Granting Permits | All emission units | Emission of pollutants |
| <u>RULE 206</u> : Conditional Approval of ATCs or PTOs | All emission units | Applicability of relevant Rules |
| <u>RULE 207</u> : Denial of Applications | All emission units | Applicability of relevant Rules |
| <u>RULE 208</u> : Action on Applications – Time Limits | All emission units. Not applicable to Part 70 permit applications. | Addition of new equipment or modification to existing equipment. |
| <u>RULE 212</u> : Emission Statements | All emission units | Administrative |
| <u>RULE 301</u> : Circumvention | All emission units | Any pollutant emission |
| <u>RULE 302</u> : Visible Emissions | All emission units | Particulate matter emissions |
| <u>RULE 305</u> : PM Concentration -- South Zone | Each PM source | Emission of PM in effluent gas |
| <u>RULE 309</u> : Specific Contaminants | All emission units | Combustion contaminants |
| <u>RULE 311</u> : Sulfur Content of Fuel | All combustion units | Use of fuel containing sulfur |
| <u>RULE 317</u> : Organic Solvents | Emission units using solvents | Solvent used in process operations. |
| <u>RULE 322</u> : Metal Surface Coating Thinner and Reducer | Emission units using solvents | Solvent used in process operations. |
| <u>RULE 323</u> : Architectural Coatings | Paints used in maintenance and surface coating activities | Application of architectural coatings. |

| Generic Requirements | Affected Emission Units | Basis for Applicability |
|--|--|---|
| <u>RULE 324</u> : Disposal and Evaporation of Solvents | Emission units using solvents | Solvent used in process operations. |
| <u>RULE 505.A, B1, D</u> : Breakdown Conditions | All emission units | Breakdowns where permit limits are exceeded or rule requirements are not complied with. |
| <u>RULE 603</u> : Emergency Episode Plans | Stationary sources with PTE greater than 100 tpy | <i>Dos Cuadras – South County</i> is a major source. |
| <u>REGULATION VIII</u> : New Source Review | All emission units | Addition of new equipment or modification to existing equipment. Applications to generate ERC Certificates. |
| <u>REGULATION XIII (RULES 1301-1305)</u> : Part 70 Operating Permits | All emission units | <i>Dos Cuadras – South County</i> is a major source. |

Table 3.2 - Unit-Specific Federally-Enforceable APCD Rules

| Unit-Specific Requirements | Affected Emission Units | Basis for Applicability |
|--|---|--|
| <u>RULE 325</u> : Crude Oil Production and Separation | ID #'s 8006-22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32 | All pre-custody production and processing emission units |
| <u>RULE 331</u> : Fugitive Emissions Inspection & Maintenance | All components (valves, flanges, seals, compressors and pumps) used to handle oil and gas : ID #'s 8006-7,8 | Components emit fugitive ROCs. |
| <u>RULE 333</u> : Control of Emissions from Reciprocating IC Engines | Piston IC engines only; ID #s 8006-1,2,3 | IC engines exceeding 50 bhp rating. |
| <u>RULE 359</u> : Flares and Thermal Oxidizers | Flare Relief System; ID # 8006-15 | Flaring. |
| <u>RULE 360</u> : Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers | None | NOx emissions from external combustion units. |

Table 3.3 - Non-Federally-Enforceable APCD Rules

| Requirement | Affected Emission Units | Basis for Applicability |
|--|--------------------------------|---|
| <u>RULE 210</u> : Fees | All emission units | Administrative |
| <u>RULE 310</u> : Odorous Org. Sulfides | All emission units | Emission of organic sulfides |
| <u>RULE 361</u> : Small Boilers, Steam Generators, and Process Heaters | None | Emission from external combustion units. |
| <u>RULES 501-504</u> : Variance Rules | All emission units | Administrative |
| <u>RULE 505.B2, B3, C, E, F, G</u> : Breakdown Conditions | All emission units | Breakdowns where permit limits are exceeded or rules are not complied with. |
| <u>RULES 506-519</u> : Variance Rules | All emission units | Administrative |

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

| <u>Rule No.</u> | <u>Rule Name</u> | <u>Adoption Date</u> |
|------------------------|---|-----------------------------|
| <u>Rule 101</u> | Compliance by Existing Installations: Conflicts | June 1981 |
| <u>Rule 102</u> | Definitions | April 17, 1997 |
| <u>Rule 103</u> | Severability | October 23, 1978 |
| <u>Rule 201</u> | Permits Required | April 17, 1997 |
| <u>Rule 202</u> | Exemptions to Rule 201 | April 17, 1997 |
| <u>Rule 203</u> | Transfer | April 17, 1997 |
| <u>Rule 204</u> | Applications | April 17, 1997 |
| <u>Rule 205</u> | Standards for Granting Permits | April 17, 1997 |
| <u>Rule 206</u> | Conditional Approval of Authority to Construct or Permit to Operate | October 15, 1991 |
| <u>Rule 207</u> | Denial of Applications | October 23, 1978 |
| <u>Rule 208</u> | Action on Applications - Time Limits | April 17, 1997 |
| <u>Rule 212</u> | Emission Statements | October 20, 1992 |
| <u>Rule 301</u> | Circumvention | October 23, 1978 |
| <u>Rule 302</u> | Visible Emissions | June 1981 |
| <u>Rule 305</u> | Particulate Matter Concentration - Southern Zone | October 23, 1978 |
| <u>Rule 309</u> | Specific Contaminants | October 23, 1978 |
| <u>Rule 310</u> | Odorous Organic Sulfides | October 23, 1978 |
| <u>Rule 311</u> | Sulfur Content of Fuels | October 23, 1978 |
| <u>Rule 317</u> | Organic Solvents | October 23, 1978 |
| <u>Rule 322</u> | Metal Surface Coating Thinner and Reducer | October 23, 1978 |
| <u>Rule 323</u> | Architectural Coatings | July 18, 1996 |
| <u>Rule 324</u> | Disposal and Evaporation of Solvents | October 23, 1978 |
| <u>Rule 325</u> | Crude Oil Production and Separation | January 25, 1994 |
| <u>Rule 331</u> | Fugitive Emissions Inspection and Maintenance | December 10, 1991 |
| <u>Rule 333</u> | Control of Emissions from Reciprocating Internal Combustion Engines | June 19, 2008 |

| <u>Rule No.</u> | <u>Rule Name</u> | <u>Adoption Date</u> |
|------------------------|--|-----------------------------|
| <u>Rule 359</u> | Flares and Thermal Oxidizers | June 28, 1994 |
| <u>Rule 360</u> | Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers | October 17, 2002 |
| <u>Rule 360</u> | Small Boilers, Steam Generators, and Process Heaters | January 17, 2008 |
| <u>Rule 505</u> | Breakdown Conditions (Section A, B1 and D) | October 23, 1978 |
| <u>Rule 603</u> | Emergency Episode Plans | June 15, 1981 |
| <u>Reg. VIII</u> | New Source Review | April 17, 1997 |
| <u>Rule 901</u> | New Source Performance Standards (NSPS) | May 16, 1996 |
| <u>Rule 903</u> | Outer Continental Shelf (OCS) Regulations | November 10, 1992 |
| <u>Rule 1001</u> | National Emission Standards for Hazardous Air Pollutants (NESHAPS) | October 23, 1993 |
| <u>Rule 1301</u> | General Information | September 18, 1997 |
| <u>Rule 1302</u> | Permit Application | November 9, 1993 |
| <u>Rule 1303</u> | Permits | November 9, 1993 |
| <u>Rule 1304</u> | Issuance, Renewal, Modification and Reopening | November 9, 1993 |
| <u>Rule 1305</u> | Enforcement | November 9, 1993 |

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 (including RACT, BACT, NSPS, NESHAP, MACT)
- ☞ emission source testing, sampling, CEMS, CAM
- ☞ process monitors needed to ensure compliance

Unless noted otherwise, default ROC/THC reactivity profiles from the APCD's document titled "VOC/ROC Emission Factors and Reactivities for Common Source Types" dated 3/12/2001 (version 1.2) was used to determine non-methane, non-ethane fraction of THC.

4.2 Stationary Combustion Sources

The stationary combustion sources associated with Platform C consist of diesel-fired piston internal combustion engines and the flare relief system. Primary power on the platform is supplied by a sub-sea electric cable connected to the Southern California Edison electric grid.

Piston Internal Combustion Engines: All platform internal combustion engines are diesel-fuel fired. The "North" crane engine is subject to permit and Rule 333 requirements. The other stationary IC engines on the platform rated over 50-bhp are the "South" pedestal crane. Temporary engines used to support drilling and well workover activities are expected to occur during the life of the platform. Applicability of permit requirements and associated controls for this temporary equipment will be determined according to the rules in effect at the time of use. Currently, most drilling and work over rig engines are not subject to permit and control requirements. The calculation methodology is similar for all stationary ICES.

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

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 percent greater than the corresponding LHV data. Volume or mass based BSFC data do not need any conversions.

Crane Engines: The North pedestal crane is driven by a Detroit Diesel Model 6V-71 engine rated at 230 bhp equipped with "B" type injectors. The use of these injectors coupled with the low operating loads allows this engine to comply with the Rule 333 NO_x emission factor, 8.4 g/bhp-hr or 797 ppmv @15% O₂. Based on the Rule 333-allowed 797 ppmv limit which is used as the compliance limit for source testing, the NO_x emission factor is 3.03 Lbs/MMBtu. (see Section 10.1 for calculation). The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1 (10/97), and the SO_x emission factor is based on mass balance calculation.

The South pedestal crane is driven by a Detroit Diesel Model 3-71 engine rated at 109 bhp. This engine has no emission controls. The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1, and the SO_x emission factor is based on mass balance calculation. For NO_x, the emission factor is 3.99 lb/MMBtu based on the manufacturer-listed BSFC of 7732 Btu/bhp-hr, and an estimated emission factor of 14 g/bhp-hr.

The 21.8 hp diesel IC engine powering the 15-kW generator, the 85 hp IC engine driving the fire water pump, and the 49 hp IC engine driving the air compressor are emissions units not subject to any emission control requirements. The fire water pump engine is subject to APCD permit while the 21.8 hp diesel IC engine and the air compressor IC engine are permit exempt. However, the latter engines do not qualify as insignificant Part 70 emissions units. For NO_x emissions from the 21.8 hp engine, the emission factor is 14 g/hp-hr or 4.41 lb/MMBtu based on the estimated BSFC of 7000 Btu/bhp-hr; for the fire pump IC engine and the air compressor IC engine, the emission factor is 16 g/hp-hr or 4.41 lb/MMBtu based on the estimated BSFC of 8,000 Btu/hp-hr. The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1, and the SO_x emission factor is based on mass balance calculation.

The IC engines on the platform are not equipped with diesel fuel flow metering devices. All IC engines are equipped with non-resettable hour meters. The actual engine usage is logged each time the engine is fired. Emissions are calculated using total elapsed run time, the maximum rated engine bhp rating and BSFC data (from Table 5.1-1) to determine the number of gallons consumed per unit time. Ongoing compliance with Rule 333 will be accomplished by quarterly inspections per Section F of this rule, NO_x and CO measurements with a portable emissions analyzer, and biennial source testing on the North pedestal crane engine.

Flare Relief System: The flare relief system consists of both a high and low pressure header that connects to various PSVs on production and test vessels, compressors, and glycol system. Both planned and unplanned flaring events occur. The flare itself is an open pipe flare tip. The design heat release is 2500 MMBtu/hr. Emission factors for NO_x, CO and ROC are based on the USEPA AP-42, Table 13.5-1 (9/91). PM emission factors are based on a SBCAPCD flare study. Sulfur oxide emissions are based on mass balance calculations assuming both planned and pilot/purge sulfur levels at 239 ppmv and unplanned flaring sulfur levels at 239 ppmv. The emissions for both planned and unplanned flaring events are calculated. The SO_x emission factor is determined using the equation: (0.169)(ppmv S)/(HHV). The calculation methodology for the flare is:

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

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

The flare header is equipped with a 10-inch Daniels orifice meter that is capable of detecting flow rates between 0.012 - 10.000 MMSCFD. The APCD and DCOR have agreed on a low flow, or minimum, detection limit that is equivalent to 500 scfh (based on a velocity of 0.25 std ft/sec) which is higher than the purge/pilot flow rate of 150 scfh. As such, there is no practical method for assessing flow rates between 150 and 500 scfh. Therefore, based on USEPA and CARB's data reporting guidelines, a value of half the minimum detection limit is being assumed as "continuous" planned flaring. The sulfur content of the flared gas is expected to be below 10 ppmv.

4.3 Fugitive Hydrocarbon Sources

Emissions of reactive organic compounds from piping components such as valves, flanges and connections have been *assigned* emission factors pursuant to APCD P&P 6100.061 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition*). The component leak-path was counted consisted with P&P 6100.061. This leak-path count is not the same as the "component" count required by APCD Rule 331. Both gas/light liquid and oil side components are in service at this facility

The number of emission leak-paths was re-determined in July 2003 by Avanti International under contract to Nuevo. Avanti's data were audited/verified by APCD staff through site checks consisting of sampling and clp counting. A total of 5355 controlled and 2 uncontrolled oil/emulsion component leak-paths (*updated from the previous count of 5885 on 22 March 2000*) and a total of 5282 controlled and 42 uncontrolled gas/light-liquid component leak-paths (*updated from the previous count of 5708 on 22 March 2000*) were found to 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 percent is credited to all components that are safe to monitor (as defined per Rule 331) due to the implementation of a APCD-approved Inspection and Maintenance program for leak detection and repair consistent with Rule 331 requirements. Unsafe to monitor components are not eligible for I&M control credit. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

Note: For Platform C, the September 3, 2002 I&M Plan update listed 502 stainless steel fittings of 1/2-inch or less diameter; of these 376 belong to heavy liquid handling category and 126 belong to the gas handling category. 'Average' THC emission factor for these fittings have not been ascertained by the APCD as yet; therefore, emissions from these stainless steel fittings have not been quantified in this permit. Actual/allowable ROC emissions from the fittings will be quantified and incorporated in the next Platform C Part 70 renewal permit after their emission factors have been established. Because all such fittings are pre-existing and no physical or process changes triggered this emission increase, the emission change will not affect the facility's Net Emission Increase for ROC.

4.4 Crew and Supply Vessels

DCOR utilizes both crew boat and supply boats in support of Platform C. For crew and supply boats, DCOR has identified two types of vessels. One type is for primary usage and is controlled for NO_x. The other type is normally uncontrolled for NO_x and is used as a spot-charter. The crew boat spot-charter trips are limited to 10 percent of actual crew boat trips. The supply boat spot-charter trips are limited to 10 percent of actual supply boat trips.

The primary supply boats currently assigned to Platform C are the *M/V Santa Cruz* and the *M/V Ryan T* (previously the *M/V Wendy Tide*). For all OCS sources, the typical time in mode for a trip to and from the platform is assumed to be approximately 11 hours (8 hours cruise, 2 hours maneuver, and 1 hour idle). This time includes travel to and from the platform within a 25-mile radius.

The *M/V Santa Cruz* is equipped with two-2,000 bhp (at 1600 rpm) main diesel-fired IC engines (CAT 3516B). These main engines employ the following NO_x control measures: A Dual Advanced Diesel Engine Management (ADEMII) modules with electronically controlled unit injectors, as well as dual turbo-chargers and a separate circuit after-cooler core. Additional diesel-fired engines on this boat include two-170 kW CAT 3306B DIT generator sets each powered by identical 245 bhp engines; and one bow thruster powered by a CAT 3408C DITA 515 bhp engine. The auxiliary engines are not controlled.

The crew boat assigned to Platform C is the *M/V Alan T* (previously the *M/V Roff Tide*). This vessel is equipped with three-510 bhp main diesel-fired IC engines (Detroit Diesel model 12V-71TI). These engines employ the following NO_x control measures: four-degree injection timing retard, turbo-charging, and inter-cooling. Additional diesel-fired engines on this vessel include two-30 kW auxiliary generators each powered by identical 109 bhp engines (Detroit Diesel model 3V-71). These auxiliary engines are not controlled.

The permit assesses emission liability based solely on a single emission factor (the cruise mode with a load rating of 65 percent). The supply boat controlled engine has a NO_x emission factor of 5.99 g/bhp-hr. This converts to a fuel-based NO_x emission factor of 270 lb/1000 gallons of fuel, assuming a BSFC (engine efficiency number) value of 0.345-lb. fuel/bhp-hr. For crew boat engines with the controls listed above, a full load NO_x emission factor of 8.4 g/bhp-hr (337 lb/1000 gallons) is used. Sulfur oxide emissions are based on mass balance calculations assuming 0.0015 weight percent sulfur diesel fuel (CARB diesel). Other boat main engine emission factors for ROC and CO are taken from USEPA, AP-42 (Volume II), updated to reflect the larger size of the engine(s). 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:

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

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

The calculations for the auxiliary engines are similar, except that a 50 percent engine load factor for the generators is utilized. Compliance with the main engine controlled emission rates shall be assessed through emission source testing. Ongoing compliance will be assessed through implementation of an APCD-approved Boat Monitoring and Reporting Plan (approved 4/11/06 and any APCD-approved updates thereof). Total mileage from Platform C to Port Hueneme is approximately 25 miles.

In addition, a permanently assigned emergency response vessel (i.e., the *Clean Seas II*) is associated with Platform C. The total engine horsepower, including auxiliary engines, is 1,770 bhp. Emissions liability is assigned in a prorated fashion among the eleven OCS platforms that utilize the vessel off the Santa Barbara coast. Emission factors, calculations and compliance procedures are the same as for the spot-charter supply vessels discussed above. If used, other emergency response boat fuel usage (and resulting emissions) shall be assessed against this emissions category.

4.5 Tanks/Vessels/Sumps/Separators

Tanks: Platform C has two (2) diesel fuel storage tanks. The diesel storage tank servicing the various IC engines on the platform is not controlled. Diesel tank emissions are small and are assumed to be less than 0.10 tpy (200 lb/year). The detailed tank calculations for compliance will be performed using the methods presented in USEPA AP-42, Chapter 7.

Vessels: Platform C has several pressure vessels (e.g., a production separator, a test separator, an oil surge shipping tank, a free water knockout tank, a well clean tank, a refrigerant surge tank and scrubbers). All pressure vessels are connected to the platform's gas gathering system. All PSVs, vents, and blow down valves are connected to the flare relief system header. Emissions from pressure vessels are due to fugitive hydrocarbon leaks from valves and connections.

Sumps: The waste oil tank (ABJ-451) collects oily liquids from the well clean tank drain. The wastewater tank (ABJ-431) receives oily water from the platform deck drains. Vacuum trucks are periodically transported to the platform on the supply boat to remove solids from the wastewater tank.. The skimmer tank (ABJ-441) receives oil skimming and oily water from the well room drains. The wastewater tank, waste oil tank, and skimmer tank emissions are based on the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983). These vessels are classified as being in secondary production and heavy oil service and are all vented to the atmosphere. The calculation is:

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

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

Oil/water separators: Platform C uses an oil/water separation unit (flotation cell unit) to process oily wastewater. An oil/water separator is defined as a class of waste water treatment equipment that processes known volumes of waste water on a continuous basis for treatment to remove entrained oil. An uncontrolled emission factor of 560 lb ROC/MMgal of throughput from the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983) is used to estimate emissions from the flotation cell unit. The control efficiency is assumed to be, at least, 95 percent. The calculation per time period is:

$$ER = (EF \times Q) \times (1 - CE)$$

where: ER = emission rate (lb/period)
 EF = ROC emission factor (lb/MMgallons/period)
 Q = throughput (gallons/period)
 CE = control efficiency

4.6 Vapor Recovery Systems

Gas from the waste water tank, skimmer tank and waste oil tank is compressed by the 80 scfm flotation deck vapor recovery compressor (CBA-291), which discharges to the well clean tank. The well clean tank, which also receives gas from the oil shipping surge tank, is used as the suction scrubber to remove entrained liquids from the gas streams for the 487 scfm main vapor compressor (CBA-202). The gas is compressed to about 30 psig and discharged to the main gas scrubber where the gas is commingled with the gas from the gross oil separators, test separators, and free water knockout. A control efficiency of 95 percent is assigned to the vapor recovery system, pursuant to APCD P&P 6100.030.92.

4.7 Helicopters

Platform C is equipped with a helipad, but helicopters are not used for routine transportation. *Estimated emissions (less than 2 tpy) from this activity have been provided to the APCD. However, this emissions unit is not included in the permit.*

4.8 Other Emission Sources

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

Pigging: Pipeline pigging operations occur on the platform. Both oil and gas pig launching to the Platform B occurs. Emissions occur during the depressurization of these units, since a few ounces of back pressure remain in the chambers and ROC is emitted when chambers are opened to the atmosphere. It is stipulated in letters dated 5/7/97 and 8/19/97 from Nuevo that the chambers are blanketed with sales gas before opening and the remaining pressure does not exceed 1 psig. The calculation per period is:

$$ER = V_1 * \rho * wt\% * EFP$$

| | | |
|---------------|------------------|---|
| <u>where:</u> | ER = | emission rate (lb/period) |
| | V ₁ = | volume of vessel (ft ³) |
| | ρ = | density of vapor at actual conditions (lb/ft ³) |
| | wt % = | weight percent ROC-TOC |
| | EFP = | pigging events per time period (events/period) |

General Solvent Cleaning/Degreasing: Solvent usage (not used as thinners for surface coating) occurring on Platform C 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.

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. Emission of PM/PM₁₀ from paint overspray are not calculated due to the lack of established calculation techniques.

Abrasive Blasting: Abrasive blasting with CARB certified sands may be performed as a preparation step prior to surface coating. Particulate matter is emitted during this process. A general emission factor of 0.01 pound PM per pound of abrasive is used (SCAQMD - Permit Processing Manual, 1989) to estimate emissions of PM and PM₁₀, when needed for compliance evaluations. A PM/PM₁₀ ratio of 1.0 is assumed.

4.9 BACT/NSPS/NESHAP/MACT

None of the emission units at Platform C are subject to any best available control technology (BACT), NSPS or NESHAP/MACT provisions.

4.10 CEMS/Process Monitoring/CAM

4.10.1 CEMS: There are no CEMS at this facility.

4.10.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the use of process monitoring systems. 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 and auxiliary engines)
- Supply Boat Diesel Fuel Meters (main and auxiliary/bow thruster engines)
- Flare Header Flow Meter
- Hour Meters (cranes, emergency generator)

The above calibration and maintenance requirements shall be implemented according to the *Process Monitor Calibration and Maintenance Plan* (submitted 1/6/95 and any APCD-approved updates thereof). This plan takes into consideration manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgement shall be utilized.

