

Proposed

**APCD PERMIT TO OPERATE NO. 8869
AND
PART 70 OPERATING PERMIT NO. 8869**

**GREKA OIL AND GAS, INC.
SOUTH CAT CANYON STATIONARY SOURCE**

**BELL LEASE, CAT CANYON FIELD
6527 DOMINION ROAD
SANTA MARIA, CALIFORNIA 93454**

OPERATOR

GREKA OIL AND GAS, INC. ("GREKA")

OWNERSHIP

GREKA OIL AND GAS, INC. ("GREKA")

**SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT**

February 2010

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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
bpd	barrels per day (1 barrel = 42 gallons)
CAM	compliance assurance monitoring
CEMS	continuous emissions monitoring
dscf	dry standard cubic foot
EU	emission unit
°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	mega (million)
MACT	Maximum Achievable Control Technology
MM	million
MW	molecular weight
NEI	net emissions increase
NG	natural gas
NSPS	New Source Performance Standards
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
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
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

1. Introduction

1.1 Purpose

1.1.1 General. The Santa Barbara County Air Pollution Control District (APCD) is responsible for implementing all applicable federal, state and local air pollution requirements that affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 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. 8869*) as well as the State Operating Permit (*Permit to Operate No. 8869*).

1.1.2 Part 70 Permitting. The initial Part 70 permit for the Bell Lease was issued November 1, 2000 in accordance with the requirements of the APCD's Part 70 operating permit program. This permit is the third renewal of the Part 70 permit, and may include additional applicable requirements. Bell Lease (FID 3211) is a part of the *Greka Oil and Gas, Inc. South Cat Canyon* stationary source (SSID = 2658), which is a major source for 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.

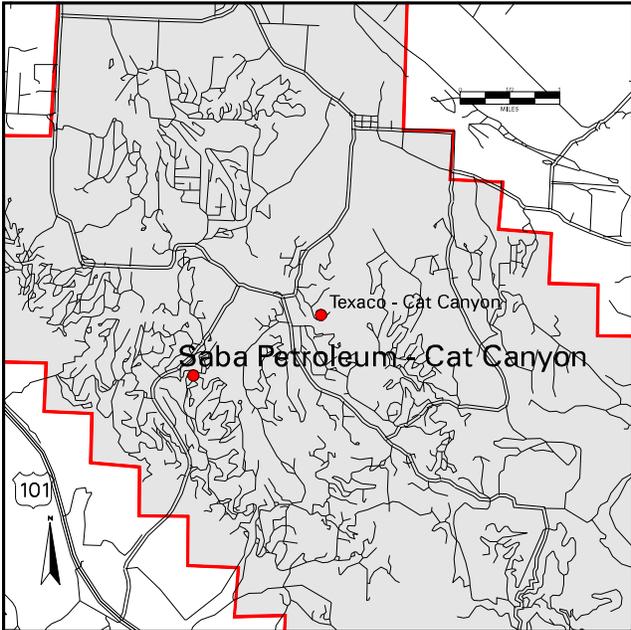
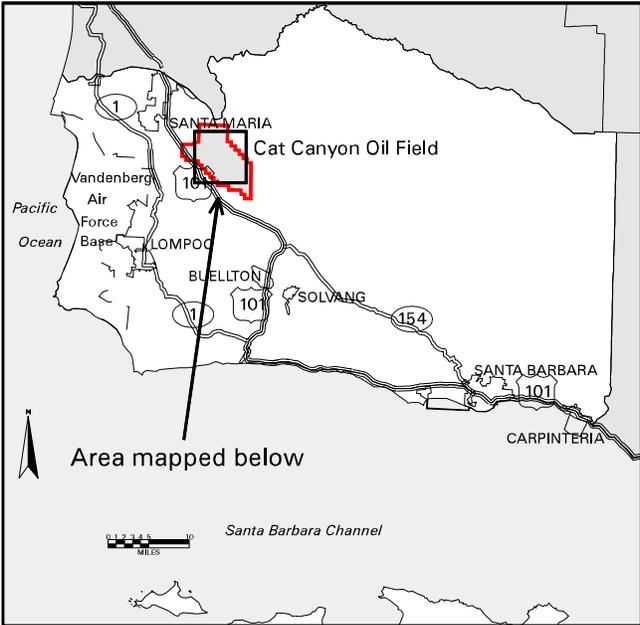
Pursuant to the stated aims of Title V of the CAAA of 1990 (i.e., the Part 70 operating permit program), this permit has been designed to meet two objectives. First, compliance with all conditions in this permit would ensure compliance with all federally enforceable requirements for the facility. Next,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

1.2 Facility Overview

1.2.1 Facility Overview: Greka Oil and Gas, Inc. ("Greka") is the owner and operator of Bell Lease, located at 6527 Dominion Road, Santa Maria, California 93454. The facility is located in the Cat Canyon Oil Field, approximately two miles south of the Palmer Road and Cat Canyon Road intersection and six miles south-southeast of the city of Santa Maria in Santa Barbara County. For APCD regulatory purposes, the facility location is in the Northern Zone of Santa Barbara County¹. Figure 1.1 shows the relative location of the facility within the county.

¹ APCD Rule 102, Definition: "Northern Zone"

Figure 1.1 Location Map for Greka Cat Canyon



Bell Lease was operational in September 1979 when its owner/operator Union Oil of California applied to the APCD for its first operating permit (ATC/PTO 4041). An operating permit was issued to Union Oil by the APCD in October 1979. In May 1993 the facility operator/permittee was changed to D&S Industrial Services, a contractor firm. The facility was next owned and operated by Saba Petroleum, Inc., which acquired Bell lease and its operations in 1994. Finally, in January 2000 Greka assumed ownership from Saba the owner/operator-ship of the Bell Lease.

Oil, water, and gas can be produced from ninety six (96) permitted wells located on the lease. Currently, 39 oil and gas wells are operating at the lease. As described below in Section 2.1, the entire production is piped to a central processing facility. The average gravity of the produced crude oil in 2005 was 22.8° API; and the vapor pressure was 1.25 *psia* (at 92.7° F). Currently, the lease is permitted to produce 10 million standard cubic feet per day (MMscfd) of gas and 1,600 barrels per day (bpd) of dry crude oil; i.e., the gas to oil ratio at the stationary source is approximately 6,250 scf/bbl.

Stationary Source Overview: Prior to August 2002, the Greka Cat Canyon Stationary Source was a Part 70 source consisting of the Bell, Dominion, UCB, Blockman, Palmer-Stendl and an IC engines facility. In August 2002 Greka purchased nine leases within the Cat Canyon field from Vintage Petroleum which were incorporated into the existing Greka Pt70 Cat Canyon Stationary Source at that time. In November 2008 Greka, sold two of the leases within the stationary source; the California lease and United California lease. As a result of this sale, the stationary source configuration was reorganized based on the stationary source definition in APCD Rule 201. The single source was split into the following three sources: the North Cat Canyon Stationary Source consisting of the Goodwin, Harbordt, Lloyd, Mortenson, and Security/Thomas leases; the Central Cat Canyon Stationary Source consisting of the Porter lease and the South Cat Canyon Stationary Source consisting of the Bell, Blockman, Dominion, Palmer-Stendl, UCB and the IC Engines leases. Following this reorganization, only the South Cat Canyon Stationary Source (SSID = 2658) remained a Part 70 source.

Oil and gas well production at the Greka South Cat Canyon stationary source is produced by wells at the Bell, Blockman, Dominion, Palmer-Stendl and UCB leases and is piped to the central processing facility at the Bell Lease. The crude oil processed at the Bell lease is sent off-site via pipelines or tanker trucks. Gas production from these wells is processed at the Bell lease and used by the boilers and heater treaters at the Bell lease, by the field combustion equipment throughout the Greka Cat Canyon leases, or piped to locations offsite.

The Bell Lease consists of the following systems:

- Oil & Gas Production wells and surface system
- Oil, water and gas separation system
- Oil and water storage system
- Oil shipping, metering and pipeline system
- Produced water (waste water) injection system
- Gas scrubber system
- Vapor Recovery Unit gas compression system

- Gas shipping and metering system
- Operations support system
- Electrical system
- Safety system

A number of gas compression, crude oil pumping and wastewater injection equipment units at Bell Lease site (Bell compressor plant) are powered by stationary, natural gas-fired IC engines. Operation of these IC engines and their emissions are addressed by the APCD in a separate permit; Pt70 PTO 8036. Any of these units can be electrified after written notification to the APCD.

1.2.2 Facility New Source Review Overview: Since the issuance of the initial operating permit on October 1979, the following permit actions have been issued:

ATC/PTO 9387: Greka (Saba) submitted an application (ATC 9387) to construct a new loading rack at Bell Lease. The ATC (Authority to Construct) was issued on 3/30/95, followed later by PTO 9387 in February 1996.

ATC/PTO 9412: ATC 9412 allowed Greka (Saba) to construct two H₂S scrubbers, a refrigerated condensate removal system (two electrically-driven compressors and a knockout vessel), a loading rack and two portable condensate tanks. The ATC was issued on 1/19/96, followed by PTO 9412 in 9/96. Subsequently, one condensate tank has been removed from operations.

Change of Ownership 8869: One ownership change notice was approved. On June 1, 1993, Saba Petroleum applied to the APCD and obtained a change of ownership status for this lease and several other former Unocal properties. D&S Industrial Services was named as the operator. Subsequently, in 1994 Saba took over as the sole operator for the Cat Canyon source.

TRN/OO 8869-02: Greka obtained ownership of the Bell Lease from Saba Petroleum. The APCD document TRN/OO 8869-02 was issued on February 29, 2000.

ATC Mod 9975-01: Application to correct the NEI calculation performed under ATC 9972. Two ATCs that contributed to the P1 term were actually cancelled at the time of issuance and were therefore invalid.

ATC/PTO 9975: Application to add a new 747 bhp Waukesha 4-stroke rich burn compressor engine to replace to older Clark HR-8 lean burn engine. The HR-8 is subject to DOI #0006 for NO_x, ROC and CO ERCs. The 747 hp Waukesha 747 is no longer on -site and was removed from the IC Engine facility permit (Part 70/PTO 8036) during the prior Part 70 permit renewal process.

ATC/PTO 12261: Application for the installation of one 2,000 bbl crude oil stock tank.

1.3 Emission Sources

Air pollution emissions from the Bell Lease are the result of combustion sources, storage tanks, gas compressors and scrubbers, loading rack and oil & gas piping components, such as valves and flanges. Section 4 of the permit provides the APCD's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit and the Bell Lease as a whole; it also lists the potential emissions from non-permitted emission units. The emission sources include:

1. Crude oil tanks, wash tanks and a reject tank
2. Natural gas-fired boilers (2) and a regenerator
3. Water/oil knockout and condensate removal system
4. Glycol dehydration unit and scrubbers
5. Hydrogen Sulfide scrubbers
6. Gas compressors including vapor recovery unit compressors
7. Loading racks
8. Pigging equipment
9. Sumps, well cellars and pits
10. Fugitive emission components

Emissions from the IC engines operating at the Bell Lease are addressed in PTO 8036. A list of all permitted equipment is provided in Attachment 10.5.

1.4 Emission Control Overview

Air quality emission controls are utilized on Bell Lease for a number of emission units to reduce air pollution emissions. Additionally, the use of utility grid power allows Bell Lease to operate electrically driven pumps and compressors on site. The emission controls employed at the facility include:

- Use of scrubber units to reduce the hydrogen sulfide content of the field gas to levels below 796 ppmv (Rule 311); also facilitates compliance with Rules 303 and 310.
- Use of vapor recovery units, which effectively reduce ROC emissions from crude oil, waste water and wash tanks by more than 90 percent.
- 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.
- A monitoring and maintenance program for well cellars and pits, consistent with the requirements of Rule 344, to reduce ROC emissions by approximately 70 percent.
- Use of flexible sump covers, per Rule 344.D, reduces sump emissions by approximately 85 percent.

1.5 Offsets/Emission Reduction Credit Overview

Operation of equipment listed in this permit does not require emission offsets nor does it provide emission reduction credits (ERC). However, older equipment that was replaced by lower emitting equipment at Bell Lease facility's compressor plant (addressed in PTO 8036) provides ERC's. The South Cat Canyon Stationary Source does not currently exceed the APCD Rule 802 offset thresholds for any pollutants.

1.6 Part 70 Operating Permit Overview

- 1.6.1 Federally-enforceable Requirements: All federally enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under “applicable requirements.” These include all SIP-approved APCD Rules, all conditions in the APCD-issued Authority to Construct permits, and all conditions applicable to major sources under federally promulgated rules and regulations. All these requirements are enforceable by the public under CAAA. (*see Tables 3.4-1 and 3.4-2 for a list of federally enforceable requirements*)
- 1.6.2 Insignificant Emissions Units: Insignificant emission units are defined under APCD Rule 1301 as any regulated air pollutant emitted from the unit, excluding HAPs, that are less than 2 tons per year based on the unit’s potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit’s potential to emit. Insignificant activities must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to insignificant units. See Attachment 10.6 for a list of Part 70 insignificant units.
- 1.6.3 Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement, or (2) included in the 29-category source list specified in 40 CFR 51.166 or 52.21. The federal PTE does include all emissions from any insignificant emissions units. (*See Section 5.4 for the federal PTE for this source*)
- 1.6.4 Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally-enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the APCD. Permit shields cannot be indiscriminately granted with respect to all federal requirements. Greka 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. Greka made no request for permitted alternative operating scenarios.
- 1.6.6 Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally-enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually on or before March 1st or on a more frequent schedule specified in the permit. Each certification is signed

by a “responsible official” of the owner/operator company whose name and address is listed prominently in the Part 70 permit. (*see Section 1.6.9 below*)

1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data.

1.6.8 Hazardous Air Pollutants (HAPs): Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology (MACT), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability. However, based on CAAA, Section 112 (n) (4) stipulations, HAP emissions from any equipment at this facility cannot be aggregated with HAP emissions from other units at the facility; hence, HAPs, including any lease-wide emissions computations, are not addressed in this permit (*see Sections 4.11 and 5.5*).

1.6.9 Responsible Official: The designated responsible official and their mailing address is:

Ms. Susan Whalen, Vice-president
Greka Oil and Gas, Inc.
6527 Dominion Road
Santa Maria, California 93454

2. Process Description

2.1 Process Summary

Process Summary: Bell Lease is an oil and gas production facility. Oil, water and gas from production wells located throughout the South Cat stationary source leases owned by Greka, are piped to the Bell Lease, a central processing facility.

Gas, oil and water enter the family trap where the gas is removed. After the gas is separated, produced fluid is pumped to series-connected, heated wash tanks. Waste water from the wash tanks is routed to the two covered pits, designated the upper pond and lower pond, for additional processing before being re-injected into the producing formation at the South Cat Canyon Field. Crude oil is transferred to either the reject tank or the stock tank. Crude oil from the reject tank is sent back into the process. Crude oil from the stock tank is gravity fed to the grade level loading rack.

Gas collected from gas/liquid separator, well casing head and vapor recovery system is scrubbed, sweetened and compressed. Fin-fan coolers condense and separate natural gas liquids (NGL) from the gas stream at the discharge scrubber end. The moist, sweet gas is further dried using glycol. Part of the dry, sweetened gas is then used throughout the Greka South Cat Canyon, North Cat Canyon and Central Cat Canyon stationary sources to power various combustion devices. Excess gas is sold to other facilities or re-injected into the producing formation.

2.1.1 *Production:* Each well produced to Bell lease is connected to a casing head gas header system. This system directs produced gas to the compressor plant at Bell Lease. Oil and water emulsion and gas produced by the wells are piped to the central tank battery at the Bell Lease. The production wells are not free flowing; artificial lift pumps are installed in all wells to assist in the crude oil emulsion production. Bell Lease facility has a permitted production rate of 1,600 bpd of dry oil and an estimated natural gas production rate of 10 MMscfd.

2.1.2 *Gas, Oil, and Water Separation:* Fluids from the production wells is a mixture of oil, gas, and water. Separation of the liquid and gas streams is accomplished in gas traps and gas/oil separators. Two line traps and twelve gas traps at Bell Lease remove some gas from the gas/crude oil emulsion stream. A final gas/liquid separator pressure vessel removes the rest of the gas from the gas/emulsion stream. Gas from the gas/liquid separator, as well as from the casing head and the vapor recovery unit is sent to the intake scrubber to the gas compressor plant for further water separation and processing.

Oil and water separation in the gas/liquid separator takes place by gravity and chemical separation. From the separator, the oil/water mix is sent to two 5,000-barrel series-connected heated wash tanks. These tanks are 37.5 feet in diameter and 24 feet tall and are connected to the vapor recovery unit. Steam from the Bell Lease boilers heat the wash tank fluids to 180° F. Oil from the heated wash tanks flows to the crude oil storage tank for shipping and

final transfer. Produced water is sent to sumps for further processing.

- 2.1.3 *Wastewater Treatment:* Produced water from the wash tanks and the stock tank drain is sent to the covered 6,400 bbl., 4,500 ft² sump referred to as the upper pond. This sump is in secondary service. Crude oil is skimmed and sent back to the oil processing stream.

Wastewater is gravity fed to a covered, 6,650 bbl, 9,894 ft² sump (the lower pond located at Blockman Lease), operating in tertiary service. Wastewater from this sump is injected into wastewater wells or into the producing formation. Any crude oil is sent back into the processing stream.

The 8,325 ft² pit located at Palmer and Cat Canyon Road is used as an emergency overflow only and is in post-tertiary service. The 6,500 bbl., 4,740 ft² pit located adjacent to the upper pond is used for two purposes. A small section, about 900 ft² (45 feet by 20 feet), has been partitioned for use as a vacuum truck-cleaning pit (secondary service). The remainder 85 feet by 45 feet, or 3,840 ft² section is for emergency use only (secondary service).

As indicated above, the two sumps (i.e., the upper pond and the lower pond at Blockman Lease) are covered with flexible, polyethylene floating top cover.

- 2.1.4 *Crude Oil Shipping:* There is one 2,000-barrel crude oil stock tank and one 2,000 bbl reject oil tank. These tanks are vertical vessels, 16 feet diameter by 29.5 feet tall, serviced by a 2-foot diameter wastewater pit. The crude oil stock tank serves as the shipping tank. The reject tank receives off-spec crude which is eventually returned to the reject oil tank. Oil (at a temperature of 100° to 150° F) is fed from the crude oil storage tank to the grade-level loading rack, where it is loaded on tanker trucks for shipping offsite. Any oil not loaded into the loading trucks is re-cycled back into the 2,000 barrel heated reject oil tank.

- 2.1.5 *Gas Scrubbing, Sweetening, Compression, Condensation and Dehydration:* The gas removed from the gas/liquid separators flows to the IC engine-driven main gas compressor/scrubber. A suction scrubber is provided in the suction line to the compressor to remove entrained liquids that could damage the compressor. After initial scrubbing, the gas is compressed by one of the Clark RA-4 compressors driven by a 300 bhp electric motor which is powered by the Caterpillar G-342 ICE. The discharged gas from the compressor is sweetened, using a "Sulfa-Treat" (or equivalent) unit and scrubbed. It is then cooled by a fin-fan cooler. Liquids condensed by the cooler are removed by the final gas scrubber. The condensed natural gas liquids (NGL) are transferred, via a pipeline, back to the tank battery, or stored in the NGL storage tank.

From the final gas scrubber, the wet gas flows to a glycol dehydration unit, which is used to lower the water content of the gas down to the sales gas pipeline requirement. The dehydration unit consists of a glycol contactor, filters, exchangers, a dehydrator, a surge tank, and pumps. Inside the contactor, the wet gas flows in contact with tri-ethylene glycol (TEG), which absorbs water from the natural gas. The rich (wet) TEG from the contactor is regenerated in the regenerator after passing through filters to remove impurities picked up from the natural gas. The gas-fired, 0.35 MMBtu/hour regenerator heats the TEG and boils off the entrained water and hydrocarbons. The vapor is vented to the vapor recovery system.

The lean (regenerated) TEG from the regenerator is cooled in the glycol exchangers, improving water absorption in the contactor and preheating the rich TEG going to the dehydrator. From the exchangers, the lean TEG flows into a surge tank which provides surge capacity to allow the lean TEG to be pumped back to the contactor.

- 2.1.6 *Vapor Recovery System:* Low pressure gas from the stock and reject oil tanks, the wash tanks and wastewater tanks, and the dehydrator unit is scrubbed. The collected gas is then compressed by a 25-hp, electrically-driven vapor recovery compressor. The compressor discharges to the intake scrubber of the main compressor.
- 2.1.7 *Fuel Gas System:* A significant part of the sweetened, dehydrated gas leaving the glycol contactor is piped to various combustion units operating at the Bell Lease and other Greka facilities in the Cat Canyon oil field. The rest is metered and sold to other facilities in the field or outside. If there is no demand for the gas, it is re-injected into the gas producing formation. The gas line to the off-site processing point is regularly pigged.

2.2 Support Systems

- 2.2.1 *Compressed Air System:* An electrically-driven air compressor equipped with a compressed air storage tank provides instrumentation air for the oil and gas processing plants at Bell Lease.
- 2.2.2 *Steam Supply system:* Two (2) field gas-fired boilers, 4 MMBtu/hour heat input each, supply steam to keep the Bell Lease wash/reject tank temperatures at 180°F.

