PERMIT TO OPERATE 15000

and

PART 70 OPERATING PERMIT 15000

SIERRA RESOURCES - BARHAM RANCH STATIONARY SOURCE
BLAIR LEASE - BARHAM RANCH

LOS ALAMOS
SANTA BARBARA COUNTY, CALIFORNIA

OWNER/OPERATOR

Purisima Hills LLC / Sierra Resources, Inc. (Sierra Resources)

Santa Barbara County
Air Pollution Control District

August 2018

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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
BOEM	Bureau of Ocean Energy Management
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
M	mega (million)
MACT	Maximum Achievable Control Technology
MM	million
MW	molecular weight
NG	natural gas
NSPS	New Source Performance Standards
O_2	oxygen
OCS	outer continental shelf
ppm (vd or w)	parts per million (volume dry or weight)
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PRD	pressure relief device
PTO	Permit to Operate
RACT	Reasonably Available Control Technology
ROC	reactive organic compounds, same as "VOC" as used in this permit
RVP	Reid vapor pressure
scf	standard cubic foot
scfd (or scfm)	standard cubic feet per day (or per minute)
SIP	State Implementation Plan
STP	standard temperature (60°F) and pressure (29.92 inches of mercury)
THC	Total hydrocarbons
tpy, TPY	tons per year
TVP	true vapor pressure
USEPA	United States Environmental Protection Agency
VE	visible emissions
VRS	vapor recovery system

1.0 Introduction

1.1 Purpose

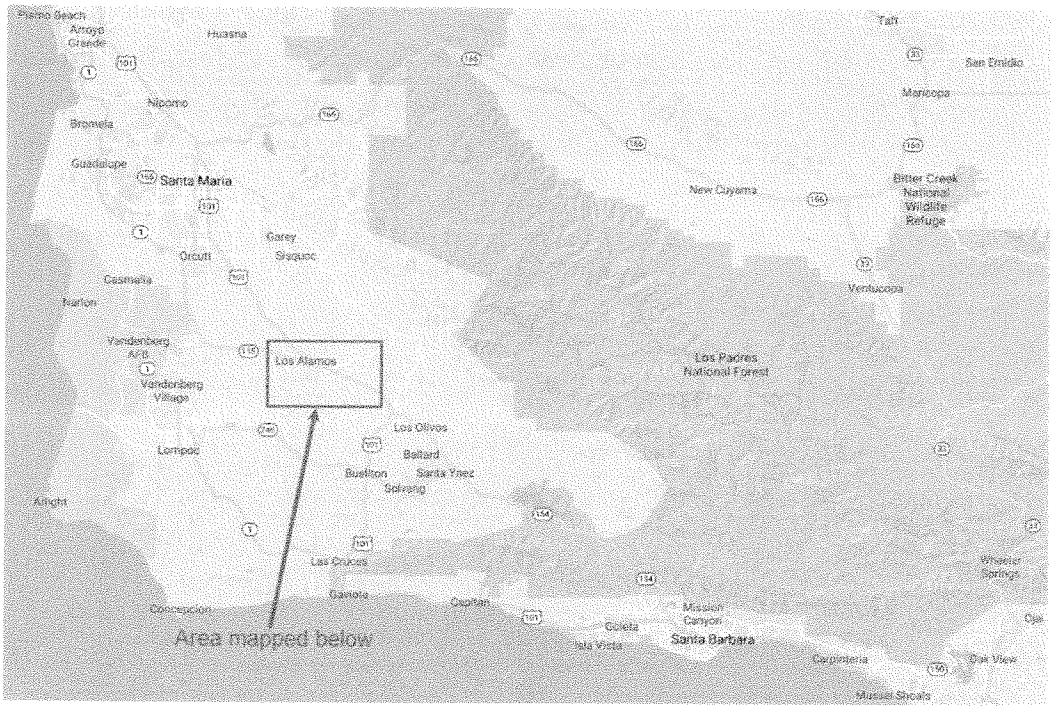
General: The Santa Barbara County Air Pollution Control District (District) is responsible for implementing all applicable federal, state and local air pollution requirements that affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 61, 63, 68, 70 and 82. The State regulations may be found in the California Health & Safety Code, Division 26, Section 39000 et seq. The applicable local regulations can be found in the District's Rules and Regulations. This is a combined permitting action that covers both the Federal Part 70 permit (*Part 70 Operating Permit 15000*) as well as the State Operating Permit (*Permit to Operate 15000*).

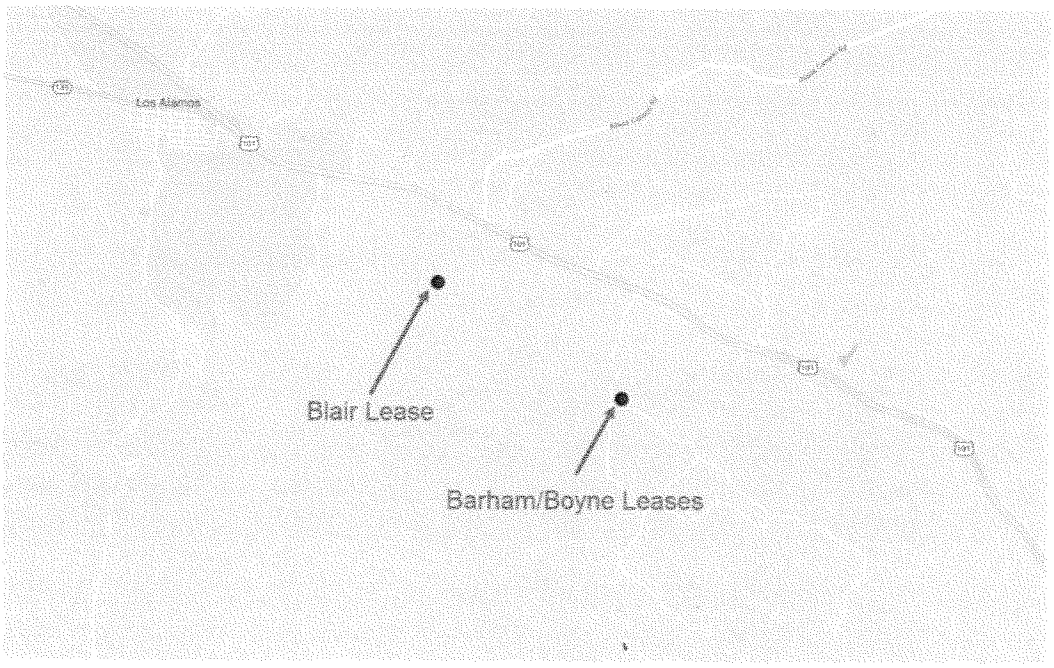
Part 70 Permitting: This is the initial Part 70 permit for the Blair Lease and is being issued in accordance with the requirements of the District's Part 70 operating permit program. The Blair Lease is a part of the Sierra Resources Barham Ranch Stationary Source, which is a major source of ROC and CO emissions. Conditions listed in this permit are based on federal, state or local rules and requirements. Sections 9.A, 9.B and 9.C of this permit are enforceable by the District, the USEPA and the public since these sections are federally-enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally-enforceable.

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

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

Figure 1.1 - Location Map for the Blair Lease





1.2 Stationary Source / Facility Overview

1.2.1 General Overview: Purisima Hills LLC is the sole owner and Sierra Resources, Inc. is the operator of the Barham Ranch Stationary Source located in the city of Los Alamos, an unincorporated area of Santa Barbara County at is 9500 US Highway 101. For District regulatory purposes, it is in the Northern Zone of Santa Barbara County[1]. Figure 1.1 shows the location of the facility. The Barham Ranch Stationary Source became a Part 70 source as a result of a District determination in February 2017 that the Blair and the Barham/Boyne Leases comprised a single stationary source. The Barham Ranch Stationary Source (SSID 2638) was constructed in the early 1990s and is comprised of the following facilities:

- Blair Lease (FID 2637)
- Barham/Boyne Leases (FID 3777)
- IC Engines (FID 11609)

The Blair Lease consists of the following oil and gas production systems:

- Oil and Gas Wells
- Oil/water/gas Separation System
- Oil and Water Storage System
- Produced Gas Flaring System
- Vapor Recovery System
- Oil Shipping System
- Wastewater Treatment System

There are fifteen (15) oil and gas wells located at the Blair Lease. Each well is equipped with an electric pump or pump driven by an internal combustion engine to enhance well productivity. The engines driving these pumps are permitted under Pt70 PTO 15074. Produced well fluids are processed through gas/liquid separators then enter a heated wash tank. Crude oil is sent to crude oil storage tanks then trucked offsite and produced gas is either used as fuel gas or burned in the flare. Produced water is treated in wastewater tanks and trucked offsite. The tanks are connected to a vapor recovery system. Vapors collected by the vapor recovery unit are burned in the production flare or used as fuel for the tank heater.

1.2.2 Facility Permitting History: The following permits have been issued for this facility:

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC 7494	2/15/1989	ATC for a new oil and gas facility.
PTO 7494	8/14/1990	PTO for a new oil and gas facility.
ATC 8540	7/8/1991	ATC for wells and processing equipment.
ATC 8837	7/9/1992	PTO for wells and processing equipment.
PTO 8837	12/7/1992	PTO for wells and processing equipment.
PTO 8837 R1	1/19/1994	Permit Reevaluation
PTO 8837 R2	5/9/1997	Permit Reevaluation
PTO 8837 R3	6/15/2000	Permit Reevaluation
PTO 8837 R4	12/3/2002	Permit Reevaluation
PTO 8837 R5	7/29/2005	Permit Reevaluation
PTO 8837 R6	2/17/2010	Permit Reevaluation

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

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC 8922	11/20/1992	Install three new wells.
PTO 8922	11/20/1992	PTO for three new wells.
ATC 9420	8/24/1995	Install a wastewater tank.
PTO 8837 R7	12/16/2011	Permit Reevaluation
PTO 8837 R8	1/28/2015	Permit Reevaluation
ATC 14856	8/23/2016	Replace crude oil stock tank.
PTO 14856	8/23/2016	Replace crude oil stock tank.
PTO 14914	12/23/2016	Wastewater tank

1.3 Emission Sources

The emissions at the Blair Lease include oil and gas wells and their associated well cellars, oil/water/gas separation equipment, production flare, vapor recovery flare, tank heater, storage tanks and fugitive emission components such as valves and flanges. Section 4 of the permit provides the District's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit and also lists the potential emissions from non-permitted emission units.

The emission sources include:

- Oil and gas wells and well cellars
- Three (3) crude shipping tanks
- Two (2) wastewater tanks
- One (1) wash tank
- One production flare
- One vapor recovery flare
- One tank heater
- Crude oil loading rack
- Fugitive emission components in gas/liquid hydrocarbon service

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

1.4 Emission Control Overview

The emission controls employed at this facility include:

- A Fugitive Inspection & Maintenance program for detecting and repairing leaks of hydrocarbons from piping components, i.e., valves, flanges and seals, consistent with the requirements of the District Rule 331 to reduce ROC emissions by approximately 80-percent.