4.10.3 CAM: None of the emission units at this facility are subject to the requirements of the CAM Rule, per 40 CFR 64.2 (*Applicability*).

4.11 Source Testing/Sampling

Source testing and sampling are required in order to ensure compliance with permitted emission limits, prohibitory rules, control measures and the assumptions that form the basis of this operating permit. Table 4.1 details the pollutants, test methods and frequency of required testing. DCOR will be required to follow the APCD *Source Test Procedures Manual* (May 24, 1990 and all updates). The following emission units are required to be source tested.

- North (25-ton) North crane Engine
- Supply Boat Main Engines
- Crew Boat Main Engines

At a minimum, the process streams as identified in Table 4.2 are required to be sampled and analyzed as indicated. Please see the *Process Stream Sampling and Analysis* condition (9.C.14) for further clarification.

TABLE 4.1 - SOURCE TEST REQUIREMENTS

| <u>Emission Points</u> | <u>Pollutants/ Parameters</u> | <u>Test Methods</u> | <u>Allowable Exhst. Concentration</u> |
|--|-----------------------------------|--|---|
| - Crane Engine (North) - Crew Boat Main Engines - Supply Boat Main Engines | NO _x (ppmv, lb/hr) | CARB 1-100 or USEPA 7E | 797 ppm @ 15% O ₂ |
| | CO (ppmv, lb/hr) | CARB 1-100 or USEPA 10 | |
| | ROC (ppmv, lb/hr) | USEPA 18 | |
| | Fuel Flow Rate | Fuel meter for boats; day tank level for crane | |
| | 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 safe maximum load. 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 supply boat to be tested shall be determined by the APCD.
- c. USEPA methods 1-4 to be used to determine O₂, dry MW, moisture content, CO₂, and stack flow rate. Alternatively, USEPA 19 may be used to determine flow rate for NO_x emission rate purpose.
- d. SO_x emissions to be determined by mass balance calculation.
- e. The main engines from one crew and one supply boat shall be tested annually. The crane engine shall be tested biennially.
- f. Procedures to obtain the required operating loads shall be clearly defined in the source test plan.

Table 4.2 Process Stream Sampling Requirements:

| Process Stream | Parameter | Sampling Point | Specific Location** | Methods | Frequency |
|-----------------------|---|--|--|--|---|
| Produced Gas | 1. H ₂ S 2. TRS 3. HHV 4. Composition | Production Separator Outlet for all samples | Point located on the 6"-B shipping gas line just prior to gas pig launcher(KAH-703)- Ref. Drwg.# 489-F-107(Plt. 'C') | 1. USEPA Method 16 2. USEPA Method 16 3. D-1945 4. D-3588 | 1. Annual 2. Annual 3. Annual 4. Semi-annual |
| Produced Oil | 1. True vapor pressure (TVP) 2. API Gravity | For all samples, production separator outlet | Point located on the 6"-B shipping oil line just prior to oil pig launcher(KAH-704)- Ref. Drwg.# 489-F-107(Plt. 'C') | 1. D-323/D-4057 (or API Bulletin 2519) 2. D-287-82 | 1. Biennial 2. Biennial |

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

5.0 Emissions

5.1 General

ATC/PTO 11249 (addition of crew and supply boat use conditions and revision of process stream sampling conditions), ATC/PTO 11445 (change in supply boat NO_x emission limits), PTO 11943 (permitting of standby fire water pump engine), and Trn O/O 9112-09 (change of operator), all issued since April 2004, have been incorporated into this PTO 9112-R3. All provisions in these permits were analyzed to determine the permit conditions of PTO 9112, including the permitted emission limits of criteria pollutants from all applicable emission units.

Emissions calculations are divided into "permitted" and "exempt" categories. Permit exempt equipment is determined by APCD Rule 202. The permitted emission for each emissions unit is based on the equipment's potential-to-emit (as defined by Rule 102). Section 5.2 details the permitted emissions for each emissions unit. Section 5.3 details the overall permitted emissions for the facility based on reasonable worst-case scenarios using the potential-to-emit for each emissions unit. Section 5.4 provides the federal potential to emit calculation using the definition of potential to emit used in Rule 1301. Section 5.5 provides the estimated emissions from permit exempt equipment, also serves as the Part 70 list of insignificant emission. Section 5.6 provides the net emissions increase calculation for the facility and the stationary source. In order to track accurately the emissions from a facility, the APCD uses a computer database. Attachment 10.4 contains the APCD's documentation for the information entered in that database.

5.2 Permitted Emission Limits - Emission Units

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

- ⇒ Nitrogen Oxides (NO_x)³
- ⇒ Reactive Organic Compounds (ROC)
- ⇒ Carbon Monoxide (CO)
- ⇒ Sulfur Oxides (SO_x)⁴
- ⇒ Particulate Matter (PM)⁵
- ⇒ Particulate Matter smaller than 10 microns (PM₁₀)

³ Calculated and reported as nitrogen dioxide (NO₂)

⁴ Calculated and reported as sulfur dioxide (SO₂)

⁵ Calculated and reported as all particulate matter smaller than 100 μm

Permitted emissions are calculated for both short term (hourly and daily) and long term (quarterly and annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and 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. Tables 5.1-3 and 5.1-4 show the permitted short-term and permitted long-term emissions for each unit or operation. In the tables, the last column indicates whether the emission limits are federally enforceable. Those emissions limits that are federally enforceable are indicated by the symbol "FE". Those emissions limits that are APCD-only enforceable are indicated by the symbol "A".

5.3 Permitted Emission Limits - Facility Totals

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

Hourly and Daily Scenario:

- Both "North" and "South" pedestal crane engines and the emergency generator
- Flare purge and pilot
- Planned continuous flaring
- Spot charter supply boat
 - Main engines operating at cruise mode
 - Generator engines on supply boat provide half of maximum engine rating
 - Bow thruster on supply boat does not operate during peak hour
- Controlled crew boat
 - Main engines operating at cruise mode
 - Generator engines on crew boat provide half of maximum engine rating
- Fugitive components
- Oil pig launcher
- Waste oil sump
- Flotation cell unit
- Skimmer tank
- Waste water tank
- Solvent usage

Quarterly and Annual Scenario:

- Both "North" and "South" pedestal crane engines and the emergency generator
- Flare purge and pilot
- Planned continuous flaring
- Planned intermittent (other) flaring
- Unplanned flaring
- Controlled and Uncontrolled supply boat
 - Main engines operating at cruise mode
 - Generator engines on supply boat provide half of maximum engine rating
 - Bow thruster
- Controlled and Uncontrolled crew boat

- Main engines operating at cruise mode
- Auxiliary engines on crew boat provide half of maximum engine rating
- Fugitive components
- Pig launchers
- Waste oil sump
- Flotation cell unit
- Skimmer tank
- Waste water tank
- Solvent usage

5.4 Part 70: Federal Potential to Emit for the Facility

Table 5.3 lists the federal Part 70 potential to emit. Being subject to the OCS Air Regulation, all project emissions, except fugitive emissions, are counted in the federal definition of potential to emit. However, fugitives are counted in the federal PTE if the facility is subject to any applicable NSPS or NESHAP requirement. As noted earlier, Platform C is not subject to any NSPS/NESHAP requirements

5.5 Exempt Emission Sources/Part 70 Insignificant Emissions

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

- Backup electrical generator engine (21.8 bhp diesel-fired IC engine)
- 49 hp IC Engine powering the portable air compressor
- Diesel fuel #2 storage tank, 3200 gallons capacity
- Maintenance operations involving surface coating/solvents (painting operations/wipe cleaning)
- Solvents used for wipe cleaning

Insignificant emission units are defined under APCD Rule 1301 as any regulated air pollutant emitted from the unit, excluding HAPs, that are less than 2 tons per year based on the unit's potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit's potential to emit. The following emission units are exempt from permit per Rule 202, but are not considered insignificant emission units:

- Coating/Solvents used for maintenance type operations, if usage exceeds 1,150 gallons/year
- Backup electrical generator engine (21.8 bhp diesel-fired IC engine)
- 49 hp IC Engine powering the portable air compressor

Table 5.4 presents the estimated annual emissions from these exempt equipment items, including those exempt items not considered insignificant. This permit covers the Solvents/Surface coating operations not classed as maintenance operations (see Section 9.C). *Please note that non-maintenance activities using solvents and surface coating are not permit-exempt.*

5.6 Net Emissions Increase Calculation

This facility's net emissions increase since November 15, 1990 (the day the federal Clean Air Act Amendments was adopted in 1990) is based on the following NSR permit actions since December 5, 1991:

| | ROC NEI (lbs./day) | ROC NEI (tons/year) |
|-----------------------------------|-----------------------|------------------------|
| • ATC/PTO 10130-01 (6/14/01) | 1.53 | 0.28 |
| • <u>ATC/PTO 10140 (12/16/99)</u> | 0.00 | 0.00 |
| TOTAL: | 1.53 | 0.28 |

| | NOx NEI (lbs./day) | NOx NEI (tons/year) |
|----------------------------------|-----------------------|------------------------|
| • <u>ATC/PTO 11445 (3/30/05)</u> | 0.00 | 0.16 |
| TOTAL: | 0.00 | 0.16 |

NEI for other pollutants are zero for Platform C. The aggregate NEI for Platform C is shown in Table 5.5 and in Table 5 of Attachment 10.4.

Aggregate NEI for DCOR South County OCS stationary source is listed in the Table below.

Table Showing Net Emissions Increases at Dos Cuadras - South County Platforms

| | NO _x | ROC | CO | SO _x | TSP | PM ₁₀ |
|---|-----------------|--------------|----|-----------------|-----|------------------|
| PLATFORM A – PTO 9110-R3: Reeval issued on ** | | | | | | |
| lb/day | | 11.48 | | | | |
| tons/year | 0.16 | 2.10 | | | | |
| PLATFORM B – PTO 9111-R3: Reeval issued on ** | | | | | | |
| lb/day | | 18.48 | | | | |
| tons/year | 0.16 | 3.37 | | | | |
| PLATFORM C – PTO 9112-R3: Reeval issued on ** | | | | | | |
| lb/day | | 1.53 | | | | |
| tons/year | 0.16 | 0.28 | | | | |
| PLATFORM HENRY – PTO 9113-R3: Reeval issued on ** | | | | | | |
| lb/day | | 2.66 | | | | |
| tons/year | | 0.49 | | | | |
| PLATFORM HILLHOUSE – PTO 9114-R3: Reeval issued on ** | | | | | | |
| lb/day | | 13.97 | | | | |
| tons/year | 0.16 | 2.51 | | | | |
| TOTAL NEI FOR ALL PLATFORMS AT DCOR OCS: | | | | | | |
| lb/day | | 48.12 | | | | |
| tons/year | 0.80 | 8.75 | | | | |

References: Tables 5.5 in PTO's, 9110, 9111, 9112, 9113 and 9114

**Table 5.1-1
Dos Cuadras Platform C - PTO 9112-R3
Operating Equipment Description**

| Equipment Category | Description | APCD Device No. | Device Specifications | | | | Usage Data | | | Maximum Operating Schedule | | | | References |
|-----------------------------------|----------------------|-----------------|-----------------------|--------|-------|-----------|------------|------------|------|----------------------------|-----|-------|-------|------------|
| | | | Fuel | % S | Size | Units | Capacity | Units | Load | hr | day | qtr | year | |
| Combustion - Engines | North Crane | 4924 | D2 | 0.0015 | 230 | bhp | 7,272 | Btu/bhp-hr | -- | 1.0 | 24 | 500 | 1,000 | A |
| | South Crane | 4923 | D2 | 0.0015 | 109 | bhp | 7,732 | Btu/bhp-hr | -- | 1.0 | 24 | 100 | 200 | |
| | Stand-by Fire Pump | 4926 | D2 | 0.0015 | 85 | bhp | 8,000 | Btu/hp-hr | -- | 1.0 | 2 | 200 | 200 | |
| Combustion - Flare | Purge and Pilot | 5519 | PG | 0.0239 | 150 | scfh | 0.165 | MMBtu/hr | -- | 1.0 | 24 | 2,190 | 8,760 | B |
| | Planned - continuous | -- | PG | 0.0239 | 250 | scfh | 0.275 | MMBtu/hr | -- | 1.0 | 24 | 2,190 | 8,760 | |
| | Planned - other | -- | PG | 0.0239 | 2,500 | MMBtu/hr | 26.393 | MMscf/yr | -- | -- | -- | 1 | 1 | |
| | Unplanned | -- | PG | 0.0239 | 2,500 | MMBtu/hr | 26.393 | MMscf/yr | -- | -- | -- | 1 | 1 | |
| Fugitive Components | Oil - controlled | 102233 | -- | -- | 5,355 | comp-lp | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | C |
| | Oil - unsafe | 102234 | -- | -- | 2 | comp-lp | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | |
| | Gas - controlled | 102231 | -- | -- | 5,282 | comp-lp | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | |
| | Gas - unsafe | 102232 | -- | -- | 42 | comp-lp | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | |
| Supply Boat | Main Engines - con | 5520 | D2 | 0.0015 | 4,000 | bhp-total | 0.049 | gal/bhp-hr | 0.65 | 1.0 | 11 | 57 | 114 | D |
| | Main Engines - uncon | 105238 | D2 | 0.0015 | 4,000 | bhp-total | 0.055 | gal/bhp-hr | 0.65 | 1.0 | 11 | 6 | 11 | |
| | Generator Engines | 5521 | D2 | 0.0015 | 490 | bhp-total | 0.055 | gal/bhp-hr | 0.50 | 1.0 | 11 | 57 | 114 | |
| | Bow Thruster | 5522 | D2 | 0.0015 | 515 | bhp-total | 0.055 | gal/bhp-hr | 1.00 | 1.0 | 2 | 10 | 21 | |
| | Emergency Response | 5523 | D2 | 0.0015 | 1,770 | bhp-total | 0.055 | gal/bhp-hr | 0.65 | -- | -- | 18 | 72 | |
| Crew Boat | Main Engines - con | 5524 | D2 | 0.0015 | 1,530 | bhp-total | 0.055 | gal/bhp-hr | 0.85 | 1.0 | 18 | 263 | 1,050 | E |
| | Main Engines - uncon | 105239 | D2 | 0.0015 | 1,530 | bhp-total | 0.055 | gal/bhp-hr | 0.85 | 1.0 | 18 | 26 | 105 | |
| | Auxilliary Engines | 5525 | D2 | 0.0015 | 218 | bhp-total | 0.055 | gal/bhp-hr | 0.50 | 1.0 | 18 | 263 | 1,050 | |
| Pigging Equipment | Oil Launcher | 102214 | -- | -- | 10 | cf | 1 | psig | -- | 1 | 1 | 40 | 160 | F |
| | Gas Launcher | 102215 | -- | -- | 10 | cf | 1 | psig | -- | 1 | 1 | 40 | 160 | |
| Sumps/Tanks/Separators | Waste Oil Sump | 5526 | -- | -- | 13 | ft2 | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | G |
| | Skimmer Tank | 5528 | -- | -- | 50 | ft2 | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | |
| | Waste Water Tank | 5529 | -- | -- | 50 | ft2 | -- | -- | -- | 1.0 | 24 | 2,190 | 8,760 | |
| Solvent Usage | Cleaning/degreasing | 111121 | -- | -- | -- | -- | 4,255 | gal/yr | -- | 1.0 | 24 | 2,190 | 8,760 | H |
| Permit-exempt/Fed.SignificantUnit | Power Generator | 4925 | D2 | 0.0015 | 22 | bhp | 7,000 | Btu/hp-hr | -- | 1.0 | 24 | 2,190 | 8,760 | A |

**Table 5.1-2
Dos Cuadras Platform C - PTO 9112-R3
Equipment Emission Factors**

| Equipment Category | Description | APCD Device No. | Emission Factors | | | | | | Units | References |
|--|------------------------|-----------------|------------------|-------------|-------------|---------------|-------------|-------------|-----------------|------------|
| | | | NOx | ROC | CO | SOx | PM | PM10 | | |
| Combustion - Engines | North Crane | 4924 | 3.02 | 0.30 | 0.95 | 0.0015 | 0.31 | 0.31 | lb/MMBtu | A |
| | South Crane | 4923 | 3.99 | 0.30 | 0.95 | 0.0015 | 0.31 | 0.31 | lb/MMBtu | |
| | Stand-by Fire Pump | 4926 | 14.06 | 1.12 | 3.03 | 0.0056 | 0.98 | 0.98 | g/bhp-hr | A |
| Combustion - Flare | Purge and Pilot | 5519 | 0.068 | 0.057 | 0.37 | 0.037 | 0.02 | 0.02 | lb/MMBtu | B |
| | Planned - continuous | -- | 0.068 | 0.057 | 0.37 | 0.037 | 0.02 | 0.02 | lb/MMBtu | |
| | Planned - other | -- | 0.068 | 0.057 | 0.37 | 0.037 | 0.02 | 0.02 | lb/MMBtu | |
| | Unplanned | -- | 0.068 | 0.057 | 0.37 | 0.037 | 0.02 | 0.02 | lb/MMBtu | |
| Fugitive Components | Oil - controlled | 102233 | -- | 0.0009 | -- | -- | -- | -- | lb/day-clp | C |
| | Oil - unsafe | 102234 | -- | 0.0044 | -- | -- | -- | -- | lb/day-clp | |
| | Gas - controlled | 102231 | -- | 0.0147 | -- | -- | -- | -- | lb/day-clp | |
| | Gas - unsafe | 102232 | -- | 0.0736 | -- | -- | -- | -- | lb/day-clp | |
| Supply Boat | Main Engines - con | 5520 | 270 | 16.8 | 78.3 | 21.2 | 33.0 | 33.0 | lb/1000 gal | D |
| | Main Engines - uncon | 105238 | 561 | 16.8 | 78.3 | 21.2 | 33.0 | 33.0 | lb/1000 gal | |
| | Generator Engines | 5521 | 600 | 49.0 | 129.3 | 21.2 | 42.2 | 42.2 | lb/1000 gal | |
| | Bow Thruster | 5522 | 600 | 49.0 | 129.3 | 21.2 | 42.2 | 42.2 | lb/1000 gal | |
| | Emergency Response | 5523 | 561 | 16.8 | 78.3 | 21.2 | 33.0 | 33.0 | lb/1000 gal | |
| Crew Boat | Main Engines - con | 5524 | 337 | 42.3 | 99.7 | 21.2 | 33.0 | 31.7 | lb/1000 gal | E |
| | Main Engines - uncon | 105239 | 561 | 42.3 | 99.7 | 21.2 | 33.0 | 31.7 | lb/1000 gal | |
| | Auxilliary Engines | 5525 | 600 | 41.0 | 129.3 | 21.2 | 42.2 | 40.5 | lb/1000 gal | |
| Pigging Equipment | Oil Launcher | 102214 | -- | 0.0120 | -- | -- | -- | -- | lb/acf-evnt | F |
| | Gas Launcher | 102215 | -- | 0.0120 | -- | -- | -- | -- | lb/acf-evnt | |
| Sumps/Tanks/Separators | Waste Oil Sump | 5526 | -- | 0.001 | -- | -- | -- | -- | lb/ft2-day | G |
| | Skimmer Tank | 5528 | -- | 0.001 | -- | -- | -- | -- | lb/ft2-day | |
| | Waste Water Tank | 5529 | -- | 0.001 | -- | -- | -- | -- | lb/ft2-day | |
| Solvent Usage | Cleaning/degreasing | 111121 | -- | 6.7 | -- | -- | -- | -- | lb/gal | H |
| <i>Permit-exempt/Fed. Significant Unit</i> | <i>Power Generator</i> | <i>4925</i> | <i>4.41</i> | <i>0.36</i> | <i>0.95</i> | <i>0.0015</i> | <i>0.31</i> | <i>0.31</i> | <i>lb/MMBtu</i> | <i>A</i> |

**Table 5.1-3
Dos Cuadras Platform C - PTO 9112-R3
Hourly and Daily Emissions**

| Equipment Category | Description | APCD Device No. | NOx | | ROC | | CO | | SOx | | PM | | PM10 | | Federally Enforceable |
|-----------------------------------|----------------------|-----------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-----------------------|
| | | | lb/hr | lb/day | |
| Combustion - Engines | North Crane | 4924 | 5.36 | 128.62 | 0.53 | 12.83 | 1.68 | 40.42 | 0.00 | 0.07 | 0.55 | 13.19 | 0.55 | 13.19 | FE |
| | South Crane | 4923 | 3.57 | 85.59 | 0.27 | 6.47 | 0.85 | 20.37 | 0.00 | 0.03 | 0.28 | 6.65 | 0.28 | 6.65 | FE |
| | Stand-by Fire Pump | 4926 | 2.63 | 5.27 | 0.21 | 0.42 | 0.57 | 1.14 | 0.00 | 0.00 | 0.18 | 0.37 | 0.18 | 0.37 | |
| Combustion - Flare | Purge and Pilot | 5519 | 0.01 | 0.27 | 0.01 | 0.23 | 0.06 | 1.47 | 0.01 | 0.15 | 0.00 | 0.08 | 0.00 | 0.08 | FE |
| | Planned - continuous | -- | 0.02 | 0.45 | 0.02 | 0.38 | 0.10 | 2.44 | 0.01 | 0.24 | 0.01 | 0.13 | 0.01 | 0.13 | FE |
| | Planned - other | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Unplanned | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Fugitive Components | Oil - controlled | 102233 | -- | -- | 0.20 | 4.70 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Oil - unsafe | 102234 | -- | -- | 0.00 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Gas - controlled | 102231 | -- | -- | 3.24 | 77.74 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Gas - unsafe | 102232 | -- | -- | 0.13 | 3.09 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Supply Boat | Main Engines - con | 5520 | 34.33 | 377.68 | 2.14 | 23.51 | 9.96 | 109.59 | 2.69 | 29.60 | 4.20 | 46.19 | 4.20 | 46.19 | FE |
| | Main Engines - uncon | 105238 | 80.25 | 882.72 | 2.40 | 26.43 | 11.20 | 123.17 | 3.02 | 33.27 | 4.72 | 51.91 | 4.72 | 51.91 | FE |
| | Generator Engines | 5521 | 8.09 | 88.94 | 0.66 | 7.26 | 1.74 | 19.16 | 0.28 | 3.13 | 0.57 | 6.25 | 0.57 | 6.25 | FE |
| | Bow Thruster | 5522 | 17.00 | 33.99 | 1.39 | 2.77 | 3.66 | 7.32 | 0.60 | 1.20 | 1.19 | 2.39 | 1.19 | 2.39 | FE |
| | Emergency Response | 5523 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Crew Boat | Main Engines - con | 5524 | 24.08 | 421.46 | 3.02 | 52.92 | 7.13 | 124.80 | 1.51 | 26.47 | 2.36 | 41.31 | 2.27 | 39.65 | FE |
| | Main Engines - uncon | 105239 | 40.14 | 702.43 | 3.02 | 52.92 | 7.13 | 124.80 | 1.51 | 26.47 | 2.36 | 41.31 | 2.27 | 39.65 | FE |
| | Auxilliary Engines | 5525 | 3.60 | 62.95 | 0.25 | 4.31 | 0.77 | 13.56 | 0.13 | 2.22 | 0.25 | 4.43 | 0.24 | 4.25 | FE |
| Pigging Equipment | Oil Launcher | 102214 | -- | -- | 0.12 | 0.12 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Gas Launcher | 102215 | -- | -- | 0.12 | 0.12 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sumps/Tanks/Separators | Waste Oil Sump | 5526 | -- | -- | 0.00 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Skimmer Tank | 5528 | -- | -- | 0.00 | 0.03 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Waste Water Tank | 5529 | -- | -- | 0.00 | 0.03 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Solvent Usage | Cleaning/degreasing | 111121 | -- | -- | 9.76 | 78.11 | -- | -- | -- | -- | -- | -- | -- | FE | |
| Permit-exempt/Fed.SignificantUnit | Power Generator | 4925 | 0.71 | 17.12 | 0.06 | 1.40 | 0.15 | 0.01 | 0.00 | 0.01 | 0.05 | 1.20 | 0.05 | 1.20 | FE |