2.3 Drilling Activities

- 2.3.1 *Drilling Program:* Several drilling programs have been conducted on Bell Lease facility since it first came into operation in the 1960's. There is currently no drilling activity.
- 2.3.2 *Well Workover Program:* Well work over programs have been conducted in the past on Bell Lease facility and may likely occur in the future. There is currently no well workover activity.

2.4 Maintenance/Degreasing Activities

- 2.4.1 *Paints and Coatings:* Maintenance painting on Bell Lease facility 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 at the facility for daily operations. Usage includes wipe cleaning and laboratory usage only.
- 2.4.3 *Maintenance:* Maintenance and welding shops are located at the Bell Lease compressor plant. These provide space for spare parts and repair tools, and all maintenance activities including cleaning (using solvents) and painting.

2.5 Planned Process Turnarounds

Process turnarounds on facility equipment are scheduled to occur when the facility is required to be 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}*.

2.6 Other Processes

2.6.1 *Pigging*: One (1) gas pig launcher is installed at the Bell Lease. Pigging operations (launching) occur along the 4" gas pipeline connecting the lease to off-site processing point. The gas line is pigged once every three months.

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

2.7 Detailed Process Equipment Listing

Refer to Attachment 10.510.5 and 10.6 for a complete listing of all permitted and exempt emission units.

3. Regulatory Review

This Section identifies the federal, state and local rules and regulations applicable to Bell Lease.

3.1 Rule Exemptions Claimed

APCD Rule 201 (*Permits Required*): Greka requested permitting exemptions for six (6) items of equipment, claiming that no pollutants are emitted from the equipment. The following exemptions were approved by the APCD:

- Crankcase lube oil filter(s) serving the electrically-driven gas compressors
- Water jacket cooler(s)
- Water jacket pump(s)
- Fresh water storage tanks, serving the water jacket cooler(s)
- Compressed air storage vessel(s)
- Air compressors, electrically-driven

APCD Rule 202 (*Exemptions to Rule 201*): Greka requested eight (8) exemptions under this rule. An exemption from permit, however, does not necessarily grant relief from any applicable prohibitory rule. The following exemptions were approved by the APCD:

- Section 202.D.8 for equipment used in maintenance operations for permitted equipment.
- Section 202.N for operations involving bench scale laboratory equipment.
- Section 202.U for specified solvent use operations listed in this section of the rule.
- Section 202.V.3 for one lubricating oil storage tank.

- Section 202.V.3 for one 1,100 gallon compressor drain (lube oil) tank.
- Section 202.V.7 for one gasoline storage tank (less than 250 gallons capacity).
- Section 202.F.2 for one 27 hp, diesel-fired portable IC engine, registered with CARB.
- Section 202.D.6 (*De Minimis Exemption*). There has been no de minimis increases at the Bell lease since November 15, 1990.
APCD Rule 344 (*Petroleum Sumps, Pits and Well Cellars*): The following exemption was applied for and approved by the APCD:
 - Section B.4 allows the crude oil tank drain pit and the vacuum truck clean out area to be exempt from Sections D, E, F and G.1 of Rule 344 based on surface areas of <1,000 ft².
 - Section B.3.b allows the emergency pit in secondary service to be exempt from Sections D, E, F, and G.1 of Rule 344, based on its use of less than 30 days per year.
 - Section B.2 allows the two (2) post tertiary pits (mainly rain water) to be exempt from Rule 344

3.2 Compliance with Applicable Federal Rules and Regulations

- 3.2.1 40 CFR Parts 51/52: Bell Lease was constructed and permitted prior to the applicability of these regulations. However, all permit modifications as of July, 1979 are subject to APCD NSR requirements. Compliance with APCD Regulation VIII (*New Source Review*), ensures that future modifications to the facility will comply with these regulations.
- 3.2.2 40 CFR Part 60 {New Source Performance Standards}: None of the equipment listed in this permit is subject to NSPS.
- 3.2.3 40 CFR Part 61 {NESHAP}: None of the equipment in this permit is subject to NESHAP.
- 3.2.4 40 CFR Part 63 {MACT}: This facility is not currently subject to the provisions of this Subpart. On June 17, 1999, EPA promulgated Subpart HH, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. Pursuant to this promulgation, Greka submitted information in June 2000 and supporting information in July 2000 indicating that the Bell, Blockman, Dominion, Palmer-Stendl, and UCB leases were exempt from the requirements of this MACT based on its black oil production. The MACT exemption holds for the South Cat Canyon stationary source, since black oil is produced at each of the leases comprising the source. The Greka South Cat Canyon stationary source is subject to general recordkeeping requirements as defined in condition 9.B.13.
- 3.2.5 40 CFR Part 63 {MACT Standards}: On August 27, 2003, EPA promulgated Subpart EEEE, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Organic Liquids Distribution (Non-Gasoline). The District has determined that none of the permitted facilities within the Cat Canyon stationary source are subject to this MACT.
- 3.2.6 40 CFR Part 63 {MACT Standards}: On September 13, 2004, EPA promulgated Subpart DDDDD, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for

Industrial, Commercial, and Institutional Boilers and Process Heaters. Greka has existing small, gaseous fueled heaters (under 10 MMBtu/hr) at this facility, however, the subpart does not specify any emission limits or work practice standards for this class of units. Thus, no DDDDD requirements apply.

3.2.7 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998 and affects emission units at the source subject to a federally enforceable emission limit or standard that use a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds (currently 100 TPY for any pollutant). Compliance with this rule was evaluated and it was determined that no emission units at this facility are currently subject to CAM.

3.2.8 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to Bell Lease. Table 3.4-1 lists the federally enforceable APCD promulgated rules that are “generic” and apply to Bell Lease. Table 3.4-2 lists the federally enforceable APCD promulgated rules that are “unit-specific”. These tables are based on data available from the APCD’s administrative files and from Greka’s Part 70 Operating Permit renewal application submitted July 2009. Table 3.4-4 includes the adoption dates of these rules.

In its Part 70 renewal permit application submitted in July 2009, Greka certified compliance with all existing APCD rules and permit conditions. This certification is also required of Greka semi-annually. Issuance of this permit and compliance with all its terms and conditions will ensure that Greka complies with the provisions of all applicable Subparts.

3.3 Compliance with Applicable State Rules and Regulations

3.3.1 Division 26. Air Resources {California Health & Safety Code}: The administrative provisions of the Health & Safety Code apply to this facility and will be enforced by the APCD. These provisions are APCD-enforceable only.

3.3.2 California Administrative Code Title 17: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at Bell Lease 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.

3.4 Compliance with Applicable Local Rules and Regulations

3.4.1 Applicability Tables: In addition to Table 3.4-1 and Table 3.4-2, Table 3.4-3 lists the non-federally enforceable APCD promulgated rules that apply to Bell Lease. Table 3.4-4 lists the adoption date of all rules applicable to this permit at the date of this permit’s issuance.

3.4.2 Rules Requiring Further Discussion: This section provides a more detailed discussion regarding the applicability and compliance of certain rules below.

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, Greka is operating in compliance with this rule.

Rule 302 - Visible Emissions: This rule prohibits the discharge from any single source any air contaminants for 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: all combustion devices on the facility. Improperly maintained equipment have the potential to violate this rule. Compliance will be assured by requiring all equipment to be maintained according to manufacturer's maintenance schedules or operator's maintenance schedules that are consistent with manufacturer's maintenance schedules.

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

Rule 304 - Particulate Matter, Northern Zone: Bell Lease is considered a Northern Zone source. This rule prohibits the discharge into the atmosphere from any source particulate matter in excess of 0.3 gr/scf. Sources subject to this rule include: combustion equipment located at the facility. When tuned to manufacturer's specifications, as required, it is not expected that this facility's gas-fired equipment will exceed the particulate emission standards listed in Rule 304.

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 firing of sweet gas will comply with the SO₂ limit. Particulate emissions from well-maintained gas-fired combustion units are extremely unlikely to exceed Rule 309's emission standards.

Rule 310 - Odorous Organic Compounds: This rule prohibits the discharge of H₂S and organic sulfides that result in a ground level impact beyond the property boundary in excess of either 0.06 ppmv averaged over 3 minutes or 0.03 ppmv averaged over 1 hour. No measured data exists to confirm compliance with this rule, however, all produced gas from Bell Lease facility is sweet. 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 Bell Lease facility to 50 gr/100 scf (calculated as H₂S) {or 796 ppmvd} for gaseous fuels. Greka has agreed to voluntarily comply with a 239 ppmvd fuel sulfur limit for its fuel *to the controlled IC engines only* obtain a reduction in its emission fees. Fuel gas to the ICE's is scrubbed to reduce the H₂S content below 239 ppmvd; and compliance is verified through documented fuel gas analysis.

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 3,000lb/day respectively). Solvents may be used on the facility during normal operations for degreasing by wipe cleaning and for use in paints and coatings in maintenance operations. There is the potential to exceed the limits under Section B.2 during significant surface coating activities. Greka 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. Greka 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 facility is for Industrial Maintenance Coatings which has a limit of 340 gram ROC per liter of coating, as applied. Greka will be required to comply with the Administrative requirements under Section F for each container on the facility.

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. Greka will be required to maintain records to ensure compliance with this rule.

Rule 325 - Crude Oil Production and Separation: This rule, revised July 19, 2001, 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 storage tanks and vessels, including wash tanks, produced water tanks and wastewater separators. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. All production vessels and tanks are connected to the gas gathering system which, in turn, is connected to the vapor recovery system. Greka has installed vapor recovery on all equipment subject to this rule. Compliance with Section E is met by TVP analysis and by directing all produced gas to a vapor recovery compressor, injection well or to transportation off-site.

Rule 331 - Fugitive Emissions Inspection and Maintenance: This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production fields. Ongoing compliance with the provisions of this rule will be assessed via the APCD-approved Fugitive I&M Plan (March 2005), facility inspection by APCD personnel using an organic vapor analyzer and through analysis of operator records.

Rule 342 - Control of Oxides of Nitrogen from Boilers, Steam Generators and Process Heaters: This rule sets emission standards for external combustion units with a rated heat input greater than 5.0 MMBtu/hr. Bell Lease facility does not have any emission units subject to this rule.

Rule 343 - Petroleum Storage Tank Degassing: This rule applies to the degassing of any above-ground tank, reservoir or other container of more than 40,000 gallons (952 barrels) capacity containing any organic liquid with a vapor pressure greater than 2.6 psia or between 20,000 gallons and 40,000 gallons capacity containing any organic liquid with a vapor pressure greater than 3.9 psia. The oil storage tanks (stock and reject tanks) and wash tanks at the Bell Lease facility are subject to this rule. All tanks are covered and connected to a vapor recovery unit; thus, will comply with the requirements of this rule. Greka submitted a revised degassing plan in April 2004 which was approved by the APCD.

Rule 344 - Petroleum Sumps, Pits and Well Cellars: This rule applies to petroleum sumps, pits and well cellars exceeding 1,000 square feet surface area at petroleum production sources, provided such sources have output exceeding 150 barrels per day. Only those Bell Lease facility sumps and well cellars, which exceed these thresholds, are subject to this rule. The compliance requirements of this rule are met since the affected sumps are covered and the affected cellars are inspected weekly to check for spillage or leaks.

Rule 346 - Loading of Organic Liquids: This rule applies to the transfer of organic liquids into an organic liquid cargo vessel. For this rule only, an organic liquid cargo vessel is defined as a truck, trailer or railroad car. The loading rack operated at the Bell Lease is subject to this rule. Compliance with this rule will be ensured by TVP analysis as described in Section H. Compliance with the rule requirements is met since submerged fill pipes are used for crude oil loading and the vapor recovery system is connected to the loading rack.

Rule 353 - Adhesives and Sealants: This rule applies to the use of adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers or any other primers. Compliance with this rule is met through appropriate record keeping of adhesive and sealant materials used. Also, exclusive use of adhesive and sealant contained in containers of 16 fluid ounces or less demonstrate compliance with this rule.

Rule 361 (Small Boilers, Process Heaters and Steam Generators): Adopted on January 17, 2008 this rule includes requirements for existing units and new/modified units. Units installed prior to January 17, 2008 are designated as existing units. Rule 361 applies to the following existing units at this facility: APCD #2519 and #2525. The emission standards and emissions compliance demonstrations are not effective for these units until after 2019. Permit condition 9.D.13 has been incorporate into this permit to address the Rule 361 subject units.

Rule 505 - Breakdown Conditions: This rule describes the procedures that Greka must follow when a breakdown condition occurs to any emissions unit associated with Bell Lease facility. 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 . A revised plan was submitted and approved by the APCD in April 2004.

Table 3.4-1 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 equipt or modification to existing equipment.
<u>RULE 205</u> : Standards for Granting Permits	All emission units	Emission of pollutants
<u>RULE 206</u> : Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
<u>RULE 207</u> : Denial of Applications	All emission units	Applicability of relevant Rules
<u>RULE 208</u> : Action on Applications - Time Limits	All emission units. Not applicable to Pt 70 applications.	Addition of new equipt or modification to existing equipt.
<u>RULE 212</u> : Emission Statements	All emission units	Administrative
<u>RULE 301</u> : Circumvention	All emission units	Any pollutant emission
<u>RULE 302</u> : Visible Emissions	All emission units	Particulate matter emissions
<u>RULE 303</u> : Nuisance	All emission units	Emissions that can injure, damage or offend.

Generic Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 304</u> : PM Concentration – North 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 321</u> : Solvent Cleaning Operations	Emission units using solvents	Solvent used in process operations.
<u>RULE 322</u> : Metal Surface Coating Thinner and Reducer	Emission units using solvents	Solvent used in process operations.
<u>RULE 323</u> : Architectural Coatings	Paints used in maintenance and surface coating activities	Application of architectural coatings.
<u>RULE 324</u> : Disposal and Evaporation of Solvents	Emission units using solvents	Solvent used in process operations.
<u>RULE 330</u> : Surface Coating of Metal Parts	Emission units using metal parts coating	Surface coating used in maintenance operations.
<u>RULE 353</u> : Adhesives and Sealants	Emission units using adhesives and sealants	Adhesives and sealants 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	Greka – Cat Canyon 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	Greka Cat Canyon is a major source.

Table 3.4-2 Unit-Specific Federally-Enforceable APCD Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 325</u> : Crude Oil Production and Separation	Shipping tanks	All pre-custody production and processing emission units
<u>RULE 331</u> : Fugitive Emissions	All components (valves, flanges,	Components emit fugitive ROCs.

Inspection & Maintenance	seals, compressors and pumps) used to handle oil and gas	
<u>RULE 344</u> : Petroleum sumps, cellars and pits	Well cellars, sumps, and pits	Cellars at an oil production lease.
<u>RULE 346</u> : Loading of Organic Liquid Cargo Vessels	Loading rack	Non-exempt loading rack at an oil production facility.

Table 3.4-3 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>RULES 501-504</u> : Variance Rules	All emission units	Administrative
<u>RULE 505.B2, B3, C, E, F, G</u> : Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
<u>RULES 506-519</u> : Variance Rules	All emission units	Administrative

Table 3.4-4 Adoption Dates of APCD Rules Applicable at Issuance of Permit

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

Rule No.	Rule Name	Adoption Date
Rule 301	Circumvention	October 23, 1978
Rule 302	Visible Emissions	June 1981
Rule 303	Nuisance	October 23, 1978
Rule 304	Particulate Matter Concentration - Northern Zone	October 23, 1978
Rule 309	Specific Contaminants	October 23, 1978
Rule 310	Odorous Organic Sulfides	October 23, 1978
Rule 311	Sulfur Content of Fuels	October 23, 1978
Rule 317	Organic Solvents	October 23, 1978
Rule 321	Solvent Cleaning Operations	September 18, 1997
Rule 322	Metal Surface Coating Thinner and Reducer	October 23, 1978
Rule 323	Architectural Coatings	July 18, 1996
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	July 19, 2001
Rule 331	Fugitive Emissions Inspection and Maintenance	December 10, 1991
Rule 344	Petroleum Sumps, Pits and Well Cellars	November 10, 1994
Rule 346	Loading of Organic Liquid Cargo Vessels	January 18, 2001
Rule 353	Adhesives and Sealants	August 19, 1999
Rule 360	Emissions of Oxides of NO _x from Large Water Heaters, Boilers	October 17, 2002
Rule 361	Small Boilers, Steam Generators and Process Heaters	January 17, 2008
Rule 505	Breakdown Conditions (Section A, B1 and D)	October 23, 1978
Rule 603	Emergency Episode Plans	June 15, 1981
Rule 801	New Source Review	April 17, 1997
Rule 802	Nonattainment Review	April 17, 1997
Rule 803	Prevention of Significant Deterioration	April 17, 1997
Rule 804	Emission Offsets	April 17, 1997
Rule 805	Air Quality Impact and Modeling	April 17, 1997
Rule 806	Emission Reduction Credits	April 17, 1997

Rule No.	Rule Name	Adoption Date
Rule 901	New Source Performance Standards (NSPS)	May 16, 1996
Rule 1001	National Emission Standards for Hazardous Air Pollutants (NESHAPS)	October 23, 1993
Rule 1301	General Information	September 18, 1997
Rule 1302	Permit Application	November 9, 1993
Rule 1303	Permits	November 9, 1993
Rule 1304	Issuance, Renewal, Modification and Reopening	November 9, 1993
Rule 1305	Enforcement	November 9, 1993

3.5 Compliance History

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

3.5.1 *Facility Inspections.* Since the prior permit renewal, routine facility inspections were conducted on March 26, 2007, September 28, 2007, February 26, 2009 and September 22, 2009. With the exception of NOV 9399 listed below, each report indicates that the facility was operating in compliance with APCD rules and the conditions of this permit at the time of the inspections.

3.5.2 Violations: The following enforcement actions were issued for the Bell lease since the previous permit renewal:

NOV 8737: Violation of Rule 331. Issued 02/13/2007. Failure to obtain ATC prior to construction of stock tank.

NOV 8908: Violation of Rule 331. Issued 09/05/2007. Failure to repair leaking Fugitive I&M components.

NOV 8910: Violation of Rule 331. Issued 10/05/2007. Exceeding allowable number of fugitive I&M leaks per Rule 331.D.

NOV 8911: Violation of Rule 325. Issued 10/05/2007. Failure to produced control gas from a crude oil stock tank.

NOV 8913: Violation of Rule 331. Issued 11/14/2007. Failure to repair or replace leaking critical components.

NOV 9129: Violation of Rule 331. Issued 05/09/2008. Operating a wash tank with an open deal hatch.

NOV 9399: Violation of Rule 331. Issued 09/22/2009. Discovery of four major gas leaks from “other” components.

- 3.5.3 Significant Historical Hearing Board Actions: There are no significant historical Hearing Board actions.

4. 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 7/13/98 (ver. 1.1) was used to determine non-methane, non-ethane fraction of THC.

4.2 Stationary Combustion Sources

The stationary combustion sources associated with Bell Lease consist of gas-fired piston internal combustion (IC) engines and gas-fired external combustion units. The IC engine operations are addressed in PTO 8036 and are omitted from any review in this permit.

- 4.2.1 *Gas-fired External Combustion Units*: Two field gas-fired boilers, manufactured by Superior, supply steam for facility operations including crude oil heating. Each of the units are rated at 4.0 MMBtu/hour heat input. One field gas-fired glycol regenerator, manufactured by BS& B (Model 375-GDR) and rated at 0.350 MMBtu/hour heat input also operates at this facility. The calculation methodology for all external combustion units 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)

All emission factors for the 'uncontrolled' gas-fired external combustion units are obtained from the USEPA's AP-42 (Air Chief, Version 6.0, October 1998). Sulfur content of the field

gas fuel is assumed to be the Rule 311 applicable limit of 796 ppmv S (measured as hydrogen sulfide). Emission calculations are shown in Attachment 10.2.

4.3 Fugitive Hydrocarbon Sources

4.3.1 *General.* Fugitive emissions from valves, fittings, flanges, seals, pumps, compressors and wellheads (casings) consist of reactive organic compounds (ROC) and a variety of hazardous air pollutants (HAPs) such as benzene and hexane.

4.3.2 *Well Head Components.* For oil wells at existing onshore sources without a detailed component count inventory, the APCD uses statistical models developed by the CARB/KVB to quantify emissions of fugitive ROC. APCD Policy and Procedure 6100.060.1996 (*Calculation of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities by the CARB/KVB Method*, July 1996) is used as the basis for implementing the CARB/KVB methodology. The CARB/KVB Method uses statistical models based on the facility's gas/oil ratio and the number of active wells to determine the emission factor. Emission factors from the CARB/KVB Method were also used determining emissions from wellhead casings (i.e., piping and equipment associated with the underground casing) and from pumps and compressors.

A control efficiency of 80% was applied for all components. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records. The calculation methodology is:

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

Where:

ER = Emission rate (lb/period)
EF = ROC emission factor (lb/well-day)
Wells= Number of active oil and gas wells (well)
CE = Control efficiency
HPP = Operating hours per time period (hrs/period)

4.3.3 *Fugitive Components at Loading Rack.* Emissions of reactive organic compounds from piping components such as valves, flanges and connections are computed based on emission factors for component leak path categories listed in 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 at loading rack is counted consisted with P&P 6100.061. This leak-path count is not the same as the "component" count required by APCD Rule 331. Only gas/light liquid side components are in service at this location.