- A vapor recovery/gas collection (VRGC) system to collect reactive organic vapors from the gas/liquid separators and the tanks.

- A program to keep well cellars pumped out consistent with the requirements of District Rule 344.

- The flares are equipped with the technology standards required by Rule 359.

1.5 Offsets/Emission Reduction Credit Overview

The Barham Ranch Stationary Source exceeds the offset thresholds of Regulation VIII for NO_x and ROC emissions, however, this is a result of the District determination that the Blair and Barham/Boyne leases comprise a single stationary source. There have been no New Source Review permit actions since this determination was made therefore no emission offsets are required for the emissions associated with this permit.

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. These requirements are enforceable by the public under CAAA. (*See Tables 3.1 and 3.2 for a list of federally-enforceable requirements)*

1.6.2 Insignificant Emissions Units: Insignificant emission units are defined under District Rule 1301 as any regulated air pollutant emitted from the unit, excluding HAPs, that are less than 2 tons per year based on the unit's potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit's potential to emit. Insignificant activities were listed in the Part 70 permit application. See Attachment 10.6 for a list of insignificant units.

1.6.3 Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant, unless the source is: (1) subject to a federal NSPS/NESHAP requirement 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. Sierra Resources 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. Sierra Resources 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 the anniversary date of the permit or on a more frequent schedule specified in the permit. A "responsible official" of the owner/operator company signs each certification whose name and address is listed prominently in the Part 70 permit. (*see Section 1.6.9 below)*

1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The

permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data.

1.6.8 Hazardous Air Pollutants (HAPs): Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology (MACT), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability. The Barham Ranch Stationary Source is not considered a major source of HAPs *(see Sections 4.12 and 5.5)*

1.6.9 Responsible Officials: The designated responsible official is:

Mr. Doug Eberts, Chief Financial Officer
Sierra Resources, Inc.
P. O. Box 2788
Mammoth Lakes, CA 93546

2.0 Process Description

2.1 Process Summary

2.1.1 Process Summary: The Blair lease is an oil and gas production facility that consists of oil and gas wells and oil and gas processing equipment. The wells are equipped with downhole well pumps powered by internal combustion engines. The engines are permitted under Pt70 PTO 15074. Oil, water and gas from the wells is piped to a central processing unit located at the Blair lease. Preliminary processing of the fluids is performed by this processing equipment to separate the crude from the water and gas and prepare it for transportation by tanker truck to other locations for final processing and refining.

2.1.2 Gas, Oil, and Water Separation: The crude, water, gas emulsion initially enters three-phase separators to separate the oil from the water and gas. The crude is then routed to a heated wash tank. The crude is heated by a 0.1500 MMBtu heater to facility the separation process. The crude is then sent to the crude oil storage tanks and produced gas is either used as fuel gas for the tank heater or is burned in the production flare. Produced water is sent to the wastewater tanks.

2.1.3 Production Flare: Produced gas consists of the gas separated out in the separators and the vapors gathered by the vapor recovery unit. These gases are directed to the tank heater to serve as fuel gas. Produced gas that is not used as fuel in the tank heater is directed to this flare. The flare is a 91.880 MMBtu/Hour Kaldair, open-pipe unit subject to Rule 359.

2.1.4 Vapor Recovery: Each tank is connected to the vapor recovery unit which gathers tank vapors. The VRU is equipped with a compressor driven by a 15 hp electric motor which compresses the vapors and directs them to the heater treater to serve as fuel gas. Excess vapors that are not used as fuel are flared in a flare dedicated to the VRS.

2.1.5 Crude Oil Shipping: Oil from the crude storage tank is shipped offsite by tanker truck via the crude oil loading rack. The loading rack is also connected to the vapor recovery unit.

2.1.6 Wastewater Disposal: Produced water is shipped offsite by tanker truck.

2.2 Support Systems

There are no additional support systems on the Blair Lease.

2.3 Maintenance/Degreasing Activities

2.3.1 Paints and Coatings: Intermittent surface coating operations are conducted throughout the facility for occasional structural and equipment maintenance needs, including architectural coating. Normally only touch-up and equipment labeling or tagging is performed. All architectural coatings used are in compliance with District Rule 323, as verified through the rule-required recordkeeping.

2.3.2 Solvent Usage: Solvents not used for surface coating thinning may be used on the Blair Lease for daily operations. Usage includes cold solvent degreasing and wipe cleaning with rags.

2.4 Planned Process Turnarounds

Maintenance of critical components is carried out according to the requirements of Rule 331 (*Fugitive Emissions Inspection and Maintenance*) during turnarounds. Sierra Resources did not list any emissions from planned process turnarounds.

2.5 Other Processes

2.5.1 Unplanned Activities/Emissions: Sierra Resources does not anticipate or foresee any circumstances that would require special equipment use resulting in excess emissions.

2.6 Detailed Process Equipment Listing

Refer to Attachment 10.4 for a complete listing of all permitted equipment.

3.0 Regulatory Review

This section identifies the federal, state and local rules and regulations applicable to the Blair Lease.

3.1 Rule Exemptions Claimed

District Rule 202 *Exemptions to Rule 201*: Sierra Resources has requested the following exemptions under this rule. An exemption from permit, however, does not necessarily grant relief from any applicable prohibitory rule. The District approved the following exemptions:

- Abrasive Blasting Unit (Rule 202.H.3)
- Storage of Drums of Lubrication Oils (Rule 202.V.3)
- Storage of various types of oils with Initial Boiling Point 300° F or greater (Rule 202.V.1)
- Painting and Solvent Use for Maintenance Activities (Rule 202.D.8)

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)}*: 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}*: The crude oil storage tanks at the Blair Lease are not subject to this because they have a design volume less than 1,589.874 m^3 (10,000 bbls) and are located prior to custody transfer.

3.2.3 40 CFR Part 61 *{NESHAP}*: This facility is not currently subject to the provisions of this Subpart.

3.2.4 40 CFR Part 63 *{MACT}*: On June 17, 1999, EPA promulgated Subpart HH, a National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. The stationary source is not considered a major source of HAPS, therefore the only affected source (equipment) subject to requirements of this subpart for area sources are triethylene glycol (TEG) dehydration units per section 63.760(b)(2). Since there are no TEG units at this facility, the facility is not subject to this subpart per section 63.760(d).

3.2.5 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. Compliance with this rule was evaluated and it was determined that no emission units at this facility are currently subject to CAM.

3.2.6 Subpart ZZZZ *{NESHAP - Stationary Internal Combustion Engines}*: There are no emission units on this permit subject to this MACT.

3.2.7 Subpart DDDDD *{Industrial/Commercial/Institutional Boilers and Process Heaters}*: The external combustion equipment associated with this source is not subject to this MACT.

3.2.8 Subpart EEEE *{Organic Liquid Distribution}*: There are no emission units on this permit subject to this MACT.

3.2.9 40 CFR Part 70 *{Operating Permits}*: This subpart is applicable to the Blair Lease. Table 3.1 lists the federally-enforceable District promulgated rules that are "generic" and apply to the Blair Lease. Table 3.2 lists the federally-enforceable District promulgated rules that are "unit-specific" that apply to the Blair Lease. Table 3.3 lists non-federally-enforceable District Rules. These tables are based on data available from the District's administrative files and from the Part 70 Operating Permit application.

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

3.3 Compliance with Applicable State Rules and Regulations

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

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

3.3.3 Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (CCR Title 17, Section 95665 *et. Seq.*): On October 1, 2017, the California Air Resources Board (CARB) finalized this regulation, which establishes greenhouse gas emission standards for onshore and offshore crude oil and natural gas production facilities. This facility is subject to the provisions of this regulation. The separators and tanks at this facility satisfy the requirements of the CARB regulation through the use of a vapor collection system. The reciprocating natural gas compressor at this facility satisfies the requirements of the CARB regulation through the implementation of leak detection and repair (LDAR) on the rod packing/seals pursuant to District Rule 331. This facility is exempt from the leak detection and repair (LDAR) requirements of the CARB regulation per Section 95669(b)(1), which exempts components, including components found on tanks, separators, wells and pressure vessels, that are subject to District Rule 331 LDAR requirements prior to January 1, 2018. This facility does not utilize circulation tanks for well stimulation treatments, centrifugal natural gas compressors, natural gas powered pneumatic devices or pumps, natural gas only wells, or well casing vents, and is therefore not subject to the CARB regulation standards and requirements for these equipment and processes.

3.4 Compliance with Applicable Local Rules and Regulations

3.4.1 Applicability Tables: In addition to Tables 3.1 and 3.2, Table 3.3 lists the non-federally-enforceable District promulgated rules that apply to the Blair Lease.

3.4.2 Rules Requiring Further Discussion: This section provides a detailed discussion regarding the applicability and compliance of certain rules. The following is a rule-by-rule evaluation of compliance for this facility:

District Rule 210 - Fees: Pursuant to Rule 201.G, District permits are reevaluated every three years. This includes the re-issuance of the underlying permit to operate. Also included are the PTO fees. The fees for this facility are based on District Rule 210, Fee Schedule A, however, Part 70 specific costs are based on cost reimbursement provisions (Rule 210.C).

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

District Rule 302 - Visible Emissions: This rule prohibits the discharge from any single source any air contaminants for which a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of 1 on the Ringlemann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of 1 on the Ringlemann Chart. All internal combustion engines (ICE) are subject to this rule. The ICEs associated with the Barham Ranch Stationary Source are permitted on Pt70 PTO 15074. The requirement of this rule are addressed in that permit.

District Rule 303 (Nuisance): Rule 303 prohibits any source from discharging such quantities of air contaminants or other material in violation of Section 41700 of the Health and Safety Code which cause injury, detriment, nuisance or annoyance to any considerable number of persons or

to the public or which endanger the comfort, repose, health or safety or any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. Compliance with this rule is assessed through the District's enforcement staff's complaint response program. Based on the source's location, the potential for public nuisance is minimal.

District Rule 304 (Particulate Matter - Northern Zone): A person shall not discharge into the atmosphere from any source particulate matter in excess of 0.3 grain per cubic foot of gas at standard conditions.

District Rule 309 - Specific Contaminants: Under Section "A", no source may discharge sulfur compounds and combustion contaminants (particulate matter) in excess of 0.2-percent as SO_2 (by volume) and 0.3 gr/scf (at 12% CO_2) respectively.

District 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.

District Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted on the Blair Lease to 0.5-percent (by weight) for liquids fuels and 9.4 gr/100 scf (calculated as H_2S) {or 150 ppmvd} for gaseous fuels.

District 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. Sierra Resources is required to maintain records to ensure compliance with this rule.

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

District 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. Sierra Resources will be required to maintain records during maintenance operations to ensure compliance with this rule.

District 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 which has a limit of 250 grams ROC per liter of coating, as applied. The permittee will be required to comply with the Administrative requirements under Section F for each container on the lease.