**Table 5.1-4
Dos Cuadras Platform C - PTO 9112-R3
Quarterly and Annual Emissions**

| Equipment Category | Description | APCD Device No. | NOx | | ROC | | CO | | SOx | | PM | | PM10 | | Federally Enforceable |
|-------------------------------------|----------------------|-----------------|------|-------|------|-------|------|------|------|------|------|------|------|------|-----------------------|
| | | | TPQ | TPY | TPQ | TPY | TPQ | TPY | TPQ | TPY | TPQ | TPY | TPQ | TPY | |
| Combustion - Engines | North Crane | 4924 | 1.34 | 2.68 | 0.13 | 0.27 | 0.42 | 0.84 | 0.00 | 0.00 | 0.14 | 0.27 | 0.14 | 0.27 | FE |
| | South Crane | 4923 | 0.18 | 0.36 | 0.01 | 0.03 | 0.04 | 0.08 | 0.00 | 0.00 | 0.01 | 0.03 | 0.01 | 0.03 | FE |
| | Stand-by Fire Pump | 4926 | 0.26 | 0.26 | 0.02 | 0.02 | 0.06 | 0.06 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.02 | |
| Combustion - Flare | Purge and Pilot | 5519 | 0.01 | 0.05 | 0.01 | 0.04 | 0.07 | 0.27 | 0.01 | 0.03 | 0.00 | 0.01 | 0.00 | 0.01 | FE |
| | Planned - continuous | -- | 0.02 | 0.08 | 0.02 | 0.07 | 0.11 | 0.45 | 0.01 | 0.04 | 0.01 | 0.02 | 0.01 | 0.02 | FE |
| | Planned - other | -- | 1.18 | 1.18 | 1.00 | 1.00 | 6.44 | 6.44 | 0.64 | 0.64 | 0.35 | 0.35 | 0.35 | 0.35 | FE |
| | Unplanned | -- | 1.18 | 1.18 | 1.00 | 1.00 | 6.44 | 6.44 | 0.64 | 0.64 | 0.35 | 0.35 | 0.35 | 0.35 | FE |
| Fugitive Components | Oil - controlled | 102233 | -- | -- | 0.21 | 0.86 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Oil - unsafe | 102234 | -- | -- | 0.00 | 0.00 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Gas - controlled | 102231 | -- | -- | 3.55 | 14.19 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Gas - unsafe | 102232 | -- | -- | 0.14 | 0.56 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Supply Boat | Main Engines - con | 5520 | 0.98 | 1.96 | 0.06 | 0.12 | 0.28 | 0.57 | 0.08 | 0.15 | 0.12 | 0.24 | 0.12 | 0.24 | FE |
| | Main Engines - uncon | 105238 | 0.23 | 0.46 | 0.01 | 0.01 | 0.03 | 0.06 | 0.01 | 0.02 | 0.01 | 0.03 | 0.01 | 0.03 | FE |
| | Generator Engines | 5521 | 0.23 | 0.46 | 0.02 | 0.04 | 0.05 | 0.10 | 0.01 | 0.02 | 0.02 | 0.03 | 0.02 | 0.03 | FE |
| | Bow Thruster | 5522 | 0.09 | 0.18 | 0.01 | 0.01 | 0.02 | 0.04 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | FE |
| | Emergency Response | 5523 | 0.32 | 1.28 | 0.01 | 0.04 | 0.04 | 0.18 | 0.01 | 0.05 | 0.02 | 0.08 | 0.02 | 0.08 | FE |
| Crew Boat | Main Engines - con | 5524 | 3.16 | 12.64 | 0.40 | 1.59 | 0.94 | 3.74 | 0.20 | 0.79 | 0.31 | 1.24 | 0.30 | 1.19 | FE |
| | Main Engines - uncon | 105239 | 0.53 | 2.11 | 0.04 | 0.16 | 0.09 | 0.37 | 0.02 | 0.08 | 0.03 | 0.12 | 0.03 | 0.12 | FE |
| | Auxiliary Engines | 5525 | 0.47 | 1.89 | 0.03 | 0.13 | 0.10 | 0.41 | 0.02 | 0.07 | 0.03 | 0.13 | 0.03 | 0.13 | FE |
| Pigging Equipment | Oil Launcher | 102214 | -- | -- | 0.00 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Gas Launcher | 102215 | -- | -- | 0.00 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sumps/Tanks/Separators | Waste Oil Sump | 5526 | -- | -- | 0.00 | 0.00 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Skimmer Tank | 5528 | -- | -- | 0.00 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| | Waste Water Tank | 5529 | -- | -- | 0.00 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Solvent Usage | Cleaning/degreasing | 111121 | -- | -- | 3.56 | 14.25 | -- | -- | -- | -- | -- | -- | -- | -- | FE |
| Permit-exempt/Fed. Significant Unit | Power Generator | 4925 | 0.78 | 3.12 | 0.06 | 0.26 | 0.17 | 0.67 | 0.00 | 0.00 | 0.05 | 0.22 | 0.05 | 0.22 | FE |

**Table 5.2
Dos Cuadras Platform C - PTO 9112-R3
Total Permitted Facility Emissions**

A. HOURLY (lb/hr)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|------------------------|--------|-------|-------|------|------|------|
| Combustion - Engines | 11.56 | 1.01 | 3.10 | 0.01 | 1.01 | 1.01 |
| Combustion - Flare | 0.03 | 0.03 | 0.16 | 0.02 | 0.01 | 0.01 |
| Fugitive Components | -- | 3.56 | -- | -- | -- | -- |
| Supply Boat | 88.33 | 3.06 | 12.94 | 3.31 | 5.29 | 5.29 |
| Emergency Response | -- | -- | -- | -- | -- | -- |
| Crew Boat | 43.74 | 3.27 | 7.91 | 1.64 | 2.61 | 2.51 |
| Pigging | -- | 0.24 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | 0.00 | -- | -- | -- | -- |
| Solvent Usage | -- | 9.76 | -- | -- | -- | -- |
| | 143.66 | 20.94 | 24.11 | 4.97 | 8.92 | 8.82 |

B. DAILY (lb/day)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|------------------------|----------|--------|--------|-------|--------|--------|
| Combustion - Engines | 219.48 | 19.72 | 61.93 | 0.10 | 20.20 | 20.20 |
| Combustion - Flare | 0.72 | 0.61 | 3.91 | 0.39 | 0.21 | 0.21 |
| Fugitive Components | -- | 85.54 | -- | -- | -- | -- |
| Supply Boat | 1,005.65 | 36.46 | 149.65 | 37.60 | 60.55 | 60.55 |
| Emergency Response | -- | -- | -- | -- | -- | -- |
| Crew Boat | 765.38 | 57.22 | 138.36 | 28.69 | 45.73 | 43.90 |
| Pigging | -- | 0.24 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | 0.07 | -- | -- | -- | -- |
| Solvent Usage | -- | 78.11 | -- | -- | -- | -- |
| | 1,991.23 | 277.97 | 353.84 | 66.78 | 126.70 | 124.87 |

C. QUARTERLY (tpq)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|------------------------|-------|-------|-------|------|------|------|
| Combustion - Engines | 1.78 | 0.17 | 0.52 | 0.00 | 0.17 | 0.17 |
| Combustion - Flare | 2.40 | 2.02 | 13.05 | 1.30 | 0.71 | 0.71 |
| Fugitive Components | -- | 3.90 | -- | -- | -- | -- |
| Supply Boat | 1.53 | 0.09 | 0.39 | 0.10 | 0.16 | 0.16 |
| Emergency Response | 0.32 | 0.01 | 0.04 | 0.01 | 0.02 | 0.02 |
| Crew Boat | 4.16 | 0.47 | 1.13 | 0.24 | 0.37 | 0.36 |
| Pigging | -- | 0.00 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | 0.00 | -- | -- | -- | -- |
| Solvent Usage | -- | 3.56 | -- | -- | -- | -- |
| | 10.19 | 10.24 | 15.13 | 1.64 | 1.42 | 1.41 |

D. ANNUAL (tpy)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|------------------------|-------|-------|-------|------|------|------|
| Combustion - Engines | 3.30 | 0.32 | 0.98 | 0.00 | 0.32 | 0.32 |
| Combustion - Flare | 2.50 | 2.11 | 13.58 | 1.35 | 0.73 | 0.73 |
| Fugitive Components | -- | 15.61 | -- | -- | -- | -- |
| Supply Boat | 3.06 | 0.19 | 0.77 | 0.19 | 0.31 | 0.31 |
| Emergency Response | 1.28 | 0.04 | 0.18 | 0.05 | 0.08 | 0.08 |
| Crew Boat | 16.64 | 1.88 | 4.53 | 0.94 | 1.50 | 1.44 |
| Pigging | -- | 0.02 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | 0.01 | -- | -- | -- | -- |
| Solvent Usage | -- | 14.25 | -- | -- | -- | -- |
| | 26.77 | 34.42 | 20.04 | 2.53 | 2.94 | 2.88 |

**Table 5.3
Dos Cuadras Platform C - PTO 9112-R3
Federal Potential to Emit**

A. PEAK HOURLY (lb/hr)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| Combustion - Engines | 11.56 | 1.01 | 3.10 | 0.01 | 1.01 | 1.01 |
| Combustion - Flare | 0.03 | 0.03 | 0.16 | 0.02 | 0.01 | 0.01 |
| Fugitive Components | -- | -- | -- | -- | -- | -- |
| Supply Boat | 88.33 | 3.06 | 12.94 | 3.31 | 5.29 | 5.29 |
| Emergency Response | -- | -- | -- | -- | -- | -- |
| Crew Boat | 43.74 | 3.27 | 7.91 | 1.64 | 2.61 | 2.51 |
| Pigging | -- | 0.12 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | -- | -- | -- | -- | -- |
| Solvent Usage | -- | 9.76 | -- | -- | -- | -- |
| <i>Permit-exempt/Fed.SignificantUnit</i> | <i>0.71</i> | <i>0.06</i> | <i>0.15</i> | <i>0.00</i> | <i>0.05</i> | <i>0.05</i> |
| | 144.37 | 17.31 | 24.26 | 4.97 | 8.97 | 8.87 |

B. PEAK DAILY (lb/day)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|--|--------------|-------------|-------------|-------------|-------------|-------------|
| Combustion - Engines | 219.48 | 19.72 | 61.93 | 0.10 | 20.20 | 20.20 |
| Combustion - Flare | 0.72 | 0.61 | 3.91 | 0.39 | 0.21 | 0.21 |
| Fugitive Components | -- | -- | -- | -- | -- | -- |
| Supply Boat | 1,005.65 | 36.46 | 149.65 | 37.60 | 60.55 | 60.55 |
| Emergency Response | -- | -- | -- | -- | -- | -- |
| Crew Boat | 765.38 | 57.22 | 138.36 | 28.69 | 45.73 | 43.90 |
| Pigging | -- | 0.12 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | -- | -- | -- | -- | -- |
| Solvent Usage | -- | 78.11 | -- | -- | -- | -- |
| <i>Permit-exempt/Fed.SignificantUnit</i> | <i>17.12</i> | <i>1.40</i> | <i>0.01</i> | <i>0.01</i> | <i>1.20</i> | <i>1.20</i> |
| | 2,008.35 | 193.63 | 353.85 | 66.79 | 127.90 | 126.07 |

C. PEAK QUARTERLY (tpq)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| Combustion - Engines | 1.78 | 0.17 | 0.52 | 0.00 | 0.17 | 0.17 |
| Combustion - Flare | 2.40 | 2.02 | 13.05 | 1.30 | 0.71 | 0.71 |
| Fugitive Components | -- | -- | -- | -- | -- | -- |
| Supply Boat | 1.53 | 0.09 | 0.39 | 0.10 | 0.16 | 0.16 |
| Emergency Response | 0.32 | 0.01 | 0.04 | 0.01 | 0.02 | 0.02 |
| Crew Boat | 4.16 | 0.47 | 1.13 | 0.24 | 0.37 | 0.36 |
| Pigging | -- | 0.00 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | -- | -- | -- | -- | -- |
| Power Production Generator | 0.74 | 0.07 | 0.16 | 0.05 | 0.05 | 0.04 |
| Standby Fire Pump | 2.88 | 0.27 | 0.63 | 0.20 | 0.21 | 0.18 |
| Diesel Storage Tanks | -- | 0.10 | -- | -- | -- | -- |
| Surface Coating - Maintenance | -- | 0.13 | -- | -- | -- | -- |
| Solvent Usage | -- | 3.56 | -- | -- | -- | -- |
| <i>Permit-exempt/Fed.SignificantUnit</i> | <i>0.78</i> | <i>0.06</i> | <i>0.17</i> | <i>0.00</i> | <i>0.05</i> | <i>0.05</i> |
| | 14.59 | 6.96 | 16.09 | 1.89 | 1.74 | 1.68 |

D. PEAK ANNUAL (tpy)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| Combustion - Engines | 3.30 | 0.32 | 0.98 | 0.00 | 0.32 | 0.32 |
| Combustion - Flare | 2.50 | 2.11 | 13.58 | 1.35 | 0.73 | 0.73 |
| Fugitive Components | -- | -- | -- | -- | -- | -- |
| Supply Boat | 3.06 | 0.19 | 0.77 | 0.19 | 0.31 | 0.31 |
| Emergency Response | 1.28 | 0.04 | 0.18 | 0.05 | 0.08 | 0.08 |
| Crew Boat | 16.64 | 1.88 | 4.53 | 0.94 | 1.50 | 1.44 |
| Pigging | -- | 0.01 | -- | -- | -- | -- |
| Sumps/Tanks/Separators | -- | -- | -- | -- | -- | -- |
| Power Production Generator | 3.12 | 0.26 | 0.67 | 0.14 | 0.22 | 0.22 |
| Standby Fire Pump | 3.18 | 0.26 | 0.68 | 0.15 | 0.22 | 0.22 |
| Diesel Storage Tanks | -- | 0.10 | -- | -- | -- | -- |
| Surface Coating - Maintenance | -- | 0.13 | -- | -- | -- | -- |
| Solvent Usage | -- | 14.25 | -- | -- | -- | -- |
| <i>Permit-exempt/Fed.SignificantUnit</i> | <i>3.12</i> | <i>0.26</i> | <i>0.67</i> | <i>0.00</i> | <i>0.22</i> | <i>0.22</i> |
| | 33.07 | 19.54 | 21.39 | 2.82 | 3.38 | 3.32 |

Table 5.4
Dos Cuadras Platform C - PTO 9112-R3
Estimated Permit Exempt Emissions

A. QUARTERLY (tpq)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|-------------------------------|------------|------------|-----------|------------|-----------|-------------|
| Power Generator | 0.78 | 0.06 | 0.17 | 0.00 | 0.05 | 0.05 |
| Diesel Storage Tanks | -- | 0.10 | -- | -- | -- | -- |
| Surface Coating - Maintenance | -- | 0.13 | -- | -- | -- | -- |
| | 0.78 | 0.29 | 0.17 | 0.00 | 0.05 | 0.05 |

B. ANNUAL (tpy)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|-------------------------------|------------|------------|-----------|------------|-----------|-------------|
| Power Generator | 3.12 | 0.26 | 0.67 | 0.00 | 0.22 | 0.22 |
| Diesel Storage Tanks | -- | 0.10 | -- | -- | -- | -- |
| Surface Coating - Maintenance | -- | 0.13 | -- | -- | -- | -- |
| | 3.12 | 0.49 | 0.67 | 0.00 | 0.22 | 0.22 |

Table 5.5
Dos Cuadras Platform C - PTO 9112-R3
Net Emissions Increase

A. DAILY (lb/day)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|---------------------------|------------|------------|-----------|------------|-----------|-------------|
| Combustion - Engines | ---- | ---- | ---- | ---- | ---- | ---- |
| Combustion - Flare | ---- | ---- | ---- | ---- | ---- | ---- |
| Fugitive Components | ---- | 1.53 | ---- | ---- | ---- | ---- |
| Supply Boat | ---- | ---- | ---- | ---- | ---- | ---- |
| Emergency Response | ---- | ---- | ---- | ---- | ---- | ---- |
| Crew Boat | ---- | ---- | ---- | ---- | ---- | ---- |
| Pigging | ---- | ---- | ---- | ---- | ---- | ---- |
| Sumps/Tanks/Separators | ---- | ---- | ---- | ---- | ---- | ---- |
| Solvent Usage | ---- | ---- | ---- | ---- | ---- | ---- |
| | 0.00 | 1.53 | 0.00 | 0.00 | 0.00 | 0.00 |

B. ANNUAL (tpy)

| Equipment Category | NOx | ROC | CO | SOx | PM | PM10 |
|---------------------------|------------|------------|-----------|------------|-----------|-------------|
| Combustion - Engines | ---- | ---- | ---- | ---- | ---- | ---- |
| Combustion - Flare | ---- | ---- | ---- | ---- | ---- | ---- |
| Fugitive Components | ---- | 0.28 | ---- | ---- | ---- | ---- |
| Supply Boat | 0.16 | ---- | ---- | ---- | ---- | ---- |
| Emergency Response | ---- | ---- | ---- | ---- | ---- | ---- |
| Crew Boat | ---- | ---- | ---- | ---- | ---- | ---- |
| Pigging | ---- | ---- | ---- | ---- | ---- | ---- |
| Sumps/Tanks/Separators | ---- | ---- | ---- | ---- | ---- | ---- |
| Solvent Usage | ---- | ---- | ---- | ---- | ---- | ---- |
| | 0.16 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 |

Notes:

1. The daily and annual NEI for ROC are based on ATC/PTO Mod 10130-01(issued 6/14/01) and ATC/PTO 10140 (issued 12/16/99).
2. The annual NEI for Nox is based on ATC/PTO 11445 (issued 3/30/05).

6.0 Air Quality Impact Analyses

6.1 Modeling

Air quality modeling was not required for this stationary source.

6.2 Increments

An air quality increment analysis was not required for this stationary source

6.3 Monitoring

Air quality monitoring is not required for this stationary source.

6.4 Health Risk Assessment

A Health Risk Assessment was not required for this stationary source.

7.0 CAP Consistency, Offset Requirements and ERCs

7.1 General

Santa Barbara County is *in attainment for the federal ozone standard, but is nonattainment* for the state ozone ambient air quality standards. In addition, the County is nonattainment with the state PM₁₀ ambient air quality standard. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with progress towards *maintenance of the federal and attainment of the* state ambient air quality standards. Under APCD regulations, any modifications at the South Cuyama Unit (or the E&B stationary source) that result in an emissions increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Additional increases may trigger offsets at the source or elsewhere so that there is a net air quality benefit for Santa Barbara County. These offset threshold levels are 55 lbs/day for all non-attainment pollutants except PM₁₀ for which the level is 80 lbs/day.

7.2 Clean Air Plan

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

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

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

7.3 Offset Requirements

The *Dos Cuadras - South County* stationary source does not currently require emission offsets.

7.4 Emission Reduction Credits

The *Dos Cuadras - South County* stationary source does not generate or provide 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 DCOR's Platform C on June 9, 1977.

9.0 Permit Conditions

This section lists the applicable permit conditions for Platform C. Section A lists the standard administrative conditions. Section B lists 'generic' permit conditions, including emission standards, for all equipment in this permit. Section C lists conditions affecting specific equipment. Section D lists non-federally enforceable (i.e., APCD only) permit conditions. Conditions listed in Sections A, B, and C are enforceable by the USEPA, the APCD, the State of California and the public. Conditions listed in Section D are enforceable only by the APCD and the State of California. Where any reference contained in Sections 9.A, 9.B, or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), the wording of the rule shall control.

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

9.A Standard Administrative Conditions

The following federally enforceable administrative permit conditions apply to Platform C:

- A.1 **Consistency with Analysis.** Operation under this permit shall be conducted by DCOR consistent with all written data, specifications and assumptions included with the application and supplements thereof (as documented in the APCD's project file) and with the APCD's analyses under which this permit is issued as documented in the permit analyses prepared for and issued with this permit. [Re: PTO 9112]
- 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 9112]
- A.3 **Equipment Maintenance.** The equipment listed in this permit shall be properly maintained and kept in good condition at all times. The equipment manufacturer's maintenance manual, maintenance procedures and/or maintenance checklists (if any) shall be kept on site.
- A.4 **Reimbursement of Costs.** All reasonable expenses, as defined in APCD Rule 210, incurred by the APCD, APCD contractors, and legal counsel for all activities 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 DCOR as required by Rule 210. [Re: PTO 9112, APCD Rule 210]

- A.5 **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the APCD or its agents, DCOR shall make such records available or provide access to such facilities upon notice from the APCD. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. [Re: PTO 9112]
- A.6 **Compliance.** Nothing contained within this permit shall be construed by DCOR to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment. [Re: PTO 9112]
- A.7 **Conflict between Permits.** The requirements or limits that are more protective of air quality shall apply if any conflict arises between the requirements and limits of this permit and any other permitting actions associated with the equipment permitted herein.
- A.8 **Consistency with State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the Platform C by the State of California or the California Coastal Commission in any consistency determination for the Project with the California Coastal Act. [Re: PTO 9112]
- A.9 **Compliance with Department of Interior Permits.** DCOR shall comply with all air quality control requirements imposed by the Department of the Interior in the *Plan of Development* approved for Platform C on May 6, 1968, and any subsequent modifications. Such requirements shall be enforceable by the APCD. [Re: PTO 9112]
- A.10 **Compliance with Permit Conditions.**
- (a) DCOR shall comply with all permit conditions.
 - (b) This permit does not convey property rights or exclusive privilege of any sort.
 - (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 APCD 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 DCOR does not stay any permit condition.
 - (f) Within a reasonable time period, DCOR shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:
 - (i) compliance with the permit, or
 - (ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.