The number of emission leak-paths were determined by the operator and these data were verified by District staff by checking a representative number of P&IDs and by site checks. A total of 150 gas/light-liquid component leak-paths exist at the loading rack location. 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 District-approved Inspection and Maintenance program for leak detection and repair consistent with Rule 331 requirements. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

Detailed emission calculations for fugitive emissions are shown in Attachments 10.1 and 10.2.

4.4 Storage Tanks

Tanks: The Bell Lease facility contains two 2,000 barrel crude oil tanks. One serves as a shipping tank and one serves as a reject crude oil tank. There are also two (2) steam-heated 5,000 barrel wash tanks. Each tank is connected to the vapor recovery unit operating at the Bell Lease site; the ROC control efficiency of the VRU unit is assumed to be 95 percent. The detailed tank calculations for compliance are performed using the methods presented in USEPA AP-42, Chapter 7. These results are shown in Attachment 10.2.

4.5 Sumps/Pits/Well Cellars

Sumps, Pits and Well Cellars: Sumps, pits and well cellars are used at Bell Lease for collecting oil spills at various locations such as the well head stuffing boxes and test sites. Fugitive emissions from well cellars are credited a 70 percent control efficiency for maintaining the cellars per the requirements of Rule 344. Also, the upper and lower ponds (sumps) remain covered at all times, per Rule 344, providing a control efficiency of 85%. Emissions from all these devices are estimated based APCD P&P 6100.060 (Calculation of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities by the CARB/KVB Method - Modified for the Revised ROC Definition). These emissions units are classified as being in secondary service. The calculation methodology is:

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

Where:

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

See attachment 10.2 spreadsheet for detailed calculations.

4.6 Gas Gathering System

Gas from the oil-gas separators are gathered by a gas gathering system. Collected gases are piped to Bell Lease gas compressors for further processing. A control efficiency of 95 percent is assigned to the gas gathering system, since it is a part of the Bell Lease vapor recovery system.

4.7 General Emission Sources

- 4.7.1 *Surface Coating*: Surface coating operations typically include normal touch up activities. Emissions are determined based on mass balance calculations assuming all solvents evaporate into the atmosphere. Emission of PM/PM₁₀ from paint over-spray are not calculated due to the lack of established calculation techniques.
- 4.7.2 *Solvent Use*. Solvent usage (not used a thinners for surface coating) occurring on Bell Lease as part of normal daily operations includes laboratory use and wipe cleaning maintenance. Mass balance emission calculations are used assuming all the solvent used evaporates to the atmosphere.
- 4.7.3 *Abrasive Blasting*. Abrasive blasting with CARB certified sands may be performed as a preparation step prior to surface coating. Particulate matter is emitted during this process. A general emission factor of 0.01 pound PM per pound of abrasive is used (SCAQMD - Permit Processing Manual, 1989) to estimate emissions of PM and PM₁₀ when needed for compliance evaluations. A PM/PM₁₀ ratio of 1.0 is assumed.
- 4.7.4 *Loading Rack*. The grade level loading rack, connected to the VRU, is used to load crude oil into tanker trucks. Controlled ROC emissions from tanker truck crude oil loading are estimated from emission equations and factors listed in USEPA, AP-42, (Section 5). The calculations are shown in Attachment 10.2.
- 4.7.5 *Pigging*. Pipeline pigging operations, namely, pig launching, occur at the Bell lease. Emissions occur during the depressurization of the launching unit, since a few ounces of back pressure remain in the pig chamber, and ROC is emitted when the chamber is opened to the atmosphere. The APCD has assumed that the remaining pressure in the pig chamber does not exceed 0.5 psig.

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

The calculation per period is:

Where:

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

4.8 BACT/NSPS/NESHAP/MACT

- 4.8.1 *BACT*: None of the emission units at Bell Lease are subject to best available control technology (BACT) or new source performance standards (NSPS).
- 4.8.2 *MACT - Subpart HH*: On June 17, 1999, EPA promulgated Subpart HH, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. Greka submitted information in June 2000 and supporting information in July 2000 indicating the Cat Canyon source was exempt from the requirements of this MACT based on 'black oil' production. The Greka South Cat Canyon source, which includes the Bell lease, is still exempt from the requirements of this MACT.
- 4.8.3 *MACT - Subpart DDDDD*: On September 13, 2004 EPA promulgated Subpart DDDDD, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Industrial, Commercial, and Institutional Boilers and Process Heaters. Greka has existing small, gaseous fueled heaters (under 10 MMBtu/hr) at this facility, however, the subpart does not specify any emission limits or work practice standards for this class of units. Thus, no DDDDD requirements apply.

4.9 CEMS/Process Monitoring/CAM

- 4.9.1 *CEMS*: There are no CEMS at this facility.
- 4.9.2 *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:
- Processed Crude Oil Volume Flow Meter(s) at the "Loading Rack" unit
 - Produced Fuel Gas Volume Flow Meter(s) at the gas plant inlet
 - Boiler and Glycol Regenerator Fuel Flow Meters

To implement the above calibration and maintenance requirements, the APCD-approved *Fuel Use Monitoring and Process Monitor Calibration and Maintenance Plan* (April 2004). The plan addresses manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgment is be utilized.

- 4.9.3 *CAM*. Greka South Cat Canyon is a major source that is subject to the USEPA's Compliance Assurance Monitoring (CAM) rule (40 CFR 64) thus, any emissions unit with uncontrolled emissions potential exceeding major source emission thresholds for any pollutant is subject to CAM provisions. Compliance with this rule was evaluated and it was determined that no emission units at this facility are currently subject to CAM.

4.10 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. However, no equipment listed in this permit is subject to source testing. At a minimum, the process streams below are required to be sampled and analyzed. Duplicate samples are required:

- Produced Gas: A sample of the produced gas shall be obtained from the gas line entering each permitted combustion unit. Analysis for HHV shall be measured quarterly, annually for total sulfur, and monthly for hydrogen sulfide. [NOTE: Under a County Land Use permit, Greka must keep the gas pipeline fuel sulfur level below 29 ppmvd; Greka continuously monitors its fuel line, using APCD-approved methods (Re: *APCD ATC/PTO 9412*) to comply with this restriction]. Sampling shall be conducted consistent with the APCD approved *Fuel Gas Sulfur and HHV Monitoring Plan*.
- Produced Oil/waste water: Samples are taken at the initial wash tank only. Analysis is for API gravity and true vapor pressure. Samples are taken on an annual basis per the APCD approved *Rule 325 Sampling Plan*. Sampling results shall be applied to each tank for purposes of Rules 325 and 343 applicability as specified in permit condition 9.C.3(b)(ii).

All sampling and analyses are required to be performed according to APCD approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. However, TVP sampling methods for liquids with an API gravity under 20^o require specialized procedures (see APCD Rule 325). It is important that all sampling and analysis be traceable by chain of custody procedures.

4.11 Part 70 Engineering Review: Hazardous Air Pollutant Emissions

Hazardous air pollutant emissions (HAPs) have not been estimated in this permit.

5. Emissions

5.1 General

This Part 70/APCD PTO 8869 reevaluation addresses operations at Bell Lease. The Part70/PTO 8869 renewal evaluated any new requirements that needed to be addressed since the last renewal, any applicable changes to the equipment list, and whether monitoring was sufficient for compliance.

Emissions calculations are divided into "permitted" and "exempt" categories. Permit exempt equipment is determined by APCD Rule 202. The permitted emissions for each emissions unit is based on the equipment's potential-to-emit (as defined by Rule 102). 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 and 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 accurately track the emissions from a facility, the APCD uses a computer database.

5.2 Permitted Emission Limits - Emission Units

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

- ⇒ Nitrogen Oxides (NO_x)²
- ⇒ Reactive Organic Compounds (ROC)
- ⇒ Carbon Monoxide (CO)
- ⇒ Sulfur Oxides (SO_x)³
- ⇒ Particulate Matter (PM)⁴
- ⇒ Particulate Matter smaller than 10 microns (PM₁₀)

Permitted emissions are calculated for both short term (daily) and long term (annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachments 10.1 and 10.2 respectively. Table 5.2-1 provides the basic operating characteristics. Table 5.2-2 provides the specific emission factors. Table 5.2-3 shows the permitted short-term emissions and Table 5.2-4 shows the permitted long-term emissions for each unit or operation. In the table, the last column indicates whether the emission limits are federally enforceable.

² Calculated and reported as nitrogen dioxide (NO₂)

³ Calculated and reported as sulfur dioxide (SO₂)

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

Table 5.2-1. Operating Data

Equipment Category	Description	APCD Device No.	Device Specifications				Usage Data					Reference			
			Fuel	HHV (Btu/scf)	ppmv S ^(a)	Size	Units	Capacity	Units	Emission Reduction %	hr		day	qtr	year
Combustion: External	Boiler H-117	2519	FG	1050	796	4.00	MMBtu/hr	4.00	MMBtu/hr	--	1.00	24	2190	8760	A
	Boiler H-118	2525	FG	1050	796	4.00	MMBtu/hr	4.00	MMBtu/hr	--	1.00	24	2190	8760	
	Glycol Regenerator	8396	FG	1050	796	0.35	MMBtu/hr	0.35	MMBtu/hr	--	1.00	24	2190	8760	
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	2601	--	--	--	96	well units	--	--	80%	1.00	24	2190	8760	B
	Wellheads	2607	--	--	--	96	well units	--	--	80%	1.00	24	2190	8760	
	Compressors	2601	--	--	--	96	well units	--	--	80%	1.00	24	2190	8760	
	Pumps	2601	--	--	--	96	well units	--	--	80%	1.00	24	2190	8760	
	1/2" Stainless Steel Tube Fittings	2601	--	--	--	96	well units	--	--	80%	1.00	24	2190	8760	
Pigging Equipment	Gas Launcher	100246	--	--	--	4	cf	0.5	psig	--	1	1	1	4	C
Tanks	Crude Stock Tank	109880	--	--	--	29.5'	x 16'	2,000	bbl	--	1.00	24	2190	8760	
	Reject Tank	2517	--	--	--	29.5'	x 16'	2,000	bbl	--	1.00	24	2190	8760	
	Wash Tank	2515	--	--	--	37.5'	x 24'	5,000	bbl	--	1.00	24	2190	8760	
	Wash Tank	2518	--	--	--	37.5'	x 24'	5,000	bbl	--	1.00	24	2190	8760	
Sumps/Cellars/Pits	Oil/Water Sump - Upper	2521	--	--	--	4,500	ft ²	6,400	bbl	85%	1.00	24	2190	8760	E
	Emergency Pit - Post Tertiary	8400	--	--	--	3,840	ft ²			0%	1.00	24	720	720	
	Vacuum Truck Pit - Secondary	8402	--	--	--	900	ft ²			0%	1.00	24	2190	8760	
	Emergency Pit - Post Tertiary	8404	--	--	--	8,325	ft ²			0%	1.00	24	720	720	
	Crude Tank Drain Pit - Tertiary	8405	--	--	--	3	ft ²			0%	1.00	24	2190	8760	
	Well Cellars	2606	--	--	--	3,312	ft ²			70%	1.00	24	2190	8760	
Loading Racks	Crude Oil Loading Rack	5956	--	--	--	6.72	kgal/hr			--	1.00	10	913	3650	F

Footnotes:

(a) ppmv as total reduced sulfur content expressed as hydrogen sulfide equivalent; but not hydrogen sulfide content only.

Table 5.2-2. Emission Factors

Equipment Category	Description	Emission Factors							Reference
		NOx	ROC	CO	SOx	PM	PM10	Units	
Combustion: External	Boiler H-117	0.095	0.005	0.08	0.1430	0.008	0.008	lb/MMBtu	A
	Boiler H-118	0.095	0.005	0.08	0.1430	0.008	0.008	lb/MMBtu	
	Glycol Regenerator	0.095	0.005	0.08	0.1430	0.008	0.008	lb/MMBtu	
Fugitive Components - Gas/Heavy Liquid	Valves and fittings		2.805257					lb/day-well	B
	Wellheads		0.0097					lb/day-well	
	Compressors		0.0679					lb/day-well	
	Pumps		0.0039					lb/day-well	
Pigging Equipment	Gas Launcher		0.019					lb/acf-event	C
Tanks	Crude Stock Tank		See Table 10.2					lb/kgal	
	Reject Tank		See Table 10.2					lb/kgal	
	Wash Tank		See Table 10.2					lb/kgal	
	Wash Tank		See Table 10.2					lb/kgal	
Sumps/Cellars/Pits	Oil/Water Sump - Upper		0.0126					lb/ft ² day	E
	Emergency Pit - Post Tertiary		0.0058					lb/ft ² day	
	Vacuum Truck Pit - Secondary		0.0126					lb/ft ² day	
	Emergency Pit - Post Tertiary		0.0058					lb/ft ² day	
	Crude Tank Drain Pit - Tertiary		0.0058					lb/ft ² day	
	Well Cellars		0.0941					lb/ft ² day	
Loading Racks	Crude Oil Loading Rack		1.3920					lb/kgal	F

Notes:

(a) SOx as SO2; NOx as NO2. This applies to all sheets.

Table 5.2-3. Short Term Emission Limits

Equipment Category	Description	NOx	ROC	CO	SOx	PM	PM10	Federal Enforceability
		lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	
Combustion: External	Boiler H-117	9.12	0.48	7.68	13.73	0.77	0.77	AE
	Boiler H-118	9.12	0.48	7.68	13.73	0.77	0.77	AE
	Glycol Regenerator	0.80	0.04	0.67	1.20	0.07	0.07	AE
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	--	28.05	--	--	--	--	AE
	Wellheads	--	--	--	--	--	--	AE
	Compressors	--	0.82	--	--	--	--	AE
	Pumps	--	--	--	--	--	--	AE
Pigging Equipment	Gas Launcher	--	0.08	--	--	--	--	AE
Tanks	Crude Stock Tank	--	6.54	--	--	--	--	
	Reject Tank	--	6.54	--	--	--	--	AE
	Wash Tank	--	0.16	--	--	--	--	AE
	Wash Tank	--	0.16	--	--	--	--	AE
Sumps/Cellars/Pits	Oil/Water Sump - Upper	--	8.51	--	--	--	--	
	Emergency Pit - Post Tertiary	--	22.27	--	--	--	--	AE
	Vacuum Truck Pit - Secondary	--	11.34	--	--	--	--	AE
	Emergency Pit - Post Tertiary	--	48.29	--	--	--	--	AE
	Crude Tank Drain Pit - Tertiary	--	0.02	--	--	--	--	AE
	Well Cellars	--	93.50	--	--	--	--	AE
Loading Racks	Crude Oil Loading Rack	--	5.17	--	--	--	--	AE

Notes

FE = federally enforceable

A = APCD-only enforceable

NE = not enforceable

*Compressor emissions include wellheads and pumps.

Table 5.2-4. Long Term Emission Limits

Equipment Category	Description	NO _x	ROC	CO	SO _x	PM	PM ₁₀	Federal Enforceability
		TPY	TPY	TPY	TPY	TPY	TPY	
Combustion: External	Boiler H-117	1.66	0.09	1.40	2.51	0.14	0.14	AE
	Boiler H-118	1.66	0.09	1.40	2.51	0.14	0.14	AE
	Glycol Regenerator	0.15	0.01	0.12	0.22	0.01	0.01	AE
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	--	5.12	--	--	--	--	AE
	Wellheads	--	--	--	--	--	--	AE
	Compressors	--	0.15	--	--	--	--	AE
	Pumps	--	--	--	--	--	--	AE
Pigging Equipment	Gas Launcher	--	1.52E-04	--	--	--	--	AE
Tanks	Crude Stock Tank	--	1.19	--	--	--	--	
	Reject Tank	--	1.19	--	--	--	--	AE
	Wash Tank	--	0.03	--	--	--	--	AE
	Wash Tank	--	0.03	--	--	--	--	AE
Sumps/Cellars/Pits	Oil/Water Sump - Upper	--	1.55	--	--	--	--	AE
	Emergency Pit - Post Tertiary	--	4.06	--	--	--	--	AE
	Vacuum Truck Pit - Secondary	--	2.07	--	--	--	--	AE
	Emergency Pit - Post Tertiary	--	8.81	--	--	--	--	AE
	Crude Tank Drain Pit - Tertiary	--	0.00	--	--	--	--	AE
	Well Cellars	--	17.06	--	--	--	--	AE
Loading Racks	Crude Oil Loading Rack	--	0.76	--	--	--	--	AE

Notes

FE = federally enforceable
A = APCD-only enforceable
NE = not enforceable

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 5.2-1 for each emission unit are assumed.

Daily Scenario:

- External combustion units
- Fugitive components
- Crude oil (stock/reject) tanks
- Waste water tanks, sumps and oil/water separators
- Pigging
- Well cellars
- Loading racks

Annual Scenario:

- External combustion units
- Fugitive components
- Crude oil (stock/reject) tanks
- Waste water tanks, sumps and oil/water separators
- Pigging
- Well cellars
- Loading racks

Table 5.3-1. Total Facility Permitted Emissions

A. Daily

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
External Combustion	19.04	1.00	16.03	28.66	1.60	1.60
Fugitive Components - Gas/Heavy Liquid	--	28.87	--	--	--	--
Pigging Equipment	--	0.08	--	--	--	--
Tanks	--	13.40	--	--	--	--
Sumps/Cellars/Pits	--	183.92	--	--	--	--
Loading Racks	--	5.17	--	--	--	--
Totals (lb/day)	19.04	232.44	16.03	28.66	1.60	1.60

B. Annual

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
External Combustion	3.47	0.18	2.93	5.23	0.29	0.29
Fugitive Components - Gas/Heavy Liquid	--	5.27	--	--	--	--
Pigging Equipment	--	0.00	--	--	--	--
Tanks	--	2.44	--	--	--	--
Sumps/Cellars/Pits	--	33.56	--	--	--	--
Loading Racks	--	0.76	--	--	--	--
Totals (TPY)	3.47	42.21	2.93	5.23	0.29	0.29

5.4 Part 70: Federal Potential to Emit for the Facility

Table 5.4-1 lists the federal Part 70 potential to emit. For facilities subject to Part 70 Regulation, all emissions, except fugitive emissions, are counted in the federal definition of potential to emit. However, fugitives are counted in the Federal potential to emit if the facility is subject to any applicable NSPS or NESHAP requirement. Bell Lease is not subject to any NSPS/NESHAP.

Table 5.4-1. Federal Potential to Emit

A. Daily

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
External Combustion	19.04	1.00	16.03	28.66	1.60	1.60
Tanks	--	13.40	--	--	--	--
Totals (lb/day)	19.04	14.40	16.03	28.66	1.60	1.60

B. Annual

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
External Combustion	3.47	0.18	2.93	5.23	0.29	0.29
Tanks	--	2.44	--	--	--	--
Totals (TPY)	3.47	2.62	2.93	5.23	0.29	0.29

5.5 Exempt Emission Sources/Part 70 Insignificant Emissions

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:

- Solvents/Surface coating operations used maintenance operations

Table 5.5-1 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 used maintenance operations.

Table 5.5-1 Estimated Permit Exempt Emissions

Equipment Category	Description	Exemption Claimed	Usage Data		Reference
			Volume	Unit	
Solvent Usage	Maintenance (Wipe Cleaning)	202.U	55	gal/yr	F
	Laboratory Use	202.N			F

Equipment Category	Description	Emission Factor	Unit	NOx	ROC	CO	SOx	PM	PM10
Solvent Usage	Maintenance (Wipe Cleaning)	6.6	lb/gal	--	0.18	--	--	--	--
	Laboratory Use ¹			--	10	--	--	--	--
Totals (TPY):				0.00	10.18	0.00	0.00	0.00	0.00

1. This emission limit is a stationary source wide limit.

5.6 Net Emissions Increase (NEI) Calculation

The NEI Equation used by the APCD is: $NEI = I + (P1-P2) - D$

Where:

- I = Potential to emit of the modification
- P1 = All prior PTE increases requiring permits on or after November 15, 1990
- P2 = All prior PTE decreases requiring permits on or after November 15, 1990
- D = Pre-1990 baseline actual emission decreases = zero

This facility's NEI since November 15, 1990 (the day the federal Clean Air Act Amendments was adopted in 1990) is attributed to the ATC/PTO 9387 issued in February, 1996 and to ATC/PTO 9412 issued in January, 1996. The NEI for the Bell Lease is shown in Table 5.6-1. The Greka South Cat Canyon stationary source NEI is listed in Attachment 10.4 of this permit. It should be noted that the stationary source ROC NEI is currently below the APCD Rule 802 ROC offset threshold.