District Rule 324 - Disposal and Evaporation of Solvents: This rule prohibits any source from disposing more than one and a half gallons of any photochemically reactive solvent per day by

means that will allow the evaporation of the solvent into the atmosphere. Sierra Resources is required to maintain records to ensure compliance with this rule.

District Rule 325 - Crude Oil Production and Separation: This rule, adopted January 25, 1994, applies to equipment used in the production, gathering, storage, processing and separation of crude oil and gas prior to custody transfer. The primary requirements of this rule are under Sections D and E. Section D requires the use of vapor recovery systems on all tanks and vessels, including wastewater tanks, oil/water separators and sumps. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. The tanks on this lease are all connected to the vapor recovery system. Compliance with Section E is met by directing all produced gas to the fuel gas system or to the flare.

District Rule 326 - Storage of Reactive Organic Liquids: This rule applies to equipment used to store reactive organic compound liquids with a vapor pressure greater than 0.5 psia. The tanks on the Blair Lease are subject to Rule 325, and are therefore are not subject to this rule per Section B.1.c.

District 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 with this rule will be demonstrated through inspections and recordkeeping.

District Rule 331 - Fugitive Emissions Inspection and Maintenance: This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production facilities. Ongoing compliance with the provisions of this rule will be assessed via inspection by District personnel using an organic vapor analyzer, analysis of operator records and the District-approved Fugitive Hydrocarbon Inspection and Maintenance Plan. The Blair Lease does not perform any routine venting of hydrocarbons to the atmosphere. All gases routinely vented are directed to the vapor recovery system.

District Rule 342 - Control of Oxides of Nitrogen from Boilers, Steam Generators and Process Heaters: This rule applies to boilers, steam generators and process heaters with rated heat inputs greater than or equal to 5 million Btu per hour used in all industrial, institutional and commercial operations. There are no units subject to this rule on the Blair lease.

District 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. This rule is not applicable to the tanks at the Blair Lease.

District Rule 344 - Sumps, Pits and Well Cellars: Rule 344 requires controls on sumps and pits subject to the rule and an inspection and maintenance plan for well cellars. There are no sumps or pits at the Blair Lease; well cellars only.

District Rule 352 - Natural Gas-Fired Fan-Type Central Furnaces and Small Water Heaters: This rule applies to new water heaters rated less than 75,000 Btu/hr and new fan-type central furnaces. There are no units subject to this rule at the Blair Lease.

District Rule 353 - Adhesives and Sealants: This rule is applicable to any person who supplies, sells, offers for sale, manufactures, solicits the application of, or uses adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers, unless otherwise specifically exempted by this rule. Compliance with this rule will be demonstrated through inspections and recordkeeping.

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 tank heater was installed prior to the rule adoption date and therefore is not 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. There are no units at this facility subject to this rule.

District Rule 505 - Breakdown Conditions: This rule describes the procedures that Sierra Resources must follow when a breakdown condition occurs to any emissions unit associated with the Blair 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.

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

3.5 Compliance History

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

3.5.1 Facility Inspections: Routine facility inspections are conducted annually at this facility. Inspection reports for these inspections were reviewed as part of the issuance of this permit. Minor changes were made to the Equipment List as a result of these inspections. No significant issues were identified during these inspections.

3.5.2 Violations: District records indicate that one enforcement action (comprising two counts) has been issued to this facility:

NOV #11042: Issued July 29, 2016 for exceeding the number of allowable leaks in Table 1 of Rule 331 and operating multiple IC engines in excess of 400 bhp without a District permit.

3.5.3 Variances: There have been no variances issued to this facility since the last permit reevaluation.

3.5.4 Significant Historical Hearing Board Actions: There have been no significant Hearing Board actions since the previous permit reevaluation.

Table 3.1 - Generic Federally-Enforceable District Rules

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 101: Compliance by Existing Installations	All emission units	Emission of pollutants	June 21, 2012
RULE 102: Definitions	All emission units	Emission of pollutants	August 25, 2016
RULE 103: Severability	All emission units	Emission of pollutants	October 23, 1978
RULE 201: Permits Required	All emission units	Emission of pollutants	June 19, 2008
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	August 25, 2016
RULE 203: Transfer	All emission units	Change of ownership	April 17, 1997
RULE 204: Applications	All emission units	Addition of new equipment of modification to existing equipment.	August 25, 2016
RULE 205: Standards for Granting Permits	All emission units	Emission of pollutants	April 17, 1997
RULE 206: Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules	October 15, 1991
RULE 207: Denial of Applications	All emission units	Applicability of relevant Rules	October 23, 1978
RULE 208: Action on Applications – Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment of modification to existing equipment.	April 17, 1997

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 212: Emission Statements	All emission units	Administrative	October 20, 1992
RULE 301: Circumvention	All emission units	Any pollutant emission	October 23, 1978
RULE 302: Visible Emissions	All emission units	Particulate matter emissions	June 1981
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.	October 23, 1978
RULE 304: Particulate Matter – Northern Zone	Each PM Source	Emissions of PM in effluent gas	October 23, 1978
RULE 309: Specific Contaminants	All emission units	Combustion contaminant emission	October 23, 1978
Rule 310: Odorous Organic Sulfides	All emission units	Combustion contaminant emission	October 23, 1978
RULE 311: Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur	October 23, 1978
RULE 317: Organic Solvents	Emission units using solvents	Solvent used in process operations.	October 23, 1978
RULE 321: Solvent Cleaning Operations	Emission units using solvents.	Solvent used in process operations.	June 21, 2012
RULE 322: Metal Surface Coating Thinner and Reducer	Emission units using solvents.	Solvent used in process operations.	October 23, 1978
RULE 323.1: Architectural Coatings	Paints used in maintenance and surface coating activities.	Application of architectural coatings.	June 19, 2014
RULE 324: Disposal and Evaporation of Solvents	Emission units using solvents.	Solvent used in process operations.	October 23, 1978
RULE 342: Control of Oxides of Nitrogen (NO_x) from Boilers Steam Generators and Process Heaters.	Control heat inputs greater than or equal to 5 million Btu per hour	Process heaters and steam generators.	April 17, 1997
RULE 353: Adhesives and Sealants	Emission units using adhesives and solvents.	Adhesives and sealants used in process operations.	June 21, 2012
RULE 505.A, B1, D: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.	October 23, 1978
RULE 603: Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	Barham Ranch is a major source.	June 15, 1981
RULE 810: Federal Prevention of Significant Deterioration	New or modified emission units	Major modifications	June 20, 2013

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
REGULATION VIII: New Source Review	All emission units	Addition of new equipment of modification to existing equipment. Applications to generate ERC Certificates.	August 25, 2016
RULE 901: New Source Performance Standards (NSPS)	All emission units	Applicability standards are specified in each NSPS.	September 20, 2010
RULE 1001: National Emission Standards for Hazardous Air Pollutants (NESHAPS)	All emission units	Applicability standards are specified in each NESHAP.	October 23, 1993
REGULATION XIII (RULES 1301-1305): Part 70 Operating Permits	All emission units	Barham Ranch is a major source.	January 18, 2001

Table 3.2 - Unit-Specific Federally-Enforceable District Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 325: Crude Oil Production and Separation	Wash tank, crude storage tanks, wastewater tanks	Pre-custody transfer oil service tanks with capacities exceeding exemption limits.	January 18, 2001
RULE 331: Fugitive Emissions Inspection & Maintenance	All components (valves, flanges, seals, compressors and pumps) used to handle oil and gas:	Components emit fugitive ROCs.	Dec 10, 1991
RULE 343: Petroleum Storage Tank Degassing	Wash tank, crude storage tanks, wastewater tanks	Tanks used in storage of organic liquids with vapor pressure > 2.6 psia.	Dec 14, 1993
RULE 344: Petroleum Wells, Sumps and Cellars	Well cellars, sump, wastewater pits	The wells at this facility are equipped with well cellars. Compliance with this rule provides a 70% reduction in well cellar ROC emissions.	Nov 10, 1994
Rule 360: Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers	Water heaters, boilers, steam generators or process heaters rated input capacity 75,000 - 2.0 MMBtu/hour	Any new equipment item covered by this rule must certify compliance with the rule emission limits.	March 15, 2018

Table 3.3 - Non-Federally-Enforceable District Rules

Requirement	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 210: Fees	All emission units	Administrative	March 17, 2005
RULE 212: Emission Statements	All emission units	Administrative	October 20, 1992
RULE 310: Odorous Organic Sulfides	All emission units	Emission of organic sulfides	October 23, 1978
RULE 361: Small Boilers, Steam Generators, and Process Heaters.	Any boiler, steam generator, and process heater with a rated heat input capacity greater than 2 MMBtu/hr and less than 5 MMBTU/hr.	Any equipment item covered by this rule must comply with the rule emission limits.	January 17, 2008
RULES 501-504: Variance Rules	All emission units	Administrative	October 23, 1978
RULE 505.B2, B3, C, E, F, G: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.	October 23, 1978
RULES 506-519: Variance Rules	All emission units	Administrative	October 23, 1978

4.0 Engineering Analysis

4.1 General

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

- facility process flow diagrams
- emission factors and calculation methods for each emissions unit
- 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 July 13, 1998 (ver 1.1) was used to determine non-methane, non-ethane fraction of THC.

4.2 External Combustion Equipment

Tank Heater: The tank heater is a 1.200 MMbtu/unit utilized to heat the fluids in the wash tank. This unit was manufactured and installed prior to the adoption of Rule 360, and is not subject to any District rule emission limits. The emission factors for all the pollutants, e.g., NO_X, ROC, CO and $PM/PM_{10/2.5}$ are based on USEPA AP-42, Section 1.4, Fifth Edition, November 1995. Sulfur

oxide emissions are based on mass balance calculations. The calculation methodology is the same for all the units and follows below (see also Attachment 10.1):

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

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 values (1050 Btu/scf)

4.3 Flares

Production Flare: The smokeless, naturally aspirated flare, is a Kaldair model Indair I-6 equipped with a continuous pilot and electronic ignition and is rated at 91.875 MMBtu/hr. Produced gas that is not used as fuel is burned in the flare. Emission factors for NO_x and CO are based on AP-42 Table 13.5-1. The ROC factor is based on the District 2016 Flare Study. SO_x emissions are based on mass balance.

VRU Flare: The smokeless, naturally aspirated flare is a field constructed open-pipe unit equipped with a continuous pilot and electronic ignition and is rated at 0.15 MMBtu/hr. All gas gathered by the VRU is routed to this flare. Emission factors for NO_x and CO are based on AP-42 Table 13.5-1. The ROC factor is based on the District 2016 Flare Study. SO_x emissions are based on mass balance.

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)

4.4 Fugitive Hydrocarbon Sources

4.4.1 Piping Components: Emissions of reactive organic compounds from piping components (e.g., valves and connections), pumps, compressors and pressure relief devices have been quantified using emission factors pursuant to 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*). The component leak-path counts used in the calculations are based on a revised and corrected inventory compiled by Sierra Resources and included in a revised and District-approved Fugitive Inspection and Maintenance Plan dated July 2017.