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

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

A.11 **Emergency Provisions.** DCOR shall comply with the requirements of the APCD, Rule 505 (Upset/Breakdown rule) and/or APCD Rule 1303.F, whichever is applicable to the emergency situation. In order to maintain an affirmative defense under Rule 1303.F, DCOR shall provide the APCD, in writing, a “notice of emergency” within 2 working days of the emergency. The “notice of emergency” shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F. [Re: 40 CFR 70.6(g), APCD Rule 1303.F]

A.12 **Compliance Plan.**

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

[Re: APCD Rule 1302.D.2]

A.13 **Right of Entry.** The Regional Administrator of USEPA, the Control Officer, or their authorized representatives, upon the presentation of credentials, shall be permitted by DCOR to enter upon the premises where its Part 70 Source is located or where records must be kept:

- (a) To inspect the stationary source, including monitoring and control equipment, work practices, operations, and emission-related activity;
- (b) To inspect and duplicate, at reasonable times, records required by this Permit to Operate;
- (c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times. Monitoring of emissions can include source testing.

[Re: APCD Rule 1303.D.2]

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

A.15 **Permit Life.** The Part 70 permit shall become invalid three years from the date of issuance, unless a timely and complete renewal application is submitted to the APCD. Any operation of the source by DCOR to which this Part 70 permit is issued beyond the expiration date of this Part 70 permit and without a valid Part 70 operating permit (or a complete Part 70 permit renewal application) shall be a violation of the CAAA, § 502(a) and 503(d) and of the APCD rules.

DCOR shall apply for renewal of the Part 70 permit no later than 6 months before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application.

[Re: APCD Rule 1304.D.1]

- A.16 **Payment of Fees.** DCOR shall reimburse the APCD for all its Part 70 permit processing and compliance monitoring expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the APCD and the USEPA pursuant to section 502(a) of the Clean Air Act. [Re: APCD Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7)]
- A.17 **Deviation from Permit Requirements.** DCOR shall submit a written report to the APCD documenting each and every deviation from the requirements of this permit or any applicable federal requirements within 7 days after discovery of the violation, but not later than 180 days after the date of occurrence. The report shall clearly document 1) the probable cause and extent of the deviation 2) equipment involved, 3) the quantity of excess pollutant emissions, if any, and 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to APCD in accordance with Rule 505. *Breakdown Conditions*, or Rule 1303.F *Emergency Provisions*. [APCD Rule 1303.D.1, 40 CFR 70.6(a) (3)]
- A.18 **Reporting Requirements/Compliance Certifications.** DCOR shall submit compliance certification reports to the USEPA *annually* and to the Control Officer every six months. These reports shall be submitted on APCD forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1 and March 1, respectively, each year. Supporting monitoring data shall be submitted in accordance with the “Semi-Annual Monitoring/Compliance Verification Report” condition in section 9.C. DCOR shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [Re: APCD Rules 1303.D.1, 1302.D.3, 1303.2.c]
- A.19 **Federally-enforceable Conditions.** Each federally enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the APCD-only enforceable section of this permit are federally enforceable or subject to the public/USEPA review [Re: CAAA, § 502(b)(6), 40 CFR 70.6(b)]
- A.20 **Recordkeeping Requirements.** DCOR 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 DCOR and shall be made available to the APCD upon request. [Re: APCD Rule 1303.D.1.f, 40 CFR 70.6(a)(3)(ii)(A)]

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

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

Administrative procedures to reopen and revise/revoke/reissue 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 APCD rule(s), the wording of the rule shall control.

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

For the equipment listed below, DCOR shall determine compliance with this Condition as specified below:

1. Offshore flaring:

For a total of four (4) planned flaring events, occurring during daylight hours, DCOR shall perform a USEPA Method 9 visible emission evaluation (VEE). For each event, the VEE duration will be for a six-minute period. DCOR staff (or contractors) certified in VEE shall perform the VEEs and maintain logs in accordance with USEPA Method 9. DCOR shall schedule one of the VEEs with the APCD so that an APCD Inspector can observe the event along with the DCOR observer. Completion of the four VEEs shall occur within 12 months of the date of final issuance of this permit.

Within 14 days after the fourth VEE is completed, DCOR shall submit all four visible emissions Method 9 logs to the APCD. If the APCD confirms that the VEEs show compliance with criteria a) or b) above, then DCOR may opt to discontinue Method 9 monitoring. If discontinued, DCOR shall submit for APCD review and approval a Flare Inspection and Maintenance Plan (Flare I&M Plan) describing the measures to ensure continued smokeless operation of the flare. The Flare I&M Plan shall be submitted within 30 days after the fourth VEE is completed. Once approved by the APCD, DCOR shall implement the Flare I&M Plan and any subsequent approved updates.

If any of the Method 9 VEEs show non-compliance with criteria a) or b) above, then DCOR (or contractors) certified in Method 9 shall continue to conduct visible emissions monitoring for planned flaring during daylight hours as specified below. The monitoring procedure below also shall be implemented if DCOR does not opt to submit a Flare I&M Plan, or if any APCD inspection detects non-compliance with criteria a) or b) above:

A visible emissions inspection for a one-minute period shall be performed once per quarter during a planned flaring event. If visible emissions are detected during the quarterly inspection, then a USEPA Method 9 visible emission evaluation (VEE) shall immediately be performed for a six-minute period or the duration of the flaring event, whichever is shorter. If a daylight-planned flaring event does not occur during a calendar quarter, then no VEE is required for that quarter.

The start-time and end-time of each VEE shall be documented, and logs shall be maintained in accordance with Method 9. The logs shall be included in the semi-annual Compliance Verification Reports. [Re: APCD Rule 302].

2. Diesel Fueled IC Engines:

Once per calendar quarter, DCOR shall perform a visible emissions inspection for a one-minute period on each engine when operating. If an engine does not operate during a calendar quarter, no monitoring is required. If visible emissions are detected during any inspection then an USEPA Method 9 visible emission evaluations (VEE) shall immediately be performed for a six-minute period. DCOR staff or hired contractor certified in VEE shall perform the VEE and maintain logs in accordance with USEPA Method 9. The start-time and end-time of each visible emissions inspection shall be recorded in a log, along with a notation identifying whether visible emissions were detected. [Re: APCD Rule 302]

3. Offshore Platform Crane:

During biennial source testing of the north crane, DCOR shall perform a visible emissions inspection on the crane for a one-minute period. If visible emissions are detected during any inspection, then a USEPA Method 9 visible emission evaluation (VEE) shall immediately be performed for a six-minute period. DCOR staff or hired contractor certified in VEE shall perform the VEE and maintain logs in accordance with USEPA Method 9. The start-time and end-time of each visible emissions inspection shall be recorded in a log, along with a notation identifying whether visible emissions were detected. [Ref: APCD Rule 302].

B.3 PM Concentration - South Zone (Rule 305). DCOR shall not discharge into the atmosphere, from any source, particulate matter in excess of the concentrations listed in Table 305(a) of Rule 305 [Re: APCD Rule 305]

B.4 Specific Contaminants (Rule 309). DCOR shall not discharge into the atmosphere from any single emission source sulfur compounds, carbon monoxide and combustion contaminants in excess of the applicable standards listed in Sections A, E and G of Rule 309 [Re: APCD Rule 309].

B.5 Sulfur Content of Fuels (Rule 311). The permittee 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 each diesel fuel supplier's statement or billing records showing the certified sulfur content for each shipment. DCOR shall submit such statement *semi-annually* as a part of its semi-annual Part 70 compliance verification report to the APCD [Re: APCD Rule 311].

- B.6 **Organic Solvents (Rule 317).** DCOR shall comply with the emission standards listed in Section B of Rule 317. Compliance with this condition shall be based on DCOR's compliance with Condition C.7 of this permit. [Re: APCD Rule 317]
- B.7 **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 DCOR's compliance with Condition C.7 of this permit and facility inspections. [Re: APCD Rule 322]
- B.8 **Architectural Coatings (Rule 323).** DCOR 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. Compliance with this condition shall be based on DCOR's compliance with Condition C.7 of this permit and facility inspections. [Re: APCD Rules 323, 317, 322, 324]
- B.9 **Disposal and Evaporation of Solvents (Rule 324).** DCOR 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 DCOR's compliance with Condition C.7 of this permit and facility inspections[Re: APCD Rule 324].
- B.10 **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 record keeping in accordance with Section B.2 and/or Section O of Rule 353.
- B.11 **Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers (Rule 360).** 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. [Re: APCD Rule 360].
- B.12 **Breakdowns (Rule 505).** DCOR shall promptly report breakdowns that result in violations of emission limitations or restrictions prescribed by APCD Rules or by this permit; such reporting shall be made in conformance with the requirements of Rule 505, Sections A, B1, and D.

- B.13 **Oil & Natural Gas Production MACT:** DCOR shall comply with all applicable recordkeeping requirements listed in Appendix A of this MACT to demonstrate its exemption under the ‘black oil’ provision of the MACT. [*Re: 40 CFR 63, Subpart HH*]
- B.14 **CARB Registered Portable Equipment.** State registered portable equipment (e.g., IC engines) shall comply with State registration requirements. A copy of the State registration shall be readily available whenever the equipment is at the facility. [*Re: APCD Rule 202*]
- B.15 **Emergency Episode Plan (Rule 603).** During emergency episodes, DCOR shall implement the Emergency Episode Plan as approved by the APCD in April 1997 { *Re: APCD Rule 603* }

9.C Equipment Specific Conditions

This section includes non-generic federally-enforceable conditions, including conditions for emissions and operations limits, monitoring, recordkeeping, and reporting for each specific equipment group.

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

| APCD Device No. | Name |
|-----------------|--|
| 004923 | South Crane (109 bhp, DD 3-71) |
| 004924 | North Crane (230 bhp, DD 6-71) |
| 004926 | Fire Water Pump IC Engine (85 hp) |
| <i>004925</i> | <i>Back-up Power Generator (21.8 bhp, Onan12DJC)</i> |
| <i>110757</i> | <i>Portable Air Compressor (49 hp)</i> |

Italics indicate that the equipment items are APCD-permit exempt; however federally enforceable conditions listed in Section 9.B shall apply to these units, wherever applicable.

- (a) **Emission Limits:** Mass emissions from the North and South Crane IC engines and Fire Water Pump IC Engine listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. In addition, the following specific emission limits apply:

North Crane Engine - Controlled emissions of NO_x from the North Crane engine shall not exceed either 8.4 g/bhp-hr or 797 ppmv at 15 percent oxygen. Compliance with these emission limits shall be based on quarterly inspections, NO_x and CO measurements with a portable emissions analyzer, and biennial source testing according to Table 4.1 and Section (c) below (or more frequent testing, as determined by the APCO, if quarterly portable NO_x analyzer results show potential exceedance of the standard).

- (b) **Operational Limits:** The following operational limits apply to the South Crane, North Crane, and Fire Water Pump diesel IC engines:

- (i) **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.

- (ii) **Operating Limits** - DCOR shall comply with the following operating limits:

- The North crane engine shall use no more than 319 gallons per day; 6,638 gallons per quarter; 13,275 gallons per year of diesel fuel.

- The South crane engine shall operate no more than 24 hours per day; 100 hours per quarter; 200 hours per year, which is equivalent to 156 gallons per day; 646 gallons per quarter; 1,293 gallons per year of diesel fuel use.
- The Fire Water Pump IC Engine shall limit maintenance and testing⁶ operations to no more than 200 hours per year. Emergency use operations, as defined in Section 93115.4 (30) of the ATCM⁷, have no operational hours limitations.

(iii) *Engine Identification and Maintenance* - Each IC engine shall be identified with a permanently-affixed plate, tag or marking, referencing either: (i) the IC engine's make, model, serial number, rated BHP and corresponding RPM; or (ii) the operator's unique tag number. The tag shall be made accessible and legible to facilitate APCD inspection of the IC engine.

(c) Monitoring: The following source testing and periodic monitoring conditions apply to the North and South Crane IC engines:

- (i) *Non-Resettable Hour Meter* – Each engine shall have installed a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the APCD has determined (in writing) that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. A monthly log shall be maintained that records the hours of operation of each engine.
- (ii) *Inspection and Maintenance Plan (I&M Plan)* - DCOR shall implement quarterly inspections of the North Crane engine according to the APCD-approved Engine Inspection and Maintenance Plan consistent with the requirements of Rule 333, Section F. This Plan, and any subsequent APCD-approved revisions, is incorporated by reference as an enforceable part of this permit.
- (iii) *Source Testing* - For the North Crane engine, DCOR shall perform source testing of air emissions and process parameters listed in Table 4.1 (Source Test Requirements) in accordance with the requirements of Rule 333, Section I. The Source Testing permit condition in this permit shall be adhered to.
- (iv) *Fuel Data* - DCOR shall maintain documentation of the diesel fuel sulfur content for each fuel shipment as certified in the fuel suppliers billing vouchers.

(d) Recordkeeping: DCOR shall keep the required records/logs, as applicable to this permit, which demonstrate compliance with emission limits, operation limits and monitoring requirements above. All records/logs shall be available to the APCD upon request. Written information (logs) shall include:

- (i) The hours of operation for the North and South crane engines (by ID number). The log shall detail the number of operating hours on each day the engine is operated and the cumulative total quarterly and annual hours.

⁶ "maintenance and testing" is defined in Section (d)(41) of the ATCM

⁷ 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

- (ii) The sulfur content of each fuel shipment as documented by fuel supplier records (e.g. billing vouchers or bills of lading). On an annual basis, the heating value of the diesel fuel (Btu/gal) shall be recorded based on measurement by DCOR or certified by the fuel supplier.
- (iii) Fuel purchase records or a written statement on the fuel supplier's letterhead signed by an authorized representative of the company confirming that the fuel purchased is either CARB Diesel, or an alternative diesel fuel that meets the requirements of the Verification Procedure, or an alternative fuel, or CARB Diesel fuel used with additives that meet the requirements of the Verification Procedure, or any combination of the above (*Reference Stationary Diesel ATCM and Title 13, CCR, Sections 2281 and 2282*).
- (iv) IC engine operations logs, including quarterly inspection results, consistent with the requirements of Rule 333.J.
- (v) If an operator's tag number is used in lieu of an IC engine identification plate, documentation which references the operator's unique IC engine ID number to a list containing the make, model, serial number, rated maximum BHP and the corresponding RPM.
- (vi) The hours of operation for the Emergency Standby Generator including;
 - A. Emergency use hours of operation.
 - B. Maintenance and testing hours of operation.
 - C. Hours of operation for all uses other than for emergency use and maintenance and testing, along with a description of what those hours were for.

Note: APCD Form ENF-92 (*Diesel-Fired Emergency Standby Engine Recordkeeping Form*) can be used for requirements A.-C.

- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
(*Re: APCD Rules 202, 333 and 1303, PTO 9112, 40 CFR 70.6*)

C.2 Combustion Equipment - Flare. The following equipment are included in this emissions unit category:

| APCD Device No. | Name |
|-----------------|-------------------------------------|
| 005519 | Flare Relief System; 2,500 MMBtu/hr |

- (a) **Emission Limits:** Mass emissions from the flare relief 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 purge and pilot, planned continuous, planned intermittent (other) and unplanned events shall not exceed the volumes in Table 5.1-1.
 - (ii) *Flare Fuel Gas Sulfur Limit* - The sulfur content of produced gas combusted during planned 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 APCD Rule 359. Compliance shall be based on annual lab analyses. DCOR shall perform additional testing of the sulfur content, using approved test methods, as requested by the APCD. DCOR shall submit the lab analyses reports to the APCD.
 - (iii) *Use of Propane as Flare Fuel Gas* - Propane may be used as an auxiliary fuel to the flare purge and pilot fuel gas on a temporary basis only during times when the supply of produced gas becomes disabled. The propane shall meet Gas Processors Association specifications for propane or HD-5 and shall have a total sulfur content no greater than 15 gr/100 scf (239 ppmv). DCOR shall record in a log each usage of propane in a APCD-approved format and shall maintain documentation of the sulfur content of each fuel shipment as certified in the fuel suppliers billing vouchers.
- (c) Monitoring: The following monitoring conditions apply to the flare relief system:
- (i) *Flare Volumes* - The volumes of gas flared shall be monitored by use of the APCD-approved flare header flow meter. The meter shall be operated consistent with DCOR's *Process Monitor Calibration and Maintenance Plan*.
 - (ii) *Sulfur Content* – For each flare event *lasting more than one hour*, the H₂S concentration of the flared gas shall be measured by detection tube. In addition, the total sulfur content of produced gas combusted during planned flaring events shall be measured on an annual basis using APCD-approved ASTM methods. DCOR shall perform additional testing of the sulfur content, using approved test methods, as requested by the APCD. DCOR shall submit all such lab analyses reports to the APCD.
- (d) Recordkeeping: The following recordkeeping conditions apply to the flare relief 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 produced gas combusted during flaring events shall be maintained.
 - (iii) *Propane as Flare Fuel Gas* - DCOR shall record in a log each usage of propane in an APCD-approved format and shall maintain documentation of the sulfur content of each fuel shipment as certified in the fuel suppliers billing vouchers.

- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
(Re: APCD Rules 359 and 1303, PTO 9112, 40 CFR 70.6)

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

| APCD Device No. | Name |
|-----------------|---|
| | <i>Gas/Light Liquid Service Components</i> |
| 102231 | Valves/Connections/Other – Controlled (5,282 <i>comp-leak-paths</i>) |
| 102232 | Valves/Connections/Other – Uncontrolled (42 <i>comp-leak-paths</i>) |
| 111123 | Stainless steel fittings - 1/2-inch or less dia. – Controlled (126 <i>clp</i> 's) |
| | <i>Oil Service Components</i> |
| 102233 | Valves/Connections/Other – Controlled (5,355 <i>comp-leak-paths</i>) |
| 102234 | Valves/Connections/Other – Uncontrolled (2 <i>comp-leak-paths</i>) |
| 111122 | Stainless steel fittings - 1/2-inch or less dia. – Controlled (376 <i>clp</i> 's) |

- (a) **Emission Limits:** Mass emissions from the gas/light liquid service and oil service components listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** Operation of the equipment, *including the 1/2-inch or less diameter stainless steel fittings*, listed in this section shall conform to the requirements listed in APCD Rule 331.D and E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition DCOR shall meet the following requirements:
- (i) *VRS Use* - The vapor recovery/gas collection (VRGC) system shall be in operation when the equipment connected to the VRGC system at the facility is in use. The VRGC system includes piping, valves, and flanges associated with the VRGC system. The VRGC system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
 - (ii) *I&M Program* - The APCD-approved I&M Plan for Platform C (*last updated in August 2002*) shall be implemented for the life of the project. The Plan, and any subsequent APCD approved revisions, is incorporated by reference as an enforceable part of this permit.
 - (iii) *Leak-Path Count* - The total leak-path component count listed in DCOR's most recent I&M component leak-path inventory shall not exceed the total leak-path component count listed in Table 5.1-1 by more than five percent. This five percent range is to allow for minor differences due to component counting methods and does not constitute allowable emissions growth due to the addition of new equipment.
 - (iv) *Venting* - All routine venting of hydrocarbons shall be routed to either the sales compressor, flare header, injection well or other APCD-approved control device.

- (c) **Monitoring:** The equipment listed in this section are subject to all the monitoring requirements listed in APCD Rule 331.F. The test methods in Rule 331.H shall be used, when applicable.
- (d) **Recordkeeping:** All inspection and repair records shall be retained at the source for a minimum of five years. The equipment items listed in this section are subject to all the recordkeeping requirements listed in APCD Rule 331.G. In addition, DCOR shall:

I&M Log - DCOR shall record in a log the following: a record of leaking components including all 1/2-inch or less diameter stainless steel fittings found (including name, location, type of component, 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 components inspected and the total number and percentage found leaking by component type; a record of leaks from critical components; a record of leaks from components that incur five repair actions within a continuous 12-month period; and, a record of component repair actions including dates of component re-inspections.

- (e) **Reporting:** The equipment items listed in this section are subject to all the reporting requirements listed in APCD Rule 331.G. On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. [Re: APCD Rules 331 and 1303, PTO 9112, 40 CFR 70.6]

C.4 Crew and Supply Boats. The following equipment items are included in this emissions category:

| APCD Device No. | Name |
|-----------------|---|
| 005524 | Crew Boat Main Engines – Controlled |
| 105239 | Crew Boat Main Engines – Uncontrolled |
| 005525 | Crew Boat Auxiliary Engines |
| 005520 | Supply Boat Main Engines – Controlled |
| 105238 | Supply Boat Main Engines – Uncontrolled |
| 005521 | Supply Boat Auxiliary Engines |
| 005522 | Supply Boat Bow Thrusters |
| 005523 | Emergency Response Boat |

- (a) **Emission Limits:** Mass emissions from the crew, supply and emergency boats listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. In addition:
 - (i) *NO_x Emissions* - Controlled emissions of NO_x from each diesel fired main engine in each controlled supply boat shall not exceed 270 lb./1000 gallons (5.99 g/bhp-hr). Emissions of NO_x from each diesel fired main engine in each controlled crew boat shall not exceed 337 lb./1000 gallons (8.4 g/bhp-hr). Compliance shall be based on annual source testing consistent with the requirements listed in Table 4.1 and permit Condition 25 of PTO 9112 (issued September 4, 1994). Spot charter crew boats, spot charter supply boats and emergency response (e.g., *Clean Seas*) boats are not required to comply with this controlled NO_x emission rate.

