Santa Barbara County
Air Pollution Control District

PERMIT TO OPERATE 8869

AND

PART 70 OPERATING PERMIT 8869-R10

GREKA OIL AND GAS
SOUTH CAT CANYON STATIONARY SOURCE

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

OPERATOR

GREKA OIL AND GAS ("GREKA")

OWNERSHIP

GREKA OIL AND GAS ("GREKA")

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT

June 2016

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ABBREVIATIONS/ACRONYMS

AP-42	USEPA's *Compilation of Emission Factors*
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
District	Santa Barbara County Air Pollution Control District
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_2S	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
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
RACT	Reasonably Available Control Technology
ROC	reactive organic compounds, same as "VOC" as used in this permit
RVP	Reid vapor pressure
SCAQMD	South Coast Air Quality Management District
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 (District) is responsible for implementing all applicable federal, state and local air pollution requirements that affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 61, 63, 68, 70 and 82. The State regulations can be found in the California Health & Safety Code, Division 26, Section 39000 et seq. The applicable local regulations can be found in the District's Rules and Regulations.

Santa Barbara County is designated as an ozone non-attainment area for the state ambient air quality standards. The County is also designated a non-attainment area for the state PM_{10} ambient air quality standard.

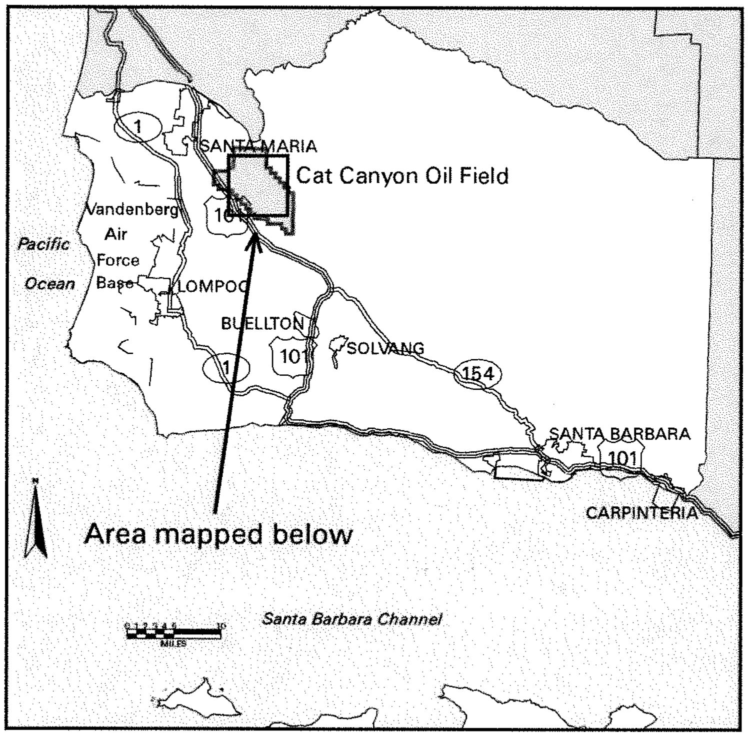
1.1.2 Part 70 Permitting: This is a combined permitting action that covers both the Federal Part 70 permit (*Part 70 Operating Permit No. 8869*) as well as the State Operating Permit (*Permit to Operate No. 8869*). The initial Part 70 permit for the Bell Lease was issued November 1, 2000 in accordance with the requirements of the District's Part 70 operating permit program. This permit is the sixth renewal of the Part 70 permit, and may include additional applicable requirements. This permit also incorporates any Part 70 minor modifications since the last renewal and is being issued as a combined Part 70 and District reevaluation permit.

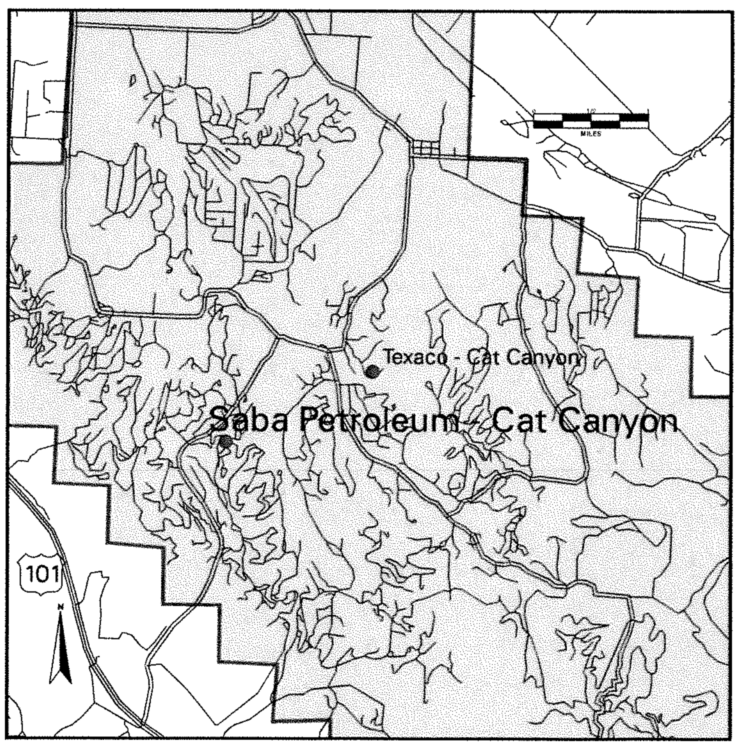
Bell Lease (FID 3211) is a part of the Greka South Cat Canyon stationary source (SSID 2658), which is a major source for NO_x and CO. Conditions listed in this permit are based on federal, state or local rules and requirements.

Sections 9.A, 9.B, and 9.C of this permit are enforceable by the District, the USEPA and the public since these sections are federally enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B, or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. Conditions listed in Section 9.D are "District-only" enforceable.

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

Figure 1.1 Location Map for Greka South Cat Canyon





1.2 Facility Overview

1.2.1 Facility Overview: Greka Oil and Gas ("Greka") is the owner and operator of the 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 District regulatory purposes, the facility location is in the Northern Zone of Santa Barbara County[1]. Figure 1.1 depicts the relative location of the facility within the county.

Bell Lease was operational in September 1979 when its owner/operator Union Oil of California applied to the District for its first operating permit (ATC/PTO 4041). An operating permit was issued to Union Oil by the District 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.

1.2.2 Stationary Source Overview: Prior to August 2002, the Greka Cat Canyon Stationary Source was a Part 70 source consisting of the Bell, Blochman, Dominion, UCB, 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 Part 70 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 was reconfigured based on the stationary source definition in District 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, Blochman, Dominion, UCB, Palmer-Stendl, and the IC Engines Leases. Following this reorganization, only the South Cat Canyon Stationary Source (SSID 2658) remained a Part 70 source. In January 2013 Greka transferred the UCB Lease, Dominion Lease, and one IC engine from the Cat Canyon IC Engine Facility to ERG Resources.

The stationary source now consists of the following facilities:

- Bell Lease (FID 3211)
- Blochman Lease (FID 3306)
- Palmer Stendl Lease (FID 3307)
- Cat Canyon IC Engines (FID 3831)

Oil and gas well production at the Greka South Cat Canyon stationary source, is produced by wells at the Bell, Blochman, and Palmer-Stendl 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

[1] District Rule 102, Definition: "Northern Zone"

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 system (VRS)
- Emergency Flare
- Gas shipping and metering system
- Operations support system
- Electrical system
- Safety system

Gas compression, crude oil pumping, and wastewater injection equipment units at the Bell Lease site (Bell Compressor Plant) are powered by stationary, natural gas-fired IC engines as well as some electric motors. These engines are permitted under Part 70 PTO 8036. Any of these units can be electrified after written notification to the District.

1.2.2 Facility New Source Review Overview: The following is the permit history for this facility.

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
TRN O/O 8869	06/01/1993	Saba Petroleum applied to the District 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.
ATC/PTO 9387	03/30/1995	Construct a new loading rack at the Bell Lease.
ATC/PTO 9412	01/19/1996	Greka (Saba) to construct two H_2S scrubbers, a refrigerated condensate removal system, a loading rack and two portable condensate tanks. Subsequently, one condensate tank has been removed from operations.
ATC/PTO 9975	10/12/1998	Add a new 747 bhp Waukesha 4-stroke rich burn compressor engine to replace to older Clark HR-8 lean burn engine. The 747 bhp Waukesha 747 is no longer on site and removed from the IC Engine facility permit (Part 70/PTO 8036) during the prior Part 70 permit renewal.
TRN O/O 8869-02	02/29/2000	Greka obtained ownership of the Bell Lease from Saba Petroleum.
ATC Mod 9975-01	03/07/2000	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 12261	09/02/2008	Installation of one 2,000 bbl crude oil stock tank.
ATC/PTO 13204	02/05/2010	Installation of an emergency flare.

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC/PTO 13661	05/23/2011	Install new Eclipse Winnox low NO_x burner in existing boiler.
PTO 13547	06/20/2011	Install new vapor recovery compressor at tank battery as primary.
ATC 13769	03/07/2012	Move FWKO from Los Flores Tank Battery to Bell Tank Battery.
ATC 13769-01	10/20/2015	Revise ATC 13769 Fugitive Component Count
PTO 13769	10/29/2015	Operate FWKO at Bell Tank Battery.
ATC 14495	04/04/2015	Replace existing Gas Compressor.
PTO 14495	11/25/2015	Operate Gas Compressor.

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 District's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit and the entire Bell Lease facility. It also lists the potential emissions from non-permitted emission units. The emission sources include:

- Crude oil tanks, wash tanks and a reject tank
- Natural gas-fired boilers (2) and a regenerator
- Water/oil knockout and condensate removal system
- Glycol dehydration unit and scrubbers
- Hydrogen Sulfide scrubbers
- Gas compressors including vapor recovery unit compressors
- Loading racks
- Pigging equipment
- Sumps, well cellars and pits
- Fugitive emission components
- Emergency flare

Emissions from the IC engines operating at the Bell Lease are addressed in Part 70 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*) and to facilitate compliance with Rules 303 and 310.

- Use of vapor recovery units, which effectively reduce ROC emissions from crude oil and waste water 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, consistent with the requirements of Rule 344, to reduce ROC emissions by approximately by 70 percent.

- Use of flexible sump covers, per Rule 344.D, reduces sump emissions by approximately 85 percent.

- Use of an air-assist flare equipped with an automatic ignition system.

1.5 Offsets/Emission Reduction Credit Overview

The South Cat Canyon Stationary Source does not currently exceed the District Rule 802 offset thresholds for any pollutants. However, older equipment that was replaced by lower emitting equipment at the Bell Lease compressor plant provides ERCs as described in Section 7.4 below.

1.6 Part 70 Operating Permit Overview

1.6.1 Federally-enforceable Requirements: All federally enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under "applicable requirements". These include all SIP-approved District Rules, all conditions in the District-issued Authority to Construct permits, and all conditions applicable to major sources under federally promulgated rules and regulations. All 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 District Rule 1301 as any regulated air pollutant emitted from the unit, excluding HAPs, that are less than 2 tons per year based on the unit's potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit's potential to emit. Insignificant activities must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to insignificant units. The only insignificant emissions associated with this facility are solvent and surface coating operations used during maintenance operations.

1.6.3 Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement which was in effect as of August 7, 1980, or (2) included in the 29-category source list specified in 40 CFR 51.166 or 52.21. The federal PTE does include all emissions from any insignificant emissions units. *(See Section 5.4 for the federal PTE for this source)*

1.6.4 Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally-enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the District. Permit shields cannot be indiscriminately granted with respect to all federal requirements. 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 by requiring maximum achievable control technology (MACT), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability.

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

Jeanette Boyer, Director of Compliance
Greka Oil and Gas
6527 Dominion Road
Santa Maria, California 93454

2. Process Description

2.1 Process Summary

2.1.1 Process Summary: Bell Lease is an oil and gas production facility. Oil, water and gas from production wells located throughout the South Cat Canyon 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 routed to a freewater knockout vessel then 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 formations at the South Cat Canyon leases. 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 separators, well casings and the 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, if necessary. Part of the dry, sweetened gas is then used throughout the South Cat Canyon stationary source to power various combustion devices. Excess gas is routed to the Santa Maria Refinery for use as fuel.

2.1.2 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 a permitted natural gas production rate of 10 MMscfd.

2.1.3 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. A freewater knockout vessel, 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 remaining 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. The oil/water mix is sent to the free water knockout (FWKO). Oil from the FWKO flows to the crude oil storage tank for shipping and final transfer. Produced water is sent to sumps for further processing.

2.1.4 Wastewater Treatment: Produced water from the wash tanks and the stock tank drain is sent to the covered 6,400 barrel, 4,500 square foot 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 barrel, 9,894 square foot sump (the lower pond located at Blochman 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 square foot pit located at Palmer and Cat Canyon Road is used as an emergency overflow only and is in post-tertiary service. The 6,500 barrel, 4,740 square foot pit located adjacent to the upper pond is used for two purposes: a small section, about 900 square foot (45 feet by 20 feet), has been partitioned for use as a vacuum truck-cleaning pit (secondary service) and the remaining 85 feet by 45 feet, or 3,840 square foot section is for emergency use only (secondary service).

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

2.1.5 Crude Oil Shipping: There is one 2,000-barrel crude oil stock tank and one 2,000 barrel reject oil tank. These tanks are vertical vessels, 16 feet diameter by 29.5 feet tall, serviced by a 2-feet 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.

2.1.6 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 in the suction line removes entrained liquids that could damage the compressor. After initial scrubbing, the gas is compressed by one of the Clark RA-4 compressors. The discharged gas from the compressor is sweetened, using a "Sulfa-Treat" (or equivalent) unit. 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.

From the final gas scrubber, the wet gas flows to a glycol dehydration unit, which is used, as necessary, 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 though filters to remove impurities picked up from the natural gas. The gas-fired 0.350 MMBtu/hour glycol 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.

2.1.7 Vapor Recovery System: Low pressure gas from the stock and reject oil tanks, the FWKO, the wastewater tanks and the dehydration unit is scrubbed. The collected gas is then compressed by a 30-hp, electrically-driven vapor recovery compressor. The compressor discharges to the intake scrubber of the main compressor.

2.1.8 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.

2.1.9 Flare Operation: The flare is a vertical open pipe unit approximately 15 feet tall and is equipped with an automatic ignition system and flare pilot. It contains an ambient air intake port to provide assist air to support smokeless operation. The flare pilot is not continuous. During flare events, the pressure in the produced gas system at Bell increases above the normal operating pressure of approximately 40 psi. Once this pressure exceeds 60 psia, a valve on the pilot gas source line is manually opened to direct pilot gas to the flare. The auto-igniter is manually initiated which ignites the pilot. A 2" valve on the primary flare header is then opened to direct produced gas to the flare. The auto-igniter sparks every 30 seconds to ensure that the flare remains lit during a flare event. Once the flare event is over, the auto-igniter is manually shut off and normal gas flow resumes.

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: One 4.000 MMBtu/hour field gas-fired boiler and one 1.000 MMBtu/hour field gas-fired boiler 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 Work-over 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 work-over 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 with rags 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 an off-site processing point. The gas line is pigged once every three months.

2.6.2 Greka has stated in its Part 70 application that no other processes exist that would be subject to permit.

2.7 Detailed Process Equipment Listing

Refer to Attachment 10.5 for the Equipment List.

3. Regulatory Review

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

3.1 Rule Exemptions Claimed

District 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 District:

- 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

District 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 District:

- 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 have been no de minimis increases at the Bell lease since November 15, 1990.

District Rule 344 (*Petroleum Sumps, Pits and Well Cellars*): The following exemption was applied for and approved by the District:

- 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 ft^2.
- 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{*New Source Review (Nonattainment Area Review and Prevention of Significant Deterioration)*}: Bell Lease was constructed and permitted prior to the applicability of these regulations. However, all permit modifications as of July, 1979 are subject to District NSR requirements. Compliance with District Regulation VIII (*New Source Review*) ensures that future modifications to the facility will comply with these regulations.

3.2.2 40 CFR Part 60 {*New Source Performance Standards*}: There is no equipment in this permit subject NSPS requirements.

3.2.3 40 CFR Part 61 {*NESHAP*}: There is no equipment in this permit subject to NESHAP requirements.

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, Blochman, and Palmer-Stendl 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.14.

3.2.5 40 CFR Part 63 *{Proposed MACT Standards}*: On March 21, 2011, EPA promulgated revisions to Subpart JJJJJJ, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Industrial, Commercial, and Institutional Boilers at Area Sources. Greka has existing small, gaseous fueled heaters (under 10.000 MMBtu/hr) at this facility. The Subpart exempts gas-fired boilers. Thus, no subpart JJJJJJ requirements apply.