Table 5.6-1 Facility Net Emissions Increase (NEI-90)

Facility	Permit	Description	Issued	Units	NOx	ROC	CO	Sox	PM	PM10
Bell Lease	PTO 9387	New crude oil loading rack	2/25/1996	lbs/hr		1.28				
				lbs/day		12.77				
				TPQ		0.58				
				TPY		2.33				
Bell Lease	PTO 9412	New gas treatment equipment	9/30/1996	lbs/hr		0.16				
				lbs/day		3.84				
				TPQ		0.18				
				TPY		0.70				
Bell Lease	ATC 9146	Three lean-burn compressors increased CO	1/1/1994	lbs/hr			4.58			
				lbs/day			109.92			
				TPQ			4.69			
				TPY			18.75			
Bell Lease	ATC 9699 - Expired	New oil & gas wells, fugitive components	3/1/1997	lbs/hr		0.00				
				lbs/day		0.00				
				TPQ		0.00				
				TPY		0.00				
Bell Lease	ATC 9736 - Expired	New waste water tank	6/1/1997	lbs/hr		0.00				
				lbs/day		0.00				
				TPQ		0.00				
				TPY		0.00				
Bell Lease	ATC 12261	Crude Oil Stock Tank	12/24/2007	lbs/hr						
				lbs/day		6.54				
				TPQ						
				TPY		1.19				
	Facility NEI Contribution		P1	lbs/hr	0.00	1.44	4.58	0.00	0.00	0.00
				lbs/day	0.00	23.15	109.92	0.00	0.00	0.00
				TPQ	0.00	0.76	4.69	0.00	0.00	0.00
				TPY	0.00	4.22	18.75	0.00	0.00	0.00

6. 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

The Greka Cat Canyon stationary source is subject to the Air Toxics Hot-Spots Program (AB-2588). A health risk assessment (HRA) for the Greka Cat Canyon stationary source, as it was configured at that time, was prepared by the APCD in 2000 under the requirements of the Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588). The HRA is based on 1998 toxic emissions inventory data submitted to the APCD by Greka.

Based on the 1998 toxic emissions inventory, a cancer risk of 12 per million at the property boundary was estimated for part of the Cat Canyon stationary source, which included the Bell, Blockman and Palmer-Stendl leases and all associated equipment. This risk is primarily due to emissions of polycyclic aromatic hydrocarbons (PAHs) and acrolein from internal combustion engines and gas-fired boilers. The hazard index (HI) for the facilities was determined to be 0.27 for chronic risk, and 22.93 for acute risk. HI is a ratio of the predicted concentration of the facilities reported emissions to a concentration considered acceptable to public health professionals. The baseline for significant cancer risk is 10 and for non-cancer risk is 1, therefore both the cancer and acute risk are considered significant. The cancer and non-cancer chronic risk projections are over the APCD’s AB2588 significance thresholds of 10 in a million and 1.0 respectively.

A separate HRA was completed for the Dominion and UCB leases since the leases historically were owned and operated by Dominion Oil Company, separate from the current owners/operators of the Greka Cat Canyon source. Based on the 1998 toxic emissions inventory, these two leases were assessed a cancer risk of 2 per million at the property boundary. This risk is primarily due to emissions of acrolein from internal combustion engines and gas-fired boilers. The hazard index (HI) for the facilities was determined to be 0.05 for chronic risk, and 4.3 for acute risk. The baseline for significant non-cancer risk is 1, therefore only the acute risk is considered significant.

An HRA for the four Vintage Petroleum West Cat Canyon leases was completed in June 1993, including Goodwin A, Lloyd, Mortensen, and Security Fee leases. Based on the 1991 toxic emissions inventory, these four leases were assessed a cancer risk of 4 per million at the property boundary. The hazard index (HI) for the facilities was determined to be 0.5 for chronic risk, and 0.7 for acute risk. The baseline for significant non-cancer risk is 1, therefore neither the acute or chronic risk is considered significant.

The APCD is currently reviewing an Air Toxics Emission Inventory Report (ATEIR) for reporting year 2003 for the stationary source. Upon APCD approval of the ATEIR, the APCD will conduct a health risk assessment using the Hotspots Analysis and Reporting Program (HARP) software. The HRA, based on reporting year 2003, is expected to be completed in 2009.

7. CAP Consistency, Offset Requirements and ERCs

7.1 General

Santa Barbara County has been classified as non attainment for the state eight-hour ozone standard as well as the state 24-hour and annual PM₁₀ ambient air quality standards. The County is either in attainment of or unclassified with respect to all other state ambient air quality standards.

Santa Barbara County's air quality has historically violated 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 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. This eight-hour ozone standard, originally promulgated by USEPA on July 18, 1997, was 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. In March 2008, USEPA lowered that standard to 0.075 parts per million. While USEPA has yet to formally designate Santa Barbara County with respect to the 0.075 parts per million standard, the state has recommended to USEPA that Santa Barbara County be designated as attainment.

Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with progress toward attainment or maintenance of federal and state ambient air quality standards. Under APCD regulations, any modifications at this facility (or the South Cat Canyon 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. These thresholds apply to net emission increases since November 15, 1990 as defined in District Rule 801.

7.2 Clean Air Plan

On August 16, 2007, the APCD Board adopted the 2007 Clean Air Plan to chart a course of

action that provided 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 were developed for Santa Barbara County as required by both the 1998 California Clean Air Act and the 1990 Federal Clean Air Act Amendments. Santa Barbara County has now attained the state one-hour ozone standard but does not attain the state eight-hour ozone standard.

In 2010 the APCD will update those provisions of the 2007 Clean Air Plan which demonstrate expeditious attainment of the state eight-hour ozone standard. No changes will be made 2007 Clean Air Plan sections which demonstrate continued maintenance of the federal eight-hour ozone standard.

7.3 Offset Requirements

The Greka South Cat Canyon stationary source does not trigger offsets.

7.4 Emission Reduction Credits

Emission reduction credits, granted to Greka, are detailed in revised DOI 006 issued to Greka by the APCD in May 2003. The ERC's are based on IC Engine emission reductions at the Bell Lease Compressor Plant [Re: *APCD PTO 8036, ATC 9975-01, DOI 006-02*]. The original ERC certificate #0011-1103 issued to Greka per DOI 006 has since been sold in part to various sources within Santa Barbara County. ERC certificate #0096-1108 includes the remaining portion (CO credits) of the original ERC owned by Greka. This certificate was renewed in November 2008 as ERC Certificate #0096-0189.

8. Lead Agency Permit Consistency

To the best of the APCD's knowledge, no other governmental agency's permit requires air quality mitigation for emissions pursuant to this permit issued to the Bell Lease.

9. Permit Conditions

This section lists the applicable permit conditions for Bell Lease. 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(s) 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 Bell Lease:

Section 9.A Standard Administrative Conditions

Number	Title
A.1	Compliance with Permit Conditions
A.2	Emergency Provisions
A.3	Compliance Plan
A.4	Right of Entry
A.5	Permit Life
A.6	Payment of Fees
A.7	Prompt Reporting of Deviations
A.8	Reporting Requirements/Compliance Certification
A.9	Federally Enforceable Conditions
A.10	Recordkeeping Requirements
A.11	Conditions for Permit Reopening
A.12	Credible Evidence

A.1 Compliance with Permit Conditions.

- (a) The permittee shall comply with all permit conditions in Sections 9.A, 9.B and 9.C.
- (b) This permit does not convey property rights or exclusive privilege of any sort.
- (c) Any permit noncompliance with sections 9.A, 9.B, or 9.C constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application..
- (d) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (e) A pending permit action or notification of anticipated noncompliance does not stay any permit conditions.
- (f) Within a reasonable time period, the permittee shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:
 - (i) Compliance with the permit, or
 - (ii) Whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.
- (g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible.

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

- A.2 **Emergency Provisions.** The permittee shall comply with the requirements of the APCD, Rule 505 (Upset/Breakdown rule) and/or APCD Rule 1303.F, whichever is applicable to the emergency situation. In order to maintain an affirmative defense under Rule 1303.F, the permittee shall provide the APCD, in writing, a “notice of emergency” within 2 working days of the emergency. The “notice of emergency” shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F. *[Re: 40 CFR 70.6(g), APCD Rule 1303.F]*
- A.3 **Compliance Plan.**
- (a) The permittee shall comply with all federally enforceable requirements that become applicable during the permit term in a timely manner.
 - (b) For all applicable equipment, the permittee shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards. *[Re: APCD Rule 1302.D.2]*
- A.4 **Right of Entry.** The Regional Administrator of USEPA, the Control Officer, or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises where a Part 70 Source is located or where records must be kept:
- (a) To inspect the stationary source, including monitoring and control equipment, work practices, operations, and emission-related activity;
 - (b) To inspect and duplicate, at reasonable times, records required by this Permit to Operate;
 - (c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times. Monitoring of emissions can include source testing. *[Re: APCD Rule 1303.D.2]*
- A.5 **Permit Life.** The Part 70 permit shall become invalid three years from the date of issuance unless a timely and complete renewal application is submitted to the APCD. Any operation of the source to which this Part 70 permit is issued beyond the expiration date of this Part 70 permit and without a valid Part 70 operating permit (or a complete Part 70 permit renewal application) shall be a violation of the CAAA, § 502(a) and 503(d) and of the APCD rules.
- (a) The permittee 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.6 **Payment of Fees.** The permittee shall reimburse the APCD for all its Part 70 permit processing and compliance expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the APCD and the USEPA pursuant to section 502(a) of the Clean Air Act. *[Re: APCD Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7)]*
- A.7 **Prompt Reporting of Deviations.** The permittee shall submit a written report to the APCD documenting each and every deviation from the requirements of this permit or any applicable federal requirements within seven (7) days after discovery of the violation, but not later than

six (6) months 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.8 **Reporting Requirements/Compliance Certification.** The permittee shall submit compliance certification reports to the USEPA and the Control Officer every six months. These reports shall be submitted on APCD forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1st and March 1st, respectively, each year. Supporting monitoring data shall be submitted in accordance with the “Semi-Annual Compliance Verification Report” condition in section 9.C. The permittee shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [Re: APCD Rules 1303.D.1, 1302.D.3, 1303.2.c]
- A.9 **Federally Enforceable Conditions.** Each federally enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the APCD-only enforceable section of this permit are federally enforceable or subject to the public/USEPA review. [Re: CAAA, §502(b)(6), 40 CFR 70.6(b)]
- A.10 **Recordkeeping Requirements.** The permittee shall maintain records of required monitoring information that include the following:
- (a) The date, place as defined in the permit, and time of sampling or measurements;
 - (b) The date(s) analyses were performed;
 - (c) The company or entity that performed the analyses;
 - (d) The analytical techniques or methods used;
 - (e) The results of such analyses; and
 - (f) The operating conditions as existing at the time of sampling or measurement;

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

- A.11 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:
- (a) Additional Requirements: If additional applicable requirements (e.g., NSPS or MACT) become applicable to the source which has an unexpired permit term of three (3) or more years, the permit shall be reopened. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. However, no such reopening is required if the effective date of the requirement is

later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended. All such re-openings shall be initiated only after a 30 day notice of intent to reopen the permit has been provided to the permittee, except that a shorter notice may be given in case of an emergency.

- (b) Inaccurate Permit Provisions: If the APCD or the USEPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of the permit, the permit shall be reopened. Such re-openings shall be made as soon as practicable.
- (c) Applicable Requirement: If the APCD or the USEPA determines that the permit must be revised or revoked to assure compliance with any applicable requirement including a federally enforceable requirement, the permit shall be reopened. Such re-openings shall be made as soon as practicable.
- (d) Administrative procedures to reopen a permit shall follow the same procedures as apply to initial permit issuance. Re-openings shall affect only those parts of the permit for which cause to reopen exists. If the permit is reopened, and revised, it will be reissued with the expiration date that was listed in the permit before the re-opening. *[Re: 40 CFR 70.7(f), 40 CFR 70.6(a)]*

A.12 **Credible Evidence.** Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee, including but not limited to, any challenge to the Credible Evidence Rule (see 62 Fed. Reg. 8314, Feb. 24, 1997), in the context of any future proceeding. *[Re: 40 CFR 52.12(c)]*

9.B. Generic Conditions

The generic conditions listed below apply to all emission units, regardless of their category or emission rates. These conditions are federally enforceable. Compliance with these requirements is discussed in Section 3. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), the wording of the rule shall control.

Section 9.B Generic Permit Conditions

Number	Title
B.1	Circumvention (Rule 301).
B.2	Visible Emissions (Rule 302).
B.3	Nuisance (Rule 303).
B.4	PM Concentration – North Zone (Rule 304).
B.5	Specific Contaminants (Rule 309).
B.6	Sulfur Content of Fuels (Rule 311).
B.7	Organic Solvents (Rule 317).
B.8	Metal Surface Coating Thinner and Reducer (Rule 322).
B.9	Architectural Coatings (Rule 323).
B.10	Disposal and Evaporation of Solvents (Rule 324).
B.11	Surface Coating of Metal Parts and Products (Rule 330).
B.12	Adhesives and Sealants (Rule 353).
B.13	Oil and Natural Gas Production MACT (Subpart HH)
B.14	Proposed MACT Standards (Subpart DDDDD)

- 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).** Greka 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.

- B.3 **Nuisance (Rule 303).** No pollutant emissions from any source at Greka shall create nuisance conditions. No operations shall endanger health, safety or comfort, nor shall they damage any property or business.
- B.4 **PM Concentration - North Zone (Rule 304).** Greka shall not discharge into the atmosphere, from any source, particulate matter in excess of the 0.3 grains/dscf concentration limit listed in Rule 304.
- B.5 **Specific Contaminants (Rule 309).** Greka shall not discharge into the atmosphere from any single source sulfur compounds or combustion contaminants in excess of the applicable standards listed in Sections A and E of Rule 309.
- B.6 **Sulfur Content of Fuels (Rule 311).** Greka shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 50 gr/100 scf (calculated as H₂S) for gaseous fuel. Compliance with this condition shall be based on daily measurement of the sulfur concentration of the fuel calculated as H₂S at standard conditions and *annual* measurements of the total sulfur content of fuel. Under a County Land Use permit, Greka must keep the gas pipeline fuel sulfur level below 29 ppmvd to comply with this restriction. *[Re: APCD ATC/PTO 9412]*
- B.7 **Organic Solvents (Rule 317).** Greka shall comply with the emission standards listed in Section B of Rule 317. Compliance with this condition shall be based on Condition 0 of this permit.
- B.8 **Metal Surface Coating Thinner and Reducer (Rule 322).** The use of photochemically reactive solvents as thinners or reducers in metal surface coatings is prohibited. Compliance with this condition shall be based on Condition 0 in this permit and facility inspections.
- B.9 **Architectural Coatings (Rule 323).** Greka 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 Greka's compliance with Condition 0 of this permit and facility inspections.
- B.10 **Disposal and Evaporation of Solvents (Rule 324).** Greka 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 Greka's compliance with Condition 0 of this permit and facility inspections.
- B.11 **Surface Coating of Metal Parts and Products (Rule 330).** Greka shall not apply any coating or specify the use of any coating on any metal part or product subject to the provisions of this Rule which, as applied, emits or may emit reactive organic compounds into the atmosphere in excess of the limits identified in section D of this rule. *[Re: APCD Rule 330]*
- B.12 **Adhesives and Sealants (Rule 353).** The permittee shall not use adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers, unless the permittee complies with the following:

- (a) Such materials used are purchased or supplied by the manufacturer or suppliers in containers of 16 fluid ounces or less; or alternately
- (b) When the permittee uses such materials from containers larger than 16 fluid ounces and the materials are not exempt by Rule 353, Section B.1, the total reactive organic compound emissions from the use of such material shall not exceed 200 pounds per year unless the substances used and the operational methods comply with Sections D, E, F, G, and H of Rule 353. Compliance shall be demonstrated by recordkeeping in accordance with Section B.2 and/or Section O of Rule 353. *[Re: APCD Rule 353]*

B.13 Oil and Natural Gas Production MACT. Greka shall comply with the following General Recordkeeping (40 CFR 63.10(b)(2)) MACT requirements:

- (a) Greka shall maintain records of the occurrence and duration of each startup, shutdown, or malfunction of operation;
- (b) Actions taken during periods of startup, shutdown, and malfunction when different from the procedures specified in Greka's startup, shutdown, and malfunction plan (SSMP);
- (c) All information necessary to demonstrate conformance with Greka's SSMP when all actions taken during periods of startup, shutdown, and malfunction are consistent with the procedures specified in such plan;
- (d) All required measurements needed to demonstrate compliance with a relevant standard, including all records with respect to applicability determination, and black oil documentation per 40 CFR 63.760;
- (e) Any information demonstrating whether a source is meeting the requirements for a waiver of record-keeping or reporting requirements under this condition.
- (f) Greka shall maintain records of SSM events indicating whether or not the SSMP was followed;
- (g) Greka shall submit a semi-annual startup, shutdown, and malfunction report as specified in 40 CFR 63.10.d.5. The report shall be due by July 30th and January 30th. *[Re: 40 CFR 63, Subpart HH]*

9.C Requirements and Equipment Specific Conditions

This section includes non generic federally-enforceable conditions, including emissions and operations limits. Monitoring, record keeping and reporting conditions are included in this section for each specific equipment group. This section may also contain other non-generic conditions.

Section 9.C Equipment Specific Conditions

Number	Title
C.1	External Combustion
C.2	Fugitive Hydrocarbon Emissions Components
C.3	Oil Storage Tanks
C.4	Sumps/Cellars/Pits
C.5	Loading Rack
C.6	Facility Throughput Limitations
C.7	Recordkeeping
C.8	Compliance Verification Reports
C.9	Fuel Gas Sulfur and HHV Monitoring Plan
C.10	Sampling Provisions for Non-Operational Equipment/Activities

- C.1 **External Combustion Equipment - Boilers/Glycol Regenerators.** The following equipment are included in this emissions unit category:

Table C.1-1 External Combustion Equipment List

APCD Device Nos.	Name
2519	4.0 MMBtu/hr, field gas-fired boiler; Superior, serial # H-117
2525	4.0 MMBtu/hr, field gas-fired boiler; Superior, serial # H-118
8396	0.35 MMBtu/hr, field gas-fired regenerator; B.S.&B., Model 375-GDR

- (a) **Emission Limits:** *Exhaust Emission Concentration Limits*- Exhaust emission concentrations of PM and SO₂ resulting from the operation of the equipment listed above shall not exceed the corresponding values listed for each in Rule 309, Sections A. and E. Compliance with all mass emission conditions shall be based on the fuel used, the total sulfur content and the sulfur concentration measured as H₂S of the fuel and through compliance with other monitoring, record-keeping and reporting (MRR) conditions listed below.
- (b) **Operational Limits:** The equipment listed in the Table C.1-1 must be properly maintained in accordance with the equipment manufacturer's/operator's maintenance manual to minimize combustion emissions. The following additional operational limits apply:

- (i) *Gaseous Fuel Sulfur Limit.* All units listed in Table C.1-1 shall be fired on field-gas. The concentration of sulfur compounds (calculated as H₂S at standard conditions, 60°F and 14.7 psia) in fuel burned in these units shall not exceed 50 grains per 100 cubic feet (796 ppmvd).
- (c) Monitoring: The following monitoring conditions apply to the external combustion equipment listed in Table C.1-1:
 - (i) *Fuel Meters.* Each unit listed in Table C.1-1 shall be equipped with a fuel meter (totalizer) to measure the total cubic feet (scf) delivered to the combustion unit. The fuel meter shall be accurate to within five percent (5%) of the full scale reading. The fuel meter/gauge shall be calibrated in accordance with the fuel meters manufacturer's procedures. The calibrations shall be performed as specified by the fuel meter manufacturer, but no later than the date of the next required emissions source test.
 - (ii) *Fuel Gas Sulfur Data.* Greka shall measure the total sulfur content of the gaseous fuel annually in accordance with ASTM-D1072 and an APCD approved *Fuel Gas Sulfur Monitoring Plan*. Greka shall measure the hydrogen sulfide (H₂S) content of the gaseous fuel monthly via sorbent tube method an APCD approved *Fuel Gas Sulfur and HHV Monitoring Plan*.
 - (iii) *Fuel Gas High Heating Value.* Greka shall measure the higher heating value of the fuel gas on a quarterly basis using APCD approved methods and per an APCD approved *Fuel Gas Sulfur and HHV Monitoring Plan*
 - (a) *Fuel Use Monitoring and Process Monitor Calibration and Maintenance Plan.* The APCD-approved *Fuel Use Monitoring and Process Monitor Calibration and Maintenance Plan* (April 2004) for the Bell Lease 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.
- (d) Recordkeeping: All records shall be maintained by Greka for a minimum of five (5) years. The following records (electronic or hard copy) shall be maintained by the permittee and shall be made available to the District upon request:
 - (i) *Sulfur Content.* The monthly measured hydrogen sulfide content and the annually measured total sulfur content, both in units of ppmvd, of the gaseous fuel burned on the lease from each permitted combustion unit.
 - (ii) *High Heating Value.* The quarterly high heating value and specific gravity of the fuel gas.

(iii) *Fuel Gas Use*. The total amount of fuel gas combusted in each unit listed in Table C.1-1 shall be recorded on a daily, quarterly, and annual basis in units of standard cubic feet and million Btus (x.xxx format).