- (ii) *Crew, Supply and Emergency Response Boat Stationary Source Maximum Permitted Emissions* - To more accurately define the *Dos Cuadras - South County* Stationary Source's annual potential-to-emit (which is used to determine fees for Air Quality Plans (Rule 210.F)), crew boat, supply boat (including spot charters) and emergency response boat usage, in aggregate, associated with OCS Platforms A, B, C, Henry and Hillhouse shall not exceed five (5) times the annual emission limits shown in Table 5.2. These limits apply to the crew boats, supply boats and emergency response boats separately.
- (b) Operational Limits: Operation of the equipment listed in this section shall not exceed the limits listed below. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.
 - (i) The supply boat main engines shall not use more than: 1,400 gallons per day; 7,278 gallons per quarter; 14,556 gallons per year of diesel fuel.
 - (ii) The supply boat auxiliary engines (generator and bow thruster engines) shall not use more than: 205 gallons per day; 1,066 gallons per quarter; 2,131 gallons per year of diesel fuel.
 - (iii) The emergency response boat engines shall not use more than: 12,500 gallons per quarter; 50,000 gallons per year of diesel fuel. DCOR's pro-rated allocation of allowable emergency response boat fuel usage shall not exceed: 1,137 gallons per quarter; 4,546 gallons per year of diesel fuel.
 - (iv) The crew boat main engines shall not use more than: 1,252 gallons per day; 18,776 gallons per quarter; 75,104 gallons per year of diesel fuel.
 - (v) The crew boat auxiliary engines shall not use more than: 105 gallons per day; 1,574 gallons per quarter; 6,295 gallons per year of diesel fuel.
 - (vi) *Crew, Supply and Emergency Response Boat Stationary Source Operational Limits* - To more accurately define the *Dos Cuadras - South County* Stationary Source's annual potential-to-emit (which is used to determine fees for Air Quality Plans (Rule 210.F)), crew boat, supply boat (including spot charters) and emergency response boat usage, in aggregate, associated with OCS Platforms A, B, C, Henry and Hillhouse shall not exceed five times the annual fuel use limits shown in items (i), (ii), (iii) and (iv) above. These limits apply to the crew boat main engines, crew boat auxiliary engines, supply boat main engines, supply boat auxiliary engines and emergency response boat engines separately.
 - (vii) *Spot Charter Boats* - 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) 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) 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).

(viii) *New/Replacement Boats* – DCOR 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 auxiliary 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.
- (c) The NO_x, ROC, CO, PM and PM₁₀ emission factors are the same or less for the main and auxiliary engines.

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 APCD may require manufacturer guarantees and emission source tests to verify this NO_x emission standard.

DCOR shall revise the Boat Monitoring and Reporting Plan, obtain APCD approval of such revisions and implement the revised Plan prior to bringing any new/replacement boat into service, except for the use of spot charters. If a new spot charter is brought into service then DCOR 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, DCOR shall submit the information listed below to the APCD 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 been not been previously used on the DCOR OCS Platforms project. For spot charters, this information shall be submitted within thirty (30) calendar days after the boat is first brought into service. DCOR shall notify the APCD (via fax or E-mail) within three (3) calendar days after a new spot charter is first brought into operation. Any boat put into service that does not meet the requirements above, as determined by the APCD at any time, shall immediately cease operations and all prior use of that boat shall be considered a violation of this permit.

- Boat description, including the type, size, name, engine descriptions and emission control equipment.
- Engine manufacturers' data on the emission levels for the various engines and applicable engine specification curves.
- A quantitative analysis using the operating and emission factor assumptions given in tables 5.1-1 and 5.1-2 of this permit that demonstrates criteria (b) above is met

- Estimated fuel usage within 25-miles of Platform C
 - Any other information the APCD deems necessary to ensure the new boat will operate consistent with the analyses that form the basis for this permit.
- (ix) *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.
- (x) *Crew and Supply Boat Use* - Crew, supply and spot charter boats shall be used for the activities specified below. Any boats used for or in support of activities not specified below will be considered as new projects, and the boat emissions associated with such projects will be considered in the project potential to emit.
- (a) *Crew boats*: Crew boats shall be 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.
- (b) *Supply Boats*: Supply/Work boats (hereinafter referred to as “supply boats”) shall be 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 small-scale drilling and work-over operations. Specially equipped drilling vessels do not qualify as supply boats [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.
- (c) Monitoring: DCOR shall comply with the latest *Boat Monitoring and Reporting Plan* (approved 4/11/06). This revised Plan reflects the engines associated with the *M/V Santa Cruz*. DCOR shall fully implement this Plan or its APCD-approved updates, for the life of the project. The Plan is hereby incorporated by reference as part of this permit.

The data collected from the Boat 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 main engines must be collected while the boats are in transit during project related trips. Spot charter boats shall, at a minimum, track total fuel usage on a per trip basis using APCD-approved procedures. Emergency response boats shall, at a minimum, track fuel usage on a quarterly basis using APCD-approved procedures. These data shall be submitted in an APCD-approved format to the APCD.

- (d) Recordkeeping: The following records shall be maintained and shall be made available to the APCD upon request:
- (i) *Maintenance Logs* - Maintenance log summaries that include details on injector timing, setting adjustments, major engine overhauls, and routine engine maintenance. These logs and summaries shall be made available to the APCD upon request. As applicable, for each main and auxiliary engine with timing retard, an APCD Form – 10 (IC Engine Timing Certification Form) must be completed each time the engine is serviced.
 - (ii) *Crew Boat Fuel Usage* - Daily, quarterly and annual fuel use for the crew boat main engines and auxiliary engines, itemized by controlled and uncontrolled boats.
 - (iii) *Supply Boat Fuel Usage* - Daily, quarterly and annual fuel use for the supply boat main engines, generator engine and bow thruster engine.
 - (iv) *Emergency Response Boat Fuel Usage* - Total quarterly and annual fuel use for the emergency response boat and Platform C's allocation of that total.
 - (v) The sulfur content of each fuel shipment delivered to the boats as documented by fuel supplier records (e.g., billing vouchers, or bills of lading).
 - (vi) In addition to the recordkeeping requirements of DCOR's approved *Boat Monitoring and Reporting Plan*, the following log shall be maintained and shall be provided to the APCD 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.
 - (vii) *Emissions Reporting* – Quarterly emissions from the crew, supply and emergency boats shall be reported based on the computed fuel use.
- (e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit
[Re: APCD Rule 1303, PTO 9112, ATC/PTO 10090, 40 CFR 70.6]

C.5 **Pigging Equipment.** The following equipment items are included in this emissions category:

| APCD Device No. | Name |
|-----------------|------------------|
| 102215 | Gas Pig Launcher |
| 102214 | Oil Pig Launcher |

- (a) **Emission Limits:** Mass emissions from the gas and oil pig launchers listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** Operation of the equipment listed in this section shall conform to the requirements listed in APCD Rule 325.E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition DCOR shall meet the following requirements:
 - (i) *Events* - The number of oil and gas pig operations (events) shall not exceed the maximum operating schedule listed in Table 5.1-1. This will be verified by data from the pigging operations log kept by DCOR.
 - (ii) *Pressure* - Prior to opening each gas or oil pig, the pressure in the pig shall not exceed 1 psig. For gas pigging, this limit will be verified by a pressure gauge recorder at the VRU compressor inlet or by any other contrivance that provides the same accuracy and has been approved by the APCD prior to its installation.
 - (iii) *ROC/TOC Ratio* - DCOR shall first purge and blanket all pig launchers with 'sales gas' produced by DCOR before opening the hatches. The ROC/TOC ratio, by weight, for this gas shall not exceed 0.19 as measured *semi-annually* by DCOR.
 - (iv) *Openings* - Access openings to the pig launchers shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the launcher.
- (c) **Monitoring:** See conditions (b) (i) through (b) (iii) above, particularly the *semi-annual* ROC/TOC ratio determination required under (b)(iii).
- (d) **Recordkeeping:** DCOR shall record in a log each pigging operation. The log shall include the date pigging unit used (e.g., gas unit) and the de-pressurized chamber pressure data via the VRU compressor inlet pressure recorder, immediately prior to pig chamber opening.
- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit
 [Re: APCD Rules 325 and 1303, PTO 9112, 40 CFR 70.6]

C.6 **Sumps/Tanks/Separators.** The following equipment items are included in this emissions category:

| APCD Device No. | Name |
|-----------------|-----------------|
| 005526 | Waste Oil Sump |
| 005528 | Skimmer Tank |
| 005529 | Wastewater Tank |

- (a) **Emission Limits:** Mass emissions from the equipment listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** All process operations from the equipment listed in this section shall meet the requirements of APCD Rule 325, Sections D, E, F and G. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.
 - (i) *VRS Use* - The vapor recovery system shall be in operation when the equipment connected to the VRS system at the facility is in use. The VRS system includes piping, valves, and flanges associated with the VRS system. The VRS system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
 - (ii) *Vapor Recovery System Efficiency* - The VRS shall maintain a minimum efficiency of 90 percent (mass basis).
- (c) **Monitoring:** The equipment listed in this section shall be subject to all the monitoring requirements of APCD Rule 325.H. The test methods outlined in APCD Rule 325.G shall be used, when applicable. In addition, DCOR shall:
 - (i) Analyze the process streams listed in the *Process Stream Sampling and Analysis* permit condition (9.C.14).
- (d) **Recordkeeping:** The equipment listed in this section is subject to all the recordkeeping requirements listed in APCD Rule 325.F. In addition, DCOR shall maintain logs for the information listed below. These logs shall be made available to the APCD upon request:
 - (i) On a monthly basis, the total oil emulsion and produced gas production along with the number of days per month of production
 - (ii) Process stream analyses data as required from the *Process Stream Sampling and Analysis* permit condition.
- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
 [Re: APCD Rules 325 and 1303, PTO 9112, 40 CFR 70.6]

C.7 **Solvent Usage.** The following equipment items are included in this emissions unit category:

| APCD Device No. | Name |
|-----------------|---------------------|
| 111121 | Cleaning/Degreasing |

- (a) **Emission Limits:** Mass emissions from the solvent usage shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** Use of solvents for cleaning/degreasing shall conform to the requirements of APCD Rules 317, 322, 323 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit and facility inspections.
- (i) *Containers* - Vessels or containers used for storing materials containing organic solvents shall be kept closed unless adding to or removing material from the vessel or container.
- (ii) *Materials* - All materials that have been soaked with cleanup solvents shall be stored, when not in use, in closed containers that are equipped with tight seals.
- (iii) *Solvent Leaks* - Solvent leaks shall be minimized to the maximum extent feasible or the solvent shall be removed to a sealed container and the equipment taken out of service until repaired. 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* - DCOR may submit a Plan to the APCD for the disposal of any reclaimed solvent. If the Plan is approved by the APCD, 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. DCOR shall obtain APCD approval of the procedures used for such a disposal Plan. The Plan shall detail all procedures used for collecting, storing and transporting the reclaimed solvent. Further, the ultimate fate of these reclaimed solvents must be stated in the Plan.
- (c) **Monitoring:** None.
- (d) **Recordkeeping:** DCOR shall record in a log the following on a monthly basis for each solvent used: amount used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed for APCD-approved disposal; whether the solvent is photochemically reactive; and, the resulting emissions to the atmosphere in units of pounds per month and pounds per day. Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location on the platform.
- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
 [Re: APCD Rules 317, 322, 323, 324 and 1303, PTO 9112, 40 CFR 70.6]

- C.8 **Facility Throughput Limitations.** Platform C production shall be limited to a monthly average of 15,000 barrels of oil emulsion⁸ per day and 5 million standard cubic feet of produced gas per day. DCOR shall record in a log the volumes of oil emulsion and gas produced and the actual number of days in production per month. The above limits are based on actual days of operation during the month. [Re: PTO 9112]
- C.9 **Produced Gas.** DCOR shall direct all produced gases to the sales compressors, the flare header or other permitted control device when de-gassing, purging or blowing down any oil and gas well or tank, vessel or container that contains reactive organic compounds or reduced sulfur compounds due to activities that include, but are not limited to, process or equipment turnarounds, process upsets (e.g., well spikes), well blow down and MMS ordered safety tests. [Re: APCD Rules 325, 331, PTO 9112]
- C.10 **Diesel IC Engines - Particulate Matter Emissions.** To ensure compliance with APCD Rules 205.A, 302, 304, 309 and the California Health and Safety Code Section 41701, DCOR shall implement manufacturer recommended operational and maintenance procedures to ensure that all project diesel-fired engines minimize particulate emissions. DCOR shall update (addressing the diesel stand-by engines) and submit to APCD for approval their *IC Engine Particulate Matter Operation and Maintenance Plan* (approved in September 2002) within 90 days of issuance of the final APCD/Part 70 PTO 9112-R3. Upon such approval, DCOR shall implement the Plan for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules that DCOR will implement. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment shall be utilized. All project diesel-fired engines, regardless of exemption status, shall be included in this Plan. [Re: APCD Rules 205.A, 302, 305, 309, PTO 9112, ATC/PTO 10090]
- C.11 **Abrasive Blasting Equipment.** All abrasive blasting activities performed on Platform C shall comply with the requirements of the California Administrative Code Title 17, Sub-Chapter 6, Sections 92000 through 92530. [Re: APCD Rules 303, PTO 9112]
- C.12 **Process Monitoring Systems - Operation and Maintenance.** All platform process monitoring devices listed in Section 4.10 of this permit shall be properly operated and maintained according to manufacturer recommended specifications. DCOR shall implement their *Process Monitor Calibration and Maintenance Plan* (submitted 1/6/95) for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment shall be utilized. Within 90 days of the issuance of final Part 70 permit 9112-R3, DCOR shall submit a revised *Process Monitor Calibration and Maintenance Plan* for APCD review and approval. This revised Plan shall be updated to include the fire water pump engine, emergency power generator, and the air compressor engines. [Re: PTO 9112, ATC/PTO 10090]

⁸ Oil emulsion is defined as the total amount of crude oil and water produced from the wells.

C.13 **Source Testing.** The following source testing provisions shall apply:

- (i) DCOR shall conduct source testing of air emissions and process parameters listed in Section 4.11 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 June 1994 as the initial test date. The crane engine 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; September is the anniversary month for such source testing every year. The crew and supply boat main engines shall be tested at normal cruise speeds (approximately 70 percent of maximum engine load).
- (ii) DCOR shall submit a written source test plan to the APCD 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 APCD's *Source Test Procedures Manual* (revised May 1990 and any subsequent revisions). DCOR shall obtain written APCD approval of the source test plan prior to commencement of source testing. The APCD shall be notified at least ten (10) calendar days prior to the start of source testing activity to arrange for a mutually agreeable source test date when APCD personnel may observe the test.
- (iii) Source test results shall be submitted to the APCD within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results shall demonstrate compliance with emission rates in Section 5 and applicable permit conditions. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by DCOR as provided for by APCD Rule 210.
- (iv) Source test for an item of equipment shall be performed on the scheduled day of testing (the test day mutually agreed to) unless circumstances beyond the control of the operator prevent completion of the test on the scheduled day. Such circumstances include mechanical malfunction of the equipment to be tested, malfunction of the source test equipment, delays in source test contractor arrival and/or set-up, or unsafe conditions on site. Except in cases of an emergency, the operator shall seek and obtain APCD approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. If the test can not be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the APCD. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without APCD's prior authorization, except in the case of an emergency, shall constitute a violation of this permit. If a test is postponed due to an emergency, written documentation of the emergency event shall be submitted to the APCD by the close of the business day following the scheduled test day.
[Re: PTO 9112]

The time period in (i), (ii), and (iii) above may be extended for good cause, provided a written request is submitted to the APCD at least three days in advance of the deadline, and approval for the extension is granted by the APCD.

- C.14 **Process Stream Sampling and Analysis.** DCOR shall sample and analyze the process streams listed in Section 4.11 and Table 4.3 of this permit. All process stream samples shall be taken according to APCD approved ASTM methods by a third party, and shall be analyzed within 72 hours from the time of collection. All sampling and analysis data/results shall be submitted to the APCD in accordance with the *Semi-Annual Monitoring/Compliance Verification Reports* condition (9.C.16) below. All sampling and analysis shall be traceable by chain of custody procedures. [Re: APCD Rules 325, 331, 333 PTO 9112]
- C.15 **Recordkeeping.** All records and logs required by this permit and any applicable APCD, state or federal rule or regulation shall be maintained for a minimum of five calendar years from the date of information collection and log entry at the platform. These records or logs shall be readily accessible and be made available to the APCD upon request. [Re: APCD Rule 1303, PTO 9112, 40 CFR 70.6]
- C.16 **Semi-Annual Monitoring/Compliance Verification Reports.** Twice a year, the permittee shall submit a monitoring and compliance verification report to the APCD. Each report shall be used to verify compliance with the prior two calendar quarters. The first report shall cover calendar quarters 1 and 2 (January through June) and shall be submitted no later than September 1. The second report shall cover calendar quarters 3 and 4 (July through December) and shall be submitted no later than March 1. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit. These reports shall be in a format approved by the APCD. All logs and other basic source data not included in the report shall be available to the APCD upon request. The second report shall also include an annual report for the prior four quarters. Pursuant to Rule 212, the annual report shall include a completed *APCD Annual Emissions Inventory* questionnaire, or submitted electronically via the APCD web site. The report shall include the following information:

(a) Internal Combustion Engines.

- (1) The daily, quarterly and annual operating hours (or fuel use) data for each pedestal crane engine in units of hours (or gallons).
 - (2) Emergency use hours of operation for the Standby Emergency generator.**
 - (3) Maintenance and testing hours of operation for the Standby Emergency generator.**
 - (4) Hours of operation for all uses other than for emergency use and maintenance and testing, along with a description of what those hours were for the Standby Emergency generator.**
 - (5) Results of the quarterly readings of the portable NO_x analyzer for the North Crane IC engine.
 - (6) A statement that all fuel delivered to the boats or the platform was ultra low sulfur diesel. The APCD may request the records per condition 9.C.1.c.iv.
 - (7) On an annual basis, the heating value of all diesel fuel, in units of Btu/gal.
 - (8) Documentation of any equivalent routine IC engine replacement.
 - (9) Summary results of all compliance emission source testing performed.
- **APCD Form ENF-92 (*Diesel-Fired Emergency Standby Engine Recordkeeping Form*) can be used for requirements (2)-(4).

(b) Flare.

- (1) The hydrogen sulfide concentration for each flare event lasting more than one hour; also, (a) the highest annual hydrogen sulfide content and (b) the total sulfur content observed *annually*, in the flare header.
- (2) The total sulfur content of flare purge and pilot fuel gas as measured annually.
- (3) The volumes of gas (including natural gas and propane, if any) combusted and resultant mass emissions for each flare category (i.e., Purge/Pilot; Planned Continuous; Planned Other; Unplanned Other), shall be presented as a cumulative summary for each day, quarter and year.

(c) Fugitive Hydrocarbons. Rule 331/ fugitive hydrocarbon I&M program data (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 APCD Rule 331 as approved by the APCD.

(d) Crew and 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 C, itemized by regular crew boat (controlled ICE) usage and spot charter/emergency response boat (uncontrolled ICE) 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 C, itemized by regular crew boat (controlled ICE) usage and spot charter/emergency response boat (uncontrolled ICE) usage.
- (3) A statement that all fuel delivered to the boats or the platform was ultra low sulfur diesel. Records may be requested per condition 9.C.4.d.v.
- (4) Information regarding any new project boats servicing DCOR's Platform C, as detailed in Permit Condition 9.C.4.(b) above.
- (5) If requested by the APCD staff, maintenance log summaries or other records that include details on injector timing, setting adjustments, major engine overhauls, and routine engine tune-ups. For spot charters this shall be provided as available.
- (6) The number of boat trips made (a) by the crew and supply boats and (b) by the spot charter (crew and supply) boats, both itemized by the trip dates and the boat names.
- (7) Summary results of all compliance emission source testing performed.

(e) Pigging.

- (1) For each pig launcher, the number of pigging events per day, quarter and year.
- (2) The ROC/TOC ratio of the 'sales gas' used to purge and blanket each launcher prior to hatch opening, as measured *semi-annually*.

(f) Tanks/Sumps/Separators.

- (1) On a daily basis, the amount of oily water processed in each floatation cell unit, in units of gallons.

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

(h) General Reporting Requirements.

- (1) On a monthly basis, the total oil emulsion and produced gas production along with the number of days of production;
- (2) On quarterly basis, the emissions from each permitted emission unit for each criteria pollutant (shall include 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).
- (3) On quarterly basis, the emissions from each exempt emission unit for each criteria pollutant (the annual report shall include the annual ROC and NO_x emissions from all permit exempt activities).
- (4) Breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence
- (5) A summary of each and every occurrence of non-compliance with the provisions of this permit, applicable APCD rules, and any other applicable air quality requirement.
- (6) The produced gas and produced oil process stream analyses as required by condition 9.C.14 of this permit (process stream analyses to be performed per Section 4.11)
[Re: PTO 9112, ATC 9504, ATC 9519, ATC 9746, ATC/PTO 10090, 40 CFR 70.6]

C.17 **Permitted Equipment.** Only those equipment items listed in Attachment 10.5 are covered by the requirements of this permit and APCD Rule 201.B. [Re: APCD Rule 1303, PTO 9112]

C.18 **Mass Emission Limitations.** Emissions for the entire facility shall not exceed the total limits listed in Table 5.2. [Re: APCD Rule 1303, PTO 9112, ATC/PTO 10090, 40 CFR 70.6]

C.19 **Temporary Engine Replacements - DICE ATCM.** Any reciprocating internal combustion engine subject to this permit and the stationary diesel ATCM may be replaced temporarily only if the requirements (a – g) listed herein are satisfied.

- (a) The permitted engine is in need of routine repair or maintenance.
- (b) The permitted engine that is undergoing routine repair or maintenance is returned to its original service within 180 days of installation of the temporary engine.

- (c) The temporary replacement engine has the same or lower manufacturer rated horsepower and same or lower potential to emit of each pollutant as the permitted engine that is being temporarily replaced. At the written request of the permittee, the APCD may approve a replacement engine with a larger rated horsepower than the permitted engine if the proposed temporary engine has manufacturer guaranteed emissions (for a brand new engine) or source test data (for a previously used engine) less than or equal to the permitted engine.
- (d) The temporary replacement engine shall comply with all rules and permit requirements that apply to the permitted engine that is undergoing routine repair or maintenance.
- (e) 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 to the APCD (Attn: Engineering Supervisor), or can be sent electronically to: temp-engine@sbcapcd.org.
- (f) Within 14 days upon return of the original permitted engine to service, the permittee shall submit a completed *Temporary IC Engine Replacement Report* form (Form ENF-95). This form may be sent hardcopy to the APCD (Attn: Engineering Supervisor), or can be sent electronically to: temp-engine@sbcapcd.org.
- (g) Any engine in temporary replacement service shall be immediately shut down if the APCD determines that the requirements of this condition have not been met. This condition does not apply to engines that have experienced a cracked block (unless under manufacturer's warranty), to engines for which replacement parts are no longer available, or new engine replacements {including "reconstructed" engines as defined in the ATCM. Such engines are subject to the provisions of New Source Review and the new engine requirements of the ATCM.