3.2.6 *Subpart ZZZZ {NESHAP - Stationary Internal Combustion Engines}*: The revised National Emission Standard for Hazardous Air Pollutants (NESHAP) for reciprocating internal combustion engines (RICE) was published in the Federal Register on January 18, 2008. An affected source under the NESHAP is any existing, new, or reconstructed stationary RICE located at a major source or area source. None of the equipment listed on this permit is subject to these requirements.

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 District promulgated rules that are "generic" and apply to Bell Lease. Table 3.4-2 lists the federally enforceable District promulgated rules that are "unit-specific". These tables are based on data available from the District's administrative files and from Greka's Part 70 Operating Permit renewal application. Table 3.4-4 includes the adoption dates of these rules.

In its Part 70 renewal permit application (Form I), Greka certified compliance with all existing District 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 District. These provisions are District-enforceable only.

3.3.2 California Administrative Code Title 17: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at Bell Lease are required to conform to these standards. Compliance will be assessed through onsite inspections. These standards are District-enforceable only. However, CAC Title 17 does not preempt enforcement of any SIP-approved rule that may be applicable to abrasive blasting activities.

3.4 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 District promulgated rules that apply to Bell Lease.

3.4.2 Table 3.4-4 lists the adoption date of all rules applicable to this permit at the date of this permit's issuance.

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

The following is a rule-by-rule evaluation of compliance for Bell Lease:

Rule 301 - Circumvention: This rule prohibits the concealment of any activity that would otherwise constitute a violation of Division 26 (Air Resources) of the California H&SC and the District rules and regulations. To the best of the District's knowledge, 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 which a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of 1 on the Ringelmann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of 1 on the Ringelmann Chart. Emission units subject to this rule include the internal combustion engines, the boiler and the heater treater(s) on the lease. Compliance will be assured by requiring all combustion equipment to be maintained according to manufacturer maintenance schedules.

Rule 303 - Nuisance: This rule prohibits Greka from causing a public nuisance due to the discharge of air contaminants. Based on the lease's location, 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. Emission units subject to this rule include the internal combustion engines, the boiler and the heater treater(s) on the lease. Compliance will be assured by requiring all combustion equipment to be maintained according to manufacturer maintenance schedules.

Rule 309 - Specific Contaminants: Under Section "A", no source may discharge sulfur compounds and combustion contaminants in excess of 0.2 percent as SO_2 (by volume) and 0.3 gr/scf (at 12% CO_2) respectively. Sulfur emissions due to combustion of field gas containing no more than 796 ppmv H_2S will comply with the SO_2 limit. All combustion equipment items have the potential to exceed the combustion contaminant limit if not properly maintained (see discussion on Rule 304 above for compliance).

Rule 310 - Odorous Organic Compounds: This rule prohibits the discharge of H_2S and organic sulfides that result in a ground level impact beyond the property boundary in excess of either 0.06 ppmv averaged over 3 minutes and 0.03 ppmv averaged over 1 hour. No measured data exists to confirm compliance with this rule, however, all produced gas from Bell Lease is scrubbed. 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 to 0.5 percent (by weight) for liquid fuels and 50 gr/100 scf (calculated as H_2S) {or 796 ppmvd} for gaseous fuels. All combustion equipment on the lease are expected to be in compliance with the gaseous fuel limit as determined by fuel (field gas) analysis documentation.

Rule 317 - Organic Solvents: This rule sets specific prohibitions against the discharge of emissions of both photochemically and non-photochemically reactive organic solvents (40 lb/day and 3,000 lb/day respectively). Solvents may be used on the lease 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 is 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 lease is for Industrial Maintenance Coatings that have a limit of 250 gram ROC per liter of coating, as applied. Greka is required to comply with the administrative requirements under Section F of the Rule for each container on the lease.

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 is 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 tanks and vessels, including waste water tanks, oil/water separators and sumps. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. Greka has installed a vapor recovery system (VRS) on all equipment subject to this rule. All vessels and tanks and relief valves are connected to the VRS via the GCS. Compliance with Section E is met by TVP analysis and by directing all scrubbed produced gas to the GCS and from there to the off-site pipeline. Compliance with this rule will also be verified by District inspections.

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

Rule 331 - Fugitive Emissions Inspection and Maintenance: This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production fields. Ongoing compliance with the provisions of this rule will be assessed via the District-approved *Fugitive I&M Plan* (August 2005), facility inspection by District personnel using an organic vapor analyzer and 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 5.000 MMBtu/hr. Bell Lease emission units (heater treaters, etc.) are not 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 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.

Rule 344 - Petroleum Sumps, Pits and Well Cellars: This rule applies to petroleum sumps, pits and well cellars provided such sources have output exceeding 150 barrels per day. Post-primary sumps less than 1,000 square feet surface area at petroleum production sources are exempt from the Rule. The upper oil/water sump (4,500 sq.ft.) is subject to this rule. This sump is covered in accordance with the requirements of the rule.

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. Compliance with this rule will be ensured by TVP analysis as described in Section H. Compliance with this Rule is ensured based on on-site inspections.

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 recordkeeping of adhesive and sealant materials used in addition to site inspections. Also, exclusive use of adhesive and sealant contained in containers of 16 fluid ounces or less demonstrate compliance with this rule.

Rule 359- Flare and Thermal Oxidizers. This rule applies to the use of flares and thermal oxidizers located at oil and gas production and processing facilities, refineries, transportation facilities, and trade locations. The flare is subject to this rule. The flare is equipped with an auto-igniter and is air-assisted for smokeless operation as required by Rule 359.

Rule 360- Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers. This rule applies to the any water heater, boiler, steam generator or process heater for use within the District with a rated heat input capacity greater than or equal to 75,000 BTU/hr up to and including 2.00 MMBTU/hr. The Superior boiler (District ID #113839) is subject to 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 4.0 MMBtu/hr Superior boiler (District ID #2525). The emission standards and emissions compliance demonstrations are not effective for these units until after 2019. Permit condition 9.D.13 addresses those units subject to Rule 361.

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.

A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment which causes a violation of an emission limitation or restriction prescribed in the District Rules and Regulations, or by State law, or (2) any in-stack continuous monitoring equipment, provided such failure or malfunction:

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

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 District in April 2004.

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

Table 3.4-1 Generic Federally-Enforceable District Rules

Generic Requirements	**Affected Emission Units**	**Basis for Applicability**
RULE 101: Compliance by Existing Installations	All emission units	Emission of pollutants
RULE 102: Definitions	All emission units	Emission of pollutants

Generic Requirements	Affected Emission Units	Basis for Applicability
RULE 103: Severability	All emission units	Emission of pollutants
RULE 201: Permits Required	All emission units	Emission of pollutants
RULE 202: 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
RULE 203: Transfer	All emission units	Change of ownership
RULE 204: Applications	All emission units	Addition equip. or modification to existing equipment.
RULE 205: Standards for Granting Permits	All emission units	Emission of pollutants
RULE 206: Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
RULE 207: Denial of Applications	All emission units	Applicability of relevant Rules
RULE 212: Emission Statements	All emission units	Administrative
RULE 301: Circumvention	All emission units	Any pollutant emission
RULE 302 : Visible Emissions	All emission units	Particulate matter emissions
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.
RULE 304: PM Concentration – North Zone	Each PM source	Emission of PM in effluent gas
RULE 309: Specific Contaminants	All emission units	Combustion contaminants
RULE 311: Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur
RULE 317: Organic Solvents	Emission units using solvents	Solvent used in process operations.
RULE 321: Solvent Cleaning Operations	Emission units using solvents	Solvent used in process operations.
RULE 322: Metal Surface Coating Thinner and Reducer	Emission units using solvents	Solvent used in process operations.
RULE 323: Architectural Coatings	Paints used in maintenance and surface coating activities	Application of architectural coatings.
RULE 323.I: Architectural Coatings	Paints used in maintenance and surface coating activities	Application of architectural coatings.
RULE 324: Disposal and Evaporation of Solvents	Emission units using solvents	Solvent used in process operations.
RULE 330: Surface Coating of Metal Parts	Emission units using metal parts coating	Surface coating used in maintenance operations.
RULE 353: Adhesives and Sealants	Emission units using adhesives and sealants	Adhesives and sealants used in process operations.
RULE 505.A, B1, D: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
RULE 603: Emergency Episode Plans	Stationary sources with PTE greater than 100 TPY	Greka - Cat Canyon is a major source.
RULE 810: Federal Prevention of Significant Deterioration	New or modified emission units	Greka - Cat Canyon is a major source.
REGULATION VIII: New Source Review	All emission units	Addition of new equipment or modification to existing equipment. Applications to generate ERC Certificates.
REGULATION XIII (RULES 1301-1305): Part 70 Operating Permits	All emission units	Greka Cat Canyon is a major source.

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

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
RULE 325: Crude Oil Production and Separation	Shipping tanks	All pre-custody production and processing emission units
RULE 331: Fugitive Emissions Inspection & Maintenance	All components (valves, flanges, seals, compressors and pumps) used to handle oil and gas	Components emit fugitive ROCs.
RULE 344: Petroleum sumps, cellars and pits	Well cellars, sumps, and pits	Cellars at an oil production lease.
RULE 346: Loading of Organic Liquid Cargo Vessels	Loading rack	Non-exempt loading rack at an oil production facility.
RULE 359: Flare and Thermal Oxidizers	Flare	Applies to all flares and thermal oxidizers at oil and gas production and processing facilities.

Table 3.4-3 Non-Federally-Enforceable District Rules

Requirement	Affected Emission Units	Basis for Applicability
RULE 210: Fees	All emission units	Administrative
RULE 310: Odorous Org. Sulfides	All emission units	Emission of organic sulfides
RULES 501-504: Variance Rules	All emission units	Administrative
RULE 505.B2, B3, C, E, F, G: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded.
RULES 506-519: Variance Rules	All emission units	Administrative

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

Rule No.	Rule Name	Adoption/Revision Date
Rule 101	Compliance by Existing Installations: Conflicts	June 1981
Rule 102	Definitions	June 21, 2012
Rule 103	Severability	October 23, 1978
Rule 201	Permits Required	June 18, 2008
Rule 202	Exemptions to Rule 201	June 21, 2012
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 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	June 21, 2012
Rule 322	Metal Surface Coating Thinner and Reducer	October 23, 1978

Rule No.	Rule Name	Adoption/Revision Date
Rule 323	Architectural Coatings	November 15, 2001
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	July 19, 2001
Rule 328	Continuous Emissions Monitoring	October 23, 1978
Rule 330	Surface Coating of Metal Parts and Products	June 21, 2012
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	June 21, 2012
Rule 359	Flare and Thermal Oxidizers	June 28, 1994
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 810	Federal Prevention of Significant Deterioration	June 20, 2013
Rule 901	New Source Performance Standards (NSPS)	September 20, 2010
Rule 1001	National Emission Standards for Hazardous Air Pollutants (NESHAPS)	October 23, 1993
Rule 1301	General Information	January 20, 2011
Rule 1302	Permit Application	November 9, 1993
Rule 1303	Permits	January 18, 2001
Rule 1304	Issuance, Renewal, Modification and Reopening	January 18, 2001
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 District's Administrative file.

3.5.1 Facility Inspections: Routine facility inspections are conducted on a quarterly basis at this facility. The inspection reports for the inspections conducted since the previous permit renewal were reviewed as part of the current permit renewal process. There were no permit revisions made to this permit as a result of any of these inspections however multiple enforcement actions were issued to this facility since the prior permit renewal. These are listed below in section 3.5.2.

3.5.2 Violations: Five violations were issued for the Bell Lease since the last permit renewal.

VIOLATION NUMBER	DATE ISSUED	DESCRIPTION
NOV #10283	4/29/2013	Violation of Rule 325.E.1.
NOV 10293	8/16/2013	Violation of Rule 331 (Table 1)
NOV #10403	10/25/2013	Violation of Rule 331 (Table 1)

VIOLATION NUMBER	DATE ISSUED	DESCRIPTION
NOV #10492	8/15/2014	Violation of Rule 331 (Table 1)
NOV #10682	12/3/2014	Violation of Rule 331 (Table 1)

3.5.3 Variances: The following variances were issued to Greka for the Bell Lease since the last permit renewal.

VARIANCE	DATE HEARD	DESCRIPTION
28-E-14	9/11/2014	Failed vapor recover unit compressor.
3-14-E	1/6/2014	Failed vapor recover unit compressor.
13-13-E	7/16/2013	Leaking fugitive hydrocarbon component
5-13-E	5/2/12013	Leaking fugitive hydrocarbon component
2-13-E	1/29/2013	Failed vapor recover unit compressor.

3.5.4 Hearing Board Actions: The Hearing Board granted five variances (listed above). No other significant historical Hearing Board actions occurred.

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
- Rule applicability for each emissions unit and process
- Emission control equipment (including RACT, BACT, NSPS, NESHAP, MACT)
- Emission source testing, sampling, CEMS, CAM
- Process monitors needed to ensure compliance

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

4.2 Stationary Combustion Sources

The stationary combustion sources associated with 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. One unit is rated at 4.000 MMBtu/hour and the other at 1.000 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 to the combustion units is assumed to be the Rule 311 applicable limit of 796 ppmv sulfur (measured as hydrogen sulfide). Emission calculations are shown in Attachments 10.1 and 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. Emission calculations for fugitive emissions are based on District Policy and Procedure 6100.060.1996 (*Calculation of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities by the CARB/KVB Method*, July 1996) for permitted installations of fugitive components that did not quantify component leakpath counts. District P&P 6100.061.1996 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition*) was utilizes for installations that did quantify component leakpath counts.

4.3.2 District Policy and Procedure 6100.060.1996: For oil wells at existing onshore sources without a detailed component count inventory, the District uses statistical models developed by the CARB/KVB to quantify emissions of fugitive ROC. District 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 due to the implementation of a Rule 331 inspection and maintenance program. 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)

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

4.3.3 District Policy and Procedure 6100.061: 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 District P&P 6100.061 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition*). 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.

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

4.4 Storage Tanks

4.4.1 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 10.1 and 0.

4.5 Flare

4.5.1 Flare: The hourly potential to emit for the flare is based on permitted emission factors and its design heat input rating. Daily and annual potential to emit is based on permitted emission factors and permitted throughput limits. The calculation methodology for the flare is:

$$ER = EF \times FPP \times HHV$$

Where:

ER	=	Emission rate (lb/unit time period, i.e.: hrs, day, qtr, yr)
EF	=	Pollutant specific emission factor (lb/MMBtu)
FPP	=	Gas flow rate per operating period (SCF/unit time period)
HHV	=	Fuel high heating value (Btu/SCF)

NOx and CO emission factors are based on USEPA AP-42 (Table 13.5-1 for NOx and Table 13.5-1 for CO). The ROC emission factor is based on the District February 2016 Flare Study. PM and PM_{10} emission factors are District flare emission factors and SO_x is based on mass balance.

4.6 Sumps/Pits/Well Cellars

4.6.1 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 pond (sump) is subject to Rule 344 and is equipped with a cover. An 85% control efficiency is provided for application of the cover. Emissions from all these devices are estimated based District 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/ft^2-day)
SAREA =	unit surface area (ft^2)
CE =	control efficiency
HPP =	operating hours per time period (hrs/period)

These results are shown in Attachment 10.1.

4.7 Gas Gathering System/ Vapor Recovery System

4.7.1 GCS/VRS: 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. Gas produced from the wash tank and crude oil storage reject tank are recovered using a vapor recovery system. ROC vapor from these tanks are recovered via a 25 hp, electrically-driven vapor recovery compressor. A control efficiency of 95 percent is assigned to the VRS.

4.8 General Emission Sources

4.8.1 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. Emissions of PM/PM_{10} from paint over-spray are not calculated due to the lack of established calculation techniques.

4.8.2 Solvent Use: Solvent usage (not used as 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.

4.8.3 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 PM_{10} when needed for compliance evaluations. A PM/PM_{10} ratio of 1.0 is assumed.

4.8.4 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).

4.8.5 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 District has assumed that the remaining pressure in the pig chamber does not exceed 0.5 psig.

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

The calculation per period is:

Where:

ER	= emission rate (lb/period)
V_1	= volume of vessel (ft^3)
ρ	= density of vapor at actual conditions (lb/ft^3)
wt %	= weight percent ROC-TOC
EPP	= pigging events per time period (events/period)

4.9 BACT/NSPS/NESHAP/MACT

4.9.1 BACT: There are no emission units at Bell Lease subject to best available control technology (BACT) or new source performance standards (NSPS).

4.9.2 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 Bell lease, is still exempt from the requirements of this MACT.

4.9.3 MACT - Subpart EEEE: On August 27, 2003, EPA promulgated Subpart EEEE, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Organic Liquids Distribution (Non-Gasoline). A District analysis determined that the requirements of this subpart are not applicable to oil and gas production facilities and thus do not apply to this facility.