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 but "unsafe to monitor" components due to the implementation of a District-approved I&M program consistent with Rule 331 requirements. Detailed fugitive emission calculations are provided in Attachment 10.2. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

4.4.2 Well Cellars: The Blair Lease is equipped with fifteen (15) well cellars. Well cellar emissions are reduced 70-percent for maintaining this equipment consistent with Rule 344. The emission estimates are based District P&P 6100.060 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities by the CARB/KVB Method - Modified for Revised ROC Definition*). The calculation is:

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

where:
E = 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)

Attachment 10.2 contains an emission spreadsheet showing the detailed calculations for the well cellars.

4.5 Tanks/Vessels/Sumps/Separators

4.5.1 Oil-Water Separation and Crude Oil Storage Tanks: The Blair Lease utilizes three 1,000 bbl crude storage tanks. The tanks are vertical, cone roofed units measuring 21.5 in feet diameter by 16.0 feet high. There is also one 300 bbl wash tank that measures 10.0 feet in diameter by 24.0 feet high. All tanks are connected to vapor recovery. Emissions from these tanks are calculated using USEPA AP-42, Chapter 7 - Liquid Storage Tanks (5th Edition, 2/96). Attachment 10.2 contains emission spreadsheets showing the detailed calculations for these tanks.

4.5.2 Waste Water Tanks: The Blair Lease uses two vertical, fixed roof wastewater tanks. One tank has a 120 bbl capacity and measures 8.0 feet in diameter by 16.0 feet high and the second is 500 bbl measuring 21.0 feet in diameter by 8.0 feet high. Both tanks are connected to vapor recovery. Emissions from the tanks are calculated using the same methodology as pits and sumps and is based on District's 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*). Attachment 10.2 contains an emission spreadsheet showing the detailed calculations for the tanks.

4.6 Loading Rack

4.6.1 Loading Rack: Crude oil is delivered offsite via the crude oil loading rack. The loading rack is powered by a pump associated with the tanker truck and is connected to vapor recovery. Attachment 10.2 contains an emission spreadsheet showing the detailed calculations for the loading rack.

4.7 Other Emission Sources

4.7.1 General Solvent Cleaning/Degreasing: Solvent usage (not used as thinners for surface coating) may occur at the facility as part of normal daily operations). The usage includes cold solvent degreasing. Mass balance emission calculations are used assuming all the solvent used evaporates to the atmosphere. The solvent limits in Table 5.2 cannot be exceeded (excluding solvent activities that qualify for the maintenance exemption under Rule 202).

4.7.2 Surface Coating: Surface coating operations typically include normal touch up activities. Entire facility painting programs may also be performed. Emissions are determined based on mass balance calculations assuming all solvents evaporate into the atmosphere. Emissions of PM/PM_{10} from paint overspray are not calculated due to the lack of established calculation techniques.

4.7.3 Abrasive Blasting: Abrasive blasting with CARB certified sands may be performed as a preparation step prior to surface coating. The engines (ICEs) used to power the compressor may be electric or diesel fired. Any ICE used for this purpose will require a permit unless the engine qualifies for a permit exemption. 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, PM_{10} and $PM_{2.5}$ when needed for compliance verifications. A $PM/PM_{10}/PM_{2.5}$ ratio of 1.0 is assumed.

4.8 Vapor Recovery/Control System

The vapor recovery system (VRS) collects ROC vapors from the storage tanks and loading rack. It is equipped with a compressor driven by a 15 hp electric motor. The vapors are collected and routed to the vapor recovery unit flare which is dedicated to the VRU. Overall ROC control efficiency for the system is assumed to be 95 percent.

4.9 BACT/NSPS/NESHAP/MACT

To date, this facility has not triggered Best Available Control Technology (BACT), New Source Performance Standards (NSPS) National Emission Standards for Hazardous Air Pollutants (NESHAP) or Maximum Available Control Technology (MACT).

A National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage was promulgated on June 17, 1999. As described in section 3.2.4, this facility is not subject to this MACT.

4.10 CEMS/Process Monitoring/CAM

4.10.1 CEMS: There are no CEMS at this facility.

4.10.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the use of process monitoring systems. Examples of these monitors include: engine hour meters, fuel usage meters, water injection mass flow meters, flare gas flow meters

and hydrogen sulfide analyzers. It is important that they be well maintained and calibrated to ensure that the required accuracy and precision of the devices are within specifications. Sierra Resources is required to monitor facility flow volumes in accordance with District-approved plans.

4.10.3 CAM: There are no emission units at this facility subject to the USEPA's Compliance Assurance Monitoring Assurance (CAM) rule.

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 for issuing operating permits. This permit requires no source testing.

At a minimum, the process streams below are required to be sampled and analyzed on a periodic basis, per District Rules and standards:

Produced oil: Annual analysis for API gravity and true vapor pressure.

Produced Gas: Monthly analysis of produced gas for hydrogen sulfide (H_2S) content and annual analysis for HHV.

All sampling and analyses are required to be performed according to District approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. For liquids with API gravity over 20, ASTM D323 applies for true vapor pressure (TVP) measurement. In this case, the TVP at the maximum expected temperature shall be calculated from the Reid vapor pressure in accordance with API Bulletin 2518, or equivalent Reid/true vapor pressure correlation. The calculated true vapor pressure is based on the maximum expected operating temperature in the initial crude oil storage tank. TVP sampling methods for liquids with an API gravity under 20^{O} require specialized procedures per Rule 325.G.2.b. It is important that all sampling and analysis be traceable by chain of custody procedures. H_2S measurements are conducted using colorimetric gas detection tubes.

4.12 Part 70 Engineering Review: Hazardous Air Pollutant Emissions

Hazardous air pollutant emissions from the different categories of emission units at the Blair Lease are based on emission factors listed in USEPA AP-42. Where no emission factors are available, the HAP fractions from the ARB VOC Speciation Manual - Second Edition (August 1991) are used in conjunction with the ROC emission factor for the equipment item in question. HAP emission factors are listed in Table 5.4-1. Potential HAP emissions from the facility are computed and listed in Table 5.4-2. These emissions are estimates only. They are not limitations.

5.0 Emissions

5.1 General

The facility was analyzed to determine all air-related emission sources. Emissions calculations are divided into "permitted" and "exempt" categories. District Rule 202 determines permit-exempt equipment. The permitted emissions for each emissions unit is based on the equipment's

potential-to-emit (as defined by Rule 102). Since the previous permit reevaluation, $PM_{2.5}$ has been added as a regulated pollutant, therefore $PM_{2.5}$ emissions have been quantified.

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 details the federal potential to emit using the definition of potential to emit used in Rule 1301. Section 5.5 addresses the estimated HAP emissions from the facility. Section 5.6 addresses the estimated emissions from permit-exempt equipment and also serves as the Part 70 list of insignificant emissions. Section 5.7 addresses the estimated emissions from greenhouse gasses. The District uses a computer database to accurately track the emissions from a facility. Attachment 10.3 contains the District's documentation for the information entered into that database.

5.2 Permitted Emission Limits - Emission Units

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

- Nitrogen Oxides (NO_x) [2]
- Reactive Organic Compounds (ROC)
- Carbon Monoxide (CO)
- Sulfur Oxides (SO_x) [3]
- Particulate Matter (PM) [4]
- Particulate Matter smaller than 10 microns (PM_{10})
- Particulate Matter smaller than 2.5 microns ($PM_{2.5}$)
- Greenhouse Gases (GHG)

Permitted emissions are calculated for both short term (daily) and long term (annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachments 10.1 and 10.2 respectively. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Tables 5.1-3 and 5.1-4 show the permitted short-term and permitted long-term emissions for each unit or operation. Table 5.2 lists the facility potential to emit and Table 5.3 lists the federal potential to emit. With the exception of fugitive emissions, all emission limits are federally-enforceable.

5.3 Permitted Emission Limits - Facility Totals

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

---

[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

Daily Scenario:

- External combustion units
- Fugitive components
- Crude oil tanks
- Wash tank
- Waste water tanks, sumps and oil/water separators
- Well cellars
- Loading rack
- Flaring
- Solvent usage

Annual Scenario:

- External combustion units
- Fugitive components
- Crude oil tanks
- Wash tank
- Waste water tanks, sumps and oil/water separators
- Well cellars
- Loading rack
- Flaring
- Solvent usage

5.4 Part 70: Federal Potential to Emit for the Facility

Table 5.3 lists the federal Part 70 potential to emit. Coating emissions, although exempt from permit requirements, are included in the federal potential to emit calculation. Fugitive emissions from the Blair Lease emissions units are not counted in the federal definition of potential to emit.

5.5 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.

5.6 Exempt Emission Sources

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

5.7 Greenhouse Gases

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

External Combustion: 117.10 lbs/MMbtu as CO_2

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Table 5.1-1. Operating Equipment Description

Equipment Category	Description	APCD Device No.	Device Specifications					Usage Data							Reference[1]
			Fuel	HHV (Btu/scf)	ppmv S [a]	Size	Units	Capacity	Units	Emission Reduction %	hr	day	qtr	year	
Combustion: External	Tank Heater	1443	FG	1050	150	1.20	MMBtu/hr	1.20	MMBtu/hr	--	1.00	24	2190	8760	A
	Production Flare	1412	FG	1050	150	91.88	MMBtu/hr	91.88	MMBtu/hr	--	1.00	24	2190	8760	D
	VRU Flare	1413	FG	1050	150	0.15	MMBtu/hr	0.15	MMBtu/hr	--	1.00	24	2190	8760	E
Fugitive Components (District P&P 6100.060)	Valves/Fittings/Wellheads	103656	--	--	--	Valves and fittings		--	--	80%	1.00	24	2190	8760	C
Fugitive Components (District P&P 6100.061)	Valves and fittings	389140	--	--	--	See Attachment 10.2					1.00	24	2190	8760	C
Tanks	Crude Stock Tank	1444	--	--	--	21.5' x 16'		1,000	bbl	--	1.00	24	2190	8760	A/B
	Crude Stock Tank	1411	--	--	--	21.5' x 16'		1,000	bbl	--	1.00	24	2190	8760	
	Crude Stock Tank	389139	--	--	--	21.5' x 16'		1,000	bbl	--	1.00	24	2190	8760	
	Wash Tank	2518	--	--	--	37.5' x 24'		120	bbl	--	1.00	24	2190	8760	
	Wastewater Tank	1446	--	--	--	8.0' x 16'		120	bbl	--	1.00	24	2190	8760	
	Wastewater Tank	390232	--	--	--	21.0' x 8'		500	bbl						
Well Cellars	Well Cellars	1442	--	--	--	424	ft^2			70%	1.00	24	2190	8760	B
Loading Rack	Crude Oil Loading Rack	1414	--	--	--	160	bbl/hr			--	1.00	10	913	3650	F
Solvents	Cleaning/Degreasing	--	--	--	--	various					1.00	24	2190	8760	G

[1] References as listed in Attachment 10.1.