C.20 Permanent Engine Replacements. Any E/S engine, firewater pump engine or engine used for an essential public service that breaks down and can not be repaired may install a new replacement engine without first obtaining an ATC permit only if the requirements (a – f) listed herein are satisfied.

- (a) 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 APCD).
- (b) The engine breaks down, cannot be repaired and needs to be replaced by a new engine.
- (c) The facility provides "good cause" (in writing) for the immediate need to install a permanent replacement engine prior to the time period before an ATC permit can be obtained for a new engine. The new engine must comply with the requirements of the ATCM for new engines. If a new engine is not immediately available, a temporary engine may be used while the new replacement engine is being procured. During this time period, the temporary replacement engine must meet the same guidelines and procedures as defined in the permit condition above (*Temporary Engine Replacements - DICE ATCM*).

- (d) An Authority to Construct application for the new permanent engine is submitted to the APCD within 15 days of the existing engine being replaced and the APCD permit for the new engine is obtained no later than 180 days from the date of engine replacement (these timelines include the use of a temporary engine).
 - (e) For each permitted engine to be permanently replaced pursuant to the condition, the permittee shall submit a completed *Permanent IC Engine Replacement Notification* form (Form ENF-96) within 14 days of either the permanent or temporary engine being installed. This form may be sent hardcopy to the APCD (Attn: Engineering Supervisor), or can be sent electronically to: temp-engine@sbcapcd.org.
 - (f) Any engine installed (either temporarily or permanently) pursuant to this permit condition shall be immediately shut down if the APCD determines that the requirements of this condition have not been met.
- C.21 **Notification of Non-Compliance.** Owners or operators who have determined that they are operating their stationary diesel-fueled engine(s) in violation of the requirements specified in the ATCM shall notify the APCD immediately upon detection of the violation and shall be subject to APCD enforcement action.
- C.22 **Notification of Loss of Exemption.** Owners or operators of in-use stationary diesel-fueled CI engines, who are subject to an exemption specified in the ATCM from all or part of the requirements of the ATCM, shall notify the APCD immediately after they become aware that the exemption no longer applies and shall demonstrate compliance within 180 days after notifying the APCD.
- C.23 **Documents Incorporated by Reference.** The documents listed below, including any APCD-approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition for this operating permit. These documents shall be implemented for the life of the project. Where noted below *in italics*, DCOR shall submit new or revised plans to the APCD.
- (i) Fugitive Emissions Inspection and Maintenance (I&M) Plan - Rule 331 (*approved 9/30/2002*).
 - (ii) IC Engine Particulate Matter Operation and Maintenance Plan (*last approved on 12/20/94. NOTE - DCOR shall submit to the APCD within 90-days of final permit issuance an updated "IC Engines - Particulate Matter Operation and Maintenance Plan" for approval. See Permit condition 9.C.10*).
 - (iii) Flare Minimization and Monitoring Plan – Rule 359 (*approved 9/22/94, amended 12/13/94*).
 - (iv) Emergency Episode Plan - Rule 603 (*submitted on July 23, 1994 and approved by APCD in November 1994, updated on November 30, 1998*).
 - (v) Boat Monitoring and Reporting Plan (*last approved on April 11, 2006*).

- (vi) IC engine Rule 333 Inspection and Maintenance Plan (*NOTE - DCOR shall submit to the APCD by December 19, 2008 an updated "IC Engine Rule 333 Inspection and Maintenance Plan" for approval. See Permit condition 9.C.1(c)(ii).*)
- (vii) Process Monitor Calibration and Maintenance Plan (*dated May 30, 2002*)
[*Re: APCD Rules 303, 317, 331, 333, 343, 359*]

9.D APCD-Only Conditions

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

- D.1 **Nuisance (Rule 303).** No pollutant emissions from any source at DCOR shall create nuisance conditions. No operations shall endanger health, safety or comfort, nor shall they damage any property or business [*APCD Rule 303*].

AIR POLLUTION CONTROL OFFICER

 Date

NOTES:

- (a) This permit supersedes all previous "APCD-only Permits to Operate" issued for Platform C; however each of the ATC's issued for Platform C remains in force.
- (b) APCD Permit Reevaluation Due Date: 2008
- (c) Part 70 Operating Permit Expiration Date: 2008

10.0 Attachments

10.1 *Emission Calculation Documentation*

10.2 *Emission Calculation Spreadsheets*

10.3 *Fee Calculations*

10.4 *IDS Database Emission Tables*

10.5 *Equipment List*

10.6 *Exempt but Significant Equipment List*

10.7 *Exempt and Insignificant Equipment List*

10.8 *De-Permitted Equipment List*

10.1 EMISSION CALCULATION DOCUMENTATION

This attachment contains all relevant emission calculation documentation used for the emission tables in Section 5. Refer to Section 4 for the general equations. The letters A-H in the references below correspond to the same in Tables 5.1-1 and 5.1-2.

Reference A – Diesel-fired IC Engines

- The maximum operating schedule is in units of hours.
- The default diesel fuel #2 characteristics are: (*Reference: Combustion-Fossil Power Systems, J.G. Singer, Ed.; published by Combustion Engineer, Inc.; Also, AP-40, AWMA*)
 - Density = 7.05 lb/gal
 - LHV = 18,510 Btu/lb (130,500 Btu/gal)
 - HHV = 19,567 Btu/lb (138,000 Btu/gal)
- North Crane BSFC = 7,272 Btu/bhp-hr (energy based value using LHV).
Detroit Diesel 6V-71 engine specification basis = 0.395 lb/bhp-hr.
- South Crane BSFC = 7,732 Btu/bhp-hr (energy based value using LHV).
Detroit Diesel 3-71 engine specification basis = 0.420 lb/bhp-hr.
- Emergency Power Generator BSFC = 7,000 Btu/bhp-hr (estimated - energy based value using LHV).
- Standby Fire Water Pump IC Engine and Air Compressor Engine BSFC = 8,000 Btu/bhp-hr (estimated - energy based value using LHV).
- Emission factors units (lb/MMBtu) are based on HHV.
- LCF (conversion of LHV to HHV) value of 6 percent used.
- NO_x emission factor for the North crane IC engine per Rule 333, *i.e.*, 797 ppmvd @ 15% O₂:

$$EF_{lb/MMBtu} = 797 \text{ ppmvd} \times 2.59 \times 10^{-9} \times 46.01 \frac{\text{lb No}_x}{\text{lbmol}} \times 8985 \times \left(\frac{20.9}{20.9 - 15.0} \right) = 3.03 \frac{\text{lbs}}{\text{MMBtu}}$$

- NO_x emission factor for the South crane IC engine (Rule 333 standards-exempt):

$$EF_{lb/MMBtu} = \frac{14 \frac{\text{g}}{\text{bhp-hr}} \times 10^6 \frac{\text{Btu}}{\text{MMBtu}}}{453.6 \frac{\text{g}}{\text{lb}} \times 7732 \frac{\text{Btu}}{\text{bhp-hr}}} = 3.99 \frac{\text{lbs}}{\text{MMBtu}}$$

- NOx emission factor for the Rule 333-exempt Emergency Power generator IC engine is:

$$EF_{lb/MMBtu} = \frac{14 \frac{g}{bhp-hr} \times 10^6 \frac{Btu}{MMBtu}}{453.6 \frac{g}{lb} \times 7000 \frac{Btu}{bhp-hr}} = 4.41 \frac{lbs}{MMBtu}$$

- NOx emission factor for the Standby Fire Water Pump IC engines is:

$$EF_{lb/MMBtu} = \frac{16 \frac{g}{bhp-hr} \times 10^6 \frac{Btu}{MMBtu}}{453.6 \frac{g}{lb} \times 8000 \frac{Btu}{bhp-hr}} = 4.41 \frac{lbs}{MMBtu}$$

- NOx emission factor for Rule 333-exempt air compressor IC engines is:

$$EF_{lb/MMBtu} = \frac{16 \frac{g}{bhp-hr} \times 10^6 \frac{Btu}{MMBtu}}{453.6 \frac{g}{lb} \times 8000 \frac{Btu}{bhp-hr}} = 4.41 \frac{lbs}{MMBtu}$$

- ROC, CO and PM emission factors based on USEPA AP-42, Table 3.3-1 (10/96).

- SO_x emission factor mass balance equation (as SO₂):

$$SO_x EF_{lb/MMBtu} = \frac{(\%S) \times \left(\rho_{oil} \frac{lb}{gal} \right) \times \left(\frac{1 \text{ gmol } S}{32 \text{ g}} \right) \times \left(\frac{1 \text{ gmol } SO_2}{1 \text{ gmol } S} \right) \times \left(\frac{64 \text{ g}}{1 \text{ gmol } SO_2} \right)}{\left(HHV \frac{Btu}{gal} \right) \times \left(10^{-6} \frac{MMBtu}{Btu} \right)}$$

- PM₁₀:PM ratio = 1.0 (per AP-42).
- ROC:TOC ratio = 0.8378. ROC emission factor based on SBCAPCD "VOC/ROC Emission Factors and Reactivities for Common Source Types" dated 03/12/01 (ver 1.2) for Piston IC Engine: Diesel.
- Crane engine operational limits: General Equation:

$$Q = \frac{\left(BSFC \frac{Btu}{bhp-hr} \right) \times bhp \times (LCF) \times \left(\frac{hours}{time\ period} \right)}{\left(HHV \frac{Btu}{gal} \right)}$$

North Crane Engine Equation:

$$Q_{daily} = \frac{\left(7,272 \frac{Btu}{bhp-hr}\right) \times (238 bhp) \times (1.06) \times \left(\frac{24 \text{ hours}}{\text{day}}\right)}{\left(138,000 \frac{Btu}{gal}\right)} = 319 \frac{gal}{day}$$

$$Q_{quarterly} = \frac{\left(7,272 \frac{Btu}{bhp-hr}\right) \times (238 bhp) \times (1.06) \times \left(\frac{500 \text{ hours}}{\text{quarter}}\right)}{\left(138,000 \frac{Btu}{gal}\right)} = 6,647 \frac{gal}{qtr}$$

$$Q_{annual} = \frac{\left(7,272 \frac{Btu}{bhp-hr}\right) \times (238 bhp) \times (1.06) \times \left(\frac{1000 \text{ hours}}{\text{year}}\right)}{\left(138,000 \frac{Btu}{gal}\right)} = 12,541 \frac{gal}{yr}$$

South Crane Engine Equation:

$$Q_{daily} = \frac{\left(7,732 \frac{Btu}{bhp-hr}\right) \times (109 bhp) \times (1.06) \times \left(\frac{24 \text{ hours}}{\text{day}}\right)}{\left(138,000 \frac{Btu}{gal}\right)} = 155 \frac{gal}{day}$$

$$Q_{quarterly} = \frac{\left(7,732 \frac{Btu}{bhp-hr}\right) \times (109 bhp) \times (1.06) \times \left(\frac{100 \text{ hours}}{\text{quarter}}\right)}{\left(138,000 \frac{Btu}{gal}\right)} = 647 \frac{gal}{qtr}$$

$$Q_{annual} = \frac{\left(7,732 \frac{Btu}{bhp-hr}\right) \times (109 bhp) \times (1.06) \times \left(\frac{200 \text{ hours}}{\text{year}}\right)}{\left(138,000 \frac{Btu}{gal}\right)} = 1,294 \frac{gal}{yr}$$

Reference B - Combustion Flare

- The maximum operating schedule for the purge/pilot gas and planned continuous flaring is in units of hours.

- The maximum operating schedule for the planned other and unplanned flaring is in units of percentage of annual usage.
- Purge and pilot flow rate based on original application.
- HHV = 1100 Btu/scf for all flare gas (per original application).
- Planned continuous flaring value based on one half the minimum detection limit of the flare meter.
 - Flare meter: Daniels 10-inch orifice meter
 - Minimum detection limit: 0.012 MMscfd (APCD assumption based on 0.25 scf/sec flow rate). Value agreed upon by DCOR and the APCD.
 - Maximum detection limit: 10.0 MMscfd
- Planned intermittent (other) and unplanned flaring volumes agreed upon by DCOR and the APCD.
- Planned intermittent (other) and unplanned flaring events not calculated for short-term events per APCD policy.
- The same emission factors are used for all flaring scenarios.
- NO_x, ROC and CO emission factors based on USEPA AP-42 Chapter 13.5 Industrial Flares, Table 13.5-1 (9/91, reformatted 1/95).
- PM₁₀:PM ratio =1.0. PM emission factor based on SBCAPCD Flare Study - Phase I Report, Table 3.1.1 (7/91).
- ROC:TOC ratio = 0.41. ROC emission factor based on SBCAPCD “VOC/ROC Emission Factors and Reactivities for Common Source Types” dated 03/12/01 (ver 1.2) for Flares, Thermal Oxidizers, Incinerators.
- SO_x emissions based on mass balance:

$$SO_x (as SO_2) = \frac{(0.169) \times (ppmv S)}{HHV}$$

Reference C - Fugitive Components

- The maximum operating schedule is in units of hours.
- All safe to monitor components are credited an 80 percent control efficiency. Unsafe to monitor components (as defined in Rule 331) are considered uncontrolled.
- The component leak path definition differs from the Rule 331 definition of a component. A typical leak path count for a valve would be equal to 4 (one valve stem, a bonnet connection and two flanges).

- Leak path counts and 'de minimis changes' updates are provided by applicant. The total count has been verified to be accurate within 5 percent of the APCD's P&ID and platform review/site checks. The current de minimis list was included in the last CVR submittal in September of 2008.
- Emission factors based on the SBCAPCD/Tecolote Report, *Modeling of Fugitive Hydrocarbon Emissions* (January 1986), Model B. These are, as follows:

$$EF_{Oil\ Side,Unsafe/Uncontrolled} = 0.0133 \times 0.33 = 0.0044 \frac{lbROC}{day-clp}$$

$$EF_{Gas\ Side,Unsafe/Uncontrolled} = 0.223 \times 0.33 = 0.0736 \frac{lbROC}{day-clp}$$

1/2-Inch or Smaller Diameter Stainless Steel 'fitting': Emissions from these components have not been quantified since their emission factors have not been established. The emissions are considered negligible.

Reference D - Supply Boat

- The maximum operating schedule is in units of hours.
- Supply boat engine data based on Rincon Marine's *M/V Santa Cruz*.
- Two 2,000 bhp main engines (i.e., 4,000 bhp), two 245 bhp auxiliary engines (i.e., 490 bhp) and one 515 bow thruster engine are utilized.
- Main engine load factor based on APCD *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.
- Total time supply boat operates per trip within 25 miles of platform is 11 hours. A trip includes time traveling to and from the platform, as well as time operating at the platform. Typical trip is: 8 hours cruise, 2 hours maneuver and 1 hour idle. Annual time based on $52/5 = 10.4$ trips. Quarterly based on $26/5 = 5.2$ trips. Spot charter boats add $11 * 10.4/10 = 11.4$ hours per year.
- Main engine emission factors are based only on cruise mode values.
- The break specific fuel consumption (BSFC) for the controlled main engines is 0.345 lb/bhp-hr. This value is from data supplied by Caterpillar for operation of each engine at 1,340 bhp. This bhp was used to select the BSFC because the engines are assumed to operate at 65% of full capacity during normal operations.

- The default diesel fuel #2 characteristics are: (*Reference: DICE program*)
 Density = 7.05 lb/gal
 LHV = 18,510 Btu/lb (130,500 Btu/gal)
 HHV = 19,567 Btu/lb (138,000 Btu/gal)
- The BSFC was converted from lb/hp-hr to gal/hp-hr by dividing the manufacturer's BSFC by 7.05 lb/gal, the density of diesel:

$$BSFC = 0.049 \frac{\text{gal}}{\text{bhp-hr}} = \frac{\left(0.345 \frac{\text{lb}}{\text{bhp-hr}}\right)}{\left(7.05 \frac{\text{lb}}{\text{gal}}\right)}$$

- Supply boat main engines achieve a controlled NO_x emission rate of 5.99 g/bhp-hr through the use of Caterpillar 3516B diesel fired engines. The engines are electronically controlled, turbo-charged, and after-cooled. This emission factor equates to 270 lb/1000 gallons.

$$EF_{NO_x} = \frac{\left(5.99 \frac{\text{g}}{\text{bhp-hr}}\right) \times 1,000}{\left(0.049 \frac{\text{gal}}{\text{bhp-hr}}\right) \times \left(453.6 \frac{\text{g}}{\text{lb}}\right)} = 270 \frac{\text{lb}}{1,000 \text{ gal}}$$

- Spot charter supply boat usage limited to 10 percent of actual annual controlled supply boat usage.
- Spot charter and Emergency Response vessels are normally 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, 2,000 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/1000 gallons:

$$EF_{NO_x} = \frac{\left(14 \frac{\text{g}}{\text{bhp-hr}}\right) \times 1,000}{\left(0.055 \frac{\text{gal}}{\text{bhp-hr}}\right) \times \left(453.6 \frac{\text{g}}{\text{lb}}\right)} = 561 \frac{\text{lb}}{1,000 \text{ gal}}$$

- PM emission factor for the main engines are based on *Kelly, et. al.* (1981).
- Main and Auxiliary Engine PM₁₀:PM ratio = 1.00 (per AP-42).
- Main Engine ROC:TOC ratio = 1.0. ROC emission factor based on SBCAPCD "VOC/ROC Emission Factors and Reactivities for Common Source Types" dated 03/12/01 (ver 1.2) for Crew and Supply Boat Main Engines.

- Auxiliary Engine ROC:TOC ratio = 0.8378. ROC emission factor based on SBCAPCD “VOC/ROC Emission Factors and Reactivities for Common Source Types” dated 03/12/01 (ver 1.2) for Crew and Supply Boat: Auxiliary Engines.

- SO_x emission factor mass balance equation (as SO₂):

$$SO_x EF_{lb/1000gal} = (\%S) \times \left(g_{oil} \frac{lb}{gal} \right) \times \left(\frac{1 gmol S}{32 g} \right) \times \left(\frac{1 gmol SO_2}{1 gmol S} \right) \times \left(\frac{64 g}{1 gmol SO_2} \right) \times \left(\frac{1000 gal}{1000 gal} \right)$$

- Auxiliary and bow thruster engine emission factors (diesel uncontrolled) are based on USEPA AP-42, Table 3.3-1 (10/96). Table emission factors converted to fuel basis using:

$$EF_{lb/1000gal} = (TOC EF_{lb/MMBtu}) \times \left[\frac{\left(\frac{ROC}{TOC} ratio \right) \times \left(19,300 \frac{Btu}{lb} \right) \times \left(7.05 \frac{lb}{gal} \right)}{1000} \right]$$

- 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).

$$T_{yr} = \frac{4,546 \frac{gal}{year}}{\left(0.055 \frac{gal}{bhp-hr} \right) \times (1,770 bhp) \times 0.65} = 72 \frac{hr}{yr}$$

- Main and auxiliary engine operational limits: General Equation

$$Q = \left(BSFC \frac{gal}{bhp-hr} \right) \times bhp \times \left(\frac{hours}{time period} \right) \times (load factor)$$

Main engines:

$$Q_{daily} = \left(0.049 \frac{gal}{bhp-hr} \right) \times 4,000 bhp \times \left(\frac{11 hours}{day} \right) \times (0.65) = 1,400 \frac{gal}{day}$$

$$Q_{quarterly} = \left(0.049 \frac{gal}{bhp-hr} \right) \times 4,000 bhp \times \left(\frac{57.2 hours}{quarter} \right) \times (0.65) = 7,278 \frac{gal}{qtr}$$

$$Q_{annual} = \left(0.049 \frac{gal}{bhp-hr}\right) \times 4,000 bhp \times \left(\frac{114.4 hours}{year}\right) \times (0.65) = 14,556 \frac{gal}{yr}$$

Auxiliary engines – Generators

$$Q_{daily} = \left(0.055 \frac{gal}{bhp-hr}\right) \times 490 bhp \times \left(\frac{11 hours}{day}\right) \times (0.50) = 148 \frac{gal}{day}$$

$$Q_{quarterly} = \left(0.055 \frac{gal}{bhp-hr}\right) \times 490 bhp \times \left(\frac{57.2 hours}{quarter}\right) \times (0.50) = 771 \frac{gal}{qtr}$$

$$Q_{annual} = \left(0.055 \frac{gal}{bhp-hr}\right) \times 490 bhp \times \left(\frac{114.4 hours}{year}\right) \times (0.50) = 1,542 \frac{gal}{yr}$$

Auxiliary engines - Bow Thruster

$$Q_{daily} = \left(0.055 \frac{gal}{bhp-hr}\right) \times 515 bhp \times \left(\frac{2 hours}{day}\right) = 57 \frac{gal}{day}$$

$$Q_{quarterly} = \left(0.055 \frac{gal}{bhp-hr}\right) \times 515 bhp \times \left(\frac{10.4 hours}{quarter}\right) = 295 \frac{gal}{qtr}$$

$$Q_{annual} = \left(0.055 \frac{gal}{bhp-hr}\right) \times 515 bhp \times \left(\frac{20.8 hours}{year}\right) = 589 \frac{gal}{yr}$$

Reference E - Crew Boat

- The maximum operating schedule is in units of hours.
- Crew boat engine data based on So Cal Ship Services' M/V *Alan T*.
- Three 510 bhp main engines (i.e.; 1,530 bhp) and two 109 bhp auxiliary engines are utilized.
- Main engine load factor based on APCD *Crew and Supply Boat* study (6/87).
- Crew boat auxiliary engines operate at one-half of total rated load.
- Total time crew boat operates per trip within 25 miles of platform is 3.5 hours per platform. A trip includes time to, from and at the platform. Typical trip is: 2 hours cruise, 1 hour maneuver and 0.5 hour idle. Annual time based on 1,500/5 = 300 trips. Quarterly based on 375/5 = 75 trips. Spot charter boats add 3.5*300/10 = 105 hours.
- Main engine emission factors are based only on cruise mode values.