(e) **Reporting:** On a semi-annual basis, a report detailing the previous six month’s activities shall be provided to the APCD. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition listed below. [Re: APCD Rules 309 and 1303, 40 CFR 70.6]

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

Table C.2-1 Fugitive Hydrocarbon Component List

APCD Device Nos.	Name
	<i>Gas/Light Liquid Service Components</i>
2601	Valves – Bellows Seal
2601	Valves – Accessible/Inaccessible
2601	Valves – Unsafe
2601	Valves - LEV Accessible/Inaccessible
2601	Valves - LEV Unsafe
2601	Flanges/Connections – Accessible/Inaccessible
2601	Flanges/Connections – Unsafe
2601	Compressor Seals – To Atm
2601	Compressor Seals – To VRU
2601	Relief Valves – To Atm
2601	Relief Valves – To VRU
2601	Pump Seals – Tandem
2601	Pump Seals – Single
2601	Exempt
2601	<i>Oil Service Components</i>
2601	Valves – Bellows Seal
2601	Valves – Accessible/Inaccessible
2601	Valves – Unsafe
2601	Valves - LEV Accessible/Inaccessible
2601	Valves - LEV Unsafe
2601	Flanges/Connections – Accessible/Inaccessible
2601	Flanges/Connections – Unsafe
2601	Compressor Seals – To Atm
2601	Compressor Seals – To VRU
2601	Relief Valves – To Atm
2601	Relief Valves – To VRU
2601	Pump Seals – Tandem
2601	Pump Seals – Single
2601	Exempt
2607	Wellheads — located at ninety six fifty (96) well units

- (a) Operational Limits: Operation of the equipment listed in Table C.2-1 above 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, record-keeping and reporting (MRR) conditions listed in this permit. In addition Greka shall meet the following:
- (i) *VRS Use*: The vapor recovery system (VRS) and the gas collection system (GCS) shall be in operation when the equipment items at the facility connected to these systems are in use. These systems include piping, valves, and flanges associated with the systems. The systems shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
 - (1) *Rule 331 I&M Program*. The APCD-approved I&M Plan (March 2005) for the Bell Lease in the Greka Cat Canyon Stationary Source shall be implemented for the life of the project. The Plan, and any subsequent APCD approved revisions, is incorporated by reference as an enforceable part of this permit.
 - (ii) *Rule 331 Exemption Request*. If Greka wishes to obtain the Rule 331 B.2.c exemption from the MRR requirements of Rule 331, then Greka shall submit an exemption request to the APCD which shall include a current inventory of all 1/2" or smaller stainless steel tube fittings and a written statement certifying under penalty of perjury that all one-half inch and smaller stainless steel tube fittings have been inspected in accordance with the requirements of Rule 331 Section H.1 and found to be leak-free.
- (b) Monitoring: The equipment items listed in this section is subject to all the monitoring requirements listed in APCD Rule 331.F. The test methods in Rule 331.H shall be used, when applicable.
- (c) Recordkeeping: All inspection and repair records shall be retained at the source for a minimum of five (5) years. The equipment listed in this section are subject to all the recordkeeping requirements listed in APCD Rule 331 and the APCD approved Rule 331 I&M Plan. Greka shall record in a log the following:
- (i) a record of leaking components 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);
 - (ii) a record of the total components inspected and the total number and percentage found leaking by component type;
 - (iii) a record of leaks from critical components;
 - (iv) a record of leaks from components that incur five repair actions within a continuous 12-month period;
 - (v) a record of component repair actions including dates of component re-inspections, record of all equipment awaiting repairs and maintenance; and

- (vi) calibration records of Organic Vapor analyzer including dates and methods of calibration and repairs.
 - (vii) Greka shall record in a log all updates to the Rule 331 fugitive hydrocarbon I&M inventory
- (d) **Reporting:** The equipment listed in this section are subject to all the reporting requirements listed in APCD Rule 331.G. In addition, on a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition listed below.
[Re: APCD Rules 331 and 1303, 40 CFR 70.6]

C.3 Oil Storage Tanks. The following equipment items are included in this emissions category:

Table C.3-1 Oil Storage Tank Equipment List

APCD Device Nos.	Name, capacity, dimensions, process rate
2517	Crude Reject Tank; 2,000 barrels, 29.5' diameter by 16' high, cone roof
109880	Crude Oil Shipping Tank: 2,000 barrels, 29.5' diameter by 16' high, cone roof
2615	Wash tank: 5,000 barrels, 37.5' diameter by 24' high, cone roof
2518	Wash tank: 5,000 barrels, 37.5' diameter by 24' high, cone roof

- (a) **Operational Limits:** Operation of the equipment listed above shall conform to the requirements listed in APCD Rule 325, Rule 343, and Rule 346. Compliance with these limits shall be assessed through compliance with the monitoring, record-keeping and reporting (MRR) conditions listed in this permit. In addition Greka shall meet the following:
- (i) *Process Throughput.* Total crude oil (dry) throughput for the entire facility is restricted to 1,600 barrels/day. *[Re: APCD ATC 9387]*
 - (ii) *Oil Tank ROC Emissions Control.* The vapor recovery/gas collection (VR/GC) systems shall be connected to each tank and operating during production or processing (including storage, holding or placement) of petroleum and petroleum related products and shall meet the requirement of Rule 325. The VR/GC system includes all associated piping, valves, and flanges. The VR/GC system shall be maintained and operated properly including a leak-free mode of operation and shall achieve a vapor removal efficiency of 90% or greater.
 - (iii) *Degassing/Purging of Tanks Containing Sulfur Compounds.* The stationary tanks/vessels listed above are used to store organic liquids containing odorous sulfur compounds; hence, these vessels shall be purged or degassed in a manner consistent with APCD Rule 343, and the APCD-approved Rule 343 Degassing Plan (April 2004).

- (b) Monitoring: Monitoring requirements for the equipment listed above are, as follows:
- (i) The volume of dry oil (bbl) processed through the reject oil tank and the shipping each month and the number of days during that month that oil was processed through each tank identified in Table C.3-1.
 - (ii) The vapor pressure and API gravity shall be determined on an annual basis at the initial wash tank according to APCD Rule 325 Section G.2. The API gravity and VP obtained at this tank shall be applied all other tanks for purposes of emissions determinations and annual emissions fees.
 - (iii) For each tank subject to APCD Rule 325 based on the required analysis in Section G.2, Greka shall visually inspect the tank roof, internal floating cover, and its closures/seals at least once every five (5) years, and shall perform a complete inspection of any roof or cover whenever the tank is emptied for non-operational reasons, whichever is more frequent.
 - (iv) For each tank subject to APCD Rule 343 based on the required in condition 9.C.3.b.ii, Greka shall maintain a record of all degassing operations per APCD Rule 343 Section F, which includes the following:
 - (1) The date of degassing
 - (2) The tanks degassed
 - (3) The emission reduction method used
 - (4) Documentation generated from monitoring the degassing process.
- (c) Recordkeeping: The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request.
- (i) The volume of oil produced each month. On an annual basis, the API gravity, and true vapor pressure at the maximum expected operating temperature of the stored crude oil in the reject oil tank and shipping tank, shall be measured and recorded according to the test methods described in Rule 325.G.
 - (ii) The following records required to be maintained per APCD Rules 325, Section F (Recordkeeping):
 - (1) The type of liquid in each tank
 - (2) The maximum vapor pressure of the liquid in the tank
 - (3) The results of the inspections required by Section H of Rule 325
 - (4) The API gravity of the oil in the tank
 - (iii) The records required per APCD Rule 343, as identified in Condition 9.C.3.b.iii shall be maintained in a readily accessible location for at least five (5) years. What is 343?

- (d) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition listed below.

[Re: APCD Rules 325, 343, and 1303, APCD ATC 9699, 40 CFR 70.6]

C.4 **Sumps/Cellars/Pits.** The following equipment are included in this emissions category:

Table C.4-1 Sumps, Cellars, and Pits Equipment List

APCD Device No.	Name
2521	Sump (upper pond); secondary service, covered, 4500 ft ² , 6,400 bbl
8400	Emergency pit, post-tertiary service, uncovered, 3,840 ft ² , 5,200 bbl.
8402	Vacuum truck clean out pit, secondary service, uncovered, 900 ft ² , 1300 bbl
8404	Emergency pit, post-tertiary service, uncovered, 8,325 ft ²
8405	Crude Tank drain pit, tertiary service, uncovered, 3.14 ft ²
2606	Well cellars; 92 in number, 36 ft ² . each, total area = 3312 ft ²

- (a) **Operational Limits:** All process operations from the cellar units listed in this section shall meet the requirements of APCD Rule 344, Section D. Compliance with these operational limits shall be assessed through compliance with the MRR conditions listed in this permit:
- (i) The emergency pit, equipment (#8400) above, shall not be operated more than 30 days during the year.
 - (ii) The upper pond sump (#2521) shall comply with Rule 344 Sections D.2 and E. Specifically, the upper pond sump shall be maintained at all times with a cover that complies with the requirements of Rule 344 Section D.2.
- (b) **Monitoring:** The equipment listed in this section is subject to all applicable monitoring requirements of APCD Rule 344.F. The test methods outlined in APCD Rule 344.I shall be used, when applicable.
- (i) For well cellars, Greka shall comply with the requirements of Rule 344.D, at a minimum. Also, Greka shall inspect the well cellars to ensure that the liquid depth and the oil/petroleum depth do not exceed the following:
 - (1) Liquid depth shall not exceed 50 percent of the depth of the well cellar, and;
 - (2) Oil/petroleum depth shall not exceed 2 inches; unless the owner/operator has discovered the condition and the cellar is pumped within 7 days of discovery (if the cellar is inaccessible due to muddy conditions, it shall be pumped as soon as it is accessible).
- (c) **Recordkeeping:** The equipment listed in this section is subject to all applicable record-keeping requirements listed in APCD Rule 344.G. Specifically, Greka shall record, for each detection, the following information relating to detection of conditions which require pumping of a well cellar pursuant to Rule 344.D.3.c:

- (i) the date of the detection,
 - (ii) the name of the person and company performing the test or inspection, and
 - (iii) the date and time the well cellar is pumped.
- (d) Addition, Greka shall record in an on-site log each day on which the emergency pits (equipment item # 8400) contain any waste water. The summary contents of this log shall be reported annually.
- (e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition listed below. [Re: APCD Rules 344, and 1303, 40 CFR 70.6]

C.5 **Loading Rack.** The following equipment are included in this emissions category:

Table C.5-1 Loading Rack Equipment List

APCD Device No.	Description, petroleum liquid loaded, loading method, process rate
5956	Crude oil loading rack; 1,600 barrels/day, 584,000 bbl./yr., connected to VRU

- (a) Emission Limits: Mass emissions from the loading rack listed above shall not exceed the limits listed in Table 5.2-3 and **Error! Reference source not found.** Compliance with this condition shall be based on the operational, monitoring, recordkeeping and reporting conditions in this permit. [Re: APCD ATC 9387]
- (b) Operational Limits: All process operations from the equipment listed in this section shall meet the requirements of APCD Rule 346, Sections D, E, F and G. Compliance with these limits shall be assessed through compliance with the monitoring, record-keeping and reporting conditions in this permit. [Re: APCD ATC 9387]
- (i) The vapor recovery & gas collection (VRGC) system shall be in operation when the equipment above, connected to VRGC, is in use.
 - (ii) Greka shall restrict the oil loading rack operations to 1,600 bbl/day and 584,000 bbl/year of dry oil loading.
- (c) Monitoring: The equipment listed in this section is subject to all the monitoring requirements of APCD Rule 346.F. The test methods outlined in APCD Rule 346.H shall be used.
- (d) Recordkeeping: The equipment listed in this section is subject to all the record-keeping requirements listed in APCD Rule 346.G. In addition, Greka shall record the volumes and dates of shipments from the loading rack and the total number of loads trucked daily.

- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition listed below.

[Re: APCD Rules 346, and 1303, ATC 9387, and 40 CFR 70.6]

C.6 Facility Throughput Limitations. The maximum permitted gas production rate for the Bell Lease is 10 million scf/day based on its equipment capacity (H₂S scrubber) The permitted maximum oil production is 1600 barrels (dry) per day. Greka Bell Lease gas *production* shall not drop below a monthly-averaged standard cubic feet (scf) of gas per day, *such that the facility-wide gas-to-oil ratio drops- below 501*. This operational limit is based on actual days of production during the month. *[Re: APCD ATC 9387]*

- (a) Greka shall record in a log the monthly volumes of gas produced (scf) and the actual number of days in production per month.
- (b) Greka shall inform the APCD in the semi-annual compliance verification report if the average daily gas production rate for the quarters reported drops and results in a gas-to-oil ratio below 501 scf/bbl.

C.7 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, 40 CFR 70.6]*

C.8 Semi-Annual Monitoring/Compliance Verification Reports. Twice a year, Greka shall submit a compliance verification report to the APCD. Each report shall document compliance with all permit, rule or other statutory requirements during the prior two calendar quarters. The first report shall cover calendar quarters 1 and 2 (January through June) and the second report shall cover calendar quarters 3 and 4 (July through December). The reports shall be submitted by March 1st and September 1st each year. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit and shall document compliance separately for each calendar quarter. These reports shall be in a format approved by the APCD. Compliance with all limitations shall be documented in the submittals. All logs and other basic source data not included in the report shall be made available to the APCD upon request. The second report shall also include an annual report for the prior four quarters. Pursuant to Rule 212, a completed *APCD Annual Emissions Inventory* questionnaire should be included in the annual report or submitted electronically via the APCD website. Greka may use the Compliance Verification Report in lieu of the Emissions Inventory questionnaire if the format of the CVR is acceptable to the APCD's Emissions Inventory Group and if Greka submits a statement signed by a responsible official stating that the information and calculations of quantifies of emissions of air pollutants presented in the CVR are accurate and complete to best knowledge of the individual certifying the statement. The report shall include the following information:

- (a) *External Combustion Equipment - Boilers/Glycol Regenerators*
 - (i) The monthly measured sulfur concentration of the fuel gas calculated as H₂S.
 - (ii) The annually measured total sulfur content of fuel gas consumed at each combustion unit (*each annual data will suffice for both reports*).
 - (iii) The quarterly measured high heating value (Btu/scf).
 - (iv) The total volume of gaseous fuel combusted in each combustion unit, on a daily, monthly, and annual basis in units of standard cubic feet and million BTUs.

- (b) *Fugitive Hydrocarbon Emissions Components*
 - (i) A summary list of the total components inspected.
 - (ii) The total number and percentage found leaking by component type.
 - (iii) A summary record of leaks from critical components.
 - (iv) A summary record of leaks from components that incur five repair actions within a continuous 12-month period..
 - (v) A summary record of component repair actions including dates of component re-inspections.
 - (vi) On an annual basis, Rule 331 fugitive hydrocarbon I&M program data that includes an updated FHC I&M inventory due to change in component list or diagrams.

- (c) *Oil Storage Tanks*
 - (i) The volume of dry oil (bbl) processed through the reject oil and shipping tank each month and the number of days during that month that oil was processed through each tank.
 - (ii) The API Gravity of the crude oil and the true vapor pressure (TVP) of the crude oil at the maximum expected temperature (180°F) of the reject oil and shipping tanks, as measured per Rule 325.G.2 and recorded. Each tank temperature shall also be recorded while measuring the vapor pressure per Rule 325.G.2.
 - (iii) For all degassing events subject to APCD Rule 343, the volume purged, characteristics of the vapor purged, and the control device/method used.
 - (iv) For each tank listed in Table C.3-1, a summary annual report consisting of the following:
 - (1) The type of liquid in each tank.

- (2) The maximum vapor pressure of the tank content under operating conditions.
 - (3) The date each tank was degassed.
- (d) *Sumps/ Cellars/ Pits*
 - (i) The following information, for each detection of conditions which resulted in a pumping of any well cellar:
 - (1) The date of the detection.
 - (2) The name of the person and company performing the test or inspection.
 - (3) The date and time the well cellar was pumped.
 - (ii) Total number of days on which the emergency pits (ID # 8400) contained waste water.
- (e) *Loading Rack (Crude Oil)*
 - (i) The volumes (in barrels) of crude oil shipped each month.
 - (ii) Total volume of crude oil trucked/shipped daily, based on number of days of trucking/shipping operations per month.
 - (iii) A summary description of any leak or malfunction of the vapor recovery or overfill prevention system found during any required monitoring operation.
- (f) *Facility Throughput Limitations*
 - (i) The volume of gas produced (scf) each month.
 - (ii) The actual number of days in production each month.
- (g) *General Reporting Requirements*
 - (i) A summary of each and every occurrence of non-compliance with the provisions of this permit, APCD rules, and any other applicable air quality requirement.
 - (ii) On an annual basis, the ROC and/or NO_x emissions from all permit exempt activities.

C.9 **Fuel Gas Sulfur and HHV Monitoring Plan.** Greka shall abide by an APCD approved Fuel Gas Sulfur and HHV Monitoring Plan. Greka shall submit a *Fuel Gas Sulfur Reporting Plan* for APCD approval within ninety (90) days of final permit issuance. The plan shall include the following elements:

- (a) *Unit Description:* A brief description of the combustion units permitted to operate using fuel gas in the Greka South Cat Canyon stationary source, including the APCD ID# and the purpose for operation in the source.

- (b) *Fuel Monitoring Devices*: A description of the fuel gas sulfur and HHV monitoring devices in place on each permitted unit. A diagram identifying the fuel gas lines by lease with the sampling location for each permitted combustion unit.
- (c) *Fuel Sampling Procedures*: A description of the procedures in place for collecting fuel gas samples for total reduced sulfur (TRS) and H₂S concentration, and the High Heating Value (HHV) of the fuel.
- (d) *Recordkeeping*: Monthly and annual records shall be kept onsite for a minimum of five (5) years and will be made available to the APCD upon request.
 - (i) The monthly records of fuel gas sulfur content and HHV will be submitted in the semi-annual and annual compliance verification report (CVR). The CVR will include the results of total reduced sulfur concentration as measured and recorded annually, the results of HHV as measured as recorded quarterly, and the results of H₂S concentration as measured and recorded monthly for each permitted combustion unit.

Greka may submit a revision to the *Fuel Gas Sulfur and HHV Monitoring Plan* at any time to address sampling locations. Revisions to this plan must be approved by the APCD prior to implementing any modifications to sampling frequency, location, or sampling methodology.

C.10 Sampling Provisions for Non-Operational Equipment/Activities. Greka shall complete all sampling/analysis required in section 9.C or 9.D conditions at the designated frequencies (e.g., daily, weekly, monthly, quarterly, and/or annual) except under circumstances when equipment subject to sampling is non-operational, as described below:

- (a) *Equipment currently in extended shut-down mode*: For any permitted equipment that has been shut-down for twelve or more consecutive months and whose operation is not prevented by conditions contained within this permit, Greka shall not be required to complete the required sampling and analysis while the equipment remains shut-down.

Within 30 days of issuance of this permit, Greka shall submit a written list of all equipment/activities (by facility permit) subject to sampling that have been shut-down for at least 12 consecutive months, along with monthly records documenting the non-operational status of the equipment. Prior to startup of a permitted equipment unit that has been shutdown for twelve (12) or more consecutive months, Greka shall submit a written notification of the projected startup date. Upon start-up, Greka shall resume the required sampling and analysis at the frequency designated in this permit.

- (b) *Planned equipment shut-downs*: For planned shut-downs of permitted equipment, Greka shall complete the sampling/analyses required before the unit is shutdown. For planned shut-downs of equipment/activities of duration less than the sampling frequency defined in this permit for that unit, Greka must complete the required sampling. If the actual shut-down duration is for a period greater than the sampling

frequency defined in this permit for that unit, then Greka does not have to complete the sampling for the unit while shut-down. Upon equipment start-up, Greka shall resume the required sampling and analysis at the frequency designated in this permit. Prior to any planned shut-downs of units subject to sampling, Greka shall submit a written shutdown notification to the APCD which identifies the unit(s) to be shutdown and the scheduled period (dates) of the shutdown.

9.D APCD-Only Conditions

The following section lists permit conditions that are not federally enforceable (i.e., not enforceable by the USEPA or the public). However, these conditions are enforceable by the APCD and the State of California. These conditions have been determined as being necessary 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 of these conditions shall be a violation of APCD Rule 206, this permit, as well as any applicable section of the California Health & Safety Code (H & S Code).

Section 9.D APCD-Only Conditions

Number	Title
D.1	Consistency with Analysis
D.2	Equipment Maintenance
D.3	Compliance
D.4	Severability
D.5	Conflict Between Permits
D.6	Access to Records and Facilities
D.7	Grounds for Revocation
D.8	Complaint Response
D.9	Odorous Organic Sulfides (Rule 310)
D.10	Mass Emission Limitations
D.11	Process Stream Sampling and Analysis
D.12	External Combustion Equipment - Boilers/Glycol Regenerator
D.13	Pigging Equipment
D.14	Solvent Usage
D.15	Permitted Equipment
D.16	Annual Compliance Reporting

- D.1 **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the APCD's project file) and the APCD's analyses under which this permit is issued as documented in the Permit Analyses prepared for and issued with the permit.
- D.2 **Equipment Maintenance.** All equipment permitted herein shall be properly maintained and kept in good working condition in accordance with the equipment manufacturer specifications at all times.
- D.3 **Compliance.** Nothing contained within this permit shall be construed as allowing the violation of any local, state, or federal rules, regulations, air quality standards or increments.