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Table 5.1-2. Equipment Emission Factors

Equipment Category	Description	Emission Factors								Reference
		NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG	Units	
Combustion: External	Tank Heater	0.098	0.005	0.0824	0.0257	0.008	0.008	117.00	lb/MMBtu	A
	Production Flare	0.068	0.200	0.370	0.0257	0.02	0.02	117.00	lb/MMBtu	D
	Flare	0.068	0.200	0.370	0.0257	0.02	0.02	117.00	lb/MMBtu	E
Fugitive Components (District P&P 6100.060)	Valves/Fittings/Wellheads	-	2.805	-	-	-	-	-	lb/day-well	C
Fugitive Components (District P&P 6100.061)	Valves and fittings	See Attachment 10.2		-	-	-	-	-	lb/day-well	C
Tanks										A/B
	Crude Stock Tank	See Attachment 10.2		-	-	-	-	-	lb/kgal	
	Crude Stock Tank	See Attachment 10.2		-	-	-	-	-	lb/kgal	
	Crude Stock Tank	See Attachment 10.2		-	-	-	-	-	lb/kgal	
	Wash Tank	See Attachment 10.2		-	-	-	-	-	lb/kgal	
	Wastewater Tank	See Attachment 10.2		-	-	-	-	-	lb/kgal	
	Wastewater Tank	See Attachment 10.2		-	-	-	-	-		
Well Cellars	Well Cellars	0.0941							lb/ft^2day	B
Loading Rack	Crude Oil Loading Rack	1.3920							lb/kgal	F
Solvent Usage	Cleaning/Degreasing	- various		-	-	-	-	-	lb/gal	G

Footnotes:

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

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Table 5.1-3. Short Term Emission Limits

Equipment Category	Description	NOx	ROC	CO	SOx	PM	$PM_{2.5-10}$	GHG
		lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Combustion: External	Tank Heater	2.82	0.14	2.37	0.74	0.23	0.23	3369.60
	Production Flare	149.94	441.00	815.85	56.67	44.10	44.10	257999.04
	VRU Flare	0.24	0.72	1.33	0.09	0.07	0.07	421.20
Fugitive Components (District P&P 6100.060)	Valves/Fittings/Wellheads	--	8.66	See Attachment 10.2				
Fugitive Components (District P&P 6100.061)	Valves and fittings	--	0.65	--	--	--	--	--
Tanks	Crude Stock Tank	--	0.83	--	--	--	--	--
	Crude Stock Tank	--	0.83	--	--	--	--	--
	Crude Stock Tank	--	0.83	--	--	--	--	--
	Wash Tank	--	0.01	--	--	--	--	--
	Wastewater Tank	--	0.03	--	--	--	--	--
	Wastewater Tank	--	0.10	--	--	--	--	--
Well Cellars	Well Cellars	--	11.97	--	--	--	--	--
Loading Rack	Crude Oil Loading Rack	--	10.79	--	--	--	--	--
Solvents	Cleaning/Degreasing	--	Rule 317 Limits	--	--	--	--	--

Notes

FE = federally enforceable

AE = APCD-only enforceble

NE = not enforceable

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Table 5.1-4. Long Term Emission Limits

Equipment Category	Description	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
		TPY	TPY	TPY	TPY	TPY	TPY	TPY
Combustion: External	Tank Heater	0.52	0.03	0.43	0.14	0.04	0.04	614.95
	Production Flare	27.36	80.48	148.89	10.34	8.05	8.05	47084.82
	VRU Flare	0.04	0.13	0.24	0.02	0.01	0.01	76.87
Fugitive Components (District P&P 6100.060)	Valves/Fittings/Wellheads	--	1.58	-	-	-	-	-
Fugitive Components (District P&P 6100.061)	Valves and fittings	--	0.12	-	-	-	-	-
Tanks								
	Crude Stock Tank	--	0.15	-	-	-	-	-
	Crude Stock Tank	--	0.15	-	-	-	-	-
	Crude Stock Tank	--	0.15	-	-	-	-	-
	Wash Tank	--	0.01	-	-	-	-	-
	Wastewater Tank	--	0.01	-	-	-	-	-
	Wastewater Tank	--	0.02	-	-	-	-	-
Well Cellars	Well Cellars	--	2.18	-	-	-	-	-
Loading Rack	Crude Oil Loading Rack	--	1.97	-	-	-	-	-
Solvents	Cleaanin/Degreasing	--	0.74	-	-	-	-	-

Notes

FE = federally enforceable

AE = APCD-only enforceble

NE = not enforceable

Pt70 Permit to Operate 15000

Table 5.2. Total Facility Permitted Emissions

Equipment Category	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
External Combustion	153.01	441.86	819.56	57.50	44.40	44.40	261789.84
Fugitive Components - P&P 6100.060	--	8.66	--	--	--	--	--
Fugitive Components - P&P 6100.061	--	0.65	--	--	--	--	--
Tanks	--	2.63	--	--	--	--	--
Well Cellars	--	12.07	--	--	--	--	--
Loading Racks	--	10.79	--	--	--	--	--
Solvents	--	Rule 317 Limits	--	--	--	--	--
Totals (lb/day)	**153.01**	**476.66**	**819.56**	**57.50**	**44.40**	**44.40**	**261789.84**

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
External Combustion	27.92	80.64	149.57	10.49	8.10	8.10	47776.65
Fugitive Components - P&P 6100.060	--	1.58	--	--	--	--	--
Fugitive Components - P&P 6100.061		0.12					
Tanks	--	0.46	--	--	--	--	--
Cellars	--	2.18	--	--	--	--	--
Loading Racks	--	1.97	--	--	--	--	--
Solvents	--	0.74	--	--	--	--	--
Totals (TPY)	**27.92**	**87.70**	**149.57**	**10.49**	**8.10**	**8.10**	**47776.65**

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	261789.84
Tanks	--	2.50	--	--	--	--	--
Totals (lb/day)	**20.64**	**32.00**	**33.95**	**71.65**	**1.57**	**1.57**	261789.84

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	47776.65
Tanks	--	0.46	--	--	--	--	--
Totals (TPY)	**3.76**	**5.85**	**6.20**	**13.08**	**0.29**	**0.29**	47776.65

Table 5.4-1
Barham Ranch Blair Lease: Permit to Operate 15000
Equipment Hazardous Air Pollutant Factors

Emission Factors

Equipment Category	Description	APCD Device No.	Hexane	Benzene	Toluene	Xylene	Iso-Octane[1]	Formaldehyde	PAHs (not incl. napthalene)	Naphthalene	Acetaldehyde	Acrolein
Combustion: External	Tank Heater	001443	6.30E-03	8.00E-03	3.60E-02	2.72E-02	--	1.70E-02	1.00E-04	3.00E-04	4.30E-03	2.70E-03
	Production Flare	001412	2.90E-02	1.59E-01	5.80E-02	2.90E-02	--	1.17E+00	3.00E-03	1.10E-02	4.30E-02	1.00E-02
	VRU Flare	001413	2.90E-02	1.59E-01	5.80E-02	2.90E-02	--	1.17E+00	3.00E-03	1.10E-02	4.30E-02	1.00E-02
Fugitive Components	Valves/Fittings/Wellheads	103656	1.77E-01	1.79E-03	--	--	1.55E-01	--	--	--	--	--
Fugitive Components	Valves and fittings	389140	1.77E-01	1.79E-03	--	--	1.55E-01	--	--	--	--	--
Tanks	Crude Stock Tank	001444	5.31E-02	2.71E-02	1.58E-02	--	4.52E-03	--	--	--	--	--
	Crude Stock Tank	001411	5.31E-02	2.71E-02	1.58E-02	--	4.52E-03	--	--	--	--	--
	Crude Stock Tank	389139	5.31E-02	2.71E-02	1.58E-02	--	4.52E-03	--	--	--	--	--
	Wash Tank	002518	5.28E-02	2.64E-02	1.65E-02	--	4.95E-03	--	--	--	--	--
	Wastewater Tank	001446	5.28E-02	2.64E-02	1.65E-02	--	4.95E-03	--	--	--	--	--
	Wastewater Tank	390232	5.28E-02	2.64E-02	1.65E-02	--	4.95E-03	--	--	--	--	--
Well Cellars	Well Cellars	001442	5.28E-02	2.64E-02	1.65E-02	--	4.95E-03	--	--	--	--	--
Loading Rack	Crude Oil Loading Rack	001414	1.77E-01	1.79E-03	--	--	1.55E-01	--	--	--	--	--
Solvents	Cleaning/Degreasing	--	--	5.00E-02	5.00E-02	5.00E-02	--	--	--	--	--	--

Description	APCD Device No.	1,3-Butadiene	Carbon Tetrachloride	Chloroform	Ethylbenzene	Ethylene Dibromide	Ethylene Dichloride	Methanol	Methylene Chloride	Styrene	Vinyl Chloride	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dichloropropane	1,3-Dichloropropene	Arsenic	Beryllium	Cadmium	Total Chromium	Cobalt	Manganese	Mercury	Nickel	Selenium	Units	References
Tank Heater	001443	--	--	--	9.50E-03	--	--	--	--	--	--	--	--	--	--	2.00E-04	1.20E-05	1.10E-03	1.40E-03	8.40E-05	3.80E-04	2.60E-04	2.10E-03	2.40E-05	lb/MMcf	A
Production Flare	001412	--	--	--	1.44E+00	--	--	--	--	--	--	--	--	--	--	2.00E-04	1.20E-05	1.10E-03	1.40E-03	8.40E-05	3.80E-04	2.60E-04	2.10E-03	2.40E-05	lb/MMcf	B
VRU Flare	001413	--	--	--	1.44E+00	--	--	--	--	--	--	--	--	--	--	2.00E-04	1.20E-05	1.10E-03	1.40E-03	8.40E-05	3.80E-04	2.60E-04	2.10E-03	2.40E-05	lb/MMcf	B
Valves/Fittings/Wellheads	103656	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	C
Valves and fittings	389140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	C
Crude Stock Tank	001444	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	D
Crude Stock Tank	001411	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	D
Crude Stock Tank	389139	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	D
Wash Tank	002518	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	E
Wastewater Tank	001446	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	E
Wastewater Tank	390232	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	E
Well Cellars	001442	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	E
Crude Oil Loading Rack	001414	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	C
Cleaning/Degreasing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	lb/lb-ROC	F

References:
A1 - VCAPCD AB 2588 Combustion Emission Factors (2001) - Natural Gas Fired External Combustion Equipment (<10 MMBTU/hr)
A2 - USEPA, AP-42 Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion
B1 - VCAPCD AB 2588 Combustion Emission Factors (2001) - Natural Gas Fired External Combustion Equipment (flare)
B2 - USEPA, AP-42 Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion
C - CARB Speciation Manual Second Edition (1991) Profile Number 758 - Oil & Gas Production Fugitives - Liquid Service
D - CARB Speciation Manual Second Edition (1991) Profile Number 297 - Crude Oil Evaporation - Vapor Composite From Fixed Roof Tanks
E - CARB Speciation Manual Second Edition (1991) Profile Number 532 - Oil & Gas Extraction - Well Heads & Cellars/Oil & Water Separators
F - APCD: Solvents assumed to contain 5% benzene, 5% toluene, 5% xylene

Notes:
1. The weight fraction for iso-Octane (i.e., 2,2,4-Trimethylpentane) is based on the conservative assumption that all isomers of octane are iso-Octane.