- 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 and 4° timing retard. This emission factor equates to 337 lb/1000 gallons.

$$EF_{NO_x} = \frac{\left(8.4 \frac{g}{bhp-hr}\right) \times 1,000}{\left(0.055 \frac{gal}{bhp-hr}\right) \times \left(453.6 \frac{g}{lb}\right)} = 337 \frac{lb}{1,000 gal}$$

- Spot charter crew boat usage limited to 10 percent of actual annual controlled crew boat usage.
- Spot charter vessels are normally 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, 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/1000 gallons:

$$EF_{NO_x} = \frac{\left(14 \frac{g}{bhp-hr}\right) \times 1,000}{\left(0.055 \frac{gal}{bhp-hr}\right) \times \left(453.6 \frac{g}{lb}\right)} = 561 \frac{lb}{1,000 gal}$$

- PM emission factor for the main engines are based on *Kelly, et. al.* (1981).
- PM₁₀:PM ratio = 0.96.
- ROC:TOC ratio = 1.0

- All SO_x emissions based on mass balance:

$$SO_x EF_{lb/1000 gal} = (\%S) \times \left(g_{oil} \frac{lb}{gal}\right) \times \left(\frac{1 gmol S}{32 g}\right) \times \left(\frac{1 gmol SO_2}{1 gmol S}\right) \times \left(\frac{64 g}{1 gmol SO_2}\right) \times \left(\frac{1000 gal}{1000 gal}\right)$$

- Auxiliary engine emission factors (uncontrolled) are based on USEPA AP-42, Table 3.3-1 (10/96). Table emission factors converted to fuel basis using:

$$EF_{lb/1000 gal} = (TOC EF_{lb/MMBtu}) \times \left[\frac{\left(\frac{ROC}{TOC} ratio\right) \times \left(19,300 \frac{Btu}{lb}\right) \times \left(7.05 \frac{lb}{gal}\right)}{1000} \right]$$

- Spot charter engine set-up (*i.e.*, engine type, size) assumed to be equal to main crew boat.
- Main and auxiliary engine operational limits: General Equation

$$Q = \left(BSFC \frac{gal}{bhp - hr} \right) \times bhp \times \left(\frac{hours}{time\ period} \right) \times (load\ factor)$$

Main engines

$$Q_{daily} = \left(0.055 \frac{gal}{bhp - hr} \right) \times 1,530 bhp \times \left(\frac{17.5\ hours}{day} \right) \times (0.85) = 1,252 \frac{gal}{day}$$

$$Q_{quarterly} = \left(0.055 \frac{gal}{bhp - hr} \right) \times 1,530 bhp \times \left(\frac{262.5\ hours}{quarter} \right) \times (0.85) = 18,776 \frac{gal}{qtr}$$

$$Q_{annual} = \left(0.055 \frac{gal}{bhp - hr} \right) \times 1,530 bhp \times \left(\frac{1050\ hours}{year} \right) \times (0.85) = 75,104 \frac{gal}{yr}$$

Auxiliary engines - Generators

$$Q_{daily} = \left(0.055 \frac{gal}{bhp - hr} \right) \times 218 bhp \times \left(\frac{17.5\ hours}{day} \right) \times (0.50) = 105 \frac{gal}{day}$$

$$Q_{quarterly} = \left(0.055 \frac{gal}{bhp - hr} \right) \times 218 bhp \times \left(\frac{262.5\ hours}{quarter} \right) \times (0.50) = 1,574 \frac{gal}{qtr}$$

$$Q_{annual} = \left(0.055 \frac{gal}{bhp - hr} \right) \times 218 bhp \times \left(\frac{1050\ hours}{year} \right) \times (0.50) = 6,295 \frac{gal}{yr}$$

Reference F - Pigging Equipment

- Maximum operating schedule is in units of events (e.g., 160 times per year for oil launchers, 160 times per year for gas launchers).
- The gas & oil launcher volumes, pressures, and temperatures based on file data.
- All vapors in the launcher are bled down to *either the well clean tank or the waste oil tank*; all launchers are then purged and blanketed with 'sales gas' prior to opening the vessels to the atmosphere; The remaining vessel pressure is no greater than 1 psig, based on Nuevo's 5/7/97 and 8/17/97 stipulations to the APCD. The temperatures of the remaining vapor in the vessels are as follows: (a) pig launchers temp. = 75°F.
- The $MW_{gas} = MW_{oil} = 23\ lb./lb.-mol$, since the launchers are purged and blanketed with sales gas in either cases (*Reference: 5/7/97 letter from Nuevo*).
- Maximum Average ROC weight percent is = 19 % for gas launchers.
[*Reference: ATC/PTO 10140 issued 12/16/99*]

- Maximum Average ROC weight percent is = 19 % for oil launchers.
[Reference: ATC/PTO 10140 issued 12/16/99]
- Pig vessel volume (V_{ves}) = 10 acf (all launchers) {per DCOR data}, as indicated in Table 5.1-1 in the PTO.
- Density $\rho = (\text{pressure} \times \text{MW}) \div (\text{R} \times \text{T})$, 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.
- $\rho_{gas} = \rho_{oil} = (15.7 * 23) \div (10.73 * 535) = 0.0629 \text{ lb./cu.ft}$, density of THC vapor remaining in vessel, i.e., 0.0629 lb./cubic feet TOC for oil/gas launchers.
- $EF = 0.0629 * 0.2413 = 0.0152 \text{ lb. of ROC/acf-event}$ for oil/gas launchers.

Reference G - Sumps/Tanks/Separators

- Maximum operating schedule is in units of hours.
- Emission calculation methodology for tanks and sumps based on the CARB/KVB report *Emissions Characteristics of Crude Oil Production Operations in California* (1/83).
- Calculations of tank and sump emissions are based on surface area of emissions unit as supplied by the applicant.
- All tanks and sumps are classified as secondary production and heavy oil service.
- All tanks, sumps, and separators are connected to vapor recovery or flare. A control efficiency of 95% is assumed for all vessels.

Reference H - Solvents

- All solvents not used to thin surface coatings are included in this equipment category.
- Daily, quarterly and annual emission rates per application.
- Hourly emissions based on daily value divided by an average 8-hour day. Compliance with hourly data to be based on daily actual usage divided by 8.
- Emissions based on usage of 4,255 gallons per year with no APCD-approved reclamation program

10.2 Emission Calculation Spreadsheets

(there are no additional emission calculation spreadsheets beyond Section 5)

10.3 Fee Calculations

Emission fees for Platform C are based on a cost reimbursement basis pursuant to APCD Rule 210.

All work performed with respect to implementing the requirements of the Part 70 Operating Permit program are assessed on a cost reimbursement basis (*Reference: APCD Rule 210.I.C*), pursuant to APCD Rule 1304.D.11.

10.4 IDS Database Emission Tables

Table 1
Permitted Potential to Emit (PPTE)

| | NO_x | ROC | CO | SO_x | TSP | PM₁₀ |
|-----------------------------------|-----------------------|------------|-----------|-----------------------|------------|------------------------|
| PTO 9112- Reeval issued ** | | | | | | |
| lb/day | 1991.23 | 277.97 | 353.84 | 66.78 | 126.70 | 124.87 |
| tons/year | 26.77 | 34.42 | 20.04 | 2.53 | 2.94 | 2.88 |

Reference: Table 5.2

Table 2
Facility Potential to Emit (FPTE)*

| | NO_x | ROC | CO | SO_x | TSP | PM₁₀ |
|-----------------------------------|-----------------------|------------|-----------|-----------------------|------------|------------------------|
| PTO 9112- Reeval issued ** | | | | | | |
| lb/day | 1991.23 | 277.97 | 353.84 | 66.78 | 126.70 | 124.87 |
| tons/year | 26.77 | 34.42 | 20.04 | 2.53 | 2.94 | 2.88 |

References: Table 5.2

Table 3

Federal Potential to Emit (PT 70 FPTE)*

| | NO_x | ROC | CO | SO_x | TSP | PM₁₀ |
|-----------------------------------|-----------------------|------------|-----------|-----------------------|------------|------------------------|
| PTO 9112- Reeval issued ** | | | | | | |
| lb/day | 2008.35 | 193.63 | 353.85 | 66.79 | 127.90 | 126.07 |
| Tons/year | 33.07 | 19.54 | 21.39 | 2.82 | 3.38 | 3.32 |

References: Table 5.3

Table 4

Facility Net Emission Increase Since 1990 (FNEI-90)

| | NO_x | ROC | CO | SO_x | TSP | PM₁₀ |
|-----------------------------------|-----------------------|------------|-----------|-----------------------|------------|------------------------|
| PTO 9112- Reeval issued ** | | | | | | |
| lb/day | | 1.53 | | | | |
| tons/year | 0.16 | 0.28 | | | | |

References: Table 5.5

Table 5
Facility Exempt Emissions (FXMT)*

| | NO_x | ROC | CO | SO_x | TSP | PM₁₀ |
|-----------------------------------|-----------------------|------------|-----------|-----------------------|------------|------------------------|
| PTO 9112- Reeval issued ** | | | | | | |
| tons/qtr | 0.78 | 0.29 | 0.17 | 0.00 | 0.05 | 0.05 |
| tons/year | 3.12 | 0.49 | 0.67 | 0.00 | 0.22 | 0.22 |

Reference: Table 5.4

10.5 Equipment List

| <u>Section</u> | <u>Name</u> |
|----------------|---|
| 1. | <i>IC Engines:</i> |
| 2. | <i>Compressors:</i> |
| 3. | <i>Pumps:</i> |
| 4. | <i>Pigging Equipment:</i> |
| 5. | <i>Pressure Vessels:</i> |
| 6. | <i>Flares and Thermal Oxidizers:</i> |
| 7. | <i>Fugitive Components:</i> |
| 8. | <i>Wellheads:</i> |
| 9 | <i>Sumps/Separators/Wastewater Tanks:</i> |
| 10. | <i>Supply Boat</i> |
| 11. | <i>Crew Boat</i> |
| 12. | <i>Solvent Usage</i> |

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Santa Barbara County APCD – Equipment List

PT-70/Reeval 09112 R3 / FID: 08006 Platform C / SSID: 08003

A PERMITTED EQUIPMENT

1 Stationary IC Engines

1.1 IC Engine: 15-Ton Pedestal Crane (South Crane)

| | | | |
|---------------------------|---|----------------------|---|
| <i>Device ID #</i> | 004923 | <i>Device Name</i> | IC Engine: 15-Ton Pedestal Crane (South Crane) |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 109.00 BTU/bhp-hr |
| <i>Manufacturer</i> | Detroit Diesel | <i>Operator ID</i> | CDRLDECK |
| <i>Model</i> | 3-71 | <i>Serial Number</i> | 3A85202 1033-5100 |
| <i>Location Note</i> | UTM E 980,915 UTM N 804,800 | | |
| <i>Device Description</i> | Device SCC number: 2-02-001-02. Rated BHP @ 2100 rpm. Lean engine. B injectors used as emission controls. Fuel HHV is 19,620. Exhaust gas flow rate = 1,140 dscfm. Exhaust gas temperature = 825 deg F. Stack diameter is 0.335 ft. Stack height above water = 92 ft. | | |

1.2 IC Engine: Standby Fire Water Pump

| | | | |
|---------------------------|--|-------------------------------|--------------------|
| <i>Device ID #</i> | 004926 | <i>Maximum Rated BHP</i> | 85.00 |
| <i>Device Name</i> | IC Engine: Standby Fire Water Pump | <i>Serial Number</i> | 2B7712 |
| <i>Engine Use</i> | Fire Water Pump | <i>EPA Engine Family Name</i> | |
| <i>Manufacturer</i> | Caterpillar | <i>Operator ID</i> | CDRLDECK |
| <i>Model Year</i> | 1985 | <i>Fuel Type</i> | CARB Diesel - ULSD |
| <i>Model</i> | 3304 | | |
| <i>DRP/ISC?</i> | No | <i>Healthcare Facility?</i> | No |
| <i>Daily Hours</i> | 2.00 | <i>Annual Hours</i> | 200 |
| <i>Location</i> | Platform C at OCS-P-0241 | | |
| <i>Note</i> | | | |
| <i>Device Description</i> | Device SCC number: 2-02-001-02. Rated BHP @ 2000 rpm. Lean engine. No emission controls. Fuel HHV is 19,620. | | |

1.3 IC Engine: 25-Ton Pedestal Crane (North Crane)

| <i>Device ID #</i> | 004924 | <i>Device Name</i> | IC Engine: 25-Ton Pedestal Crane (North Crane) |
|---------------------------|--|----------------------------------|---|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 230.00 Brake Horsepower |
| <i>Manufacturer Model</i> | Detroit Diesel 6-71 | <i>Operator ID Serial Number</i> | CDRLDECK 68187 |
| <i>Location Note</i> | UTM E 980,915 UTM N 804,800 | | |
| <i>Device Description</i> | Device SCC number: 2-02-001-02. Rated BHP @ 2100 rpm. Lean engine. B injectors used as emission controls. Fuel HHV is 19,620. Exhaust gas flow rate = 2,690 dscfm. Exhaust gas temperature = 700 deg F. Stack diameter is 0.33 ft. Stack height above water = 92 ft. | | |

2 Compressors

2.1 Refrigerant Compressor

| <i>Device ID #</i> | 102201 | <i>Device Name</i> | Refrigerant Compressor |
|---------------------------|--|----------------------------------|-----------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 50.00 Horsepower (Electric Motor) |
| <i>Manufacturer Model</i> | Vilter D871C446D | <i>Operator ID Serial Number</i> | 528-C-PROD CBA-611 |
| <i>Location Note</i> | Production deck | | |
| <i>Device Description</i> | Powered by 50 hp electric motor. Housing/seals not connected to vapor recovery. Start Date 1977. | | |

2.2 Main Gas Compressor

| <i>Device ID #</i> | 102200 | <i>Device Name</i> | Main Gas Compressor |
|---------------------------|---|----------------------------------|------------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 200.00 Horsepower (Electric Motor) |
| <i>Manufacturer Model</i> | Sullair | <i>Operator ID Serial Number</i> | 528-C-PROD |
| <i>Location Note</i> | Production deck | | |
| <i>Device Description</i> | Powered by 200 hp electric motor. Housing/seals not connected to vapor recovery. Start Date 1977. | | |

2.3 Solvent Leg Tank

| | | | |
|-------------------------|-----------------------------|----------------------|-------------------------|
| <i>Device ID #</i> | 102203 | <i>Device Name</i> | Solvent Leg 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> | | | |
| <i>Device</i> | Storage of mineral spirits. | | |
| <i>Description</i> | | | |

3 Pumps

3.1 Skimmer Pump #2

| | | | |
|-------------------------|---|----------------------|------------------------|
| <i>Device ID #</i> | 102205 | <i>Device Name</i> | Skimmer Pump #2 |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Gould | <i>Operator ID</i> | 528-C-SUB |
| <i>Model</i> | 3196 | <i>Serial Number</i> | 731B498 |
| <i>Location Note</i> | Sub deck | | |
| <i>Device</i> | In circulation service, pumps produced water, powered by electric | | |
| <i>Description</i> | motor, no deal seals utilized. | | |

3.2 Skimmer Pump #1

| | | | |
|-------------------------|---|----------------------|------------------------|
| <i>Device ID #</i> | 102204 | <i>Device Name</i> | Skimmer Pump #1 |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Gould | <i>Operator ID</i> | 528-C-SUB |
| <i>Model</i> | 3196 | <i>Serial Number</i> | 712D672.1 |
| <i>Location Note</i> | Sub deck | | |
| <i>Device</i> | In circulation service, pumps produced water, powered by electric | | |
| <i>Description</i> | motor, does not utilize dual seals. | | |

3.3 Back Flush Pump

| | | | |
|-------------------------|---|----------------------|------------------------|
| <i>Device ID #</i> | 102207 | <i>Device Name</i> | Back Flush Pump |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Wilden | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Flotation deck | | |
| <i>Device</i> | In circulation service, pumps crude oil, pneumatic driver. Does not | | |
| <i>Description</i> | utilize dual seals. | | |

3.4 Oil Shipping Pump #1

| | | | |
|-------------------------|---|----------------------|-----------------------------|
| <i>Device ID #</i> | 102208 | <i>Device Name</i> | Oil Shipping Pump #1 |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | REDA | <i>Operator ID</i> | 528-C-PROD |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | In crude shipping service, pumps crude oil, powered by electric | | |
| <i>Description</i> | motor, does not utilize dual seals. | | |

3.5 Oil Shipping Pump #2

| | | | |
|-------------------------|---|----------------------|-----------------------------|
| <i>Device ID #</i> | 102209 | <i>Device Name</i> | Oil Shipping Pump #2 |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Centrilift | <i>Operator ID</i> | 528-C-PROD |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | In crude shipping service, pumps crude oil, powered by electric | | |
| <i>Description</i> | motor, does not utilize dual seals. | | |

3.6 Oil Shipping Pump #3

| <i>Device ID #</i> | 102210 | <i>Device Name</i> | Oil Shipping Pump #3 |
|-------------------------|---|----------------------|-----------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | REDA | <i>Operator ID</i> | 528-C-PROD |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | In crude shipping service, pumps crude oil, powered by electric | | |
| <i>Description</i> | motor, does not utilize dual seals. | | |

3.7 Waste Water Pump

| <i>Device ID #</i> | 102211 | <i>Device Name</i> | Waste Water Pump |
|-------------------------|---|----------------------|-------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Wilden | <i>Operator ID</i> | 657-F-302 |
| <i>Model</i> | | <i>Serial Number</i> | PBA-432 |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | In circulation service, pumps produced water, pneumatic driver at | | |
| <i>Description</i> | 100 hp. Does not utilize dual seals. | | |

3.8 Sump Pump

| <i>Device ID #</i> | 102212 | <i>Device Name</i> | Sump Pump |
|-------------------------|---|----------------------|------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Wilden | <i>Operator ID</i> | 528-C-SUB |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Sub deck | | |
| <i>Device</i> | In sump service, pumps produced water, pneumatic driver, does not | | |
| <i>Description</i> | utilize dual seals. | | |

3.9 Vent Scrubber Pump

| | | | |
|-------------------------|---|----------------------|-------------------------------------|
| <i>Device ID #</i> | 102213 | <i>Device Name</i> | Vent Scrubber Pump |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 3.00 Horsepower (Electric Motor) |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 657-F-302 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | In circulation service, pumps produced water, powered by 3 hp | | |
| <i>Description</i> | electric motor. Does not utilize dual seals. | | |

4 Pigging Equipment

4.1 Gas Pig Launcher

| | | | |
|-------------------------|---|----------------------|-------------------------|
| <i>Device ID #</i> | 102215 | <i>Device Name</i> | Gas Pig Launcher |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Tube Turns, Inc | <i>Operator ID</i> | 489-F107 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Gas-to-Platform B service, diameter 0.66 feet, length 6.17 feet, | | |
| <i>Description</i> | diameter of attached pipe 0.5 feet, length of attached pipe 15 feet. Operating pressure 54 psig. Vapor MW 23 lb/lb-mol. Connected to gas gathering or vapor recovery. The pig chamber "release" pressure is estimated to be about 5 psi. | | |

4.2 Oil Pig Launcher

| | | | |
|-------------------------|--|----------------------|-------------------------|
| <i>Device ID #</i> | 102214 | <i>Device Name</i> | Oil Pig Launcher |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Tube Turns, Inc | <i>Operator ID</i> | 489-F107 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Oil-to-Platform B service, diameter 0.66 feet, length 6.17 feet, | | |
| <i>Description</i> | diameter of attached pipe 0.5 feet, length of attached pipe 15 feet. Operating pressure 100 psig. Vapor MW 50 lb/lb-mol. Connected to gas gathering or vapor recovery. The pig chamber "release" pressure is estimated to be about 5 psi. | | |

5 Pressure Vessels

5.1 Test Separator #2

| <i>Device ID #</i> | 102217 | <i>Device Name</i> | Test Separator #2 |
|-------------------------|---|----------------------|--------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Rheem/Superior | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | X2961 |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Vertical type vessel in oil service, diameter 3.5 feet, length 20.33 feet. | | |
| <i>Description</i> | Operating pressure 56 psig. Connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

5.2 Gross Oil Separator

| <i>Device ID #</i> | 102218 | <i>Device Name</i> | Gross Oil Separator |
|-------------------------|--|----------------------|----------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Rheem/Superior | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | X2963 |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Horizontal type vessel in oil/gas service. Diameter 6 feet, length 19.66 feet. Operating pressure 40 psig. Connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

5.3 Test Separator #1

| <i>Device ID #</i> | 102216 | <i>Device Name</i> | Test Separator #1 |
|-------------------------|--|----------------------|--------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Rheem/Superior | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | X2962 |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Vertical type vessel in oil/gas service. Diameter 3.5 feet, length 20.33 feet. Operating pressure 58 psig. Connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

5.4 Flare Gas Scrubber

| <i>Device ID #</i> | 102219 | <i>Device Name</i> | Flare Gas Scrubber |
|-------------------------|--|----------------------|---------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | P/M | <i>Operator ID</i> | 657-B-302 |
| <i>Model</i> | | <i>Serial Number</i> | V4282-1A |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Vertical type vessel in gas service, diameter 4 feet, length 10 feet. | | |
| <i>Description</i> | Operating pressure atmospheric, operating temperature 100 deg. F. Not connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

5.5 Well Clean Tank

| <i>Device ID #</i> | 102220 | <i>Device Name</i> | Well Clean Tank |
|-------------------------|---|----------------------|------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Rheem/Superior | <i>Operator ID</i> | 528-F-315 |
| <i>Model</i> | | <i>Serial Number</i> | X2965 |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Vertical type vessel in oil service, diameter 12.0 feet, length 19.0 feet, operating pressure 8 to 50 psig, operating temperature 100 to 650 deg F. | | |
| <i>Description</i> | Connected to gas gathering or vapor recovery. PSVs vent to VRS. | | |

5.6 Final Gas Scrubber

| <i>Device ID #</i> | 102222 | <i>Device Name</i> | Final Gas Scrubber |
|-------------------------|---|----------------------|---------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Rheem/Superior | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | X2852 |
| <i>Location Note</i> | Production deck | | |
| <i>Device</i> | Vertical type vessel in gas service, diameter 1.9 feet, length 12 feet, operating pressure 50 psig, operating temperature 40 deg F. | | |
| <i>Description</i> | Connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

5.7 Main Gas Scrubber

| <i>Device ID #</i> | 102223 | <i>Device Name</i> | Main Gas Scrubber |
|---------------------------|--|----------------------|--------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Rheem/Superior | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | X2966 |
| <i>Location Note</i> | Production deck | | |
| <i>Device Description</i> | Vertical type vessel in gas service, diameter 5.0 feet, length 12.10 feet, operating pressure 7 psig, operating temperature 100 deg F. Connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

5.8 Oil Shipping Surge Tank

| <i>Device ID #</i> | 102224 | <i>Device Name</i> | Oil Shipping Surge Tank |
|---------------------------|---|----------------------|--------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | King Welding | <i>Operator ID</i> | 528-F-310 |
| <i>Model</i> | | <i>Serial Number</i> | 3422 |
| <i>Location Note</i> | Production deck | | |
| <i>Device Description</i> | Vertical type vessel in oil service, diameter 6 feet, length 14 feet, operating pressure 8 psig, operating temperature 100 deg F. Connected to gas gathering or vapor recovery. PSVs to atmosphere: no. | | |