4.9.4 Proposed MACT - Subpart DDDDD: Subpart DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters. 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 10.000 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.

4.10 CEMS/Process Monitoring/CAM

4.10.1 Continuous Emissions Monitors(CEMs): There are no CEMS at this facility.

4.10.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the use of process monitoring systems. Examples of these monitors include: engine hour meters, fuel usage meters, water injection mass flow meters, flare gas flow meters and hydrogen sulfide analyzers. Once these process monitors are in place, it is important that they be well maintained and calibrated to ensure that the required accuracy and precision of the devices are within specifications. At a minimum, the following process monitors will be required to be calibrated and maintained in good working order:

- Processed Crude Oil Volume Flow Meter(s) at the "Loading Rack" unit
- Produced Fuel Gas Volume Flow Meter(s) at the gas plant inlet
- Flare, Heater Treater, Boiler, and Glycol Regenerator Fuel Flow Meters

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

4.10.3 CAM: The Greka South Cat Canyon Stationary Source is a major source that is subject to the USEPA's Compliance Assurance Monitoring (CAM) rule (40 CFR 64). 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.

4.11 Source Testing/Sampling

Source testing and sampling are required in order to ensure compliance with permitted emission limits, prohibitory rules, control measures and the assumptions that form the basis of this operating permit. 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 District-approved methods (Re: *District ATC/PTO 9412*) to comply with this restriction]. Sampling shall be conducted consistent with the District approved *Fuel Gas Sulfur and HHV Monitoring Plan.*

- Produced Oil/Wastewater: 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 District 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 District 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 District Rule 325). It is important that all sampling and analysis be traceable by chain of custody procedures.

4.12 Part 70 Engineering Review: Hazardous Air Pollutant Emissions

Hazardous air pollutant (HAP) emissions for the Bell Lease are based on various HAP emission factors and the permitted operational limits and maximum facility design throughputs of this permit. HAP emission factors are shown in Table 4.12-1. Facility potential annual HAP emissions, based on the worst-case scenario listed in Section 5.3. Stationary Source potential annual HAP emissions are summarized in Table 5.3-3. These emissions are estimates only. They are not limitations.

4.12.1 Emission Factors for HAP Potential Emissions:

Gas fired external combustion units: The HAP emission factors for external combustion equipment (boilers, glycol regenerator, flare) were obtained from USEPA AP-42 Table 1.4-3, *Emission Factors for Speciated Organic Compounds from Natural Gas Combustion* (July, 1998) for benzene, dichlorobenzene, hexane and toluene, USEPA AP-42 Table 1.4-4, *Emission Factors for Metals from Natural Gas Combustion* (July, 1998) for metals, the California Air Toxics Emission Factor (CATEF) database for field gas-fired heaters for ethylbenzene, and xylenes, San Joaquin Valley APCD emission factors for naphthalene and total PAHs, and District-approved source test results for acetaldehyde, acrolein and formaldehyde.

Fugitive Emissions: The HAP emission factors for fugitive emissions (including valves and fittings, well heads, compressors, pumps, pigging equipment, tanks, sumps/well cellars/pits and the loading rack) were obtained from Cat Canyon crude tank headspace testing (ENSR 1990). The emission factors were converted from lb/lb TOC to lb/lb ROC using the following District-approved ROC/TOC ratios:

Table 4.12-1. HAP Emission Factors

Source Type	ROC/TOC Ratio
Sumps and Well Cellars	0.606
Valves and fittings	0.391
Pumps	0.492
Wellheads	0.606
Compressors	0.262
Loading Racks	0.885
Fixed roof tanks (crude)	0.885
Pipeline Pig Launcher (gas)	0.308

Solvents/Coatings: The HAP emission factors for solvent usage and coating operations are based on the CARB *VOC Species Profile Number 802* for mineral spirits.

5. Emissions

5.1 General

Emissions calculations are divided into "permitted" and "exempt" categories. Permit exempt equipment is determined by District Rule 202. The permitted emissions for each emissions unit is based on the equipment's potential-to-emit (as defined by Rule 102). 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 District uses a computer database. Attachment 10.4 contains the District's documentation for the information entered into that database.

5.2 Permitted Emission Limits - Emission Units

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

- Nitrogen Oxides (NO_x) [2]
- Reactive Organic Compounds (ROC)
- Carbon Monoxide (CO)
- Sulfur Oxides (SO_x) [3]
- Particulate Matter (PM) [4]
- Particulate Matter smaller than 10 microns (PM_{10})
- Greenhouse Gases (GHG)

Permitted emissions are calculated for both short term (daily) and long term (annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachments 10.1 and 10.2 respectively. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Table 5.1-3 shows the permitted short-term emissions and Table 5.1-4 shows the permitted long-term emissions for each unit or operation. Total facility emissions listed in Table 5.2 and total

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[2] Calculated and reported as nitrogen dioxide (NO_2)
[3] Calculated and reported as sulfur dioxide (SO_2)
[4] Calculated and reported as all particulate matter smaller than 100 μm

federal facility emissions are provided in Table 5.3. In the table, the last column indicates whether the emission limits are federally enforceable.

5.3 Part 70: Hazardous Air Pollutant Emissions for the Facility

Hazardous air pollutants (HAP) emission factors, for each type of emissions unit, are listed in Table 5.4-1. Potential HAP emissions, based on the worst-case scenario, are shown in Table 5.4-2. Stationary source wide HAP emissions are shown in Table 5.4-3.

5.4 Permitted Emission Limits - Facility Totals

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

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
- Flaring

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
- Flaring

5.5 Part 70: Federal Potential to Emit for the Facility

Table 5.3 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.

5.6 *District Exempt Emission Sources/Part 70 Insignificant Emissions*

Per Rule 202, maintenance activities such as painting and surface coating qualify for a permit exemption, but may contribute to facility emissions.

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

- Solvents/Surface coating operations used during maintenance operations.

Table 5.5 presents the estimated annual emissions from these exempt equipment items, including those exempt items not considered insignificant.

5.7 *Net Emissions Increase (NEI) Calculation*

The NEI Equation used by the District 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. The NEI for the Bell Lease and the Greka South Cat Canyon stationary source is shown in Table 5.6 below.

Table 5.1-1. Operating Equipment Description

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	113839	FG	1050	796	1.00	MMBtu/hr	1.00	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	
	Flare	112596	FG	1050	796	6.00	MMBtu/hr	6.00	MMBtu/hr	--	1.00	24	2190	8760	
Fugitive Components (District P&P 6100.060)	Valves and fittings	2601	--	--	--		Valves and fittings	--	--	80%	1.00	24	2190	8760	B
	Wellheads	2607	--	--	--		Wellheads	--	--	80%	1.00	24	2190	8760	
	Compressors	2601	--	--	--		Compressors	--	--	80%	1.00	24	2190	8760	
	Pumps	2601	--	--	--		Pumps	--	--	80%	1.00	24	2190	8760	
	1/2" Stainless Steel Tube Fittings	2601	--	--	--										
Fugitive Components (District P&P 6100.061)	Valves and fittings	114507	--	--	--	See Attachment 10.1					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	
	Freewater Knockout Vessel	114506	--	--	--	60.0' x 10'		840	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	
	Vaccuum 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 5.1-2. Equipment Emission Factors

Equipment Category	Description	Emission Factors								Reference
		NOx	ROC	CO	SOx	PM	PM10	GHG	Units	
Combustion: External	Boiler	0.036	0.005	0.297	0.1362	0.008	0.008	117.00	lb/MMBtu	A
	Boiler H-118	0.095	0.005	0.08	0.1430	0.008	0.008	117.00	lb/MMBtu	
	Glycol Regenerator	0.095	0.005	0.08	0.1430	0.008	0.008	117.00	lb/MMBtu	
	Flare	0.068	0.200	0.37	0.1281	0.02	0.02	117.00	lb/MMBtu	
Fugitive Components (District P&P 6100.060)	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	
Fugitive Components (District P&P 6100.061)	Valves and fittings		See Attachment 10.1						lb/day-well	B
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	
	Freewater Knockout Vessel		See Table 10.2						lb/kgal	
Sumps/Cellars/Pits	Oil/Water Sump - Upper		0.0126						lb/ft^2day	E
	Emergency Pit - Post Tertiary		0.0058						lb/ft^2day	
	Vaccuum Truck Pit - Secondary		0.0126						lb/ft^2day	
	Emergency Pit - Post Tertiary		0.0058						lb/ft^2day	
	Crude Tank Drain Pit - Tertiary		0.0058						lb/ft^2day	
	Well Cellars		0.0941						lb/ft^2day	
Loading Racks	Crude Oil Loading Rack		1.3920						lb/kgal	F

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

Table 5.1-3. Short Term Emission Limits

Equipment Category	Description	NOx	ROC	CO	SOx	PM	PM10	GHG	Federal
		lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	Enforceability
Combustion: External	Boiler	0.90	0.10	7.10	3.30	0.20	0.20	2808.00	AE
	Boiler H-118	9.12	0.48	7.68	13.73	0.77	0.77	11232.00	AE
	Glycol Regenerator	0.80	0.04	0.67	1.20	0.07	0.07	982.80	AE
	Flare	9.82	28.88	18.50	53.42	0.53	0.53	16848.00	AE
Fugitive Components (District P&P 6100.060)	Valves and fittings	--	80.80	--	--	--	--	--	AE
	Wellheads	--	--	--	--	--	--	--	AE
	Compressors	--	0.82	--	--	--	--	--	AE
	Pumps	--	--	--	--	--	--	--	AE
Fugitive Components (District P&P 6100.061)	Valves and fittings	--	1.38	--	--	--	--	--	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
	Freewater Knockout Vessel	--	0.00	--	--	--	--	--	AE
Sumps/Cellars/Pits	Oil/Water Sump - Upper	--	8.50	--	--	--	--	--	
	Emergency Pit - Post Tertiary	--	22.27	--	--	--	--	--	AE
	Vaccuum 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

Table 5.1-4. Long Term Emission Limits

Equipment Category	Description	NOx	ROC	CO	SOx	PM	PM10	GHG	Federal
		TPY	TPY	TPY	TPY	TPY	TPY	TPY	Enforceability
Combustion: External	Boiler	0.16	0.02	1.30	0.60	0.04	0.04	512.46	AE
	Boiler H-118	1.66	0.09	1.40	2.51	0.14	0.14	2049.84	AE
	Glycol Regenerator	0.15	0.01	0.12	0.22	0.01	0.01	179.36	AE
	Flare	1.79	5.27	3.38	9.75	0.10	0.10	3074.76	AE
Fugitive Components (District P&P 6100.060)	Valves and fittings	--	14.75	--	--	--	--	--	AE
	Wellheads	--	--	--	--	--	--	--	AE
	Compressors	--	0.15	--	--	--	--	--	AE
	Pumps	--	--	--	--	--	--	--	AE
Fugitive Components (District P&P 6100.061)	Valves and fittings	--	0.25	--	--	--	--	--	AE
Pigging Equipment	Gas Launcher	--	1.52E-04	--	--	--	--	--	AE
Tanks									
	Crude Stock Tank	--	1.19	--	--	--	--	--	AE
	Reject Tank	--	1.19	--	--	--	--	--	AE
	Wash Tank	--	0.03	--	--	--	--	--	AE
	Wash Tank	--	0.03	--	--	--	--	--	AE
	Freewater Knockout Vessel	--	0.00	--	--	--	--	--	AE
Sumps/Cellars/Pits	Oil/Water Sump - Upper	--	1.55	--	--	--	--	--	AE
	Emergency Pit - Post Tertiary	--	4.06	--	--	--	--	--	AE
	Vaccuum 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

Table 5.2. Total Facility Permitted Emissions

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	20.64	29.50	33.95	71.65	1.57	1.57	31870.80
Fugitive Components - P&P 6100.060	--	81.62	--	--	--	--	--
Fugitive Components - P&P 6100.061	--	1.38	--	--	--	--	--
Pigging Equipment	--	0.08	--	--	--	--	--
Tanks	--	13.40	--	--	--	--	--
Sumps/Cellars/Pits	--	183.91	--	--	--	--	--
Loading Racks	--	5.17	--	--	--	--	--
Totals (lb/day)	**20.64**	**315.06**	**33.95**	**71.65**	**1.57**	**1.57**	**31870.80**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	3.76	5.39	6.20	13.08	0.29	0.29	5813.42
Fugitive Components - P&P 6100.060	--	14.90	--	--	--	--	--
Fugitive Components - P&P 6100.061		0.25					
Pigging Equipment	--	0.00	--	--	--	--	--
Tanks	--	2.44	--	--	--	--	--
Sumps/Cellars/Pits	--	33.56	--	--	--	--	--
Loading Racks	--	0.76	--	--	--	--	--
Totals (TPY)	**3.76**	**57.29**	**6.20**	**13.08**	**0.29**	**0.29**	**5813.42**

Table 5.3. Federal Potential to Emit

A. Daily

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	20.64	29.50	33.95	71.65	1.57	1.57	31870.80
Tanks	--	13.40	--	--	--	--	--
Totals (lb/day)	**20.64**	**42.90**	**33.95**	**71.65**	**1.57**	**1.57**	**31870.8**

B. Annual

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	3.76	5.39	6.20	13.08	0.29	0.29	5813.42
Tanks	--	2.44	--	--	--	--	--
Totals (TPY)	**3.76**	**7.83**	**6.20**	**13.08**	**0.29**	**0.29**	**5813.42**

Table 5.4-1: Equipment HAP Emission Factors

Equipment Category	Description	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,3-Butadiene	1,3-Dichloropropene	Acetaldehyde	Acrolein	Arsenic	Barium	Benzene	Beryllium	Cadmium	Carbon tetrachloride	Chlorobenzene	Chloroform	Chromium	Cobalt	Dichlorobenzene	Ethylbenzene
Combustion: External	Boiler					1.55E-05	1.82E-07	1.96E-07	4.31E-06	2.06E-06	1.18E-08	1.08E-06				1.37E-06	8.24E-08	1.18E-06	2.21E-06
	Boiler H-118					1.55E-05	1.82E-07	1.96E-07	4.31E-06	2.06E-06	1.18E-08	1.08E-06				1.37E-06	8.24E-08	1.18E-06	2.21E-06
	Glycol Regenerator					1.55E-05	1.82E-07	1.96E-07	4.31E-06	2.06E-06	1.18E-08	1.08E-06				1.37E-06	8.24E-08	1.18E-06	2.21E-06
	Flare					1.55E-05	1.82E-07	1.96E-07	4.31E-06	2.06E-06	1.18E-08	1.08E-06				1.37E-06	8.24E-08	1.18E-06	2.21E-06
Fugitive Components - Gas/Heavy Liquid	Valves and fittings									9.36E-03								2.58E-07	
	Wellheads									6.04E-03								1.67E-07	
	Compressors									1.40E-02								3.85E-07	
	Pumps									7.44E-03								2.05E-07	
Pigging Equipment	Gas Launcher									1.19E-02								3.28E-07	
Tanks	Crude Stock Tank									4.14E-03								1.14E-07	
	Reject Tank									4.14E-03								1.14E-07	
	Wash Tank									4.14E-03								1.14E-07	
	Wash Tank									4.14E-03								1.14E-07	
	Freewater Knockout Vessel									4.14E-03								1.14E-07	
Sumps/Cellars/Pits	Oil/Water Sump - Upper									6.04E-03								1.67E-07	
	Emergency Pit - Post Tertiary									6.04E-03								1.67E-07	
	Vaccuum Truck Pit - Secondary									6.04E-03								1.67E-07	
	Emergency Pit - Post Tertiary									6.04E-03								1.67E-07	
	Crude Tank Drain Pit - Tertiary									6.04E-03								1.67E-07	
	Well Cellars																		
Loading Racks	Crude Oil Loading Rack									4.14E-03								1.14E-07	
Solvent Usage	Maintenance (Wipe Cleaning)													2.60E-03					3.50E-03
	Laboratory Use													2.60E-03					3.50E-03