Table 5.4-2
Barham Ranch Blair Lease: Permit to Operate 15000
Annual Hazardous Air Pollution Emissions (TPY)

Equipment Category	Description	APCD Device No.	Hexane	Benzene	Toluene	Xylene	Iso-Octane	Formaldehyde	PAHs (not incl. naphthalene)	Naphthalene	Acetaldehyde	Acrolein	1,3-Butadiene	Carbon Tetrachloride	Chloroform	Ethylbenzene	Ethylene Dibromide	Ethylene Dichloride	Methanol	Methylene Chloride	Styrene	Vinyl Chloride	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dichloropropane	1,3-Dichloropropene	Arsenic	Beryllium	Cadmium	Total Chromium	Cobalt	Manganese	Mercury	Nickel	Selenium
Combustion Exterior	Tank Heater	001443	3.15E-05	4.00E-05	1.83E-04	1.36E-04	--	8.51E-05	5.01E-07	1.50E-06	2.15E-05	1.35E-05	--	--	--	4.70E-05	--	--	--	--	--	--	--	--	--	--	1.00E-06	6.01E-08	5.51E-06	7.01E-06	4.20E-07	1.90E-06	1.30E-06	1.05E-05	1.20E-07
	Production Flare	001412	1.11E-02	6.09E-02	2.22E-02	1.11E-02	--	4.48E-01	1.15E-03	4.22E-03	1.65E-02	3.83E-03	--	--	--	5.53E-01	--	--	--	--	--	--	--	--	--	--	7.87E-05	4.60E-06	4.22E-04	5.37E-04	3.22E-05	1.40E-04	9.90E-05	8.03E-04	9.20E-06
	VRU Flare	001413	1.81E-05	9.95E-05	3.63E-05	1.81E-05	--	7.31E-04	1.69E-06	6.88E-06	2.69E-05	6.26E-06	--	--	--	9.04E-04	--	--	--	--	--	--	--	--	--	--	1.29E-07	7.51E-09	6.88E-07	8.76E-07	5.26E-08	2.38E-07	1.63E-07	1.31E-06	1.50E-08
Fugitive Components	Valves/Fittings/Wellheads	103696	2.79E-01	2.82E-03	--	--	2.48E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fugitive Components	Valves and fittings	389140	2.12E-02	2.14E-04	--	--	1.88E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tanks	Crude Stock Tank	001444	7.97E-03	4.07E-03	2.37E-03	--	6.78E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Crude Stock Tank	001411	7.97E-03	4.07E-03	2.37E-03	--	6.78E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Crude Stock Tank	389139	7.97E-03	4.07E-03	2.37E-03	--	6.78E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Wash Tank	002618	5.28E-04	2.84E-04	1.65E-04	--	4.95E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Wastewater Tank	001446	5.28E-04	2.84E-04	1.65E-04	--	4.95E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Wastewater Tank	390232	1.06E-03	5.28E-04	3.30E-04	--	9.90E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Well Cellars	Well Cellars	001442	1.15E-01	5.77E-02	3.60E-02	--	1.08E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Loading Rack	Crude Oil Loading Rack	001414	3.49E-01	3.52E-03	--	--	3.06E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solvents	Cleaning/Degreasing	--	--	0.037	0.037	0.037	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Total Facility HAPs (TPY):		**8.01E-01**	**1.76E-01**	**1.03E-01**	**4.83E-02**	**5.83E-01**	**4.49E-01**	**1.16E-03**	**4.22E-03**	**1.66E-02**	**3.88E-03**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**5.54E-01**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**7.78E-05**	**4.67E-06**	**4.28E-04**	**5.44E-04**	**3.27E-05**	**1.48E-04**	**1.01E-04**	**8.17E-04**	**9.33E-06**

Notes:
1. These are estimates only, and are not intended to represent emission limits.
2. Based on CAAA, Section 112 (n) (4) stipulations, the HAP emissions listed above can not be aggregated at the source for any purpose, including determination of HAP major source status for MACT applicability.
3. Natural gas emission calculations are based on a standard value of 1010 BTU/scf.

Table 5.4-3
Sierra Resources Barham Ranch: Permit to Operate 15000
Stationary Source Hazardous Air Pollutant Emissions (TPY)

Facility	Permit #	Hexane	Benzene	Toluene	Xylenes	Iso-Octane	Formaldehyde	PAHs (not incl. naphthalene)	Naphthalene	Acetaldehyde	Acrolein	1,3-Butadiene	Carbon Tetrachloride	Chloroform	Ethylbenzene	Ethylene Dibromide	Ethylene Dichloride	Methanol	Methylene Chloride	Styrene	Vinyl Chloride	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dichloropropane	1,3-Dichloropropene	Arsenic	Beryllium	Cadmium	Total Chromium	Cobalt	Manganese	Mercury	Nickel	Selenium	Total - All HAP
02637 - Blair Lease	**PTO 15000**	8.01E-01	1.76E-01	1.03E-01	4.83E-02	5.83E-01	4.49E-01	1.15E-03	4.22E-03	1.65E-02	3.85E-03	0.00E+00	0.00E+00	0.00E+00	5.54E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.78E-05	4.67E-06	4.28E-04	5.44E-04	3.27E-05	1.48E-04	1.01E-04	8.17E-04	9.33E-06	2.74E+00
03777 - Boyne Lease	**PTO 16001**	7.14E-01	1.59E-01	1.07E-01	3.97E-02	4.60E-01	8.57E-02	2.21E-04	8.09E-04	3.23E-03	7.85E-04	0.00E+00	0.00E+00	0.00E+00	1.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-05	1.12E-06	1.03E-04	1.31E-04	7.84E-06	3.55E-05	2.43E-05	1.96E-04	2.24E-06	1.68E+00
11609 - IC Engines	**PTO 15074**	3.77E-02	6.61E-02	3.28E-02	9.12E-03	0.00E+00	1.88E+00	0.00E+00	3.31E-03	2.85E-01	2.65E-01	2.79E-02	2.07E-03	1.60E-03	3.67E-03	2.50E-03	1.44E-03	1.04E-01	5.01E-03	1.87E-03	8.42E-04	2.26E-03	1.80E-03	1.52E-03	1.49E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E+00
Total Stationary Source - By Pollutant		**1.55E+00**	**4.01E-01**	**2.43E-01**	**9.71E-02**	**1.04E+00**	**2.42E+00**	**1.37E-03**	**8.34E-03**	**3.05E-01**	**2.70E-01**	**2.79E-02**	**2.07E-03**	**1.60E-03**	**6.64E-01**	**2.50E-03**	**1.44E-03**	**1.04E-01**	**5.01E-03**	**1.87E-03**	**8.42E-04**	**2.26E-03**	**1.80E-03**	**1.52E-03**	**1.49E-03**	**9.64E-05**	**5.79E-06**	**5.30E-04**	**6.75E-04**	**4.05E-05**	**1.83E-04**	**1.25E-04**	**1.01E-03**	**1.16E-05**	**7.16E+00**

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

6.0 Air Quality Impact Analyses

6.1 Modeling

Air quality modeling has not been required for the Blair Lease.

6.2 Increments

An air quality increment analysis has not been required for the Blair Lease.

6.3 Monitoring

Air quality monitoring is not required for the Blair Lease.

6.4 Health Risk Assessment

The Sierra Resources Barham Ranch Stationary Source is subject to the Air Toxics Hot-Spots Program (AB-2588). A health risk assessment (HRA) for the source was prepared by the District in November 1995 under the requirements of the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588). The HRA is based on 1992 toxic emissions inventory data submitted to the District by a previous operator. An earlier HRA, based on 1990 emission data was also prepared by the District for in July 1993. Based on the 1992 toxic emissions inventory, a cancer risk of 3 per million off the property was estimated for the Barham Ranch Stationary Source. Additionally, a chronic risk of 0.05 and an acute risk of 0.04 have been estimated by the District. The cancer and non-cancer chronic risk projections are less than the District's AB-2588 significance thresholds of 10 in a million and 1.0, respectively.

7.0 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 facility or the Barham Ranch 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 240 lbs/day for all attainment pollutants and precursors (except carbon monoxide and $PM_{2.5}$) and 25 tons/year for all non-attainment pollutants and precursors (except carbon monoxide and $PM_{2.5}$).

7.2 Clean Air Plan

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

developed for Santa Barbara County as required by both the 1998 California Clean Air Act and the 1990 Federal Clean Air Act Amendments.

In 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 Barham Ranch stationary source exceeds the emission offset thresholds of Regulation VIII for NO_x and ROC emissions, however this stationary source did not become subject to the emission offset requirements of Regulation VIII until adoption of revised Rule 802 in August 2016, therefore Sierra Resources is not required to provide emission reduction credits for the emissions associated with this permit.

8.0 Lead Agency Permit Consistency

The Santa Barbara County Planning and Development Department is the lead agency for this project. To the District's knowledge, this permit is consistent with all provisions of the lead agency permit.

9.0 Permit Conditions

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

9.A Standard Administrative Conditions

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

A.1 **Condition Acceptance.** Acceptance of this operating permit by Sierra Resources shall be considered as acceptance of all terms, conditions, and limits of this permit. *[Re: ATC 8837, PTO 8837]*

A.2 **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.* *[Re: ATC 8837, PTO 8837]*

A.3 **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, Sierra Resources shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. *[Re: ATC 8837, PTO 8837]*

A.4 **Conflicts Between Conditions.** 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: ATC 8837, PTO 8837]*

A.5 **Compliance.** Nothing contained within this permit shall be construed to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment. *[Re: ATC 8837, PTO 8837]*

A.6 **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the District's project file) and the District's analyses under which this permit is issued as documented in the Permit Analyses prepared for and issued with the permit. *[Re: ATC 8837, PTO 8837]*

A.7 **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 constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application.

(d) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(e) A pending permit action or notification of anticipated noncompliance does not stay any permit condition.

(f) Within a reasonable time period, the permittee shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:

(i) compliance with the permit, or
(ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action. *[Re: 40 CFR Part 70.6, District Rules 1303.D.1]*

(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.