6 Flares and Thermal Oxidizers

6.1 Flare Relief System

| <i>Device ID #</i> | 005519 | <i>Device Name</i> | Flare Relief System |
|---------------------------|---|----------------------|----------------------------|
| <i>Rated Heat Input</i> | 2500.000 MMBtu/Hour | <i>Physical Size</i> | |
| <i>Manufacturer</i> | PTS | <i>Operator ID</i> | |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Flare Boom UTM E 980,915 UTM N 804,800 | | |
| <i>Device Description</i> | Start date: 1994. Open pipe type flare with design heat release of 2500 MMBtu/hr. Flare gas HHV 1100 Btu/scf, total sulfur content of flared gas 239 max ppmv S as H ₂ S. No emission controls. Pilot/purge gas sulfur content 50 ppmv S as H ₂ S. Stack height above water = 100 ft. Stack diameter = 0.33 ft. Exhaust gas flow rate = 121 dscfm. Exhaust gas temperature = ambient. | | |

7 Fugitive HC Components - CLP

| <i>Device ID #</i> | 102191 | <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> | | | |

7.1 Gas/Condensate Service Components - Controlled

| <i>Device ID #</i> | 102231 | <i>Device Name</i> | Gas/Condensate Service Components - Controlled |
|-------------------------|--------------------------------|----------------------|---|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 5282.00 Component Leakpath |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 200 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Various locations on platform. | | |
| <i>Device</i> | | | |
| <i>Description</i> | | | |

7.2 Gas/Condensate Service Components - Unsafe

| <i>Device ID #</i> | 102232 | <i>Device Name</i> | Gas/Condensate Service Components - Unsafe |
|-------------------------|--------------------------------|----------------------|---|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 42.00 Component Leakpath |
| <i>Manufacturer</i> | | <i>Operator ID</i> | |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Various locations on platform. | | |
| <i>Device</i> | | | |
| <i>Description</i> | | | |

7.3 Gas/Condensate Service Components - Stainless Steel

| <i>Device ID #</i> | 111123 | <i>Device Name</i> | Gas/Condensate Service Components - Stainless Steel |
|---------------------------|-------------------------------|----------------------------------|--|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 126.00 Component Leakpath |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | Various locations on platform | | |
| <i>Device Description</i> | | | |

7.4 Oil Service Components - Controlled

| <i>Device ID #</i> | 102233 | <i>Device Name</i> | Oil Service Components - Controlled |
|---------------------------|--------------------------------|----------------------------------|--|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 5355.00 Component Leakpath |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | Various locations on platform. | | |
| <i>Device Description</i> | | | |

7.5 Oil Service Components - Unsafe

| <i>Device ID #</i> | 102234 | <i>Device Name</i> | Oil Service Components - Unsafe |
|---------------------------|--------------------------------|----------------------------------|--|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 2.00 Component Leakpath |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | Various locations on platform. | | |
| <i>Device Description</i> | | | |

7.6 Oil Service Components - Stainless Steel

| <i>Device ID #</i> | 111122 | <i>Device Name</i> | Oil Service Components - Stainless Steel |
|---------------------------|-------------------------------|----------------------|---|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 376.00 Component Leakpath |
| <i>Manufacturer</i> | | <i>Operator ID</i> | |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Various locations on platform | | |
| <i>Device Description</i> | | | |

8 Wellheads

8.1 Wellhead

| <i>Device ID #</i> | 102235 | <i>Device Name</i> | Wellhead |
|---------------------------|--|----------------------|--------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 28.00 Active Wells |
| <i>Manufacturer</i> | | <i>Operator ID</i> | CDRLDECK |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | 28 active wells, 7 water injection wells. Producing Wells (28): C-2, C-3, C-4, C-14, C-15, C-16, C-27, C-28, C-29, C-30, C-31, C-33, C-34, C-35, C-40, C-41, C-42, C-44, C-45, C-46, C-48, C-50, C-51, C-53, C-54, C-55, C-57, and C-59 Water injection wells (7): C-1, C-5, C-43, C-47, C-52, C-56, and C-60. | | |

9 Sumps and Wastewater Tanks

9.1 Waste Oil Tank/Sump

| <i>Device ID #</i> | 005526 | <i>Device Name</i> | Waste Oil Tank/Sump |
|---------------------------|---|----------------------|----------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 12.56 Square Feet |
| <i>Manufacturer</i> | National | <i>Operator ID</i> | 657-F-302 |
| <i>Model</i> | K-5233-D | <i>Serial Number</i> | ABJ-451 |
| <i>Location Note</i> | Sub deck | | |
| <i>Device Description</i> | Covered tertiary vessel in light oil service, size: diameter 4 feet by 6.66 feet high. Not connected to vapor recovery. Start date: 1977. | | |

9.2 Waste Water Tank

| <i>Device ID #</i> | 005529 | <i>Device Name</i> | Waste Water Tank |
|---------------------------|---|----------------------|-------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 50.00 Square Feet |
| <i>Manufacturer</i> | National | <i>Operator ID</i> | 657-F-302 |
| <i>Model</i> | K-5233-D | <i>Serial Number</i> | ABJ-431 |
| <i>Location Note</i> | Sub deck | | |
| <i>Device Description</i> | Covered tertiary vessel in produced water service, size: 8.5 feet diameter by 9 feet high. Not connected to vapor recovery. Start date: 1977. | | |

9.3 Skimmer Tank

| <i>Device ID #</i> | 005528 | <i>Device Name</i> | Skimmer Tank |
|---------------------------|--|----------------------|---------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 50.00 Square Feet |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 657-F-302 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | Sub deck | | |
| <i>Device Description</i> | Covered tertiary vessel in oil/water service, size: diameter 7 feet by 7.5 feet high. Not connected to vapor recovery. Start date: 1977. | | |

10 Supply Boats

10.1 Supply Boat (basis: M/V Santa Cruz)

| <i>Device ID #</i> | 102236 | <i>Device Name</i> | Supply Boat (basis: M/V Santa Cruz) |
|---------------------------|--|----------------------|--|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 5005.00 Brake Horsepower |
| <i>Manufacturer</i> | | <i>Operator ID</i> | M.V. Santa Cruz |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Location Note</i> | OCS UTM E 980,915 UTM N 804,800 | | |
| <i>Device Description</i> | Total auxiliary engine horsepower rating: 1005 (2 - 245bhp; 1 - 515bhp). Stack height above water = 15 ft. Stack diameter = 1 ft. Exhaust gas flow rate = 18,350 dscfm. Exhaust gas temperature = 500 deg F. Fuel Consumption 0.055 gal/bhp-hr. NOx emission controls utilized: 4 deg retard, enhanced intercooling, turbocharged. Control efficiency 8.4 g/bhp-hr. GPS installed. | | |

10.1.1 Supply Main Engines

| <i>Device ID #</i> | 005520 | <i>Device Name</i> | Supply Main Engines |
|---------------------------|--|----------------------|----------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 4000.00 BTU/bhp-hr |
| <i>Manufacturer</i> | Caterpillar | <i>Operator ID</i> | |
| <i>Model</i> | 3516B | <i>Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | 2 main engines at 2000 bhp each. These main engines employ the following NOx control measures: A Dual Advanced Diesel Engine Management (ADEMII) modules with electronically controlled unit injectors, as well as dual turbo-chargers and a separate circuit after-cooler core. | | |

10.1.2 Supply Generator Engines

| <i>Device ID #</i> | 005521 | <i>Device Name</i> | Supply Generator Engines |
|---------------------------|---|----------------------|---------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 490.00 Brake Horsepower |
| <i>Manufacturer</i> | Caterpillar | <i>Operator ID</i> | |
| <i>Model</i> | 3306B DIT | <i>Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | Two 170 kW generator engines at 245 bhp each, uncontrolled for NOx. | | |

10.1.3 Supply Bow Thruster

| <i>Device ID #</i> | 005522 | <i>Device Name</i> | Supply Bow Thruster |
|---------------------------|--|----------------------|----------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 515.00 Brake Horsepower |
| <i>Manufacturer</i> | Caterpillar | <i>Operator ID</i> | |
| <i>Model</i> | 3406C DITA | <i>Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | One 515 bhp bow thruster engine. Uncontrolled for NOx. | | |

10.2 Emergency Response Boat Engines

| <i>Device ID #</i> | 005523 | <i>Device Name</i> | Emergency Response Boat Engines |
|---------------------------|---|----------------------------------|--|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 1770.00 Brake Horsepower |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | The total engine horsepower, including auxiliary engines, is 1,770 bhp. Uncontrolled for NOx. | | |

10.3 Supply Boat Spot Charter Engines

| <i>Device ID #</i> | 105238 | <i>Device Name</i> | Supply Boat Spot Charter Engines |
|---------------------------|--|----------------------------------|---|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 4000.00 Brake Horsepower |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | Total engine horsepower is 4000 bhp. Uncontrolled for NOx. | | |

11 Crew Boats

11.1 Crew Boat (basis: M/V Alan T)

| <i>Device ID #</i> | 102237 | <i>Device Name</i> | Crew Boat (basis: M/V Alan T) |
|---------------------------|---|----------------------------------|--------------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 1748.00 Brake Horsepower |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | M.V. Alan T |
| <i>Location Note</i> | OCS UTM E 980,915 UTM N 804,800 | | |
| <i>Device Description</i> | Stack height above water = 1.5 ft. Stack diameter = 1 ft. Exhaust gas flow rate = 3,870 dscfm. Exhaust gas temperature = 600 deg F. Fuel Consumption 0.055 gal/bhp-hr. NOx emission controls utilized: 4 deg retard, enhanced intercooling, turbocharged. Control efficiency 8.4 g/bhp-hr. GPS not installed. | | |

11.1.1 Crew Main Engines

| <i>Device ID #</i> | 005524 | <i>Device Name</i> | Crew Main Engines |
|---------------------------|--|----------------------------------|--------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 1530.00 Brake Horsepower |
| <i>Manufacturer Model</i> | Detroit Diesel 12V71TI | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | Three main engines at 510 bhp each, for total mains 1530 bhp. 4 deg retard, enhanced intercooling, turbocharged. | | |

11.1.2 Crew Generator Engines

| <i>Device ID #</i> | 005525 | <i>Device Name</i> | Crew Generator Engines |
|---------------------------|--|----------------------------------|-------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 218.00 Brake Horsepower |
| <i>Manufacturer Model</i> | Detroit Diesel 3-71 | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | Two 30 kW generator engines at 109 bhp each, not controlled for NOx. | | |

11.2 Crew Boat Spot Charter Engines

| <i>Device ID #</i> | 105239 | <i>Device Name</i> | Crew Boat Spot Charter Engines |
|---------------------------|---|----------------------------------|---------------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 1530.00 Brake Horsepower |
| <i>Manufacturer Model</i> | | <i>Operator ID Serial Number</i> | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | Total horsepower of 1530 bhp, uncontrolled for NOx. | | |

12 Solvent Usage: Cleaning/Degreasing

12.1 Solvent: Naphtha

| | | | |
|-------------------------|---|----------------------|-------------------------|
| <i>Device ID #</i> | 102242 | <i>Device Name</i> | Solvent: Naphtha |
| <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> | Coating/solvent brand name: Naphtha. Application: solvent. | | |
| <i>Description</i> | Product recycled as emission controls (efficiency unknown). | | |

10.6 Permit-exempt but Significant Equipment List

1 IC Engine: Standby Power Generator

| <i>Device ID #</i> | 004925 | <i>Device Name</i> | IC Engine: Standby Power Generator |
|-------------------------------|---|---|---|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 21.80 Brake Horsepower |
| <i>Manufacturer</i> | Onan | <i>Operator ID</i> | CDRLDECK |
| <i>Model</i> | 12DJC | <i>Serial Number</i> | |
| <i>Part 70 Insig?</i> | No | <i>APCD Rule Exemption:</i> 202.F.1.e. Compression ignition engines w/ bhp 50 or less | |
| <i>Location Note</i> | | | |
| <i>Device Description</i> | Device SCC number: 2-02-001-02. Rated BHP @ 1800 rpm. Lean engine. No emission controls. Fuel HHV is 19,620. | | |

2 IC Engine: Portable Air Compressor (*Device 110757 listed on APCD Permit 09110*)

10.7 Permit-exempt and Insignificant Equipment List

1 Fixed Roof Storage Tanks

1.1 Pedestal Crane Fuel Tank

| <i>Device ID #</i> | 102199 | <i>Device Name</i> | Pedestal Crane Fuel Tank |
|---|--|--|---------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 3200.00 Gallons |
| <i>Manufacturer Model</i> | Platform Member | <i>Operator ID Serial Number</i> | CDRLDECK |
| <i>Part 70 Insig?</i> | Yes | <i>APCD Rule Exemption:</i> 202.V.2 Storage Of Refined Fuel Oil W/Grav <=40 Api | |
| <i>Location Note Device Description</i> | Device SCC number: 04-03-010-21. The vertical type diesel tank is a platform member, and not connected to vapor recovery. Vapor MW 130 lb/lb-mol. Vapor Pressure 0.01 psia. Annual net throughput 1000 barrels/year. | | |

1.2 Pedestal Crane Fuel Tank

| <i>Device ID #</i> | 102198 | <i>Device Name</i> | Pedestal Crane Fuel Tank |
|---|--|--|---------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 3200.00 Gallons |
| <i>Manufacturer Model</i> | Platform Member | <i>Operator ID Serial Number</i> | CDRLDECK |
| <i>Part 70 Insig?</i> | Yes | <i>APCD Rule Exemption:</i> 202.V.2 Storage Of Refined Fuel Oil W/Grav <=40 Api | |
| <i>Location Note Device Description</i> | Device SCC number: 04-03-010-21. The vertical type diesel tank is a platform member, and not connected to vapor recovery. Vapor MW 130 lb/lb-mol. Vapor Pressure 0.01 psia. Annual net throughput 1000 barrels/year. | | |

2 Maintenance Activities

2.1 Maintenance Supply: Carbomastic 15

| | | | |
|---------------------------|--|---|---|
| <i>Device ID #</i> | 102239 | <i>Device Name</i> | Maintenance Supply: Carbomastic 15 |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer Model</i> | | <i>Operator ID</i> | 200 |
| <i>Part 70 Insig?</i> | No | <i>Serial Number</i> | |
| <i>Location Note</i> | Platform C | <i>APCD Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance | |
| <i>Device Description</i> | Coating/solvent brand name: Carbomastic 15 Application: Coating. Overspray tarps for PM used as emission controls (efficiency unknown). | | |

2.2 Maintenance Supply: Carboline 801

| | | | |
|---------------------------|---|---|--|
| <i>Device ID #</i> | 102240 | <i>Device Name</i> | Maintenance Supply: Carboline 801 |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer Model</i> | | <i>Operator ID</i> | 200 |
| <i>Part 70 Insig?</i> | No | <i>Serial Number</i> | |
| <i>Location Note</i> | Platform C | <i>APCD Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance | |
| <i>Device Description</i> | Coating/solvent brand name: Carboline 801. Application: Coating. Overspray tarps for PM used as emission controls (efficiency unknown). | | |

2.3 Maintenance Supply: Carbothane D134 HS

| | | | |
|---------------------------|--|---|---|
| <i>Device ID #</i> | 102238 | <i>Device Name</i> | Maintenance Supply: Carbothane D134 HS |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer Model</i> | | <i>Operator ID</i> | 200 |
| <i>Part 70 Insig?</i> | No | <i>Serial Number</i> | |
| | | <i>APCD Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance | |
| <i>Location Note</i> | Platform C | | |
| <i>Device Description</i> | Coating/solvent brand name: Carbothane D134 HS. Application: Coating. Overspray tarps for PM used as emission controls (efficiency unknown). | | |

2.4 Maintenance Supply: Methyl Ethyl Ketone

| | | | |
|---------------------------|--|---|--|
| <i>Device ID #</i> | 102241 | <i>Device Name</i> | Maintenance Supply: Methyl Ethyl Ketone |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer Model</i> | | <i>Operator ID</i> | 200 |
| <i>Part 70 Insig?</i> | No | <i>Serial Number</i> | |
| | | <i>APCD Rule Exemption:</i> 202.D.8 Routine Repair and Maintenance | |
| <i>Location Note</i> | Platform C | | |
| <i>Device Description</i> | Coating/solvent brand name: Methyl Ethyl Ketone. Application: Solvent. Product recycled as emission controls (efficiency unknown). | | |

* -- All permit-exempt 'maintenance' activities are, however, regulated under the following APCD Rules: Rules 317, 321, 323, 324, 505 (a, b, and, d), and Regulation XIII.

10.8 De-Permitted Equipment List

1 Vapor Recovery Compressor

| <i>Device ID #</i> | 102202 | <i>Device Name</i> | Vapor Recovery Compressor |
|-------------------------|---|--------------------------|----------------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | G&A Services | <i>Operator ID</i> | 657 F 302 |
| <i>Model</i> | D-90 | <i>Serial Number</i> | CBA-291 |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | In vapor recovery service (out of service), rated capacity 2 scfm. | | |
| <i>Description</i> | Driver removed. Housing/seals not connected to vapor recovery. Start date: 1977. | | |

2 Well Clean Pump

| <i>Device ID #</i> | 102206 | <i>Device Name</i> | Well Clean Pump |
|-------------------------|--|--------------------------|------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 657 F 302 |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | In circulation service (out of service), pumps crude oil, powered by electric motor, no deal seals utilized. | | |
| <i>Description</i> | | | |

3 Free Water Knockout

| <i>Device ID #</i> | 102221 | <i>Device Name</i> | Free Water Knockout |
|-------------------------|---|--------------------------|----------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 657-F-301 |
| <i>Model</i> | | <i>Serial Number</i> | MAM-121 |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Horizontal type vessel in oil service (out of service – 2 discharge valves closed and shut off at gas gathering line - all production shipped to Platform B). Diameter 6 feet, length 19.66 feet, operating pressure 0 psig, operating temperature 100 deg F. Not connected to gas gathering or vapor recovery. | | |
| <i>Description</i> | | | |

4 Refrigerant Surge Drum

| <i>Device ID #</i> | 102225 | <i>Device Name</i> | Refrigerant Surge Drum |
|---------------------------|---|--------------------------|------------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 528-F-313 |
| <i>Model</i> | | <i>Serial Number</i> | MBJ-631 |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device Description</i> | Horizontal type tank in gas service (REMOVED), 16.9 ft diameter, 6 ft long, 400 psig operating pressure, 400 deg F operating temp, not connected to gas gathering or vapor recovery (PSVs to atmosphere). | | |

5 Discharge Cooler

| <i>Device ID #</i> | 102226 | <i>Device Name</i> | Discharge Cooler |
|---------------------------|--|--------------------------|------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | | <i>Operator ID</i> | 528-F-314 |
| <i>Model</i> | 48EHS | <i>Serial Number</i> | HBA-228 |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device Description</i> | Fin fan type exchanger in condensate service (REMOVED), heat medium air. Start date: 1969. | | |

6 Refrigerant Condenser

| <i>Device ID #</i> | 102227 | <i>Device Name</i> | Refrigerant Condenser |
|---------------------------|---|--------------------------|-----------------------|
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Vilters | <i>Operator ID</i> | 528-F-308 |
| <i>Model</i> | | <i>Serial Number</i> | HBA-0621 |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device Description</i> | Fin fan type exchanger in refrigerant service (REMOVED), heat medium refrigerant. Start date: 1969. | | |

7 Hot Oil Back Flush Heater

| | | | |
|-------------------------|---|--------------------------|----------------------------------|
| <i>Device ID #</i> | 102228 | <i>Device Name</i> | Hot Oil Back Flush Heater |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Chromalox | <i>Operator ID</i> | 528-F-308 |
| <i>Model</i> | 011404 | <i>Serial Number</i> | |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Electric type exchanger in oil service (OUT OF SERVICE/LOCKED | | |
| <i>Description</i> | OUT/DISCONNECTED), heat medium oils. Start date: 1969. | | |

8 Hot Oil Back Flush Heater

| | | | |
|-------------------------|---|--------------------------|----------------------------------|
| <i>Device ID #</i> | 102229 | <i>Device Name</i> | Hot Oil Back Flush Heater |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Chromalox | <i>Operator ID</i> | |
| <i>Model</i> | 011404 | <i>Serial Number</i> | |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Electric type exchanger in oil service (OUT OF SERVICE/LOCKED | | |
| <i>Description</i> | OUT/DISCONNECTED), heat medium oils. Start date: 1969. | | |

9 Hot Oil Back Flush Heater

| | | | |
|-------------------------|---|--------------------------|----------------------------------|
| <i>Device ID #</i> | 102230 | <i>Device Name</i> | Hot Oil Back Flush Heater |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Chromalox | <i>Operator ID</i> | |
| <i>Model</i> | 011404 | <i>Serial Number</i> | |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Electric type exchanger in oil service (OUT OF SERVICE/LOCKED | | |
| <i>Description</i> | OUT/DISCONNECTED), heat medium oils. Start date: 1969. | | |

10 Portable Tank A

| | | | |
|-------------------------|--|--------------------------|------------------------|
| <i>Device ID #</i> | 005530 | <i>Device Name</i> | Portable Tank A |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Baker Tank | <i>Operator ID</i> | |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Secondary covered tank in varied service. 280 cubic feet surface | | |
| <i>Description</i> | area. Not connected to vapor recovery. | | |

11 Portable Tank B

| | | | |
|-------------------------|--|--------------------------|------------------------|
| <i>Device ID #</i> | 005531 | <i>Device Name</i> | Portable Tank B |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | |
| <i>Manufacturer</i> | Baker Tank | <i>Operator ID</i> | |
| <i>Model</i> | | <i>Serial Number</i> | |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Secondary covered tank in varied service. 280 cubic feet surface | | |
| <i>Description</i> | area. Not connected to vapor recovery. | | |

12 Flotation Cell Unit

| | | | |
|-------------------------|--|--------------------------|----------------------------|
| <i>Device ID #</i> | 005527 | <i>Device Name</i> | Flotation Cell Unit |
| <i>Rated Heat Input</i> | | <i>Physical Size</i> | 0.08 MMgal/Year |
| <i>Manufacturer</i> | WEMCO | <i>Operator ID</i> | |
| <i>Model</i> | 44 | <i>Serial Number</i> | ABJ-431 |
| <i>Depermitted</i> | | <i>Facility Transfer</i> | |
| <i>Device</i> | Covered and connected to vapor recovery. | | |
| <i>Description</i> | | | |