Equipment Category	Description	Ethylene Dibromide	Ethylene Dichloride	Ethylidene Dichloride	Formaldehyde	Hexane	Manganese	Mercury	Methanol	Methylene chloride	Naphthalene	Nickel	PAHs (total)	Propylene Dichloride	Selenium	Styrene	Toluene	Vinyl chloride	Xylenes	Units
Combustion: External	Boiler				3.24E-05	1.76E-03	3.73E-07	2.55E-07			6.51E-07	2.06E-06	7.60E-07		2.35E-08		3.36E-06		1.40E-05	lb/MMBtu
	Boiler H-118				3.24E-05	1.76E-03	3.73E-07	2.55E-07			6.51E-07	2.06E-06	7.60E-07		2.35E-08		3.36E-06		1.40E-05	lb/MMBtu
	Glycol Regenerator				3.24E-05	1.76E-03	3.73E-07	2.55E-07			6.51E-07	2.06E-06	7.60E-07		2.35E-08		3.36E-06		1.40E-05	lb/MMBtu
	Flare				3.24E-05	1.76E-03	3.73E-07	2.55E-07			6.51E-07	2.06E-06	7.60E-07		2.35E-08		3.36E-06		1.40E-05	lb/MMBtu
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	3.30E-05	3.48E-04						5.63E-05		2.25E-05						3.55E-03		2.61E-04	lb/lb ROC
	Wellheads	2.13E-05	2.24E-04						3.63E-05		1.45E-05						2.29E-03		1.68E-04	lb/lb ROC
	Compressors	4.92E-05	5.19E-04						8.40E-05		3.36E-05						5.31E-03		3.89E-04	lb/lb ROC
	Pumps	2.62E-05	2.76E-04						4.47E-05		1.79E-05						2.83E-03		2.07E-04	lb/lb ROC
Pigging Equipment	Gas Launcher	4.19E-05	4.42E-04						7.14E-05		2.86E-05						4.51E-03		3.31E-04	lb/lb ROC
Tanks	Crude Stock Tank	1.46E-05	1.54E-04						2.49E-05		9.94E-06						1.57E-03		1.15E-04	lb/lb ROC
	Reject Tank	1.46E-05	1.54E-04						2.49E-05		9.94E-06						1.57E-03		1.15E-04	lb/lb ROC
	Wash Tank	1.46E-05	1.54E-04						2.49E-05		9.94E-06						1.57E-03		1.15E-04	lb/lb ROC
	Wash Tank	1.46E-05	1.54E-04						2.49E-05		9.94E-06						1.57E-03		1.15E-04	lb/lb ROC
	Freewater Knockout Vessel	1.46E-05	1.54E-04						2.49E-05		9.94E-06						1.57E-03		1.15E-04	lb/lb ROC
Sumps/Cellars/Pits	Oil/Water Sump - Upper	2.13E-05	2.24E-04						3.63E-05		1.45E-05						2.29E-03		1.68E-04	lb/lb ROC
	Emergency Pit - Post Tertiary	2.13E-05	2.24E-04						3.63E-05		1.45E-05						2.29E-03		1.68E-04	lb/lb ROC
	Vaccuum Truck Pit - Secondary	2.13E-05	2.24E-04						3.63E-05		1.45E-05						2.29E-03		1.68E-04	lb/lb ROC
	Emergency Pit - Post Tertiary	2.13E-05	2.24E-04						3.63E-05		1.45E-05						2.29E-03		1.68E-04	lb/lb ROC
	Crude Tank Drain Pit - Tertiary	2.13E-05	2.24E-04						3.63E-05		1.45E-05						2.29E-03		1.68E-04	lb/lb ROC
	Well Cellars																			
Loading Racks	Crude Oil Loading Rack	1.46E-05	1.54E-04						2.49E-05		9.94E-06						1.57E-03		1.15E-04	lb/lb ROC
Solvent Usage	Maintenance (Wipe Cleaning)										3.50E-03						5.00E-03		3.82E-02	lb/lb ROC
	Laboratory Use										3.50E-03						5.00E-03		3.82E-02	lb/lb ROC

Table 5.4-2: Facility HAP Emissions

Equipment Category	Description	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,3-Butadiene	1,3-Dichloropropene	Acetaldehyde	Acrolein	Arsenic	Barium	Benzene	Beryllium	Cadmium	Carbon tetrachloride
Combustion: External	Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Boiler H-118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Glycol Regenerator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Flare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
	Wellheads	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pigging Equipment	Gas Launcher	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tanks	Crude Stock Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Reject Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Freewater Knockout Vessel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sumps/Cellars/Pits	Oil/Water Sump - Upper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
	Emergency Pit - Post Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
	Vaccuum Truck Pit - Secondary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
	Emergency Pit - Post Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
	Crude Tank Drain Pit - Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Well Cellars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loading Racks	Crude Oil Loading Rack	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent Usage	Maintenance (Wipe Cleaning)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Laboratory Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUB- TOTAL HAPS (tpy) =	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.17**	**0.00**	**0.00**	**0.00**

Equipment Category	Description	Chlorobenzene	Chloroform	Chromium	Cobalt	Dichlorobenzene	Ethylbenzene	Ethylene dibromide	Ethylene dichloride	Ethylidene Dichloride	Formaldehyde	Hexane	Manganese
Combustion: External	Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
	Boiler H-118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
	Glycol Regenerator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Flare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wellheads	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pigging Equipment	Gas Launcher	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tanks	Crude Stock Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Reject Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Freewater Knockout Vessel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sumps/Cellars/Pits	Oil/Water Sump - Upper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emergency Pit - Post Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vaccuum Truck Pit - Secondary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emergency Pit - Post Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Crude Tank Drain Pit - Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Well Cellars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loading Racks	Crude Oil Loading Rack	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent Usage	Maintenance (Wipe Cleaning)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Laboratory Use	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
	SUB- TOTAL HAPS (tpy) =	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.00**	**0.01**	**0.00**	**0.00**	**0.09**	**0.00**

Equipment Category	Description	Mercury	Methanol	Methylene chloride	Naphthalene	Nickel	PAHs (total)	Propylene Dichloride	Selenium	Styrene	Toluene	Vinyl chloride	Xylenes
Combustion: External	Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Boiler H-118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Glycol Regenerator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Flare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Components - Gas/Heavy Liquid	Valves and fittings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
	Wellheads	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pigging Equipment	Gas Launcher	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tanks	Crude Stock Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Reject Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wash Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Freewater Knockout Vessel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sumps/Cellars/Pits	Oil/Water Sump - Upper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emergency Pit - Post Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
	Vaccuum Truck Pit - Secondary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emergency Pit - Post Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
	Crude Tank Drain Pit - Tertiary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Well Cellars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loading Racks	Crude Oil Loading Rack	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent Usage	Maintenance (Wipe Cleaning)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	Laboratory Use	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.38
	SUB- TOTAL HAPS (tpy) =	**0.00**	**0.00**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.11**	**0.00**	**0.39**

TOTAL HAPS (tpy) = 0.87

1. These are estimates only, and are not intended to represent emission limits.

Table 5.4-3: Stationary Source HAP Emissions

Facility	FID	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,3-Butadiene	1,3-Dichloropropene	Acetaldehyde	Acrolein	Arsenic	Barium	Benzene	Beryllium	Cadmium	Carbon tetrachloride	Chlorobenzene	Chloroform	Chromium	Cobalt	Dichlorobenzene	Ethylbenzene	Ethylene dibromide	Ethylene dichloride	Ethylidene Dichloride	Formaldehyde	Hexane	Manganese	Mercury	Methanol	Methylene chloride	Naphthalene	Nickel	PAHs (total)	Propylene Dichloride	Selenium	Styrene	Toluene	Vinyl chloride	Xylenes	Total HAPS
Bell Lease	3211	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.39	0.87
Blockman Lease	3306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.09
Palmer Stendl Lease	3307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.04
Cat Canyon IC Engines	3831	0.00	0.00	0.06	0.00	0.26	0.25	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.00	0.00	0.00	0.29	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.03	3.08
Stationary Source Total HAPs (tpy) =		**0.00**	**0.00**	**0.06**	**0.00**	**0.26**	**0.25**	**0.00**	**0.00**	**0.40**	**0.00**	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.00**	**0.01**	**0.00**	**1.94**	**0.09**	**0.00**	**0.00**	**0.29**	**0.00**	**0.05**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.20**	**0.00**	**0.44**	**4.09**

1. These are estimates only, and are not intended to represent emission limits.

Table 5.5 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.

Table 5.6 Facility and Stationary Source Net Emissions Increase (NEI-90)

South Cat Canyon NEI

Facility	FID	Permits	Units	NOx	ROC	CO	SOx	PM	PM10
Bell Lease	3211	ATC 9146, 9412, 9387, 13204, 13264, 13547, 13661, 13769-01	lbs/hr	0.45	2.32	7.11	0.91	0.13	0.13
			lbs/day	10.70	38.70	170.44	21.80	3.09	3.09
			TPQ	0.49	1.74	8.19	1.00	0.14	0.14
			TPY	1.94	7.07	32.73	3.98	0.56	0.56
Blockman	3306	ATC 9964	lbs/hr	0.00	0.05	0.00	0.00	0.00	0.00
			lbs/day	0.00	1.05	0.00	0.00	0.00	0.00
			TPQ	0.00	0.05	0.00	0.00	0.00	0.00
			TPY	0.00	0.19	0.00	0.00	0.00	0.00
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
	Source NEI		**lbs/hr**	**0.45**	**2.39**	**7.11**	**0.91**	**0.18**	**0.18**
			lbs/day	**10.70**	**40.23**	**170.44**	**21.80**	**4.04**	**4.04**
			TPQ	**0.49**	**1.82**	**8.19**	**1.00**	**0.19**	**0.19**
			TPY	**1.94**	**7.36**	**32.73**	**3.98**	**0.74**	**0.74**

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 South Cat Canyon stationary source is subject to the AB 2588 Air Toxics "Hot Spots" Program. In March 2010, the Santa Barbara County Air Pollution Control District conducted an air toxics Health Risk Assessment (HRA) for Greka South Cat Canyon Field Oil and Gas Leases, using Hotspots Analysis and Reporting Program (HARP) software, Version 1.4a (Build 23.07.00). In March 2013, the District revised the HRA using HARP Version 1.4f (Build 23.11.01). Cancer risk, and chronic and acute non-cancer Hazard Index (HI) risk values were calculated and compared to significance threshold for cancer, and chronic and acute non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable threshold are as follows (with the significant risks shown in bold):

	Greka South Cat Canyon Max Risks	Significance Threshold
Cancer risk	8.33/million	≥ 10 million
Chronic non-cancer risk	0.0336	≥ 1
Acute non-cancer risk	3.444	≥ 1

Based on these results, the operations at Greka South Cat Canyon Field Oil and Gas Leases presented a significant risk on a public roadway. For that reason, a Risk Reduction Audit and Plan (RRAP) were required. As a result of the audit, two engines were removed from service and depermitted and two engines were allowed to operate at a restricted number of well sites. These actions were taken to reduce the acute non-cancer risk below the significance threshold and were documented in ATC/PTO 14400. Full implementation of the RRAP resulted in a reduction in the acute non-cancer risk to 0.723.

7. CAP Consistency, Offset Requirements and ERCs

7.1 *General*

Santa Barbara County is in attainment of the federal ozone standard but is in nonattainment of the state eight-hour ozone ambient air quality standard. In addition, the County is in nonattainment of the state PM_{10} ambient air quality standards. The County is either in attainment or unclassified with respect to all other ambient air quality standards. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with maintenance of the federal ambient air quality standards and progress towards attainment of the state ambient air quality standards. Under District regulations, any modifications at this stationary source that result in an emissions increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Additional increases may trigger offsets at the source or elsewhere so that there is a net air quality benefit for Santa Barbara County. These offset threshold levels are 55 lbs/day for all non-attainment pollutants except PM_{10} for which the level is 80 lbs/day.

7.2 *Clean Air Plan*

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

In March 2015 the District Board adopted the 2013 Clean Air Plan. The 2013 Plan provides a three-year update to the 2010 Clean Air Plan. As Santa Barbara County has yet to attain the state eight-hour ozone standard, the 2013 Clean Air Plan demonstrates how the District plans to attain that standard. The 2013 Clean Air Plan therefore satisfies all state triennial planning requirements.

7.3 *Offset Requirements*

The Greka South Cat Canyon stationary source does trigger offsets for any pollutant.

7.4 *Emission Reduction Credits*

Emission reduction credits, granted to Greka are detailed in revised DOI 006 issued to Greka by the District, in May 2003. The ERC's are based on IC Engine emission reductions at the Bell Lease Compressor Plant. DOI 006-02 is currently active.

8. Lead Agency Permit Consistency

To the best of the District'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., District only) permit conditions. Conditions listed in Sections A, B, and C are enforceable by the USEPA, the District, the State of California and the public. Conditions listed in Section D are enforceable only by the District and the State of California. Where any reference contained in Sections 9.A, 9.B, or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. In case of a discrepancy between the wording of a condition and the applicable federal or District rule(s), the wording of the rule shall control.

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

9.A Standard Administrative Conditions

The following federally-enforceable administrative permit conditions apply to Bell Lease:

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:

1. Compliance with the permit, or
2. Whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.

(g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible. *[Re: 40 CFR Part 70.6.(a)(6), District Rule 1303.D.1]*

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

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

A.5 **Severability.** In the event that any condition herein is determined to be invalid, all other conditions shall remain in force. *[Re: District Rules 103 and 1303.D.1]*

A.6 **Permit Life.** The Part 70 permit shall become invalid three years from the date of issuance unless a timely and complete renewal application is submitted to the District. Any operation of the source to which this Part 70 permit is issued beyond the expiration date of this Part 70 permit and without a valid Part 70 operating permit (or a complete Part 70 permit renewal application) shall be a violation of the CAAA, § 502(a) and 503(d) and of the District rules.

The permittee shall apply for renewal of the Part 70 permit no later than 180 days before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. *[Re: District Rule 1304.D.1]*

A.7 **Payment of Fees.** The permittee shall reimburse the District for all its Part 70 permit processing and compliance expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the District and the USEPA pursuant to section 502(a) of the Clean Air Act. *[Re: District Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7)]*

A.8 **Prompt Reporting of Deviations.** The permittee shall submit a written report to the District documenting each and every deviation from the requirements of this permit or any applicable federal requirements within seven (7) days after discovery of the violation, but not later than 180 days after the date of occurrence. The report shall clearly document 1) the probable cause and extent of the deviation, 2) equipment involved, 3) the quantity of excess pollutant emissions, if any, and 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to District in accordance with Rule 505, *Breakdown Conditions*, or Rule 1303.F *Emergency Provisions. [District Rule 1303.D.1, 40 CFR 70.6(a)(3)]*

A.9 **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 District forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. A paper copy, as well as, a complete PDF electronic copy of 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: District Rules 1303.D.1, 1302.D.3, 1303.2.c]*

A.10 **Federally Enforceable Conditions.** Each federally enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the District-only enforceable section of this permit are federally enforceable or subject to the public/USEPA review. *[Re: CAAA, §502(b)(6), 40 CFR 70.6(b)]*

A.11 **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;

(f) The operating conditions as existing at the time of sampling or measurement;

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

A.12 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:

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

(b) Inaccurate Permit Provisions: If the District or the USEPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of the permit, the permit shall be reopened. Such re-openings shall be made as soon as practicable.

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

(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.13 **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 District rule(s), the wording of the rule shall control.

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

B.2 **Visible Emissions (Rule 302).** 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. *[Re: District Rule 302]*

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. *[Re: District Rule 303]*

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 per cubic foot of gas at standard conditions. *[Re: District 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. *[Re: District Rule 309]*

B.6 **Odorous Organic Sulfides (Rule 310).** Greka shall not discharge into the atmosphere H_2S 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: District Rule 310]*

B.7 **Sulfur Content of Fuels (Rule 311).** Greka shall not burn fuels with sulfur content in excess of 0.5% (by weight) for liquid fuels and 796 ppmvd or 50 gr/100 scf (calculated as H_2S) for gaseous fuel. Compliance with this condition shall be based on daily measurement of the sulfur concentration of the fuel calculated as H_2S 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: District ATC/PTO 9412, District Rule 311]*

B.8 **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 Greka's compliance with Condition D.10 of this permit and facility inspections. *[Re: District Rule 317]*

B.9 **Metal Surface Coating Thinner and Reducer (Rule 322).** The use of photochemically reactive solvents as thinners or reducers in metal surface coatings is prohibited. Compliance with this condition shall be based on Greka compliance with Condition D.10 of this permit and facility inspections. *[Re: District Rule 322]*

B.10 **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 D.10 of this permit and facility inspections. *[Re: District Rule 323]*

B.11 **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 D.10 of this permit and facility inspections. *[Re: District Rule 324]*

B.12 **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: District Rule 330]*

B.13 **Adhesives and Sealants (Rule 353).** The permittee shall not use adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers, unless the permittee complies with the following:

(a) Such materials used are purchased or supplied by the manufacturer or suppliers in containers of 16 fluid ounces or less; or alternately

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

B.14 **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 recordkeeping 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, emissions, and operations limits, monitoring, recordkeeping and reporting conditions are included in this section for each specific equipment group. This section may also contain other non-generic conditions.

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

District Device ID #	Name and Brief Description
113839	1.000 MMBtu/hr, field gas-fired boiler, Superior, serial #H-117
2525	4.000 MMBtu/hr, field gas-fired boiler; Superior, serial # H-118
8396	0.350 MMBtu/hr, field gas-fired regenerator; B.S.&B., Model 375-GDR

(a) Emission Limits: Mass emissions from the equipment listed in Table C.1-1 above shall not exceed the emission limits listed in Tables 5.1-3 and 5.1-4. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping, and reporting (MRR) conditions listed in this permit.