A.8 **Consistency with State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the Barham Ranch Stationary Source by the State of California or the California Coastal Commission in any consistency determination for this project with the California Coastal Act. *[Re: ATC 8837, PTO 8837]*

A.9 **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, District Rule 1303.F]*

A.10 **Compliance Plans.**

(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.11 **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.12 **Permit Life.** The Part 70 permit shall become invalid three years from the date of issuance unless a timely and complete renewal application is submitted to the District. Any operation of the source to which this Part 70 permit is issued beyond the expiration date of this Part 70 permit and without a valid Part 70 operating permit (or a complete Part 70 permit renewal application) shall be a violation of the CAAA, § 502(a) and 503(d) and of the District rules. The permittee shall apply for renewal of the Part 70 permit no later than 180 days before the permit expiration date. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. *[Re: District Rule 1304.D.1]*

A.13 **Reimbursement of Costs.** All reasonable expenses, as defined in District Rule 210, incurred by the District, District contractors, and legal counsel for all activities that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by Sierra Resources as required by Rule 210. *[Re: District Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6]*

A.14 **Prompt Reporting of Deviations.** The permittee shall submit a written report to the District documenting each and every deviation from the requirements of this permit or any applicable federal requirements within 7-days after discovery of the violation, but not later than 180-days after the date of occurrence. The report shall clearly document 1) the probable cause and extent

of the deviation, 2) equipment involved, 3) the quantity of excess pollutant emissions, if any, and 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to District in accordance with Rule 505. *Breakdown Conditions*, or Rule 1303.F *Emergency Provisions. [District Rule 1303.D.1, 40 CFR 70.6(a) (3)]*

A.15 **Reporting Requirements/Compliance Certification.** The permittee shall submit compliance certification reports to the USEPA and the Control Officer every six-months. A paper copy, as well as, a complete PDF electronic copy of these reports, shall be in a format approved by the District. These reports shall be submitted on District forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, 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.16 **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]*

A.17 **Recordkeeping Requirements.** Records of required monitoring information shall 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 Sierra Resources and shall be made available to the District upon request. *[Re: District Rule 1303.D.1.f, 40CFR70.6(a)(3)(ii)(A)]*

A.18 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:

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

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

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

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

Administrative procedures to reopen and revise/revoke/reissue a permit shall follow the same procedures as apply to initial permit issuance. Re-openings shall affect only those parts of the permit for which cause to reopen exists.

If a permit is reopened, the expiration date does not change. Thus, if the permit is reopened, and revised, then it will be reissued with the expiration date applicable to the re-opened permit. *[Re: 40 CFR 70.7, 40 CFR 70.6]*

A.19 **Emission Factor Revisions.** The District may update the emission factors for any calculation based on USEPA AP-42 or District P&P emission factors at the next permit modification or permit reevaluation to account for USEPA and/or District revisions to the underlying emission factors. Further, Sierra Resources shall modify its permit via an ATC application if compliance data shows that an emission factor used to develop the permit's potential to emit is lower than that documented in the field. The ATC permit shall, at a minimum, adjust the emission factor to that documented by the compliance data consistent with applicable rules, regulations and requirements. *[Re: ATC 8837, PTO 8837]*

A.20 **Equipment Identification.** Identifying tag(s) or name plate(s) shall be displayed on the equipment to show manufacturer, model number, and serial number. The tag(s) or plate(s) shall be issued by the manufacturer and shall be affixed to the equipment in a permanent and conspicuous position.

A.21 **Equipment Maintenance.** The equipment listed in this permit shall be properly maintained and kept in good condition at all times. The equipment manufacturer's maintenance manual, maintenance procedures and/or maintenance checklists (if any) shall be kept on site.

A.22 **Transfer of Owner/Operator.** This permit is only valid for the owner and operator listed on this permit unless a *Transfer of Owner/Operator* application has been applied for and received by the District. Any transfer of ownership or change in operator shall be done in a manner as specified in District Rule 203. District Form –01T and the appropriate filing fee shall be submitted to the District within 30 days of the transfer.

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).** Sierra Resources 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 Ringlemann Chart, as published by the United States Bureau of Mines, or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection B.2(a) above. *[Re: District Rule 302]*

(c) Sierra Resources shall determine compliance with the requirements of this Condition and Rule 302. *[Re: District Rule 302]*

B.3 **Nuisance (Rule 303).** No pollutant emissions from any source at Sierra Resources shall create nuisance conditions. Operations shall not endanger health, safety or comfort, nor shall they damage any property or business. *[Re: District Rule 303]*

B.4 **Specific Contaminants (Rule 309).** Sierra Resources shall not discharge into the atmosphere from any single source sulfur compounds and combustion contaminants (particulate matter) in excess of the applicable standards listed in Sections A through E of Rule 309. *[Re: District Rule 309]*

B.5 **Organic Solvents (Rule 317).** Sierra Resources shall comply with the emission standards listed in Rule 317.B. Compliance with this condition shall be based on Sierra Resource's compliance with Condition C.7 of this permit. *[Re: District Rule 317]*

B.6 **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 Sierra Resource's compliance with Condition C.7 of this permit and facility inspections. *[Re: District Rule 322]*

B.7 **Architectural Coatings (Rule 323.1).** Sierra Resources shall comply with the rule requirements for any architectural coating that is supplied, sold, offered for sale, or manufactured for use within the District. *[Re: District Rules 323, 317, 322, 324]*

B.8 **Disposal and Evaporation of Solvents (Rule 324).** Sierra Resources 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 Sierra Resource's compliance with Condition C.7 of this permit and facility inspections. *[Re: District Rule 324]*

B.9 **Adhesives and Sealants (Rule 353).** Sierra Resources 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 Sierra Resources uses such materials from containers larger than 16 fluid ounces and the materials are not exempt by Rule 353.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.10 **CARB Registered Portable Equipment:** State registered portable equipment shall comply with State registration requirements. A copy of the state registration shall be readily available whenever the equipment is at the facility. *[Re: District Rule 202]*

B.11 **Emergency Episode Plan (Rule 603):** During emergency episodes, Sierra Resources shall implement the Emergency Episode Plan approved on December 12, 2000.

9.C *Requirements and Equipment Specific Conditions*

This section contains non-generic federally-enforceable conditions, including emissions and operations limits, monitoring, recordkeeping, and reporting for each specific equipment group. This section may also contain other non-generic conditions.

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

Device #	Name and Description
001445	Tank Heater, field gas-fired: 1.200 MMBtu/hr heat input.

(a) Emission Limits: Mass emissions from the tank heater 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 conditions listed in this permit.

(b) Operational Limits: The following operational conditions apply to the tank heat:

(i) The heat input to the tank heater shall not exceed 28.80 MMBtu/day and 10,512.00 MMBtu/yr. These limits are based on the design rating of the tank heater. Unless otherwise designated by the Control Officer, the following fuel heat content shall be used for determining compliance: Natural gas = 1,050 Btu/scf.

(ii) The tank heater shall be fired on the field-gas produced at this lease. The concentration of sulfur compounds (calculated as H_2S at standard conditions, 60°F and 14.7 psia) in fuel burned at the lease shall not exceed 9.43 grains per 100 cubic feet (150 ppmvd).

(c) Monitoring: The following monitoring conditions apply:

(i) Fuel use shall be determined in accordance with a District-approved *Fuel Use Monitoring Plan.* Sierra Resources shall submit for District approval a *Fuel Use Monitoring Plan* within 60-days of the final issuance of this permit. This plan shall be implemented within 60-days of plan approval.

(ii) The H_2S content of the gas used as fuel shall be measured on a quarterly basis using colorimetric gas detection tubes or a District-approved equivalent. If a quarterly measurement indicates an H_2S content greater than 120 ppm_v, the permittee shall measure the total sulfur content of the gaseous fuel within one week of the quarterly measurement in accordance with ASTM-D1072 or a District approved equivalent method.

(iii) The high heating value (HHV) of the fuel gas (Btu/scf) shall be measured annually in accordance with ASTM D-3588 or a District-approved method. Records shall be kept on site and made available for inspection by the District upon request.

(d) Recordkeeping: The following record keeping conditions apply to the tank heater:

(i) The volume of gas combusted each month (scf) in the tank heater and the number of days that the tank heater operated.

(ii) The quarterly hydrogen sulfide measurements and total sulfur measurements of the fuel gas.

(iii) The high heating value of the fuel gas.

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

C.2 **Storage Tanks.** The following equipment are included in this emissions category:

EQ Device No.	Name
TANKS	
001411	Crude Oil Storage Tank (Tank #002)
001444	Crude Oil Storage Tank (Tank #035)
389139	Crude Oil Storage Tank (Tank #036)
001410	Wash Tank
001446	Wastewater Tank
390232	Wastewater Tank

(a) Emission Limits: Mass emissions from the tanks 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 conditions listed in this permit.

(b) Operational Limits: All process operations from the tanks listed in this section shall meet the requirements of District Rule 325, Sections D, E, F and G. Compliance shall be assessed through the monitoring, recordkeeping and reporting conditions in this permit and facility inspections. In addition, the following shall apply:

(i) *Tank Throughput Limits*. The following tank throughput limits shall apply:

Oil Production [(a)]	1,000 bbl/day
Oil Production [(a)]	365,000 bbl/yr

[(a)] Throughputs calculated as monthly production divided by the number of producing days.

(ii) *Facility Throughput Limits*. The following tank throughput limits shall apply:

Oil Production [(a)]	3,000 barrels per day
Gas Production [(a)]	2,100,000 scf/day

[(a)]Throughputs calculated as monthly production divided by the number of producing days.

(iii) *Vapor Recovery Unit*. Each tank shall be connected to a properly operating vapor recovery unit (VRU). The VRU shall be in operation when the equipment connected to the VRU system is in use. The VRU includes associated valves, fittings, and flanges. The VRU shall be maintained and operated to minimize the release of emissions from all systems connected to the VRU and shall meet the requirements of Rule 325.

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

(i) The volume of crude oil throughput through each tank (bbls) and volume of produced gas shall be measured by a calibrated meter or through use of a District-approved alternate method. The meter shall be calibrated according to manufacturer's specifications and the calibration records shall be made available to the District upon request;

(ii) On an annual basis the API gravity and true vapor pressure (TVP) shall be measured by using ASTM method D 323-82 (if the API gravity is equal to or greater than 20 degrees) or the HOST Method (if the API gravity is below 20 degrees). The true vapor pressure shall be based on the maximum expected temperature of the crude oil.

If ASTM D323-82 applies, the TVP shall be calculated from the Reid vapor pressure in accordance with API Bulletin 2518, or equivalent Reid/true vapor pressure correlation. The true vapor pressure shall be based on the maximum expected operating temperature of the storage tank. Sampling of crude oil for the vapor pressure measurement shall be completed per the *Crude Oil Sampling* condition of this permit.

(d) Recordkeeping: The following record keeping conditions apply:

(i) The volume of total oil throughput each month and the number of days that oil was produced.

(ii) The volume of total gas produced each month and the number of days that gas was produced.

(iii) API gravity and TVP of the crude oil.