- D.4 **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]*
- D.5 **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.
- D.6 **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, the permittee 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.
- D.7 **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit or any Rule, Order, or Regulation may constitute grounds for revocation pursuant to California Health & Safety Code Section 42307 *et seq.*
- D.8 **Complaint Response.** Greka shall provide the APCD with the current name and position, address and 24-hour phone number of a contact person who shall be available to respond to complaints from the public concerning nuisance or odors. This contact person shall aid the APCD staff, as requested by the APCD, in the investigation of any complaints received, Greka shall take corrective action, to correct the facility activity which is reasonably believed to have caused the complaint.
- D.9 **Odorous Organic Sulfides (Rule 310).** The permittee shall not discharge into the atmosphere H₂S and organic sulfides that result in a ground level impact beyond the Greka property boundary in excess of either 0.06 ppmv averaged over 3 minutes and 0.03 ppmv averaged over one hour. *[Re: APCD Rule 310].*
- D.10 **Mass Emission Limitations.** Mass emissions for each equipment item associated with Bell Lease shall not exceed the values listed in Tables 5.2-3 and 5.2-4 of this permit. Emissions for the entire facility shall not exceed the emissions limits, as listed in Table 5.3-1.
- D.11 **Process Stream Sampling and Analysis.** Greka shall sample analyze the process streams listed in Section 0 of this permit according to the methods and frequency detailed in that Section. All process stream samples shall be taken according to APCD approved ASTM methods and must follow traceable chain of custody procedures. Compliance with this condition shall be assessed through compliance with the monitoring, record-keeping and reporting (MRR) conditions listed in this permit.
- D.12 **External Combustion Equipment - Boilers/Glycol Regenerator.** The following equipment are included in this emissions category:

Table D.12-1 External Combustion Equipment

APCD Device No.	Name
2519	4 MMBtu/hr, field gas-fired boiler; Superior, serial # H-117
2525	4 MMBtu/hr, field gas-fired boiler; Superior, serial # H-118
8396	0.35 MMBtu/hr, field gas-fired regenerator; B.S.&B., Model 375-GDR

- (a) **Operational Limits:** The equipment listed in the Table D.12-1 must be properly maintained in accordance with the equipment manufacturer's/operator's maintenance manual to minimize combustion emissions. The following additional operational limits apply:
- (i) **Heat Input Limits.** The daily and annual heat input to the boilers and glycol regenerator shall not exceed the values listed in Table D.12-2 below. These limits are based on the design rating of the equipment. Compliance with this condition shall be based on fuel usage, high heating value of the fuel and hours of operation.

Table D.12-2 External Combustion Unit - Heat Input Limits

Equipment	Fuel	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/year)
Boiler (#2519)	Field Gas	96.00	35,040.00
Boiler (#2525)	Field Gas	96.00	35,040.00
Glycol Regenerator (#8396)	Field Gas	8.40	3,066.00

- (b) **Recordkeeping:** Greka shall record in a log the following information on a monthly basis:
- (i) The volume (scf) of field gas consumed monthly by each combustion unit.
(ii) The number of days gaseous fuel was burned each month at each combustion unit.
(iii) Maintenance for the boilers and their emission control systems
(iv) Calibration logs for the boilers fuel flow meters.
- (c) **Reporting:** On an annual basis, a report detailing the previous twelve month's activities shall be provided to the APCD. The report shall list all the data required by the Annual Compliance Report condition D.18.

D.13 External Combustion Units - Permits Required.

- 1) An ATC/PTO permit shall be obtained prior to installation of any grouping of Rule 360 applicable boilers or hot water heaters whose combined system design heat input rating exceeds 2.000 MMBtu/hr.

- 2) An ATC permit shall be obtained prior to installation, replacement, or modification of any existing Rule 361 applicable boiler or water heater rated over 2.000 MMBtu/hr.
- 3) An ATC shall be obtained for any size boiler or water heater if the unit is not fired on natural gas or propane.

D.14 **Rule 361 Compliance for Existing Devices.** The owner or operator of any unit requesting the low use exemption in Section D.2 shall comply with the requirement to submit a Rule 361 Compliance Plan for APCD review and approval prior to March 15, 2016. Fuel meters installed pursuant to the approved Rule 361 Compliance Plan shall be installed prior to December 31, 2016. On or before January 20, 2019, for the units listed below, the owner or operator shall:

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

Device ID #	Applicable Rule	Source Testing	Tune-Ups	Fuel Use Method	Low Use Exemption	BACT
APCD# 2519	R361	No	None	Default Rating Method	No	No
APCD# 2525	R361	No	None	Default Rating Method	No	No

D.15 **Pigging Equipment.** The following equipment are included in this emissions category:

Table D.13-1 Pigging Equipment

APCD Device No.	Name
100246	Pig Launcher, 0.5 psig

- (a) Emission Limits: Mass emissions for pigging associated with Bell Lease shall not exceed the values listed in Table 5.2-3 and Table 5.2-4 of this permit.
- (b) Operational Limits: The pig chamber pressure as indicated by its attached pressure gage shall not exceed 0.5 psig, immediately before the chamber is opened to atmosphere. Also, the pigging frequency, as recorded in the on-site log, shall not exceed once every three months.
- (c) Recordkeeping: Greka shall record the date and time for each pigging event shall be logged in a book to be kept on site and made available to the APCD staff on request

- (d) **Reporting:** On an annual basis, a report detailing the previous twelve month's activities shall be provided to the APCD. The report shall list all the data required by the Annual Compliance Report condition **D.18**.

D.16 Solvent Usage. Use of solvents for wipe cleaning maintenance and laboratory use shall conform to the requirements of APCD Rules 202 and 324. On an annual basis, Greka shall monitor the following for each solvent used:

- (a) **Emission Limits:** Mass emissions for solvent usage associated with Bell Lease shall not exceed the values listed in Table 5.2-3 and Table 5.2-4 of this permit.
- (b) **Operational Limits:** Use of solvents for cleaning, degreasing, thinning and reducing shall conform to the requirements of APCD Rules 317 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit and facility inspections. In addition, Greka shall comply with the following:
 - (i) **Containers.** Vessels or containers used for storing materials containing organic solvents shall be kept closed unless adding to or removing material from the vessel or container.
 - (ii) **Materials.** All materials that have been soaked with cleanup solvents shall be stored, when not in use, in closed containers that are equipped with tight seals.
 - (iii) **Solvent Leaks.** Solvent leaks shall be minimized to the maximum extent feasible or the solvent shall be removed to a sealed container and the equipment taken out of service until repaired. A solvent leak is defined as either the flow of three liquid drops per minute or a discernable continuous flow of solvent.
 - (iv) **Solvent Reclamation Plan.** Greka may submit a *Solvent Reclamation Plan* that describes the proper disposal of any reclaimed solvent. All solvent disposed of pursuant to the APCD approved Plan will not be assumed to have evaporated as emissions into the air and, therefore, will not be counted as emissions from the source. The 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:** The monitoring shall meet the requirements of Rule 202.U.3 and be adequate to demonstrate compliance with Rule 202.N threshold.
- (d) **Recordkeeping:** All monitoring data shall be recorded in a log. Any product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location on the facility. Greka shall record the amount used in gallons per month, the percentage of ROC by weight (as applied), the solvent density, and whether the solvent is photo-chemically reactive. Greka shall also record the amount of surface coating used in gallons per month and the percentage of ROC by weight of the surface coating.

- (e) **Reporting:** On an annual basis, a report detailing the previous twelve month's activities shall be provided to the APCD. The report shall list all the data required by the Annual Compliance Report condition D.18.

D.17 **Permitted Equipment.** Only those equipment items listed in Attachment 10.5 are covered by the requirements of this permit and District Rule 201.E.2. [*Re: APCD Rule 201*]

D.18 **Annual Compliance Reporting.** In addition to its federally required semi-annual reporting, Greka shall also submit an annual report to the APCD, by March 1st of the following year containing the information listed below. 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. Except where noted, the annual compliance report shall include monthly summaries of the following information:

(a) *External Combustion Equipment - Boilers/Glycol Regenerators*

- (ii) The volume of field gas consumed monthly by each combustion unit measured in standard cubic feet (scf).

- (iii) The number of days gaseous fuel was burned each month by each combustion unit.

(b) *Pigging*

- (i) The number of times pigging occurred each month during the past twelve (12) months for each launcher

(c) *Solvent Usage*

- (i) The volume (in gallons) of each non-photo-chemically reactive solvent used each month.

- (ii) The density of each such solvent and the percentage of ROC by weight in each solvent.

- (iii) The total weight (in pounds) of all "photo-chemically reactive" (per APCD Rule 102.FF) solvents used each month, and the number of days each month these were used.

- (iv) The volume (in gallons) of surface coating used each month.

- (v) The percentage of ROC by weight of the surface coating used.

(d) *Adhesives and Sealants*

- (i) All records of adhesives and sealants used in the facility including their ROC content, unless all such adhesives or sealants were contained in containers less than 16 ounces in size or all such materials were exempt from Rule 353 requirements pursuant to Rule 353.B.1.

(e) *Mass Emissions*

- (i) The annual emissions (TPY) from each permitted emissions unit for each criteria pollutant.
 - (ii) The annual emissions (TPY) from each exempt emissions unit for each criteria pollutant.
 - (iii) The annual emissions (TPY) totaled for each criteria pollutant.
- (f) *General Reporting Requirements*
- (i) A brief summary of breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence.
 - (ii) A summary of each use of CARB Certified equipment used at the facility. List the type of equipment used, CARB Registration Number, first date of use and duration of use and an estimate of the emissions generated.
 - (iii) A copy of the Rule 202 De Minimis Log for the stationary source

AIR POLLUTION CONTROL OFFICER

February 2010

Date

NOTES:

- (a) This permit supersedes all previous PTOs issued for Bell Lease.
- (b) Permit Reevaluation Due Date: February 2013

10. 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 Well List

10.7 Exempt/Insignificant Equipment List

10.1 Emission Calculation Documentation

Bell Lease

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-G refer to Table 5.2-1 and Table 5.2-2.

Reference A - External Combustion Devices (Boilers, glycol regenerator)

- The maximum operating schedule is in units of hours
- The gaseous fuel default characteristics are:
 - HHV = 1,050 Btu/scf
 - Fuel S = 796 ppmvd for all equipment
- NO_x, ROC, CO and PM₁₀ emission factors are based on those listed in USEPA's AP-42 (*Reference: Air Chief, Version 6.0, October, 1998, Tables 1.4-1 and 1.4-2*). The AP-42 data listed in lb./MMscf units are converted to lb./MMBtu units using a fuel HHV of 1050 Btu/scf. The emission factors are: NO_x = 0.095 lb./MMBtu, ROC = 0.005 lb./MMBtu, CO = 0.080 lb./MMBtu, SO₂ = 0.143 lb./MMBtu and PM₁₀ = 0.008 lb./MMBtu.
- SO₂ emission limits (factors) are based on re-conversion of AP-42 data, based on fuel S level of 796 ppmvd (50 grains/100 scf) at Bell Lease.

Reference B - Fugitive Emission Components (Valves, flanges and fittings) -- for well heads only

- The maximum operating schedule is in units of hours.
- All safe to monitor components are credited an 80 percent control efficiency
- For existing onshore sources without a detailed component count inventory, the statistical models developed by the CARB/KVB was used. The CARB/KVB Method uses statistical models based on the facility's gas/oil ratio and the number of active wells to determine the emission factor. (see Attachment 10.2)
- APCD Policy and Procedure 6100.060.1996 (*Calculation of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities by the CARB/KVB Method, July 1996*) is used as the basis for implementing the CARB/KVB methodology. (see Attachment 10.2)
- Emission factors from the CARB/KVB Method were also used determining fugitive emissions from wellheads casing (i.e., piping and equipment associated with the underground casing) and from pumps and compressors (see Attachment 10.2)

In order to determine the applicable fugitive hydrocarbon (FHC) emission factors for equipment in a facility, the following definitions are provided specific to this methodology.

1. Gas to Oil Ratio (GOR): The volume ratio of gas to liquid crude oil produced by the facility wells in units of standard cubic feet per day (scfd) of gas to barrel per day (bbl/day) of crude oil.
2. Wells Heads: Well piping and pumping equipment located above the underground oil and gas well casing.
3. Active Oil Wells: All oil and gas producing wells not abandoned (e.g. not plugged with concrete to block the well). Active oil wells do not include wastewater re-injection wells.

To calculate FHC emissions from an oil and gas facility, the CARB/KVB method requires the following data listed in 10.1-1. From this data, Facility Model Numbers can be determined from Table 10.1-2.

Table 10.1-1 Data Required

Parameter	Units
1. The total gas production from the facility	SCF/day
2. The total dry crude oil production and API gravity of the crude produced by the facility	bbl/day and °API
3. The total gas production divided by the total dry oil produced. (Gas oil Ratio (GOR))	SCF/bbl
4. The number of active oil and gas production wells that are serviced by the facility. Do not count waste water re-injection, or abandoned (plugged) wells	Number of wells
5. The types, quantities and characteristics of the following equipment at the facility:	
5.1 Pumps (facility has them or not)	Yes/no
5.2 Compressors (facility has them or not)	Yes/no

Table 10.1-2 Facility Model Numbers

Model #1	Number of wells on the lease is less than 10 and the GOR is less than 500.
Model #2:	Number of wells on the lease is between 10 and 50 and the GOR is less than 500.
Model #3	Number of wells on the lease is greater than 50 and the GOR is less than 500.
Model #4:	Number of wells on the lease is less than 10 and the GOR is greater than or equal to 500.
Model #5:	Number of wells on the lease is between 10 and 50 and the GOR is greater than or equal to 500.
Model #6:	Number of wells on the lease is greater than 50 and the GOR is greater than or equal to 500.

Emission Factors: “Uncontrolled” ROC emission factors are provided in Table 10.1-3 and Table 10.1-4 for valves and fittings based on the lease model number. Table 10.1-5 provides emission factors for wellheads, pumps and compressors. All emission factors listed in Tables 10.1-3 through 10.1-5 are for ROC emission factors. The methane and ethane constituents have been removed. Control efficiencies are provided in Table 10.1-6.

Table 10.1-3 Valve Emission Factors

Lease Model	ROC Emission Factor by Service Type (Lb/day-well)*10 ⁻⁴			
	Gas	Liquid	Mixture	Condensate
Model #1	14,171.70	0.982	748.355	0
Model #2	6,807.46	0.971	190.993	0
Model #3	62.177	0.260	154.327	0
Model #4	44,784.90	1.215	303.513	0
Model #5	8,293.50	0.509	334.359	0
Model #6	16,839.20	0.084	239.978	0

Table 10.1-4 Fitting Emission Factors

Lease Model	ROC Emission Factor by Service Type (Lb/day-well)*10 ⁻⁴			
	Gas	Liquid	Mixture	Condensate
Model #1	8,483.620	323.495	1,139.750	0.000
Model #2	5,788.960	0.000	302.830	0.000
Model #3	166.743	9.719	496.834	0.099
Model #4	20,399.100	0.001	920.142	0.000
Model #5	17,547.300	29.052	1,847.850	0.000
Model #6	24,890.200	0.000	115.139	0.243

Table 10.1-5 Emission Factors for Wellheads, Pumps, and Compressors

Active (Not abandoned) Oil Wells	0.0097 lb-ROC/well-day
If Facility Uses Pumps	0.0028 lb-ROC/well-day
If Facility Uses Compressors	0.0680 lb-ROC/well-day

Table 10.1-6 Standard Control Efficiency

Equipment Category	Type of Control	ROC Control Efficiency (% by wt.)
Fugitive components	Fugitive inspection and maintenance program implemented per Rule 331	80

Detailed emission calculations are shown in Attachment 10.2

Reference B - Fugitive Emission Components (Valves, flanges and fittings) -- for loading rack

- The maximum operating schedule is in units of hours.
- All safe to monitor components are credited an 80 percent control efficiency. Unsafe to monitor components (as defined in Rule 331) are considered uncontrolled.
- The component leak path definition differs from the Rule 331 definition of a component. A typical leak path count for a valve would be equal to 4 (one valve stem, a bonnet connection and two flanges).
- Leak path counts are provided by applicant. The total count has been verified to be accurate within 5 percent of the District's P&ID and platform review/site checks.
- Emission factors based on the SBCAPCD/Tecolote Report, *Modeling of Fugitive Hydrocarbon Emissions* (January 1986), Model B.

Reference C - Pigging Equipment

- Maximum operating schedule is in units of events (e.g., once every three months);
- The gas line pig launcher (8" diam. x 6' long plus 6" diam. x 10' long) volumes, pressures and temperatures based on file data and APCD inspection photographs;
- All vapor in the launcher is blown to the VRS (1st stage compressor suction at 5" Hg vacuum) prior to opening the vessel to the atmosphere. The remaining vessel pressure is assumed to be no greater than 0.5 psig. The temperature of the remaining vapor in the vessel is a maximum of 80 °F.
 - The $MW_{\text{gas}} = 23$ lb/lb-mol for gas.
- Average ROC weight percent is = 30.8% for oil launchers [*Reference: CARB VOC Speciation Profile 757 for ROC/TOC ratio of 0.308*];
- Density $\rho = (\text{pressure} \times MW) / (R \times T)$, density of vapor remaining in the vessel (lbs VOC/acf)
- Site-specific pigging emission factor $EF = (\rho \times \text{ROC weight \%})$, (lb ROC/acf-event)
 - $\rho_{\text{gas}} = (15.2 * 23) / (10.73 * 540) = 0.0603$ lb/cu.ft, density of THC vapor remaining in vessel = 0.0603 lb/cubic feet for gas pig launchers;
- $EF(\text{gas}) = 0.0603 * 0.308 = 0.0186$ lb of ROC/acf-event for gas pig launchers.

Reference D - Storage Tanks

- The maximum operating schedule is in units of hours;
- The hourly/daily/annual emissions scenario is based on the following assumptions:
 - Maximum True vapor pressure: 5.8 psia @ 180 °F (*this is an estimate only at this time*)
 - Crude Oil Stock Tank/Reject Oil/WashTanks are steam-heated tanks (at 180° F).
 - Emissions occur 24 hours/day and 365 days/year.
 - The oil throughput rate for Wash, Crude and Reject Tanks each is 1,600 barrels/day.
- Emission factors are based on the *USEPA's AP-42, Section 7* guidelines.

Reference E - Sumps/Wastewater Separators

- Maximum operating schedule is in units of hours.
- Emission calculation methodology for tanks or sumps is based on the CARB/KVB report *Emissions Characteristics of Crude Oil Production Operations in California* (1/83).
- Calculations of sump/separator emissions are based on surface area of emissions unit as supplied by the applicant.
- All separators and sumps are classified as secondary or tertiary production and heavy oil service.
- The upper and lower ponds (sumps) are provided with flexible covers. A control efficiency of 85% is assumed for these units. A control efficiency of 70% is credited to well cellar emissions, based on compliance with all applicable Rule 344 provisions.
- Post-tertiary emissions are assumed to occur at 0.00005 lb/ft² -day, i.e., about 1/100th of tertiary emissions rate. (*No emissions factor can be located at this time*). Annual emissions from the post-tertiary pits amount to 0.01 tpy, on this basis.

Reference F -- Loading Racks

- The maximum operating schedule is in units of hours;
- The hourly/daily/annual emissions scenario is based on the following assumptions:
 - Crude oil loading rate is 1600 bbl/day, 584,000 bbl/yr; emissions are assumed to occur 10 hours/day and 3650 hours/year.
 - The loading at the oil loading rack is submerged type with the return vapor going to the VRS unit.
 - The “filling/splash loss” does not occur at the oil loading rack since the loading rack is at grade level and submerged type loading takes place.