(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:

1. *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 H_2S 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).

2. *Combustion Units.* The hourly, daily and annual heat input limits to the combustion units shall not exceed the values listed in Table C.1-2 below. These limits are based on the design rating of the units and the annual heat input value as listed in the permit application. Unless otherwise designated by the Control Officer, the fuel heat content of field gas for determining compliance equals 1,050 Btu/scf. *[Re: ATC 6136]*

3. *Rule 360 Compliance*. Any boiler or hot water heater rated at or less than 2.000 MMBtu/hr and manufactured after October 17, 2003 shall be certified per the provisions of Rule 360. 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. *[Re: ATC 13661]*

Table C.1-2 Heat Input Limits

Combustion Unit	MMBtu/hr	MMBtu/day	MMBtu/yr
Boiler #1	1.000	24.000	8,760.000
Boiler #2	4.000	96.000	35,040.000
Regenerator	0.350	8.400	3,066.000

(c) Monitoring: The following monitoring conditions apply to the external combustion equipment listed in Table C.1-1:

1. *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 engine. 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.

2. *Fuel Gas Sulfur Data.* Greka shall measure the total sulfur content of the gaseous fuel annually in accordance with ASTM-D1072 and a District approved *Fuel Gas Sulfur Monitoring Plan*. Greka shall measure the hydrogen sulfide (H_2S) content of the gaseous fuel monthly via sorbent tube method a District approved *Fuel Gas Sulfur and HHV Monitoring Plan*.

3. *Fuel Gas High Heating Value.* Greka shall measure the higher heating value of the fuel gas on a quarterly basis using District approved methods and per a District approved *Fuel Gas Sulfur and HHV Monitoring Plan*

   (i) *Fuel Use Monitoring and Process Monitor Calibration and Maintenance Plan.* The District-approved *Fuel Use Monitoring Plan* and *Process Monitor Calibration and Maintenance Plan* 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 District approved revisions, is incorporated by reference as an enforceable part of this permit. Within sixty (60) days of the issuance of this permit, Greka shall submit for District approval a revised *Fuel Use Monitoring* and *Process Monitor Calibration and Maintenance Plan* for the South Cat Canyon stationary source.

4. *Compliance Determination.* The following compliance determinations are applicable to the units subject to this permit:

   (i) *Units Rated at 2.00 MMBtu/hr or Below.* Any unit manufactured after October 17, 2003 shall be tuned once every 12 months following the manufacturer's recommended tuning procedure or by an alternative tuning procedure approved by the District.

(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:

1. *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.

2. *High Heating Value.* The quarterly high heating value and specific gravity of the fuel gas.

3. *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).

4. *Tuning Records.* For units subject to Rule 360, maintain documentation verifying the required tune-ups, including a complete copy of each tune-up report.

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

District Device Nos.	Name
	Gas/Light Liquid Service Components
2601	Fugitive Components (District P&P 6100.060)
114507	Fugitive Components (District P&P 6100.061)

(a) Emission Limits: Mass emissions from the gas/light liquid service and oil service components listed in Table C.2-1 shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping, and reporting (MRR) conditions listed in this permit.

(b) Operational Limits: Operation of the equipment listed in Table C.2-1 above and the gas gathering system shall conform to the requirements listed in District Rule 331.D and E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting (MRR) conditions listed in this permit. In addition, Greka shall meet the following:

1. *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.

2. *Rule 331 I&M Program*. The District-approved *I&M Plan* 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 District approved revisions, is incorporated by reference as an enforceable part of this permit. *Within sixty (60) days of the issuance of this permit, Greka shall submit for District approval, a revised Fugitive I&M Plan for the South Cat Canyon Stationary source.*

3. *Rule 331 Exemption Request.* If Greka wishes to maintain or obtain the Rule 331 B.2.c exemption from the MRR requirements of Rule 331, then Greka shall submit an exemption request to the District 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.

(c) Monitoring: The equipment items listed in this section is subject to all the monitoring requirements listed in District Rule 331.F. The test methods in Rule 331.H shall be used, when applicable.

(d) Recordkeeping: All inspection and repair records shall be retained at the source for a minimum of five years. The equipment listed in this section is subject to all the recordkeeping requirements listed in District Rule 331.G. In addition, Greka shall:

1. *I&M Log* - Record in a log the following:
   - (a) A record of leaking components found (including name, location, type of component);
   - (b) Date of leak detection;
   - (c) The ppmv reading;
   - (d) Date of repair attempt;
   - (e) Method of detection;
   - (f) Date of re-inspection;
   - (g) The ppmv reading after leak is repaired;
   - (h) A record of the total components inspected and the total number and percentage found leaking by component type;
   - (i) A record of leaks from critical components;
   - (j) A record of leaks from components that incur five repair actions within a continuous 12-month period;
   - (k) A record of component repair actions including dates of component re-inspections.

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

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

Table C.3-1 Oil Storage Tank Equipment List

District Device ID #	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
114506	Freewater Knockout Vessel, 10' diameter by 60' length

(a) Emission Limits: Mass emissions from the storage tanks shall not exceed the emission limits listed for these items in Tables 5.1-3 and 5.1-4 of this permit. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting (MRR) conditions listed in this permit. *[Re: District ATC 10174]*

(b) Operational Limits: Operation of the equipment listed above shall conform to the requirements listed in District Rule 325, Rule 343, and Rule 346. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting (MRR) conditions listed in this permit. In addition, Greka shall meet the following:

1. *Process Throughput.* Total crude oil (dry) throughput for the entire facility is restricted to 1,600 barrels/day. *[Re: District ATC 9387]*

2. *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.

3. *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 District Rule 343, and per a District-approved plan.

(c) Monitoring: Monitoring requirements for the equipment listed above are, as follows:

1. 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.

2. The vapor pressure and API gravity shall be determined on an annual basis at the initial wash tank according to District 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.

3. For each tank subject to District 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.

4. For each tank subject to District Rule 343, Greka shall maintain a record of all degassing operations per District Rule 343 Section F, which includes the following:

   (i) The date of degassing;

   (ii) The tanks degassed;

   (iii) The emission reduction method used;

   (iv) Documentation generated from monitoring the degassing process.

(d) 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 District personnel upon request.

1. Greka shall record in a log the monthly and annual volumes of dry oil production and the actual number of days in production per month. The daily limit is based on actual days of operation per month.

2. The following records required to be maintained per District Rules 325, Section F (Recordkeeping):

    (i) The type of liquid in each tank;

    (ii) The maximum vapor pressure of the liquid in the tank;

    (iii) The results of the inspections required by Section H of District Rule 325;

    (iv) The API gravity of the oil in the tank.

3. The records required per District 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.

(e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the District. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition of this permit. *[Re: District Rules 325, 343 and 1303, District ATC's 6677 and 10174, 40 CFR 70.6.(a)(3)]*

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

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

District Device ID #	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) Emission Limits: Mass emissions from the sumps, cellars, and pits listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping, and reporting (MRR) conditions listed in this permit.

(b) Operational Limits: All process operations from the cellar units listed in this section shall meet the requirements of District Rule 344, Section D. Compliance with these operational limits shall be assessed through compliance with the MRR conditions listed in this permit:

1. The emergency pit, equipment (Device ID #8400) above, shall not be operated more than 30 days during the year.

2. The upper pond sump (Device ID #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.

(c) Monitoring: The equipment listed in this section is subject to all applicable monitoring requirements of District Rule 344.F. The test methods outlined in District Rule 344.I shall be used, when applicable.

1. 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:

(i) Liquid depth shall not exceed 50 percent of the depth of the well cellar;

(ii) Oil 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).

(d) Recordkeeping: The equipment listed in this section is subject to all applicable recordkeeping requirements listed in District 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:

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 is pumped.

(e) Additionally, Greka shall record in an on-site log each day on which the emergency pits (Device ID #8400) contain any wastewater. The summary contents of this log shall be reported annually.

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

District Device ID #	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 and unloading racks shall not exceed the emission limit listed for these items in Tables 5.1-3 and 5.1-4 of this permit. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping, and reporting (MRR) conditions listed in this permit. *[Re: District ATC 10174]*

(b) Operational Limits: All process operations from the equipment listed in this section shall meet the requirements of District Rule 346, Sections D, E, F and G. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. *[Re: District ATC 9387]*

1. The vapor recovery & gas collection (VRGC) system shall be in operation when the equipment above, connected to VRGC, is in use.

2. 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 District Rule 346.F. The test methods outlined in District Rule 346.H shall be used.

(d) Recordkeeping: The equipment listed in this section is subject to all the recordkeeping requirements listed in District 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 District. The report shall list all the data required by the Semi-Annual Monitoring/Compliance Verification Reports condition listed below. *[Re: District Rules 346, and 1303, ATC 9387, and 40 CFR 70.6]*

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

Table C.6-1 Flare Equipment List

District Device ID #	Description
112596	Height: 20 feet, with an average flow rate of approximately 0.140 MMscf/day. Equipped with an automatic ignition system, 6.0 MMBtu/hr.

(a) Emission Limits: Mass emissions from the flare shall not exceed the emission limit listed for these items in Tables 5.1-3 and 5.1-4 of this permit. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping, and reporting (MRR) conditions listed in this permit. *[Re: District ATC 13204]*

(b) Operational Limits: All process operations from the equipment listed in this section shall meet the requirements of District Rule 359. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.

1. The average daily and annual heat input limits to the flare shall not exceed the values listed below. These limits are based on the design rating of the flare and the values listed in the permit application. Unless otherwise designated by the Control Officer, the following fuel heat content shall be used for determining compliance: Natural gas = 1,050 Btu/scf.

   Daily Heat Input: 144.375 MMbtu/day
   Annual Heat Input: 52,696.90 MMbtu/yr

2. The flare outlet shall be equipped with an automatic ignition system, a pilot-light and a pilot light gas source.

3. The flare shall operate in compliance with the applicable sections of Rule 359 at all times when combustible gases are vented to the flare.

4. Total sulfur content (calculated as H_2S at standard conditions, 60° F and 14.7 psia) of the gas flared shall not exceed 50.0 gr/100scf (796 ppmvd as H_2S at standard conditions).

(c) Monitoring: The permitted equipment is subject to the following monitoring requirements.

1. *Flare Volumes.* The volume of gas flared during each event shall be monitored by use of an APCD-approved temperature and pressure corrected flow meter. The meter shall be calibrated and operated consistent with the *Fuel Use Process Monitor Calibration and Maintenance Plan* as required in the SCDP condition below.

2. *Flare Gas Sulfur Composition.* The H_2S concentration of the flare gas shall be determined by dreager tube or APCD-approved equivalent for each flare event.

3. *Flare Gas Higher Heating Value (HHV)*. The HHV of the flare gas shall be analyzed by a third party on an annual basis.

(d) Recordkeeping: Greka shall record and maintain the following information. This data (electronic or hard copy information) shall be maintained for a minimum of three (3) years from the date of each entry and shall be made available to the District upon request.

1. The volume of gas combusted in the flare (scf) each month and the number of days that the flare operated.

2. Measured H_2S concentrations of the flare gas.

3. Flare meter calibration and maintenance records.

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

C.7 **Facility Throughput Limitations.** The maximum permitted gas production rate for the Bell Lease is 10 million scf/day based on its equipment capacity (H_2S 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: District 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 District 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.8 **Recordkeeping.** All records and logs required by this permit and any applicable District, state or federal rule or regulation shall be maintained for a minimum of five calendar years from the date of information collection and log entry at the platform. These records or logs shall be readily accessible and be made available to the District upon request. *[Re: District Rule 1303, 40 CFR 70.6]*

C.9 **Semi-Annual Monitoring/Compliance Verification Reports.** Twice a year, Greka shall submit a compliance verification report to the District. A paper copy, as well as, a complete PDF electronic copy of these reports shall be submitted. 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 shall be submitted no later than September 1. The second report shall cover calendar quarters 3 and 4 (July through December) and shall be submitted no later than March 1. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit (if applicable for that quarter). These reports shall be in a format approved by the District. 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 District upon request. The second report shall also include an annual report for the prior four quarters. Pursuant to Rule 212, a completed *District Annual Emissions Inventory* questionnaire. Greka may use the *Compliance Verification Report* in lieu of the *Emissions Inventory* questionnaire if the format of the CVR is acceptable to the District's Emissions Inventory Group and if Greka submits a statement signed by a responsible official stating that the information and calculations of emissions 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.*

1. The monthly measured sulfur concentration of the fuel gas calculated as H_2S.
2. The annually measured total sulfur content of fuel gas consumed at each combustion unit *(each annual data will suffice for both reports).*
3. The quarterly measured high heating value (Btu/scf).
4. 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.
5. Tuning Records as required in Condition 9.C.1.d.4.

(b) *Fugitive Hydrocarbon Emissions Components.*

1. Inspection summary.
2. Record of leaking components.
3. Record of leaks from critical components.
4. Record of leaks from components that incur five repair actions within a continuous 12-month period.
5. Record of component repair actions including dates of component re-inspections.
6. An updated FHC I&M inventory due to change in component list or diagrams.

(c) *Storage Tanks.*

1. 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.

2. 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.

3. For all degassing events subject to District Rule 343, the volume purged, characteristics of the vapor purged, and the control device/method used.

4. For each tank listed in Table C.3-1, a summary annual report consisting of the following:

   (i) The type of liquid in each tank;

   (ii) The maximum vapor pressure of the tank content under operating conditions;

   (iii) The date each tank was degassed.

(d) *Sumps/ Cellars/ Pits.*

1. The following information, for each detection of conditions which resulted in a pumping of any well cellar:

   (i) The date of the detection;

   (ii) The name of the person and company performing the test or inspection;

   (iii) The date and time the well cellar was pumped.

2. Total number of days on which the emergency pits (Device ID #8400) contained waste water.

(e) *Loading Rack (Crude Oil).*

1. The volumes (in barrels) of crude oil shipped each month.

2. Total volume of crude oil trucked/shipped daily, based on number of days of trucking/shipping operations per month.

3. A summary description of any leak or malfunction of the vapor recovery or overfill prevention system found during any required monitoring operation.

(f) *Flare.*

1. The volume of gas combusted in the flare (scf) each month and the number of days that the flare operated.

2. Measured H_2S concentrations of the flare gas.

3. The quarterly measured high heating value (Btu/scf).

4. Meter maintenance and calibration records.

(g) *Facility Throughput Limitations.*

1. The volume of gas produced (scf) each month.

2. The actual number of days in production each month.

(h) *General Reporting Requirements.*

1. A summary of each and every occurrence of non-compliance with the provisions of this permit, District rules, and any other applicable air quality requirement.

2. On an annual basis, the ROC and/or NO_x emissions from all permit exempt activities.

C.10 **Fuel Gas Sulfur and HHV Monitoring Plan**. Greka shall abide by the District approved *Fuel Gas Sulfur and HHV Monitoring Plan.* Greka shall submit a *Fuel Gas Sulfur and HHV Monitoring Plan* for District 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 District 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 H_2S 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 District upon request.

1. 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 H_2S 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 District prior to implementing any modifications to sampling frequency, location, or sampling methodology.

C.11 **Documents Incorporated by Reference.** The documents listed below, including any District-approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition. These documents shall be implemented for the life of the project:

- *Fugitive Hydrocarbon Inspection and Maintenance Plan (TBD*
- *Fuel Use Monitoring and Process Monitor Calibration and Maintenance Plan (May 2011)*
- *Fuel Gas Sulfur and HHV Monitoring Plan (TBD)*

9.D District-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 District 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 District Rule 206, this permit, as well as any applicable section of the California Health & Safety Code.

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 District's project file) and the District'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 by invalid, all other conditions shall remain in force. *[Re: District 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 District or its agents, the permittee shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A.

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 District 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 District staff, as requested by the District, 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 H_2S 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: District 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 5.1-3 and 5.1-4 of this permit. Emissions for the entire facility shall not exceed the emissions limits, as listed in Table 5.2.

D.11 **Process Stream Sampling and Analysis.** Greka shall sample analyze the process streams listed in Section 4.11 of this permit according to the methods and frequency detailed in that Section. All process stream samples shall be taken according to District approved ASTM methods and must follow traceable chain of custody procedures. Compliance with this condition shall be assessed through compliance with the monitoring, recordkeeping 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

District Device No.	Name
113839	1.000 MMBtu/hr, field gas-fired boiler, Eclipse Winnox WX0100
2525	4.000 MMBtu/hr, field gas-fired boiler; Superior, serial # H-118
8396	0.350 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:

1. *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 (#113839)	Field Gas	24.000	8,760.00
Boiler (#2525)	Field Gas	96.000	35,040.00
Glycol Regenerator (#8396)	Field Gas	8.400	3,066.00

(b) Recordkeeping: Greka shall record in a log the following information on a monthly basis:

1. The volume (scf) of field gas consumed monthly by each combustion unit.
2. The number of days gaseous fuel was burned each month at each combustion unit.
3. Maintenance for the boilers and their emission control systems
4. 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 District. The report shall list all the data required by the Annual Compliance Report condition D.18.

D.13 **External Combustion Units - Permits Required.**

(a) 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.

(b) 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.

(c) 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.** On or before January 20, 2019, for the units listed below, the owner or operator shall:

(a) For units subject to Section D.1 emission standards, apply for an Authority to Construct permit.

(b) 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
District #113839	R361	No	None	Default Rating Method	No	No
District# 2525	R361	No	None	Default Rating Method	No	No

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

Table D.15-1 Pigging Equipment

District 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 5.1-3 and Table 5.1-4of 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 District staff on request.

(d) Reporting: On an annual basis, a report detailing the previous twelve month's activities shall be provided to the District. 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 District Rules 202, 317, 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 Tables 5.2-3 and 5.2-4 of this permit. Compliance shall be based on the recordkeeping and reporting requirements of this permit. For short-term emissions, compliance shall be based on monthly averages.

(b) Operational Limits: Use of solvents for cleaning, degreasing, thinning and reducing shall conform to the requirements of District Rules 317 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:

1. *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.

2. *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.

3. *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.

4. *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 District 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 District. 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: District 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 District, by March 1st of the following year containing the information listed below. A paper copy, as well as, a complete PDF electronic copy of these reports shall be submitted. These reports shall be in a format approved by the District. All logs and other basic source data not included in the report shall be available to the District upon request. Except where noted, the annual compliance report shall include monthly summaries of the following information:

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

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

2. The number of days gaseous fuel was burned each month by each combustion unit.

(b) *Pigging.*

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

(c) *Solvent Usage.*

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

2. The density of each such solvent and the percentage of ROC by weight in each solvent;

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

4. The volume (in gallons) of surface coating used each month;

5. The percentage of ROC by weight of the surface coating used.

(d) *Adhesives and Sealants.*

1. 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.*

1. The annual emissions (TPY) from each permitted emissions unit for each criteria pollutant;

2. The annual emissions (TPY) from each exempt emissions unit for each criteria pollutant;

3. The annual emissions (TPY) totaled for each criteria pollutant.

(f) *General Reporting Requirements.*

1. A brief summary of breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence.

2. 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.

3. A copy of the Rule 202 De Minimis Log for the stationary source

Air Pollution Control Officer

JUN 10 2016

Date

<u>NOTES</u>:

(a) Permit Reevaluation due date: February 2019
(b) Part 70 Operating Permit Expiration Date: February 2019
(c) This permit supersedes PTO 88690R9, PTO 13769 and PTO 14496.

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

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

- The maximum operating schedule is in units of hours.
- The gaseous fuel default characteristics are:
  - HHV = 1,050 Btu/scf
  - Fuel Sulfur = 796 ppmvd for all equipment
- NO_x, ROC, CO and PM_{10} 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 = 0.0980 lb/MMBtu, ROC = 0.0054 lb/MMBtu, CO = 0.0824 lb/MMBtu, and PM_{10} = 0.0075 lb/MMBtu.
- SO_2 emission limit (factor) = 0.1362 lb/MMBtu is based on re-conversion of AP-42 data, based on fuel sulfur level of 796 ppmvd (50 grains/100 scf) at Bell Lease.

Flare Information:

- The maximum operating schedule for flaring is in units of hours.
- All flaring volumes based on Greka application.
- HHV = 1050 Btu/scf for flare gas (per Greka application).
- The same emission factors are used for all flaring scenarios, except for SO_X.
- SO_X emissions based on mass balance:

$$SO_x(asSO_2) = \frac{[(0.169)*(ppmvS)]}{HHV}$$

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. Unsafe to monitor components (as defined in Rule 331) are considered uncontrolled.

- For existing onshore sources without a detailed component count inventory, the statistical models developed by the CARB/KVB were 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).

- District 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. <u>Gas to Oil Ratio (GOR)</u>: 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. <u>Wells Heads</u>: Well piping and pumping equipment located above the underground oil and gas well casing.

3. <u>Active Oil Wells</u>: All oil and gas producing wells not abandoned (e.g. not plugged with concrete to block the well). Active oil wells <u>do not</u> 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 Table 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

Fugitive Emissions based on Component Leakpaths

Emissions of reactive organic compounds from piping components such as valves, flanges and connections for which component leakpath counts are available, are computed based on emission factors for component leak path categories listed in District P&P 6100.061 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition*). 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.

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

Reference C - Fugitive Emission Components (*Valves, flanges, and fittings at the 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 District/Tecolote Report, *Modeling of Fugitive Hydrocarbon Emissions* (January 1986), Model B.

<u>Reference D - Pigging Equipment</u>

- 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 District 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_{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 ρ = (pressure x MW) / (R x T), density of vapor remaining in the vessel (lbs VOC/acf)

- Site-specific pigging emission factor EF = (ρ x ROC weight %) , (lb ROC/acf-event)
  - ρ_{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 (gas) = 0.0603 * 0.308 = 0.0186 lb of ROC/acf-event for gas pig launchers.

<u>Reference E - Storage Tanks</u>

- 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 at 180 °F (this is an estimate only)
  - Crude oil (heated) is stored in steam-heated tanks (at 180 °F).
  - Emissions occur 24 hours/day and 365 days/year.
  - The oil throughput rate for each shipping tank is 1600 barrels/day.

- Emission factors are based on the USEPA's AP-42, Section 7 guidelines.

Reference F - 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/ft^2 -day, i.e., about 1/100th of tertiary emissions rate. No emissions factor is available at this time. Annual emissions from the post-tertiary pits amount to 0.01 tpy, on this basis.

Reference G - 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 H - 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)

Attachment:	10.2-1
Permit:	8869-R10
Date:	02/16/16
Tank:	Stock Tank
Owner:	Greka Oil and Gas, Inc
Lease:	Bell
District:	Santa Barbara
Version:	Tank-2c.xls

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 thruput (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/bbl):		8
fraction ROG - flashing losses:		0.308
fraction ROG - evaporative losses:		0.885

Paint Factor Matrix

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

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	2.136089362
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)

Attachment:	10.2-2
Permit:	8869
Date:	02/16/16
Tank:	Reject Tank
Owner:	Greka Oil and Gas, Inc.
Lease:	Bell
District:	Santa Barbara
Version:	Tank-2c.xls

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 thruput (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/bbl):		8
fraction ROG - flashing losses:		0.308
fraction ROG - evaporative losses:		0.885

Paint Factor Matrix

paint color	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

(paint condition: good / poor)

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	2.136089
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%

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)

Attachment:	10.2-3
Permit:	8869-R10
Date:	02/16/16
Tank:	Wash Tank(s)
Owner:	Greka Oil and Gas, Inc.
Lease:	Bell
District:	Santa Barbara
Version:	Tank-2c.xls

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

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

Liquid Data

	A	B
maximum daily throughput (bopd) =		1,600
Ann thruput (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

Paint Factor Matrix

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

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	2.136089362
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 lb/hr	lb/day	ton/year	Controlled ROC emissions 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:	2/16/2016

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	1.00	See AP-42 Table 4.4-1	2
M = Molecular Weight	50	Crude Oil: Default = 50 lb/lb-mole	3
P = True Vapor Pressure (psia)	1.430	See AP-42 Table 12.3-5	1
T = Liquid Temperature ^{0}R	640	180 ^{0}F + 460 = ^{0}R	5
R = Loading Rate (bbl/hr)	160.00	6,720 gallons (42 gallons = 1 bbl)	1
C = Storage Capacity (bbl)	2,000	84,000 gallons (42 gallons = 1 bbl)	1
A = Annual Production (bbl)	584,000	24,528,000 gallons (42 gallons = 1 bbl)	1
eff = Vapor Recovery Efficiency	0.95	Default = 0.95	1
ROC/THC = Reactivity	0.885	Crude Oil: Default = 0.885	

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

Total Uncontrolled Hydrocarbon Losses:

Hourly

$THL_H = (THL_A/HLPY) =$ **8.28** **lbs/hr**

Daily

$THL_D = (THL_H)(HLPD) =$ **103.48** **lbs/day**

Annual

$THL_A = (L_L)(A)(42\ gal/bbl)(1\ ton/2{,}000\ lbs)(ROC/THC) =$ **15.11** **TPY**

Total Controlled Hydrocarbon Losses:

Hourly

$THL_H = (THL_A/HLPY)(1\text{-}eff) =$ **0.41** lbs/hr

Daily

$THL_D = (THL_H)(HLPD)(1\text{-}eff) =$ **5.17** lbs/day

Annual

$THL_A = (L_L)(A)(42\ gal/bbl)(1\ ton/2{,}000\ lbs)(1\text{-}eff)(ROC/THC)$ = tons/year = **0.76** TPY

Path & File Name:
\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 02658 Greka South Cat Canyon\03211 Bell\Reevals\P70 Renewal-2009\[Bell LR Calcs.

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 ^{0}F.

FUGITIVE HYDROCARBON CALCULATIONS - CARB/KVB METHOD+A85

ADMINISTRATIVE INFORMATION			
Attachment:	Attachment 10.2-5		
Company:	Greka Oil and Gas, Inc.SMV	Version:	fhc-kvb5.xls
Facility:	Bell Lease	Date:	24-Oct-00
Processed by:	JJM		
Date:	3/10/2016		
Path & File Name:			
\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 02658 Greka South Cat Canyon\03211 Bell\Reevals\Part 70 PTO 8869-R10\[Bell FHC Calcs R10 - KVB			

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

Data	Value	Units
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

Lease Model	Valve ROG Emission Factor Without Ethane	Fitting ROG Emission Factor Without Ethane	Composite ROG Emission Factor Without Ethane	
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.

ROC 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]	7.66	183.92	33.56
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)	**11.10**	**266.28**	**48.60**

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)	Primary	Secondary	Tertiary
Oil/Water Sump - Upper	2521	4,500		8.51	
Well Cellars	2606	3,312	93.50		
Emergency Pit - Post Tertiary	8400	3,840			22.27
Vaccuum 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
			93.50	19.85	70.57

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

Covered Wastewater Tanks

Efficiency Factor: 85%

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

Covered Wastewater Tanks Equipped with Vapor Recovery

Efficiency Factor: 95%

Description/Name	Number	Surface Area and Type (emissions in lbs/day) Area (ft^2)	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) Equipped with Cover	Equipped with VRS	Open Top	Total lb/day
		0.0			
			0.0		
				0.0	
		0.0	0.0	0.0	0.0

Attachment 10.2-6
Authority to Construct 13204
Greka Bell Flare
Flare Emission Calculations

			Reference
Flare Throughput	0.13750	MMScf/day	Permit Application
Gas Btu Content	1,050	Btu/scf	Permit Application
Sulfur Content	796	ppmv as H2S	Permit Application

Emission Factors	**lb/MMBtu**	**Reference**
NOx	0.0680	AP-42, Table 13.5-1
ROC	0.2000	District 2016 Flare Study
SOx	0.1281	Mass Balance Calculation
CO	0.3700	AP-42, Table 13.5-1
PM	0.0200	APCD
PM10	0.0200	APCD

Btu Throughput		**Reference**
6.000	MMBtu/hour	Daily divided by 24 hr/day
144.375	MMBtu/day	Permit Application
52,696.9	MMBtu/year	Based on a 365 day project life.

Emissions

	NOx	ROC	SOx	CO	PM	PM10
lb/hour	0.41	1.20	0.77	2.23	0.12	0.12
lb/day	9.82	28.88	18.50	53.42	2.89	2.89
ton/year	1.79	5.27	3.38	9.75	0.53	0.53

Attachment: 10.2 - 7

Date: *02/16/16*

BOILER / STEAMGENERATOR CALCULATION WORKSHEET (ver. 6.0)

DATA

Permit No.	8869	
Owner/Operator	Greka	
Facility/Lease	Greka - Bell Lease	
Boiler Type	Firetube	
Boiler Mfg.	Superior	
Boiler Model No.	no data	
Boiler Serial/ID No.	Device# 3211-01/02	
Boiler Horsepower	no data	Bhp
Burner Type	Gas	
Burner Mfg.	no data	
Burner Model No.	no data	
Max. Firing Rate of Burner	4.000	MMBtu/hr
Max. Annual Heat Input	35,040.000	MMBtu/yr
Daily Operating schedule	24	hrs/day
Yearly Load factor (%)	100	%
Fuel Type	Field Gas	
High Heating Value	1,050	Btu/scf
Sulfur Content of Fuel	796.00	ppmvd as H2S
Nitrogen Content of Fuel	-	wt. % N
Boiler Classification	Commercial	
Firing Type	Other Type	
PM Emission Factor	0.0080	lb/MMBtu
PM_{10} Emission Factor	0.0080	lb/MMBtu
NO_x Emission Factor	0.0950	lb/MMBtu
SO_x Emission Factor	0.1430	lb/MMBtu
CO Emission Factor	0.0800	lb/MMBtu
ROC Emission Factor	0.0050	lb/MMBtu

RESULTS	**lb/hr**	**lb/day**	**TPY**
Nitrogen Oxides (as NO_2)	0.38	9.1	1.66
Sulfur Oxides (as SO_2)	0.57	13.7	2.51
PM_{10}	0.03	0.8	0.14
Total Suspended Particulate (PM)	0.03	0.8	0.14
Carbon Monoxide	0.32	7.7	1.40
Reactive Organic Compounds (ROC)	0.02	0.5	0.09

Hourly Heat Release	4.000	MMBtu/hr
Daily Heat Release	96.000	MMBtu/day
Annual Heat Release	35,040.000	MMBtu/yr
Rule 342 Applicability	35.0	Billion Btu/yr

Attachment: 10.2 - 8
Date: *02/16/16*

BOILER / STEAM GENERATOR CALCULATION WORKSHEET (ver. 6.0)

DATA

Permit No.	8869	
Owner/Operator	Greka	
Facility/Lease	Greka - Bell Lease	
Boiler Type	Firetube	
Boiler Mfg.	Superior	
Boiler Model No.	no data	
Boiler Serial/ID No.	Device# 3211-01/02	
Boiler Horsepower	no data	Bhp
Burner Type	Gas	
Burner Mfg.	no data	
Burner Model No.	no data	
Max. Firing Rate of Burner	1.000	MMBtu/hr
Max. Annual Heat Input	8,760.000	MMBtu/yr
Daily Operating schedule	24	hrs/day
Yearly Load factor (%)	100	%
Fuel Type	Field Gas	
High Heating Value	1,050	Btu/scf
Sulfur Content of Fuel	796.00	ppmvd as H2S
Nitrogen Content of Fuel	-	wt. % N

Boiler Classification	Commercial	
Firing Type	Other Type	
PM Emission Factor	0.0075	lb/MMBtu
PM_{10} Emission Factor	0.0075	lb/MMBtu
NO_x Emission Factor	0.0360	lb/MMBtu
SO_x Emission Factor	0.1430	lb/MMBtu
CO Emission Factor	0.2900	lb/MMBtu
ROC Emission Factor	0.0050	lb/MMBtu

RESULTS	**lb/hr**	**lb/day**	**TPY**
Nitrogen Oxides (as NO_2)	0.04	0.9	0.16
Sulfur Oxides (as SO_2)	0.14	3.4	0.63
PM_{10}	0.01	0.2	0.03
Total Suspended Particulate (PM)	0.01	0.2	0.03
Carbon Monoxide	0.29	7.0	1.27
Reactive Organic Compounds (ROC)	0.01	0.1	0.02

Hourly Heat Release	1.000	MMBtu/hr
Daily Heat Release	24.000	MMBtu/day
Annual Heat Release	8,760.000	MMBtu/yr
Rule 342 Applicability	8.8	Billion Btu/yr

FUGITIVE ROC EMISSIONS CALCULATION

ADMINISTRATIVE INFORMATION
Attachment: 10.2-8
Company: Greka Oil & Gas, Inc.
Facility: PTO 8869 (Bell Lease)
Processed by: JJM
Date: 2/1/2016

Facility Type: (Choose one)	
Production Field	x
Gas Processing Plant	
Refinery	
Offshore Platform	