Reference G - Solvents

- All solvents not used to thin surface coatings are included in this equipment category.
- Exempt solvent emissions (*per Rule 202.U.3*) are assumed to be based on 55 gallons of solvent use (maximum expected) at the facility with 6.6 lb. of ROC per gallon of solvent.
- Emissions from exempt solvent use, per Rule 202.N shall not exceed 10 tons per year

10.2 Emission Calculation Spreadsheets

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

Basic Input Data	
liquid (1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6) =	4
liquid TVP =	5.45
if TVP is entered, enter TVP temperature (°F) =	150
tank heated (yes, no) =	yes
if tank is heated, enter temp (°F) =	180
vapor recovery system present? (yes, no) =	yes
is this a wash tank? (yes, no) =	no
will flashing losses occur in this tank? (yes, no) =	yes
breather vent pressure setting range (psi) (def = 0.06):	0.06

Tank Data	
diameter (feet) =	29.5
capacity (enter barrels in first col, gals will compute) =	2,000 84,000
conical or dome roof? (c, d) =	d
shell height (feet) =	16
roof height (def = 1):	1
ave liq height (feet):	8
color (1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh) =	4
condition (1: Good, 2: Poor) =	1

Liquid Data		A	B
maximum daily throughput (bopd) =			1,600
Ann thrput (gal): (enter value in Column A if not max PTE)			2.453E+07
RVP (psia):			2.13609
*API gravity =			19

Computed Values	
roof outage ¹ (feet):	0.5
vapor space volume ² (cubic feet):	5,810
turnovers ³ :	292
turnover factor ⁴ :	0.27
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	640 180
maximum ⁷ :	641.25 181.25
minimum ⁸ :	638.75 178.75
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	5
vapor pressure ¹¹ (psia):	0.343128
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	8.86988
vapor density ¹⁴ (lb/cubic foot):	0.064575
vapor expansion factor ¹⁵ :	0.056
vapor saturation factor ¹⁶ :	0.200165
vented vapor volume (scf/ebb):	8
fraction ROG - flashing losses:	0.308
fraction ROG - evaporative losses:	0.885

Attachment: 10.2-1
 Permit: 8869
 Date: 11/05/09
 Tank: Stock Tank
 Owner: Greka Oil and Gas, Inc
 Lease: Bell
 District: Santa Barbara
 Version: Tank-2c.xls

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

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

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	23.7
gas rvp 10	11.2
gas rvp 7	10.7
crude oil	8.86988
JP -4	4.9
jet kerosene	0.0385
fuel oil 2	0.0422
fuel oil 6	0.00016

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	2.13608362
JP -4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

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

Emissions	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss ¹⁷ =	0.16	3.72	0.68	0.01	0.19	0.03
working loss ¹⁸ =	5.30	127.17	23.21	0.26	6.36	1.16
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	5.45	130.89	23.89	0.27	6.54	1.19

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

Basic Input Data	
liquid (1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6) =	4
liquid TVP =	5.45
if TVP is entered, enter TVP temperature (°F) =	150
tank heated (yes, no) =	yes
if tank is heated, enter temp (°F) =	180
vapor recovery system present? (yes, no) =	yes
is this a wash tank? (yes, no) =	no
will flashing losses occur in this tank? (yes, no) =	yes
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: 10.2-2
 Permit: 8869
 Date: 11/05/09
 Tank: Reject Tank
 Owner: Greka Oil and Gas, Inc.
 Lease: Bell
 District: Santa Barbara
 Version: Tank-2c.xls

Tank Data	
diameter (feet) =	29.5
capacity (enter barrels in first col, gals will compute) =	2,000 84,000
conical or dome roof? (c, d) =	d
shell height (feet) =	16
roof height (def = 1):	1
ave liq height (feet):	8
color {1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh} =	4
condition {1: Good, 2: Poor} =	1

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

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

Liquid Data		
	A	B
maximum daily throughput (bopd) =		1,600
Ann thrupt (gal): (enter value in Column A if not maxPTE)		2.453E+07
RVP (psia):		2.13609
°API gravity =		19

Computed Values	
roof outage ¹ (feet):	0.5
vapor space volume ² (cubic feet):	5,810
turnovers ³ :	292
turnover factor ⁴ :	0.27
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	640 180
maximum ⁷ :	641.25 181.25
minimum ⁸ :	638.75 178.75
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	5
vapor pressure ¹¹ (psia):	0.343128
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	8.86988
vapor density ¹⁴ (lb/cubic foot):	0.064575
vapor expansion factor ¹⁵ :	0.056
vapor saturation factor ¹⁶ :	0.200165
vented vapor volume (scf/bbl):	8
fraction ROG - flashing losses:	0.308
fraction ROG - evaporative losses:	0.885

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	23.7
gas rvp 10	11.2
gas rvp 7	10.7
crude oil	8.86988
JP-4	4.9
jet kerosene	0.0385
fuel oil 2	0.0422
fuel oil 6	0.00016

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	2.136089
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Long-Term
 VRU_Eff = 95.00%

Short-Term
 VRU_Eff = 95.00%

	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
	breathing loss ¹⁷ =	0.16	3.72	0.68	0.01	0.19
working loss ¹⁸ =	5.30	127.17	23.21	0.26	6.36	1.16
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	5.45	130.89	23.89	0.27	6.54	1.19

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

Basic Input Data	
liquid {1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6} =	4
liquid TVP =	5.45
if TVP is entered, enter TVP temperature (°F) =	150
tank heated (yes, no) =	yes
if tank is heated, enter temp (°F) =	180
vapor recovery system present? (yes, no) =	yes
is this a wash tank? (yes, no) =	yes
will flashing losses occur in this tank? (yes, no) =	yes
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: 10.2.3
 Permit: 8869
 Date: 12/07/09
 Tank: Wash Tank(s)
 Owner: Greka Oil and Gas, Inc.
 Lease: Bell
 District: Santa Barbara
 Version: Tank-2c.xls

Tank Data	
diameter (feet) =	37.5
capacity (enter barrels in first col, gals will compute) =	5,000 210,000
conical or dome roof? (c, d) =	d
shell height (feet) =	24
roof height (def = 1):	1
ave liq height (feet):	23
color {1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh} =	4
condition {1: Good, 2: Poor} =	1

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

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

Liquid Data		
	A	B
maximum daily throughput (bopd) =		1,600
Ann thrupt (gal): (enter value in Column A if not max PTE)	2.453E+07	
RVP (psia):	2.13609	
*API gravity =		19

Computed Values	
roof outage ¹ (feet):	0.5
vapor space volume ² (cubic feet):	1,657
turnovers ³ :	116.8
turnover factor ⁴ :	0.42
paint factor ⁵ :	0.68
surface temperatures (°R, °F)	
average ⁶ :	640 180
maximum ⁷ :	641.25 181.25
minimum ⁸ :	638.75 178.75
product factor ⁹ :	0.75
diurnal vapor ranges	
temperature ¹⁰ (fahrenheit degrees):	5
vapor pressure ¹¹ (psia):	0.343128
molecular weight ¹² (lb/lb-mol):	50
TVP ¹³ (psia) [adjusted for ave liquid surface temp]:	8.86988
vapor density ¹⁴ (lb/cubic foot):	0.064575
vapor expansion factor ¹⁵ :	0.056
vapor saturation factor ¹⁶ :	0.586457
vented vapor volume (scf/bbl):	8
fraction ROG - flashing losses:	0.308
fraction ROG - evaporative losses:	0.885

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	23.7
gas rvp 10	11.2
gas rvp 7	10.7
crude oil	8.86988
JP -4	4.9
jet kerosene	0.0385
fuel oil 2	0.0422
fuel oil 6	0.00016

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	2.13609362
JP -4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

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

Emissions	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss ¹⁷ =	0.13	3.11	0.57	0.01	0.16	0.03
working loss ¹⁸ =	0.00	0.00	0.00	0.00	0.00	0.00
flashing loss ¹⁹ =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	0.13	3.11	0.57	0.01	0.16	0.03

LOADING RACK EMISSION CALCULATION PROGRAM

ADMINISTRATIVE INFORMATION

Main Loading Rack Attachment 10.2-4
 Company: Greka Oil and Gas, Inc.
 Facility: Bell
 Processed by: JJM
 Date: 12/7/2009

Reference: Loading Rack

Rack Type: Enter X as Appropriate	S Factor
Submerged loading of a clean cargo tank	_____ 0.50
Submerged loading: Dedicated normal service	_____ 0.60
Submerged loading: Dedicated vapor balance service	_____ X 1.00
Splash loading of a clean cargo tank	_____ 1.45
Splash loading: Dedicated normal service	_____ 1.45
Splash loading: Dedicated vapor balance service	_____ 1.00

Input data

		Reference
S = Saturation Factor	<u>1.00</u>	See AP-42 Table 4.4-1 2
M = Molecular Weight	<u>50</u>	Crude Oil: Default = 50 lb/lb-mole 3
P = True Vapor Pressure (psia)	<u>1.430</u>	See AP-42 Table 12.3-5 1
T = Liquid Temperature °R	<u>640</u>	180 °F + 460 = °R 5
R = Loading Rate (bbl/hr)	<u>160.00</u>	6,720 gallons (42 gallons = 1 bbl) 1
C = Storage Capacity (bbl)	<u>2,000</u>	84,000 gallons (42 gallons = 1 bbl) 1
A = Annual Production (bbl)	<u>584,000</u>	24,528,000 gallons (42 gallons = 1 bbl) 1
eff = Vapor Recovery Efficiency	<u>0.95</u>	Default = 0.95 1
ROC/THC = Reactivity	<u>0.885</u>	Crude Oil: Default = 0.885

HLPD = hours loading per day = (C/R) if < 24 =	<u>12.50</u>	hours/day
HLPY = hours loading per year = (A/R) =	<u>3650.00</u>	hours/year
L _L = Loading loss (lb/1000 gal) = 12.46 (S)(P)(M)Y/T =	<u>1.3920</u>	lb/1000 gal

Total Uncontrolled Hydrocarbon Losses:

Hourly		
THL _H = (THL _A /HLPY) =	<u>8.28</u>	lbs/hr
Daily		
THL _D = (THL _H)(HLPD) =	<u>103.48</u>	lbs/day
Annual		
THL _A = (L _L)(A)(42 gal/bbl) (1 ton/2,000 lbs)(ROC/THC) =	<u>15.11</u>	TPY

Total Controlled Hydrocarbon Losses:

Hourly		
THL _H = (THL _A /HLPY)(1-eff) =	<u>0.41</u>	lbs/hr
Daily		
THL _D = (THL _H)(HLPD)(1-eff) =	<u>5.17</u>	lbs/day
Annual		
THL _A = (L _L)(A)(42 gal/bbl) (1 ton/2,000 lbs)(1-eff)(ROC/THC) = tons/year =	<u>0.76</u>	TPY

Path & File Name:

\\sbc.apcd.org\shares\Groups\ENGR\WFOil&Gas\Greka\SOUTH Cat Canyon - Pt70\Bell\70 Renew al-2009\Bell LR Calc.s.xls\LR Main

Notes:

1. Data provided by the applicant
2. AP-42, (Chapter 5, 5th Edition), Table 5.2-1
3. If not otherwise provided, crude oil is assumed to be 50 lb/lb-mole.
4. If not otherwise provided, vapor pressure is calculated from CARB AB-2588 Guidelines, page 103, eq. 25
5. R is calculated by adding 460 to °F.

FUGITIVE HYDROCARBON CALCULATIONS - CARB/KVB METHOD

Page 1 of 2

ADMINISTRATIVE INFORMATION			
Attachment:	Attachment 10.2-5	Version:	fhc-kvb5.xls
Company:	Greka Oil and Gas, Inc.SMV	Date:	24-Oct-00
Facility:	Bell Lease		
Processed by:	JJM		
Date:	11/5/2009		
Path & File Name:			
\\sbcapcd.org\shares\Groups\ENGR\WPOil&Gas\Greka\SOUTH Cat Canyon - P70\Bell\P70 Renew al-2009\Bell FHC Calcs - KVB Method.xls\FHC			

Reference: CARB speciation profiles #s 529, 530, 531, 532

<u>Data</u>	<u>Value</u>	<u>Units</u>
Number of Active Wells at Facility	96	wells
Facility Gas Production	10,000,000	scf/day
Facility Dry Oil Production	1,600	bbls/day
Facility Gas to Oil Ratio (if > 500 then default to 501)	501	scf/bbl
API Gravity	17	degrees API
Facility Model Number	6	dimensionless
No. of Steam Drive Wells with Control Vents	0	wells
No. of Steam Drive Wells with Uncontrol Vents	0	wells
No. of Cyclic Steam Drive Wells with Control Vents	0	wells
No. of Cyclic Steam Drive Wells with Uncontrol Vents	0	wells
Composite Valve and Fitting Emission Factor	4.2085	lb/day-well

	Valve ROG Emission Factor Without Ethane	Fitting ROG Emission Factor Without Ethane	Composite ROG Emission Factor Without Ethane	
Lease Model				
1	1.4921	0.9947	2.4868	lbs/day-well
2	0.6999	0.6092	1.3091	lbs/day-well
3	0.0217	0.0673	0.0890	lbs/day-well
4	4.5090	2.1319	6.6409	lbs/day-well
5	0.8628	1.9424	2.8053	lbs/day-well
6	1.7079	2.5006	4.2085	lbs/day-well

- Model #1: Number of wells on lease is less than 10 and the GOR is less than 500.
 Model #2: Number of wells on lease is between 10 and 50 and the GOR is less than 500.
 Model #3: Number of wells on lease is greater than 50 and the GOR is less than 500.
 Model #4: Number of wells on lease is less than 10 and the GOR is greater than 500.
 Model #5: Number of wells on lease is between 10 and 50 and the GOR is greater than 500.
 Model #6: Number of wells on lease is greater than 50 and the GOR is greater than 500.

ROG Emission Calculation Summary Results Table Reactive Organic Compounds^(c)

	lbs/hr	lbs/day	tons/year
Valves and Fittings ^(a)	3.37	80.80	14.75
Sumps, Wastewater Tanks and Well Cellars ^(b)	10.68	256.41	46.80
Oil/Water Separators ^(b)	0.00	0.00	0.00
Pumps/Compressors/Well Heads ^(a)	0.07	1.56	0.29
Enhanced Oil Recovery Fields	0.00	0.00	0.00
Total Facility FHC Emissions (ROC)	14.12	338.78	61.83

- a: Emissions amount reflect an 80% reduction due to Rule 331 implementation.
 b: Emissions reflect control efficiencies where applicable.
 c: Due to rounding, the totals may not appear correct

Emission Calculation by Emission Unit

Pumps, Compressors, and Well Heads Uncontrolled Emission Calculations

Number of Wells	96	wells
Wellhead emissions	0.9312	ROC (lb/well-day)
FHC from Pumps	0.3744	ROC (lb/well-day)
FHC from Compressors	6.5184	ROC (lb/well-day)
Total:	7.8240	ROC (lb/well-day)

Sumps, Uncovered Wastewater Tanks, and Well Cellars

Efficiency Factor: (70% for well cellars, 0% for uncovered WW tanks, sumps and pits)

Unit Type/Emissions Factor

	Heavy Oil Service	Light Oil Service	
Primary	0.0941	0.138	(lb ROC/ft ² -day)
Secondary	0.0126	0.018	(lb ROC/ft ² -day)
Tertiary	0.0058	0.0087	(lb ROC/ft ² -day)

Description/Name	APCD Device Number	Surface Area and Type (emissions in lbs/day) Area (ft ²)	Surface Area and Type (emissions in lbs/day)		
			Primary	Secondary	Tertiary
Oil/Water Sump - Upper	2521	4,500		81.00	
Well Cellars	2606	3,312	93.50		
Emergency Pit - Post Tertiary	8400	3,840			22.27
Vacuum Truck Pit - Secondary	8402	900		11.34	
Emergency Pit - Post Tertiary	8404	8,325			48.29
Crude Tank Drain Pit - Tertiary	8405	3			0.02

(a) A 70% reduction is applied for implementation of Rule 344 (Sumps, Pits, and Well Cellars).

	93.50	92.34	70.57
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Covered Wastewater Tanks

Efficiency Factor: 85%

Description/Name	Number	Area (ft ²)	Surface Area and Type (emissions in lbs/day)		
			Primary	Secondary	Tertiary
	0	0	0.00		
			0.00	0.00	0.00

Covered Wastewater Tanks Equipped with Vapor Recovery

Efficiency Factor: 95%

Description/Name	Number	Area (ft ²)	Surface Area and Type (emissions in lbs/day)		
			Primary	Secondary	Tertiary
			0.00		
				0.00	0.00
			0.00	0.00	0.00

Oil/Water Separators

Efficiency Factor: varies (85% for cover, 95% for VRS, 0% for open top)

Emissions Factor: 560 (lb ROC/MM Gal)

Description/Name	TP-MM Gal	Type (emissions in lbs/day)			Total lb/day
		Equipped with Cover	Equipped with VRS	Open Top	
		0.0			
			0.0		
				0.0	
		0.0	0.0	0.0	0.0

10.3 Fee Calculations

Permit fees for Bell Lease are based on equipment rating, pursuant to APCD Rule 210.I.B.2 and Schedule A. See Attachment 10.5 for a list of fee-permitted equipment at this facility.

NOTE: All work performed with respect to implementing the requirements of the Part 70 Operating Permit program, including federal permit processing and federal permit compliance monitoring are assessed on a cost reimbursement basis pursuant to APCD Rule 210.I.C.

FEE STATEMENT

PT-70/Reeval No. 08869 - R8

FID: 03211 Bell Lease (Cat Canyon) / SSID: 02658



Device No.	Device Name	Fee Schedule	Qty of Fee Units	Fee per Unit	Fee Units	Max or Min. Fee Apply?	Number of Same Devices	Pro Rate Factor	Device Fee	Penalty Fee?	Fee Credit	Total Fee per Device
002519	Boiler	A3	4.000	440.07	Per 1 million Btu input	No	1	1.000	1,760.28	0.00	0.00	1,760.28
109880	Crude Oil Storage Tank	A6	84.000	3.36	Per 1000 gallons	No	1	1.000	282.24	0.00	0.00	282.24
002525	Boiler	A3	4.000	440.07	Per 1 million Btu input	No	1	1.000	1,760.28	0.00	0.00	1,760.28
002515	Wash Tank	A6	210.000	3.36	Per 1000 gallons	No	1	1.000	705.60	0.00	0.00	705.60
008396	Glycol Regenerator	A3	0.350	440.07	Per 1 million Btu input	No	1	1.000	154.02	0.00	0.00	154.02
005956	Grade level loading rack	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
002607	Oil and Gas Wellheads	A1.a	1.000	58.66	Per equipment	No	96	1.000	5,631.36	0.00	0.00	5,631.36
002601	Valves & Fittings	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100246	Pig Launcher	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100247	Motor: Vapor Recovery System Compressor	A2	25.000	30.41	Per total rated hp	No	1	1.000	760.25	0.00	0.00	760.25
100248	Vapor Recovery System Intake Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100249	First-stage Discharge Scrubber	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100250	First-stage Fin-fan Heat Exchanger [gas cooler]	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100251	First-stage Intake Scrubbers (#1)	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100252	First-stage Intake Scrubbers (#2)	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100253	Second and Third Stage Fin-fan Heat Exchangers [gas cooler]	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
100254	Second-stage Intake Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100255	Third-stage (High Pressure) Discharge Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100256	Third-stage Discharge Scrubber (#1)	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100257	Third-stage Discharge Scrubbers (#2)	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100258	Third-stage Discharge Scrubbers (#3)	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100259	Third-stage Intake Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100260	Discharge [final] Scrubber	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100261	Gas Compressors	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32
100262	Gas Cooler	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
100263	Gas Trap	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100264	Gas/Liquid Separator	A6	1.000	3.36	Per 1000 gallons	Min	8	1.000	466.24	0.00	0.00	466.24
100265	Gas-Liquid Separator Vessel	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100266	Glycol Contactor	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100267	Glycol Pumps	A1.a	1.000	58.66	Per equipment	No	2	1.000	117.32	0.00	0.00	117.32

100268	Hydrogen Sulfide Scrubbers	A6	1.000	3.36	Per 1000 gallons	Min	2	1.000	116.56	0.00	0.00	116.56
100269	Line Traps	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100270	Line Traps	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100271	Tank Bottom Pump	A2	3.000	30.41	Per total rated hp	No	1	1.000	91.23	0.00	0.00	91.23
100272	Weigh Meters	A1.a	1.000	58.66	Per equipment	No	7	1.000	410.62	0.00	0.00	410.62
100273	Condensate Blowcase	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100274	Condensate Traps (#1)	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100275	Condensate Traps (#2)	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100276	Condensate Traps (#3)	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100277	Condensate Traps (#4)	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100278	Condensate Vessel	A6	1.000	3.36	Per 1000 gallons	Min	1	1.000	58.28	0.00	0.00	58.28
100279	Electric Pump	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
002517	Crude Oil Storage Reject Tank	A6	84.000	3.36	Per 1000 gallons	No	1	1.000	282.24	0.00	0.00	282.24
002518	Wash Tank	A6	210.000	3.36	Per 1000 gallons	No	1	1.000	705.60	0.00	0.00	705.60
008405	Crude Tank Drain Pit	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
008400	Emergency Water Pit	A6	218.400	3.36	Per 1000 gallons	No	1	1.000	733.82	0.00	0.00	733.82
008404	Emergency Pit	A1.a	1.000	58.66	Per equipment	No	1	1.000	58.66	0.00	0.00	58.66
002521	Oil/Water Sump – Upper pond	A6	268.800	3.36	Per 1000 gallons	No	1	1.000	903.17	0.00	0.00	903.17
008402	Vacuum Truck Clean Out Pit	A6	54.600	3.36	Per 1000 gallons	No	1	1.000	183.46	0.00	0.00	183.46
100280	Electric Motor	A2	300.000	30.41	Per total rated hp	Max	1	1.000	5,888.34	0.00	0.00	5,888.34
	Device Fee Sub-Totals =								\$22,942.13	\$0.00	\$0.00	\$22,942.13
	Device Fee Total =											\$22,942.13

Fee Statement Grand Total = \$22,942

Notes:

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

10.4 *IDS Database Emission Tables*

Table 10.4-1. Bell Lease PTE

Facility	Units	NOx	ROC	CO	SOx	PM	PM10
Bell	lbs/day	19.04	232.44	16.03	28.66	1.60	1.60
	TPY	3.47	42.21	2.93	5.23	0.29	0.29