Component	Count[1]	ROC[2] Emission Factor (lbs/day-clp)	ROC/THC Ratio	Uncontrolled ROC Emission (lbs/day)	ROC Control Eff	Controlled ROC Emission (lbs/hr)	Controlled ROC Emission (lbs/day)	Controlled ROC Emission (Tons/Qtr)	Controlled ROC Emission (Tons/year)
Gas Condensate Service									
Valves - Acc/Inacc	12	0.295	0.31	1.10	0.80	0.01	0.22	0.01	0.04
Valves - Bellows		0.295	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Unsafe		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Low Emitting		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - E-500		0.295	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Valves - E-100		0.295	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Flanges - Acc/Inacc	25	0.070	0.31	0.54	0.80	0.00	0.11	0.00	0.02
Flanges - Unsafe		0.070	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Flanges - E-500		0.070	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Flanges - E-100		0.070	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Compressor Seals - To Atm	4	2.143	0.31	2.66	0.80	0.02	0.53	0.02	0.10
Compressor Seals - To VRS		2.143	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Compressor Seals - E-500		2.143	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Compressor seals - E-100		2.143	0.31	0.00	0.90	0.00	0.00	0.00	0.00
PSV - To Atm	1	6.670	0.31	2.07	0.80	0.02	0.41	0.02	0.08
PSV - To VRS		6.670	0.31	0.00	1.00	0.00	0.00	0.00	0.00
PSV - E-500		6.670	0.31	0.00	0.85	0.00	0.00	0.00	0.00
PSV - E-100		6.670	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Pump Seals		1.123	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - E-500		1.123	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Pump Seals - E-100		1.123	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Sub Total	42			6.36		0.05	1.27	0.06	0.23
Oil Service									
Valves - Acc/Inacc	74	0.0041	0.56	0.17	0.80	0.00	0.03	0.00	0.01
Valves - Unsafe		0.0041	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Valves - E-500		0.0041	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Valves - E-100		0.0041	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Flanges - Acc/Inacc	120	0.0020	0.56	0.13	0.80	0.00	0.03	0.00	0.00
Flanges - Unsafe		0.0020	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Flanges - E-500		0.0020	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Flanges - E-100		0.0020	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Pump Seals - Single		0.0039	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - E-500		0.0039	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Pump Seals - E-100		0.0039	0.56	0.00	0.90	0.00	0.00	0.00	0.00
PSV - To Atm		0.2670	0.56	0.00	0.80	0.00	0.00	0.00	0.00
PSV - To VRS		0.2670	0.56	0.00	1.00	0.00	0.00	0.00	0.00
PSV - E-500		0.2670	0.56	0.00	0.85	0.00	0.00	0.00	0.00
PSV - E-100		0.2670	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total	194			0.304		0.00	0.06	0.00	0.01
Total	**236**			**6.669**		**0.0556**	**1.380**	**0.061**	**0.250**

Notes:
1. Source:
2. APCD P&P # 6100.060.1998.
3. APCD P&P # 6100.061.1998
4. A 80% efficiency is assigned to fugitive components Rule 331 implementation.

10.3 Fee Calculations

Permit fees for Bell Lease are based on equipment rating, pursuant to District Rule 210.I.B.2 and Schedule A. See Attachment 0 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 District Rule 210.I.C.

FEE STATEMENT
PT-70/Reeval No. 08869 - R10
FID: 03211 Bell Lease (Cat Canyon) / SSID: 02658

Santa Barbara County
Air Pollution Control District

Device Fee

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
002601	Valves & Fittings	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
002607	Oil and Gas Wellheads	A1.a	1.000	66.70	Per equipment	No	96	1.000	6,403.20	0.00	0.00	6,403.20
114507	Fugitive Hydrocarbon Components	A1.b	1.000	415.00	Per equipment	No	1	1.000	415.00	0.00	0.00	415.00
109880	Crude Oil Storage Tank	A6	84.000	3.82	Per 1000 gallons	No	1	1.000	320.88	0.00	0.00	320.88
002517	Crude Oil Storage Reject Tank	A6	84.000	3.82	Per 1000 gallons	No	1	1.000	320.88	0.00	0.00	320.88
002518	Wash Tank	A6	210.000	3.82	Per 1000 gallons	No	1	1.000	802.20	0.00	0.00	802.20
002525	Boiler	A3	4.000	500.41	Per 1 million Btu input	No	1	1.000	2,001.64	0.00	0.00	2,001.64
113839	Boiler	A3	1.000	500.41	Per 1 million Btu input	No	1	1.000	500.41	0.00	0.00	500.41
114506	Freewater Knockout Vessel	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
005956	Grade level loading rack	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
008400	Emergency Water Pit	A6	218.400	3.82	Per 1000 gallons	No	1	1.000	834.29	0.00	0.00	834.29
008402	Vacuum Truck Clean Out Pit	A6	54.600	3.82	Per 1000 gallons	No	1	1.000	208.57	0.00	0.00	208.57
008404	Emergency Pit	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
008405	Crude Tank Drain Pit	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
002521	Oil/Water Sump – Upper pond	A6	268.800	3.82	Per 1000 gallons	No	1	1.000	1,026.82	0.00	0.00	1,026.82
100246	Pig Launcher	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
387740	Vapor Recovery Compressor	A2	30.000	34.58	Per total rated hp	No	1	1.000	1,037.40	0.00	0.00	1,037.40
100247	Motor: Vapor Recovery System Compressor	A2	25.000	34.58	Per total rated hp	No	1	1.000	864.50	0.00	0.00	864.50
100248	Vapor Recovery System Intake Scrubber	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100249	First-stage Discharge Scrubber	A6	1.000	3.82	Per 1000 gallons	Min	1	1.000	66.27	0.00	0.00	66.27
100250	First-stage Fin-fan Heat Exchanger [gas cooler]	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100251	First-stage Intake Scrubbers (#1)	A6	1.000	3.82	Per 1000 gallons	Min	1	1.000	66.27	0.00	0.00	66.27
100252	First-stage Intake Scrubbers (#2)	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100253	Second and Third StageFin-fan Heat Exchangers [gas cooler]	A1.a	1.000	66.70	Per equipment	No	2	1.000	133.40	0.00	0.00	133.40
100254	Second-stage Intake Scrubber	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70

100255	Third-stage (High Pressure) Discharge Scrubber	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100256	Third-stage Discharge Scrubber (#1)	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100257	Third-stage Discharge Scrubbers (#2)	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100258	Third-stage Discharge Scrubbers (#3)	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100259	Third-stage Intake Scrubber	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100260	Discharge [final] Srubber	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100261	Gas Compressors	A1.a	1.000	66.70	Per equipment	No	2	1.000	133.40	0.00	0.00	133.40
100262	Gas Cooler	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100263	Gas Trap	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100264	Gas/Liquid Separator	A6	1.000	3.82	Per 1000 gal	Min	8	1.000	530.16	0.00	0.00	530.16
100265	Gas-Liquid Separator Vessel	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
008396	Glycol Regenerator	A3	0.350	500.41	Per 1 million Btu input	No	1	1.000	175.14	0.00	0.00	175.14
100266	Glycol Contactor	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100267	Glycol Pumps	A1.a	1.000	66.70	Per equipment	No	2	1.000	133.40	0.00	0.00	133.40
100268	Hydrogen Sulfide Scrubbers	A6	1.000	3.82	Per 1000 gal	Min	2	1.000	132.54	0.00	0.00	132.54
100269	Line Traps	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100270	Line Traps	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100271	Tank Bottom Pump	A2	3.000	34.58	Per total rated hp	No	1	1.000	103.74	0.00	0.00	103.74
100272	Weigh Meters	A1.a	1.000	66.70	Per equipment	No	7	1.000	466.90	0.00	0.00	466.90
100273	Condensate Blowcase	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100274	Condensate Traps (#1)	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100275	Condensate Traps (#2)	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100276	Condensate Traps (#3)	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100277	Condensate Traps (#4)	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100278	Condensate Vessel	A6	1.000	3.82	Per 1000 gal	Min	1	1.000	66.27	0.00	0.00	66.27
100279	Electric Pump	A1.a	1.000	66.70	Per equipment	No	1	1.000	66.70	0.00	0.00	66.70
100280	Electric Motor	A2	300.000	34.58	Per total rated hp	Max	1	1.000	6,695.63	0.00	0.00	6,695.63
112596	Portable Flare	A3	6.000	500.41	Per 1 million Btu input	No	1	1.000	3,002.46	0.00	0.00	3,002.46
	Device Fee Sub-Totals =								**$28,304.67**	**$0.00**	**$0.00**	
	Device Fee Total =											**$28,304.67**

Fee Based on Devices **$28,304.67**

Fee Statement Grand Total = $28,304

Notes:

(1) Fee Schedule Items are listed in District 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

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	20.64	13.05	33.95	71.65	1.57	1.57	31870.80
Fugitive Components - P&P 6100.060	--	31.12	--	--	--	--	--
Fugitive Components - P&P 6100.061	--	1.38	--	--	--	--	--
Pigging Equipment	--	0.08	--	--	--	--	--
Tanks	--	13.40	--	--	--	--	--
Sumps/Cellars/Pits	--	256.41	--	--	--	--	--
Loading Racks	--	5.17	--	--	--	--	--
Totals (lb/day)	**20.64**	**320.61**	**33.95**	**71.65**	**1.57**	**1.57**	**31870.80**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	3.76	2.39	6.20	13.08	0.29	0.29	5813.42
Fugitive Components - P&P 6100.060	--	5.68	--	--	--	--	--
Fugitive Components - P&P 6100.061		0.25					
Pigging Equipment	--	0.00	--	--	--	--	--
Tanks	--	2.44	--	--	--	--	--
Sumps/Cellars/Pits	--	46.80	--	--	--	--	--
Loading Racks	--	0.76	--	--	--	--	--
Totals (TPY)	**3.76**	**58.31**	**6.20**	**13.08**	**0.29**	**0.29**	**5813.42**

Table 10.4-2 Greka South Cat Canyon Stationary Source NEI Since 1990 (FNEI-90)

South Cat Canyon NEI

Facility	FID	Permits	Units	NOx	ROC	CO	SOx	PM	PM10
Bell Lease	3211	ATC 9146, 9412, 9387, 13204, 13264, 13547, 13661, 13769-01	lbs/hr	0.45	2.32	7.11	0.91	0.13	0.13
			lbs/day	10.70	38.70	170.44	21.80	3.09	3.09
			TPQ	0.49	1.74	8.19	1.00	0.14	0.14
			TPY	1.94	7.07	32.73	3.98	0.56	0.56
Blockman	3306	ATC 9964	lbs/hr	0.00	0.05	0.00	0.00	0.00	0.00
			lbs/day	0.00	1.05	0.00	0.00	0.00	0.00
			TPQ	0.00	0.05	0.00	0.00	0.00	0.00
			TPY	0.00	0.19	0.00	0.00	0.00	0.00
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
	Source NEI		**lbs/hr**	**0.45**	**2.39**	**7.11**	**0.91**	**0.18**	**0.18**
			lbs/day	**10.70**	**40.23**	**170.44**	**21.80**	**4.04**	**4.04**
			TPQ	**0.49**	**1.82**	**8.19**	**1.00**	**0.19**	**0.19**
			TPY	**1.94**	**7.36**	**32.73**	**3.98**	**0.74**	**0.74**

10.5 Equipment List

Tuesday, February 16, 2016
Santa Barbara County Air Pollution Control District – Equipment List

PT-70/Reeval 08869 R10 / FID: 03211 Bell Lease (Cat Canyon) / SSID: 02658

A PERMITTED EQUIPMENT

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

1.1 Well Cellars - All

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

1.2 Valves & Fittings

Device ID #	**002601**	*Device Name*	**Valves & Fittings**
Rated Heat Input		*Physical Size*	District P&P 6100-060
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Valves, fittings and flanges, not directly associated with other permitted equipment items, which emit fugitive hydrocarbon emissions.		

1.3 Oil and Gas Wellheads

Device ID #	**002607**	*Device Name*	**Oil and Gas Wellheads**
Rated Heat Input		*Physical Size*	96.00 Total Wells
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			

Device Description	Connected to the gas collection system.

1.4 Fugitive Hydrocarbon Components

Device ID #	**114507**	*Device Name*	**Fugitive Hydrocarbon Components**
Rated Heat Input		*Physical Size*	District P&P 6100-061
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	clps in gas service: 42 clps in oil service: 194		

2 Crude Oil Storage Tank

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

3 Crude Oil Storage Reject Tank

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

4 Wash Tank

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

5 Boiler

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

6 Boiler

Device ID #	**113839**	***Device Name***	**Boiler**
Rated Heat Input	1.000 MMBtu/Hour	*Operator ID*	
		Serial Number	
Manufacturer	Eclipse Winnox		
Model	WX0100	*Stacked Unit?*	No
Location Note			
Emission Control Basis	Uncontrolled		
Device Description			

7 Freewater Knockout Vessel

Device ID #	**114506**	*Device Name*	**Freewater Knockout Vessel**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Diameter of 10 feet and a length of 60 feet, connected to the vapor recovery system.		

8 Grade level loading rack

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

9 Emergency Water Pit

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

10 Vacuum Truck Clean Out Pit

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

11 Emergency Pit

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

12 Crude Tank Drain Pit

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

13 Oil/Water Sump – Upper pond

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

14 Pig Launcher

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

15 Vapor Recovery Compressor

Device ID #	**387740**	*Device Name*	**Vapor Recovery Compressor**
Rated Heat Input		*Physical Size*	30.00 Horsepower (Electric Motor)
Manufacturer	Quincy	*Operator ID*	
Model	QR 5120 NG	*Serial Number*	QB100902
Location Note			
Device Description			

16 Motor: Vapor Recovery System Compressor

Device ID #	**100247**	*Device Name*	**Motor: Vapor Recovery System Compressor**
Rated Heat Input		*Physical Size*	25.00 Horsepower (Electric Motor)
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	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.		

17 Vapor Recovery System Intake Scrubber

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

18 First-stage Discharge Scrubber

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

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

Device ID #	**100250**	***Device Name***	**First-stage Fin-fan Heat Exchanger [gas cooler]**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	used for gas compression, serving: "first" gas compressor's first-stage discharge.		

20 First-stage Intake Scrubbers (#1)

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

21 First-stage Intake Scrubbers (#2)

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

22 Second and Third StageFin-fan Heat Exchangers [gas cooler]

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

23 Second-stage Intake Scrubber

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

24 Third-stage (High Pressure) Discharge Scrubber

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

25 Third-stage Discharge Scrubber (#1)

Device ID #	**100256**	***Device Name***	**Third-stage Discharge Scrubber (#1)**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	used for gas compression: diameter: 38.0 inches, height: 10.0 feet.		

26 Third-stage Discharge Scrubbers (#2)

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

27 Third-stage Discharge Scrubbers (#3)

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

28 Third-stage Intake Scrubber

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

29 Discharge [final] Srubber

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

30 Gas Compressors

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

31 Gas Cooler

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

32 Gas Trap

Device ID #	**100263**	*Device Name*	**Gas Trap**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note	location: near well 53		
Device Description	diameter: 3.0 feet, length: 10.0 feet		

33 Gas/Liquid Separator

Device ID #	**100264**	*Device Name*	**Gas/Liquid Separator**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	diameter (each): 4.0 feet, height (each): 13.0 feet		

34 Gas-Liquid Separator Vessel

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

35 Glycol Regenerator

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

36 Glycol Contactor

Device ID #	**100266**	***Device Name***	**Glycol Contactor**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	used for gas compression, diameter: 3.0 feet, height: 12.5 feet		

37 Glycol Pumps

Device ID #	**100267**	*Device Name*	**Glycol Pumps**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	and filters, associated with the glycol unit		

38 Hydrogen Sulfide Scrubbers

Device ID #	**100268**	*Device Name*	**Hydrogen Sulfide Scrubbers**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	6' diameter by 28' high each, containing 'Sulfa-treat' or an equivalent scrubbing medium.		

39 Line Traps

Device ID #	**100269**	*Device Name*	**Line Traps**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note	location: near well 96		
Device Description	diameter: 4.0 feet, length: 8.0 feet		

40 Line Traps

Device ID #	**100270**	*Device Name*	**Line Traps**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note	location: near well 96.		
Device Description	diameter: 2.0 feet, length: 4.0 feet		

41 Tank Bottom Pump

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

42 Weigh Meters

Device ID #	**100272**	*Device Name*	**Weigh Meters**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	diameter (each): 5.0 feet, length (each): 5.0 feet		

43 Condensate Blowcase

Device ID #	**100273**	*Device Name*	**Condensate Blowcase**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	used for gas compression, diameter: 2.0 feet, length: 3.5 feet.		

44 Condensate Traps (#1)

Device ID #	**100274**	*Device Name*	**Condensate Traps (#1)**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	diameter: 3.0 feet, length: 13.0 feet, location: near well 49		

45 Condensate Traps (#2)

Device ID #	**100275**	*Device Name*	**Condensate Traps (#2)**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	diameter: 4.0 feet, length: 12.0 feet		

46 Condensate Traps (#3)

Device ID #	**100276**	***Device Name***	**Condensate Traps (#3)**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	diameter: 3.0 feet, length: 10.0 feet		

47 Condensate Traps (#4)

Device ID #	**100277**	***Device Name***	**Condensate Traps (#4)**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	diameter: 1.0 foot, length: 4.0 feet, location: near well 81		

48 Condensate Vessel

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

49 Electric Pump

Device ID #	**100279**	*Device Name*	**Electric Pump**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	standby to facilitate transfer of wastewater to lower injection ponds.		

50 Electric Motor

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

B EXEMPT EQUIPMENT

1 Water Jacket Coolers

Device ID #	**100282**	*Device Name*	**Water Jacket Coolers**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.L.4 Water Cooling Towers/Ponds	
Location Note			
Device Description			

2 Water Storage Tanks

Device ID #	**100283**	***Device Name***	**Water Storage Tanks**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.L.2 Air Cond/Vent Systm W/No Air Contaminant Removal	
Location Note			
Device Description	use: store fresh water for water jacket cooler(s)		

3 Equipment Used in Maintenance Operations

Device ID #	**100289**	***Device Name***	**Equipment Used in Maintenance Operations**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.D.8 Routine Repair and Maintenance	
Location Note			
Device Description			

4 Gasoline Storage Tank

Device ID #	**100290**	*Device Name*	**Gasoline Storage Tank**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.V.7 Storage Of Gas W/Capacity Of <250 Gal	
Location Note			
Device Description	less than 250 gallons capacity		

5 Lube Oil Storage Tank

Device ID #	**100291**	*Device Name*	**Lube Oil Storage Tank**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.V.3 Storage Of Lubricating Oils	
Location Note			
Device Description			

6 Portable IC Engine

Device ID #	**100292**	*Device Name*	**Portable IC Engine**
Rated Heat Input		*Physical Size*	27.00 Brake Horsepower
Manufacturer	Duetz	*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.F.1.e. Compression ignition engines w/ bhp 50 or less	
Location Note			
Device Description	Drives an air compressor, registered with California ARB.		

7 Solvent Usage During Wipe Cleaning

Device ID #	**100293**	*Device Name*	**Solvent Usage During Wipe Cleaning**
Rated Heat Input		*Physical Size*	55.00 Gallons Solvent Used
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.I.1 Dip Ops w/no Organic Solvents/Dil/Thnrs	
Location Note			
Device Description	provided usage does not exceed 55 gallons/year		

10.6 Well List

CA Well Results [Active Wells only]

County:Santa Barbara 083 Field:Cat Canyon Operator Code:G3515 Lease:Bell

District	Formatted API	Operator Name	Operator Code	Field Name	Field Code	Lease Name	Well	API #	Well Status	Section	Township	Range	Base Meridian	Area Code	Area Name	Latitude	Longitude
3	083-00045	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	160	08300045	I	26	09N	33W	SB	21	West	34.8258302	-120.316214
3	083-00101	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	167	08300101	A	26	09N	33W	SB	21	West	34.826825	-120.3220067
3	083-00102	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	108	08300102	I	36	09N	33W	SB	21	West	34.8135707	-120.3124611
3	083-00109	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	135	08300109	A	35	09N	33W	SB	21	West	34.8185923	-120.3228919
3	083-00227	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	41	08300227	A	27	09N	33W	SB	21	West	34.8321642	-120.3381277
3	083-00257	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	49	08300257	A	27	09N	33W	SB	21	West	34.8315237	-120.3320275
3	083-00266	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	84	08300266	I	35	09N	33W	SB	21	West	34.8180377	-120.3183367
3	083-00303	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	133	08300303	I	35	09N	33W	SB	21	West	34.8184831	-120.3272697
3	083-00682	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	16	08300682	A	36	09N	33W	SB	21	West	34.8093852	-120.3107395
3	083-00684	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	64	08300684	I	26	09N	33W	SB	21	West	34.8238145	-120.3203645
3	083-00778	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	95	08300778	I	26	09N	33W	SB	21	West	34.8242127	-120.3226099
3	083-01488	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	5	08301488	I	26	09N	33W	SB	21	West	34.828117	-120.318023
3	083-01492	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	12	08301492	I	27	09N	33W	SB	21	West	34.8240952	-120.3338904
3	083-01493	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	13	08301493	A	27	09N	33W	SB	21	West	34.8277365	-120.3382572
3	083-01494	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	14	08301494	A	27	09N	33W	SB	21	West	34.8276515	-120.333867
3	083-01496	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	17	08301496	I	2	08N	33W	SB	21	West	34.8066162	-120.3135494
3	083-01497	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	18	08301497	I	36	09N	33W	SB	21	West	34.8072161	-120.3111831
3	083-01498	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	19	08301498	I	36	09N	33W	SB	21	West	34.8116623	-120.3126689
3	083-01500	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	21	08301500	A	36	09N	33W	SB	21	West	34.812845	-120.3102551
3	083-01501	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	22	08301501	I	1	08N	33W	SB	21	West	34.8050166	-120.3114162
3	083-01503	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	24	08301503	I	35	09N	33W	SB	21	West	34.8169936	-120.3290759
3	083-01504	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	25	08301504	A	36	09N	33W	SB	21	West	34.8152699	-120.3120061
3	083-01507	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	28	08301507	A	36	09N	33W	SB	21	West	34.8096003	-120.3125934
3	083-01509	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	39	08301509	A	35	09N	33W	SB	21	West	34.8181071	-120.3205648
3	083-01511	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	42	08301511	A	27	09N	33W	SB	21	West	34.833619	-120.337133
3	083-01513	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	44	08301513	A	27	09N	33W	SB	21	West	34.8259182	-120.3360892
3	083-01514	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	45	08301514	A	27	09N	33W	SB	21	West	34.830507	-120.3381722
3	083-01515	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	46	08301515	A	27	09N	33W	SB	21	West	34.8222077	-120.3337414
3	083-01516	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	47	08301516	A	26	09N	33W	SB	21	West	34.82767	-120.322849
3	083-01518	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	51	08301518	A	27	09N	33W	SB	21	West	34.825965	-120.337382
3	083-01519	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	52	08301519	A	27	09N	33W	SB	21	West	34.8349868	-120.3358823
3	083-01520	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	53	08301520	A	27	09N	33W	SB	21	West	34.8331915	-120.3358702

3	083-01521	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	54	08301521	A	27	09N	33W	SB	21	West	34.8313856	-120.3358609
3	083-01522	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	55	08301522	I	27	09N	33W	SB	21	West	34.8295553	-120.3358468
3	083-01523	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	56	08301523	I	35	09N	33W	SB	21	West	34.8205835	-120.3287881
3	083-01524	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	57	08301524	I	26	09N	33W	SB	21	West	34.8239089	-120.3291985
3	083-01525	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	58	08301525	A	26	09N	33W	SB	21	West	34.8279442	-120.3292008
3	083-01527	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	60	08301527	A	34	09N	33W	SB	21	West	34.8205801	-120.3337413
3	083-01529	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	62	08301529	I	35	09N	33W	SB	21	West	34.8136277	-120.3142669
3	083-01530	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	65	08301530	A	27	09N	33W	SB	21	West	34.825914	-120.3338336
3	083-01531	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	66	08301531	I	35	09N	33W	SB	21	West	34.8140808	-120.3191207
3	083-01532	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	67	08301532	I	27	09N	33W	SB	21	West	34.8259588	-120.3318171
3	083-01533	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	68	08301533	I	26	09N	33W	SB	21	West	34.8257548	-120.3274591
3	083-01535	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	70	08301535	I	27	09N	33W	SB	21	West	34.8312548	-120.3334633
3	083-01536	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	71	08301536	A	27	09N	33W	SB	21	West	34.8332639	-120.3336022
3	083-01537	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	72	08301537	A	27	09N	33W	SB	21	West	34.8332318	-120.3317132
3	083-01538	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	73	08301538	A	27	09N	33W	SB	21	West	34.8295325	-120.3315402
3	083-01539	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	74	08301539	A	27	09N	33W	SB	21	West	34.8278792	-120.3316986
3	083-01540	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	75	08301540	A	27	09N	33W	SB	21	West	34.8241032	-120.3316731
3	083-01541	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	77	08301541	A	34	09N	33W	SB	21	West	34.8189251	-120.3313245
3	083-01542	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	79	08301542	A	35	09N	33W	SB	21	West	34.8168183	-120.3273898
3	083-01544	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	83	08301544	A	35	09N	33W	SB	21	West	34.8165186	-120.323271
3	083-01545	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	85	08301545	A	35	09N	33W	SB	21	West	34.8160318	-120.3162001
3	083-01546	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	86	08301546	I	26	09N	33W	SB	21	West	34.822287	-120.3250352
3	083-01547	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	89	08301547	A	35	09N	33W	SB	21	West	34.8204503	-120.3272419
3	083-01549	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	92	08301549	A	35	09N	33W	SB	21	West	34.8138227	-120.3167579
3	083-01550	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	97	08301550	A	35	09N	33W	SB	21	West	34.8105449	-120.3169085
3	083-01552	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	101	08301552	A	35	09N	33W	SB	21	West	34.8125554	-120.3213735
3	083-01554	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	103	08301554	A	34	09N	33W	SB	21	West	34.8208507	-120.3312178
3	083-01555	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	104	08301555	A	35	09N	33W	SB	21	West	34.8185352	-120.3293482
3	083-01556	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	105	08301556	A	26	09N	33W	SB	21	West	34.8273877	-120.3269172
3	083-01559	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	109	08301559	A	27	09N	33W	SB	21	West	34.8222623	-120.3360467
3	083-01560	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	111	08301560	A	27	09N	33W	SB	21	West	34.8240664	-120.3361554

3	083-01564	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	115	08301564	I	26	09N	33W	SB	21	West	34.8240181	-120.3184511
3	083-01565	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	116	08301565	A	35	09N	33W	SB	21	West	34.8203859	-120.3151748
3	083-01566	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	117	08301566	I	35	09N	33W	SB	21	West	34.8190945	-120.3137617
3	083-01567	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	118	08301567	I	26	09N	33W	SB	21	West	34.8241395	-120.3162505
3	083-01568	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	119	08301568	I	35	09N	33W	SB	21	West	34.8154873	-120.3142834
3	083-01569	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	120	08301569	A	35	09N	33W	SB	21	West	34.8118913	-120.3148042
3	083-01570	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	122	08301570	I	35	09N	33W	SB	21	West	34.8166079	-120.3252085
3	083-01572	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	132	08301572	A	36	09N	33W	SB	21	West	34.8093902	-120.3125693
3	083-01573	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	138	08301573	I	35	09N	33W	SB	21	West	34.8115446	-120.3204169
3	083-01574	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	139	08301574	A	35	09N	33W	SB	21	West	34.8197404	-120.3291744
3	083-01575	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	141	08301575	I	35	09N	33W	SB	21	West	34.821226	-120.3193982
3	083-01576	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	148	08301576	I	35	09N	33W	SB	21	West	34.8212267	-120.3298798
3	083-01578	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	151	08301578	I	26	09N	33W	SB	21	West	34.8258034	-120.3173553
3	083-01579	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	153	08301579	I	35	09N	33W	SB	21	West	34.8082264	-120.3131168
3	083-01581	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	161	08301581	A	26	09N	33W	SB	21	West	34.8223851	-120.3160696
3	083-01582	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	162	08301582	A	26	09N	33W	SB	21	West	34.8231446	-120.3192109
3	083-01583	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	163	08301583	I	26	09N	33W	SB	21	West	34.8247138	-120.3196626
3	083-01584	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	164	08301584	A	26	09N	33W	SB	21	West	34.8267264	-120.3195169
3	083-01585	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	166	08301585	A	26	09N	33W	SB	21	West	34.8249377	-120.3217645
3	083-01662	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	33	08301662	A	26	09N	33W	SB	21	West	34.8258373	-120.3183947
3	083-01668	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	81	08301668	A	35	09N	33W	SB	21	West	34.8202917	-120.3184199
3	083-01670	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	87	08301670	A	26	09N	33W	SB	21	West	34.8222363	-120.320523
3	083-20101	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	168	08320101	I	35	09N	33W	SB	21	West	34.8188612	-120.3147346
3	083-20126	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	169	08320126	A	36	09N	33W	SB	21	West	34.8126763	-120.3123417
3	083-20129	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	170	08320129	A	35	09N	33W	SB	21	West	34.81492	-120.312368
3	083-20215	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	171	08320215	A	35	09N	33W	SB	21	West	34.8155561	-120.3196203
3	083-20364	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	156	08320364	I	35	09N	33W	SB	21	West	34.8106701	-120.31323
3	083-20695	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	172	08320695	I	26	09N	33W	SB	21	West	34.8245879	-120.3140719
3	083-22243	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	58H	08322243	I	26	09N	33W	SB	21	West	34.8279623	-120.329251
3	083-22248	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	201H	08322248	A	27	09N	33W	SB	21	West	34.8352281	-120.3307445
3	083-22249	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	202H	08322249	I	27	09N	33W	SB	21	West	34.8347994	-120.3313878
3	083-22260	Greka Oil & Gas Inc.	G3515	Cat Canyon	128	Bell	340H	08322260	A	26	09N	33W	SB	21	West	34.8240688	-120.327004

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]

JUN 10 2016

USPS Tracking 9205 8901 1220 3906 8126 93

Jeanette Boyer
Greka Oil and Gas
PO Box 5489
Santa Maria, CA 93456

FID: 0321, 03306, 03307, 03831
Permit: Pt70 PTOs 8075-R10, 8076-R10
8869-R10, 8036-R10
SSID: 02658

Re: Final Part 70 Permit Renewal / Reevaluations
Fee Due: $ 38,309

Dear Ms Boyer:

Enclosed is final Part 70 Permit Renewal / Reevaluation (PT-70/Reeval) Nos. 8075-R10, 8076-R10, 8869-R10 and 8036-R10 for the Greka South Cat Canyon Stationary Source.

Please carefully review the enclosed documents to ensure that they accurately describe your facility and that the conditions are acceptable to you. Note that your permitted emission limits may, in the future, be used to determine emission fees.

You should become familiar with all District rules pertaining to your facility. This permit does not relieve you of any requirements to obtain authority or permits from other governmental agencies.

This permit requires you to:

- Pay fees totaling $38,309, which are due immediately and are considered late after 30 calendar days from the date stamped on the permits. Pursuant to District Rule 210.IV.B, no appeal shall be heard unless all fees have been paid. See the attached invoice for more information.
- Follow the conditions listed on your permits. Pay careful attention to the recordkeeping and reporting requirements.
- Ensure that a copy of each enclosed permit is posted or kept readily available near the permitted equipment.
- Promptly report changes in ownership, operator, or your mailing address to the District.

If you are not satisfied with the conditions of this permit, **you have thirty (30) days from the date of this issuance to appeal this permit to the Air Pollution Control District Hearing Board** (ref: California Health and Safety Code, §42302.1). Any contact with District staff to discuss the terms of this permit will not stop or alter the 30-day appeal period.

Please include the facility identification (FID) and permit numbers as shown at the top of this letter on all correspondence regarding this permit. If you have any questions, please contact Jim Menno of my staff at (805) 614-6787.

Sincerely,

Michael Goldman, Manager
Engineering Division

enc: Final Pt-70/Reeval Nos. 8075-R10, 8076-R10, 8869-R10, 8036-R10
Final Permit Evaluation
Invoice # P7R 08869-R10, 08075-R10, 08076-R10, 08036-R10
Air Toxics "Hot Spots" Fact Sheet District Form 12B

cc: Greka South Cat Canyon Facility 02658 Project File
ENGR Chron File
Accounting (Invoice only)
D. Harris (Cover letter only)

Santa Barbara County
Air Pollution Control District
260 N San Antonio Rd, Suite A
Santa Barbara, CA 93110-1315

Invoice: P7R 08869 - R10
Date: JUN 10 2016
Terms: Net 30 Days

300000/6600/3282

INVOICE

BILL TO:	FACILITY:
Jeanette Boyer Greka Oil & Gas (101541) PO Box 5489 Santa Maria, CA 93456	Bell Lease (Cat Canyon) 03211 Cat Canyon Oil Field Santa Maria

Permit: Part 70 Permit Renewal / Reevaluation (PT-70/Reeval) No. 08869 - R10

Fee Type: Permit Evaluation Fee (see the Fee Statement in your permit for a breakdown of the fees)

Amount Due: $ 28,304

REMIT PAYMENTS TO THE ABOVE ADDRESS
Please indicate the invoice number P7R 08869 - R10
on your remittance.

IF YOU HAVE ANY QUESTIONS REGARDING YOUR INVOICE PLEASE CONTACT
OUR ADMINISTRATION DIVISION AT (805) 961-8800

The District charges $25 for returned checks. Other penalties/fees may be incurred as a result of returned checks and late payment (see District Rule 210). Failure to pay this Invoice may result in the cancellation or suspension of your permit. Please notify the District regarding any changes to the above information