Table 10.4-2. Greka South Cat Canyon Stationary Source PTE

Facility	FID	Units	NOx	ROC	CO	SOx	PM	PM10
Bell Lease	3211	lbs/day	19.04	232.44	16.03	28.66	1.60	1.60
		TPY	3.47	42.21	2.93	5.23	0.29	0.29
Blockman Lease	3306	lbs/day	0.00	42.99	0.00	0.00	0.00	0.00
		TPY	0.00	7.85	0.00	0.00	0.00	0.00
Dominion Lease	4127	lbs/day	7.74	76.73	5.00	10.72	0.71	0.71
		TPY	1.41	8.16	0.91	1.96	0.13	0.13
ICE Facility	3831	lbs/day	1,166.08	70.58	1,004.02	76.09	6.49	6.49
		TPY	212.81	12.88	178.91	13.89	2.19	2.19
Palmer Stendl Lease	3307	lbs/day	0.00	17.53	0.00	0.00	0.00	0.00
		TPY	0.00	3.20	0.00	0.00	0.00	0.00
UCB Lease	4126	lbs/day	8.70	26.52	7.32	12.09	0.67	0.67
		TPY	1.59	4.04	1.34	2.21	0.12	0.12
TOTALS		lbs/day	1,201.56	466.79	1,032.37	127.56	9.47	9.47
		TPY	219.28	78.34	184.09	23.29	2.73	2.73

Table 10.4-1 Greka South Cat Canyon Stationary Source NEI Since 1990 (FNEI-90)

Facility	FID	Permits	Units	NOx	ROC	CO	SOx	PM	PM10
Bell Lease	3211	ATC 9146, 9412, and 9387	lbs/hr	0.00	1.44	4.58	0.00	0.00	0.00
			lbs/day	0.00	23.15	109.92	0.00	0.00	0.00
			TPQ	0.00	0.76	4.69	0.00	0.00	0.00
			TPY	0.00	4.22	18.75	0.00	0.00	0.00
Blockman	3306	ATC 9964	lbs/hr	0.00	0.03	0.00	0.00	0.00	0.00
			lbs/day	0.00	0.60	0.00	0.00	0.00	0.00
			TPQ	0.00	0.03	0.00	0.00	0.00	0.00
			TPY	0.00	0.11	0.00	0.00	0.00	0.00
Dominion Lease	4127	ATC 9734 and 9884	lbs/hr	0.25	0.37	0.05	0.34	0.03	0.03
			lbs/day	6.00	8.93	1.30	8.17	0.69	0.69
			TPQ	0.28	0.66	0.06	0.37	0.03	0.03
			TPY	1.10	2.64	0.23	1.49	0.13	0.13
ICE Facility	3831	ATC 9610, 9975, 10133, and 10421	lbs/hr	0.00	0.00	0.00	0.00	0.05	0.05
			lbs/day	0.00	0.00	0.00	0.00	0.95	0.95
			TPQ	0.00	0.00	0.00	0.00	0.05	0.05
			TPY	0.00	0.00	0.00	0.00	0.18	0.18
Palmer Stendel	3307	ATC 9665	lbs/hr	0.00	0.02	0.00	0.00	0.00	0.00
			lbs/day	0.00	0.48	0.00	0.00	0.00	0.00
			TPQ	0.00	0.03	0.00	0.00	0.00	0.00
			TPY	0.00	0.10	0.00	0.00	0.00	0.00
UCB Lease	4126	ATC 10174	lbs/hr	0.00	0.12	0.00	0.00	0.00	0.00
			lbs/day	0.00	2.83	0.00	0.00	0.00	0.00
			TPQ	0.00	0.04	0.00	0.00	0.00	0.00
			TPY	0.00	0.14	0.00	0.00	0.00	0.00
	Source NEI		lbs/hr	0.25	1.97	4.63	0.34	0.08	0.08
			lbs/day	6.00	35.99	111.22	8.17	1.64	1.64
			TPQ	0.28	1.51	4.75	0.37	0.08	0.08
			TPY	1.10	7.21	18.98	1.49	0.31	0.31

10.5 Equipment List

Wednesday, October 28, 2009 Santa Barbara County APCD – Equipment List

PT-70/Reeval 08869 R8 / FID: 03211 Bell Lease (Cat Canyon) / SSID: 02658

A PERMITTED EQUIPMENT

1 Boiler

<i>Device ID #</i>	002519	<i>Device Name</i>	Boiler
<i>Rated Heat Input</i>	4.000 MMBtu/Hour	<i>Physical Size</i>	4.00 MMBtu/Hour
<i>Manufacturer</i>	Superior	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	H-117
<i>Location Note</i>			
<i>Device Description</i>			

2 Crude Oil Storage Tank

<i>Device ID #</i>	109880	<i>Device Name</i>	Crude Oil Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	diameter: 29.5 feet, height: 16.0 feet, connected to vapor recovery		

3 Boiler

<i>Device ID #</i>	002525	<i>Device Name</i>	Boiler
<i>Rated Heat Input</i>	4.000 MMBtu/Hour	<i>Physical Size</i>	4.00 MMBtu/Hour
<i>Manufacturer</i>	Superior	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	H-118
<i>Location Note</i>			
<i>Device</i>			
<i>Description</i>			

4 Wash Tank

<i>Device ID #</i>	002515	<i>Device Name</i>	Wash Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	5000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	diameter: 37.5 feet, height: 24.0 feet, connected to vapor recovery		
<i>Description</i>			

5 Glycol Regenerator

<i>Device ID #</i>	008396	<i>Device Name</i>	Glycol Regenerator
<i>Rated Heat Input</i>	0.350 MMBtu/Hour	<i>Physical Size</i>	0.00 MMBtu/Hour
<i>Manufacturer</i>	B.S.&B	<i>Operator ID</i>	
<i>Model</i>	375-GDR	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Used for gas compression, fuel: field gas, regenerator vent stack		
<i>Description</i>	connected to vapor recovery		

6 Grade level loading rack

<i>Device ID #</i>	005956	<i>Device Name</i>	Grade level loading rack
<i>Rated Heat Input</i>		<i>Physical Size</i>	160.00 BBL/Hour
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	for loading crude to tanker trucks, connected to vapor recovery unit; 160 barrels/hour capacity, annual feed rate of 584,000 barrels.		

7 O&G Wells, Cellars and Unassociated Valves & Flanges

7.1 Well Cellars - All

<i>Device ID #</i>	002606	<i>Device Name</i>	Well Cellars - All
<i>Rated Heat Input</i>		<i>Physical Size</i>	3312.00 Square Feet Cellar Area
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	96 wells each with 36SF area well cellar		

7.2 Oil and Gas Wellheads

<i>Device ID #</i>	002607	<i>Device Name</i>	Oil and Gas Wellheads
<i>Rated Heat Input</i>		<i>Physical Size</i>	96.00 Total Wells
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Connected to the gas collection system.		

7.3 Valves & Fittings

Device ID #	002601	Device Name	Valves & Fittings
<i>Rated Heat Input</i>		<i>Physical Size</i>	96.00 Active Wells
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Valves, fittings and flanges, not directly associated with other permitted equipment items, which emit fugitive hydrocarbon emissions.		

8 Pig Launcher

Device ID #	100246	Device Name	Pig Launcher
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Serving a combination of 8" and 6" inch diameter pipeline to off-site gas processing.		

9 Motor: Vapor Recovery System Compressor

Device ID #	100247	Device Name	Motor: Vapor Recovery System Compressor
<i>Rated Heat Input</i>		<i>Physical Size</i>	25.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	The VRS serves the wash tanks, crude oil storage and reject tanks, and oil boot with an ROC emission reduction efficiency of 95% by weight.		

10 Vapor Recovery System Intake Scrubber

<i>Device ID #</i>	100248	<i>Device Name</i>	Vapor Recovery System Intake Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	diameter: 4.0 feet, height: 12.0 feet		
<i>Description</i>			

11 First-stage Discharge Scrubber

<i>Device ID #</i>	100249	<i>Device Name</i>	First-stage Discharge Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	used for gas compression: diameter: 5.0 feet, height: 16.0 feet.		
<i>Description</i>			

12 First-stage Fin-fan Heat Exchanger [gas cooler]

<i>Device ID #</i>	100250	<i>Device Name</i>	First-stage Fin-fan Heat Exchanger [gas cooler]
<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>	used for gas compression, serving: "first" gas compressor's first-stage		
<i>Description</i>	discharge.		

13 First-stage Intake Scrubbers (#1)

<i>Device ID #</i>	100251	<i>Device Name</i>	First-stage Intake Scrubbers (#1)
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	used for gas compression: diameter: 6.5 feet, height: 34.0 feet.		

14 First-stage Intake Scrubbers (#2)

<i>Device ID #</i>	100252	<i>Device Name</i>	First-stage Intake Scrubbers (#2)
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	used for gas compression: diameter: 4.0 feet, height: 23.0 feet		

15 Second and Third Stage Fin-fan Heat Exchangers [gas cooler]

<i>Device ID #</i>	100253	<i>Device Name</i>	Second and Third Stage Fin-fan Heat Exchangers [gas cooler]
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	used for gas compression, use: primary and secondary gas coolers for the second-stage and third stage compressor discharge.		

16 Second-stage Intake Scrubber

<i>Device ID #</i>	100254	<i>Device Name</i>	Second-stage Intake Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	used for gas compression: diameter: 4.0 feet, height: 15.0 feet.		
<i>Description</i>			

7 Third-stage (High Pressure) Discharge Scrubber

<i>Device ID #</i>	100255	<i>Device Name</i>	Third-stage (High Pressure) Discharge Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	used for gas compression: diameter: 30.0 inches, height: 10.0 feet.		
<i>Description</i>			

18 Third-stage Discharge Scrubber (#1)

<i>Device ID #</i>	100256	<i>Device Name</i>	Third-stage Discharge Scrubber (#1)
<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>	used for gas compression: diameter: 38.0 inches, height: 10.0 feet.		
<i>Description</i>			

19 Third-stage Discharge Scrubbers (#2)

<i>Device ID #</i>	100257	<i>Device Name</i>	Third-stage Discharge Scrubbers (#2)
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	used for gas compression: diameter: 30.0 inches, height: 10.0 feet.		

20 Third-stage Discharge Scrubbers (#3)

<i>Device ID #</i>	100258	<i>Device Name</i>	Third-stage Discharge Scrubbers (#3)
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	used for gas compression: diameter: 3.0 feet, height: 12.0 feet.		

21 Third-stage Intake Scrubber

<i>Device ID #</i>	100259	<i>Device Name</i>	Third-stage Intake Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	used for gas compression: diameter: 4.0 feet, height: 6.0 feet.		

22 Discharge [final] Scrubber

<i>Device ID #</i>	100260	<i>Device Name</i>	Discharge [final] Scrubber
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	used for gas compression, diameter: 20.0 inches, height: 12.0 feet.		
<i>Description</i>			

23 Gas Compressors

<i>Device ID #</i>	100261	<i>Device Name</i>	Gas Compressors
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Clark	<i>Operator ID</i>	
<i>Model</i>	RA-4	<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	service: stand-by units		
<i>Description</i>			

24 Gas Cooler

<i>Device ID #</i>	100262	<i>Device Name</i>	Gas Cooler
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Aerovap	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	use: air/water/gas heat exchanger.		
<i>Description</i>			

25 Gas Trap

<i>Device ID #</i>	100263	<i>Device Name</i>	Gas Trap
<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>	location: near well 53		
<i>Device</i>	diameter: 3.0 feet, length: 10.0 feet		
<i>Description</i>			

26 Gas/Liquid Separator

<i>Device ID #</i>	100264	<i>Device Name</i>	Gas/Liquid Separator
<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>	diameter (each): 4.0 feet, height (each): 13.0 feet		
<i>Description</i>			

27 Gas-Liquid Separator Vessel

<i>Device ID #</i>	100265	<i>Device Name</i>	Gas-Liquid Separator Vessel
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	family trap size (10' diameter x 12' long) connected to gas collection system.		
<i>Description</i>			

28 Glycol Contactor

<i>Device ID #</i>	100266	<i>Device Name</i>	Glycol Contactor
<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>	used for gas compression, diameter: 3.0 feet, height: 12.5 feet		
<i>Description</i>			

29 Glycol Pumps

<i>Device ID #</i>	100267	<i>Device Name</i>	Glycol Pumps
<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>	and filters, associated with the glycol unit		
<i>Description</i>			

30 Hydrogen Sulfide Scrubbers

<i>Device ID #</i>	100268	<i>Device Name</i>	Hydrogen Sulfide Scrubbers
<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>	6' diameter by 28' high each, containing 'Sulfa-treat' or an equivalent		
<i>Description</i>	scrubbing medium.		

31 Line Traps

<i>Device ID #</i>	100269	<i>Device Name</i>	Line Traps
<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>	location: near well 96		
<i>Device</i>	diameter: 4.0 feet, length: 8.0 feet		
<i>Description</i>			

32 Line Traps

<i>Device ID #</i>	100270	<i>Device Name</i>	Line Traps
<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>	location: near well 96.		
<i>Device</i>	diameter: 2.0 feet, length: 4.0 feet		
<i>Description</i>			

33 Tank Bottom Pump

<i>Device ID #</i>	100271	<i>Device Name</i>	Tank Bottom Pump
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Horsepower (Electric Motor)
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Serves the wash tanks and the crude oil storage tank.		
<i>Description</i>			

34 Weigh Meters

<i>Device ID #</i>	100272	<i>Device Name</i>	Weigh Meters
<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>	diameter (each): 5.0 feet, length (each): 5.0 feet		
<i>Description</i>			

35 Condensate Blowcase

<i>Device ID #</i>	100273	<i>Device Name</i>	Condensate Blowcase
<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>	used for gas compression, diameter: 2.0 feet, length: 3.5 feet.		
<i>Description</i>			

36 Condensate Traps (#1)

<i>Device ID #</i>	100274	<i>Device Name</i>	Condensate Traps (#1)
<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>	diameter: 3.0 feet, length: 13.0 feet, location: near well 49		
<i>Description</i>			

37 Condensate Traps (#2)

<i>Device ID #</i>	100275	<i>Device Name</i>	Condensate Traps (#2)
<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>	diameter: 4.0 feet, length: 12.0 feet		
<i>Description</i>			

38 Condensate Traps (#3)

<i>Device ID #</i>	100276	<i>Device Name</i>	Condensate Traps (#3)
<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>	diameter: 3.0 feet, length: 10.0 feet		
<i>Description</i>			

39 Condensate Traps (#4)

<i>Device ID #</i>	100277	<i>Device Name</i>	Condensate Traps (#4)
<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>	diameter: 1.0 foot, length: 4.0 feet, location: near well 81		
<i>Description</i>			

40 Condensate Vessel

<i>Device ID #</i>	100278	<i>Device Name</i>	Condensate Vessel
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	diameter: 1.0 foot, length: 10.0 inches		
<i>Description</i>			

41 Electric Pump

<i>Device ID #</i>	100279	<i>Device Name</i>	Electric Pump
<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>	standby to facilitate transfer of wastewater to lower injection ponds.		
<i>Description</i>			

42 Storage Tanks

42.1 Crude Oil Storage Reject Tank

<i>Device ID #</i>	002517	<i>Device Name</i>	Crude Oil Storage Reject Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	2000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	diameter: 29.5 feet, height: 16.0 feet, connected to vapor recovery.		
<i>Description</i>			

42.2 Wash Tank

<i>Device ID #</i>	002518	<i>Device Name</i>	Wash Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	5000.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	diameter: 37.5 feet, height: 24.0 feet, connected to vapor recovery.		
<i>Description</i>			

43 Sumps and Pits

43.1 Crude Tank Drain Pit

<i>Device ID #</i>	008405	<i>Device Name</i>	Crude Tank Drain Pit
<i>Rated Heat Input</i>		<i>Physical Size</i>	3.00 Square Feet
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	diameter: 2.0 feet, design: open top		
<i>Description</i>			

43.2 Emergency Water Pit

<i>Device ID #</i>	008400	<i>Device Name</i>	Emergency Water Pit
<i>Rated Heat Input</i>		<i>Physical Size</i>	5200.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	volume: 5,200 barrels, surface area: 3,840 square feet, design: no cover,		
<i>Description</i>	use: emergency use (post-tertiary) only.		

43.3 Emergency Pit

<i>Device ID #</i>	008404	<i>Device Name</i>	Emergency Pit
<i>Rated Heat Input</i>		<i>Physical Size</i>	8325.00 Square Feet Pit Area
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Palmer & Cat Canyon Road		
<i>Device Description</i>	used for less than 30 days per year for emergency overflow; post-tertiary use.		

43.4 Oil/Water Sump – Upper pond

<i>Device ID #</i>	002521	<i>Device Name</i>	Oil/Water Sump – Upper pond
<i>Rated Heat Input</i>		<i>Physical Size</i>	6400.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	surface area: 4500 square feet, design: floating cover, use: oil/water separation, secondary separation.		

43.5 Vacuum Truck Clean Out Pit

<i>Device ID #</i>	008402	<i>Device Name</i>	Vacuum Truck Clean Out Pit
<i>Rated Heat Input</i>		<i>Physical Size</i>	1300.00 BBL
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	surface area: 900 square feet, design: no cover, use: secondary only.		

44 Electric Motor

<i>Device ID #</i>	100280	<i>Device Name</i>	Electric Motor
<i>Rated Heat Input</i>		<i>Physical Size</i>	300.00 Horsepower (Electric Motor)
<i>Manufacturer Model</i>	Marathon Electric AF 449TTFS8086 CV W	<i>Operator ID Serial Number</i>	
<i>Location Note</i>			
<i>Device Description</i>	Used to drive the Clark compressor. The electric motor is driven by the Caterpillar G-342 ICE.		

B EXEMPT EQUIPMENT

1 Exempt Storage Tanks

2 Crankcase Lube Oil Filters

<i>Device ID #</i>	100281	<i>Device Name</i>	Crankcase Lube Oil Filters
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	serving gas compressors		

3 Water Jacket Coolers

<i>Device ID #</i>	100282	<i>Device Name</i>	Water Jacket Coolers
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

4 Compressed Air Storage Vessels

<i>Device ID #</i>	100284	<i>Device Name</i>	Compressed Air Storage Vessels
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

5 Air Compressors

<i>Device ID #</i>	100285	<i>Device Name</i>	Air Compressors
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

6 Water Jacket Pumps

<i>Device ID #</i>	100286	<i>Device Name</i>	Water Jacket Pumps
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

7 Bench Scale Laboratory Equipment

<i>Device ID #</i>	100287	<i>Device Name</i>	Bench Scale Laboratory Equipment
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

8 Equipment Used in Maintenance Operations

<i>Device ID #</i>	100289	<i>Device Name</i>	Equipment Used in Maintenance Operations
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

9 Portable IC Engine

<i>Device ID #</i>	100292	<i>Device Name</i>	Portable IC Engine
<i>Rated Heat Input</i>		<i>Physical Size</i>	27.00 Brake Horsepower
<i>Manufacturer Model</i>	Duetz	<i>Operator ID Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	Drives an air compressor, registered with California ARB.		

10 Solvent Usage During Wipe Cleaning

<i>Device ID #</i>	100293	<i>Device Name</i>	Solvent Usage During Wipe Cleaning
<i>Rated Heat Input</i>		<i>Physical Size</i>	55.00 Gallons Solvent Used
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	provided usage does not exceed 55 gallons/year		

11 Water Storage Tanks

<i>Device ID #</i>	100283	<i>Device Name</i>	Water Storage Tanks
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID Serial Number</i>	
<i>Part 70 Insig?</i>	No	<i>APCD Rule Exemption:</i>	
<i>Location Note</i>			
<i>Device Description</i>	use: store fresh water for water jacket cooler(s)		

12 Compressor Drain Tank

<i>Device ID #</i>	100288	<i>Device Name</i>	Compressor Drain Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>	1100 gallon capacity (lube oil)		

13 Gasoline Storage Tank

<i>Device ID #</i>	100290	<i>Device Name</i>	Gasoline Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>	less than 250 gallons capacity		

14 Lube Oil Storage Tank

<i>Device ID #</i>	100291	<i>Device Name</i>	Lube Oil Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer Model</i>		<i>Operator ID</i>	
<i>Part 70 Insig?</i>	No	<i>Serial Number</i>	
<i>Location Note</i>		<i>APCD Rule Exemption:</i>	
<i>Device Description</i>			

10.6 Well List

10.6 10.7 Permit-exempt/Insignificant Activities List

Exempt equipment at the Bell Lease consists of the following equipment items:

1. Crankcase lube oil filter(s), serving gas compressors. [no potential to emit criteria pollutants]
2. Water jacket cooler(s). [no potential to emit criteria pollutants]
3. Water storage tank(s), use: store fresh water for water jacket cooler(s). [no potential to emit criteria pollutants]
4. Compressed air storage vessel(s). [no potential to emit criteria pollutants]
5. Air compressor(s). [no potential to emit criteria pollutants]
6. Water jacket pump(s). [no potential to emit criteria pollutants]
7. Bench scale laboratory equipment [Rule 202.N]
8. Compressor Drain tank, 1100 gallon capacity (lube oil) [Rule 202.V.3]
9. Equipment used in maintenance operations [Rule 202.D.8]
10. Gasoline storage tank, less than 250 gallons capacity [Rule 202.V.7]
11. One (1) Lube oil storage tank. [Rule 202.V.3]
12. Portable IC engine, diesel-fired, 27 hp, Deutz; driving an air compressor, registered with California ARB [Rule 202.F.2]
13. Solvent usage during wipe cleaning, provided usage does not exceed 55 gallons/year [Rule 202.U]