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

C.3 **Production Flare.** The following equipment is included in this emissions unit category:

Device #	Name
001412	Production Flare, 91.880 MMBtu/hr

(a) Emission Limits: Mass emissions from the tank heater shall not exceed the emission limits listed in Tables 5.1-3 and 5.1-4. Compliance with this condition shall be based on the monitoring, recordkeeping and reporting conditions in this permit.

(b) Operational Limits: The following operational conditions apply to the flare:

(i) The heat input to the production flare shall not exceed 2,205.12 MMBtu/day and 804,825 MMBtu/yr. These limits are based on the design rating of the flare. Unless otherwise designated by the Control Officer, the following fuel heat content shall be used for determining compliance: Natural gas = 1,050 Btu/scf.

(ii) The flare outlet shall be equipped with an automatic ignition system including a pilot light gas source or equivalent system, or shall operate with a pilot flame present at all times.

(iii) If an automatic ignition system is not installed, the only time in which the pilot flame is permitted to not be present is during purge periods.

(iv) The pilot flame shall be operating at all times when combustible gases are vented through the flare.

(v) The concentration of sulfur compounds (calculated as H_2S at standard conditions, 60°F and 14.7 psia) of the flare gas shall not exceed 9.43 grains per 100 cubic feet (150 ppmvd).

(c) Monitoring: The following monitoring requirements shall apply:

(i) The production flare shall be equipped with dedicated District-approved electronic flow meter that will monitor and continuously record the daily and annual volume (scf) of produced gas (including pilot gas) combusted in the unit. The fuel meter shall be non-resettable, totalizing, and temperature and pressure corrected. The fuel meter shall be accurate to within five percent (5%) of the full scale reading. The fuel meter calibration procedures and frequency shall be in accordance with the fuel meter manufacturer's recommendations.

Sierra Resources shall submit for District approval a *Flare Use Metering Plan* within 60-days of the final issuance of this permit. This plan shall include all meter specifications, manufacturer recommended calibration and maintenance procedures, recordkeeping and reporting requirements and procedures. The meter shall be installed and the plan implemented within 60-days of District approval of the plan.

(ii) The presence of the flame in the flare pilot shall be continuously monitored using a thermocouple or an equivalent device that detects the presence of a flame.

(iii) The H_2S content of the flare gas shall be measured on a quarterly basis using colorimetric gas detection tubes or a District-approved equivalent. If a quarterly measurement indicates an H_2S content greater than 120 ppm_v, the permittee shall measure the total sulfur content of the gaseous fuel within one week of the quarterly measurement in accordance with ASTM-D1072 or a District approved equivalent method.

(d) Recordkeeping: The following record keeping conditions apply:

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

(ii) The monthly measured hydrogen sulfide content and the annually measured total sulfur content, in units of ppmvd, of the flare gas.

(iii) 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 must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. *[Re: District Rule 1303, 40 CFR 70.6].*

C.4 **Vapor Recovery Unit Flare.** The following equipment is included in this emissions unit category:

Device ID#	Name
001413	VRU Flare; 0.15 MMBtu/hr

(a) Emission Limits: Mass emissions from the tank heater shall not exceed the emission limits listed in Tables 5.1-3 and 5.1-4. Compliance with this condition shall be based on the monitoring, recordkeeping and reporting conditions in this permit.

(b) Operational Limits: The following operational conditions apply to the flare:

(i) The heat input to the VRU flare shall not exceed 3.73 MMBtu/day or 1,361 MMBtu/yr. These limits are based on the design rating of the flare. Unless otherwise designated by the Control Officer, the following fuel heat content shall be used for determining compliance: Natural gas = 1,050 Btu/scf.

(ii) The flare outlet shall be equipped with an automatic ignition system including a pilot light gas source or equivalent system, or shall operate with a pilot flame present at all times.

(iii) If an automatic ignition system is not installed, the only time in which the pilot flame is permitted to not be present is during purge periods.

(iv) The pilot flame shall be operating at all times when combustible gases are vented through the flare.

(v) The concentration of sulfur compounds (calculated as H_2S at standard conditions, 60°F and 14.7 psia) of the flare gas shall not exceed 9.43 grains per 100 cubic feet (150 ppmvd).

(c) Monitoring: The following monitoring requirements shall apply:

(i) The volume of gas (scf) burned in the flare shall be measured through the use of a pressure-corrected meter calibrated and maintained in accordance with the manufacturer's recommended procedures. The calibration records shall be made available to the District upon request.

(ii) The presence of the flame in the flare pilot shall be continuously monitored using a thermocouple or an equivalent device that detects the presence of a flame.

(iii) The H_2S content of the flare gas shall be measured on a quarterly basis using colorimetric gas detection tubes or a District-approved equivalent. If a quarterly measurement indicates an H_2S content greater than 120 ppm_v, the permittee shall measure the total sulfur content of the gaseous fuel within one week of the quarterly measurement in accordance with ASTM-D1072 or a District approved equivalent method.

(d) Recordkeeping: The following recordkeeping conditions shall apply.

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

(ii) The monthly measured hydrogen sulfide content and the annually measured total sulfur content, in units of ppmvd, of the flare gas.

(iii) 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 must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. *[Re: District Rule 1303, 40 CFR 70.6].*

C.5 **Fugitive Hydrocarbon Emissions Components.** The following equipment are included in this emissions unit category:

District Device No.	Equipment
103656, 389140	Component Leak-Paths in Hydrocarbon Service

(a) Emission Limits: Mass emissions from fugitive components shall not exceed the emission limits listed 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 conditions listed in this permit.

(b) Operational Limits: Operation of the equipment listed in this section shall conform to the requirements listed in District Rule 331.D and E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition, Sierra Resources shall meet the following requirements:

(i) *Component Leak-Path Count.* The total component and component leak-path counts listed in the latest fugitive I&M inventory shall not exceed the line item component and component leak-path counts in Table 5.1-1 of this permit by more than five-percent. This five-percent range is to allow for small differences due to component leak-path counting methods, and does not authorize additional component leak-paths.

(ii) *VRS Use.* The vapor recovery/gas collection (VRGC) system shall be in operation when the equipment connected to the VRGC system at the facility is in use. The VRGC system includes piping, valves, and flanges associated with the VRGC system. The VRGC system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.

(iii) *I&M Program.* The District-approved I&M Plan for this lease 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. An updated Fugitive Emissions Inspection and Maintenance Plan must be submitted to the District for review and approval within one calendar quarter whenever there is a change in the component list or diagrams.

(iv) *Venting.* All routine venting of hydrocarbons shall be routed to either a sales compressor, flare header, injection well or other District-approved control device.

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

(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 are subject to all the recordkeeping requirements listed in District Rule 331.G.

(e) Reporting: On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. *[Re: ATC 8837, District Rules 331 and 1303, 40 CFR 70.6]*

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

District Device No.	Equipment Name
1442	Well Cellars

(a) Emission Limits: Mass emissions from fugitive components shall not exceed the emission limits listed 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 conditions listed in this permit.

(b) Operational Limits: All process operations from the equipment listed in this section shall meet the requirements of District Rule 344, including the following:

(i) A person shall not open any valve at the wellhead without using a portable container to catch and contain any organic liquid that would otherwise drop on the ground or into the well cellar. Such container shall be kept closed when not in use.

(ii) Immediately before a well is steamed or after a well head is steam cleaned, the well cellar in which it is located shall be pumped out.

(iii) Neither of the following conditions shall occur unless the owner or operator discovered the condition and the well cellar is pumped within 7-days of discovery:

(a) liquid depth exceeding 50-percent of the depth of the well cellar.

(b) oil/petroleum depth exceeding 2-inches.

If a well cellar cannot be accessed by a vacuum truck due to muddy conditions, the well cellar shall be pumped as soon as it becomes accessible.

(c) Monitoring: Sierra Resources shall inspect the well cellars on a weekly basis to ensure that the liquid depth and the oil/petroleum depth does not exceed the limits in Rule 344.D.3.c.

(d) Recordkeeping: The following information relating to detection of conditions requiring pumping of a well cellar as required in Section D.3.c shall be recorded for each detection:

(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 is pumped

(e) Reporting: On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. *[Re: ATC 8837, District Rules 331 and 1303, 40 CFR 70.6]*

[Re: District Rules 344.D.3 and 344.G.2, 40 CFR 70.6]

C.7 **Crude Oil Loading Rack.** The following equipment are included in this emissions category:

Device #	Name and Description
1414	Crude Oil Loading Rack

(a) Emission Limits: Mass emissions from fugitive components shall not exceed the emission limits listed 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 conditions listed in this permit.

(b) Operational Restrictions:

(i) The following throughput limitations shall not be exceeded:

Truck Loading of Oil	160	bbl/hour
Truck Loading of Oil	3,000	bbl/day
Truck Loading of Oil	1,095,000	bbl/year

(ii) The loading rack used to ship oil from the facility shall use bottom-loading and a vapor recovery system that prevents the vapors displaced during loading from being released into the atmosphere. The operator shall also use either a block and bleed valve system or other connectors with equivalent spill prevention characteristics. Additionally the operator shall use one of the following devices to prevent overfill:

a. A primary overfill protection system consisting of a preset fill meter with automatic flow shutoff and a secondary overfill protection system consisting of a liquid level sensor with the ability to signal high level to activate a control valve to shut off flow, or

b. A combination of overfill devices and/or procedures, submitted in writing to the Control Officer, that is at least as effective in preventing overfill spillage as the system in Condition C.6.b(ii)a. above. District written approval must be obtained prior to implementing this option.

(c) Monitoring: The volumes of oil (bbls) shipped from this facility shall be measured through the use of calibrated meters or through the use of an District-approved alternate method. The meters shall be calibrated according to manufacturer's specifications and the calibration records shall be made available to the District upon request.

(d) Recordkeeping: The following records shall be maintained:

(i) The dates of oil shipments from the loading rack and the total volume of oil (bbls) shipped on each day listed.

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

C.8 **Solvent Usage.** The following items are included in this emissions unit category: Photochemically reactive solvents, surface coatings and general solvents.

(a) Emission Limits. The following solvent emission limits are federally-enforceable for the entire stationary source:

Solvent Type	lbs/hour	lbs/day
Photochemically Reactive	8 lbs/hour	40 lbs/day
Non-Photochemically Reactive	450 lbs/hour	3,000 lbs/day

(b) Operational Limits. n/a.
(c) Monitoring. n/a
(d) Recordkeeping/Reporting. n/a

C.9 **Recordkeeping.** Sierra Resources shall maintain all records and logs required by this permit or any applicable federal rule or regulation for a minimum of five calendar years from the date of information collection and log entry at the lease. These records or logs shall be readily accessible and be made available to the District upon request.
[Re: 40 CFR 70.6, District Rule 1303]

C.10 **Requirements for Produced Gas.** The emissions of produced gas shall be controlled at all times using a properly maintained and operated system that directs all produced gas, except gas used in a tank battery vapor recovery system, to one of the following: (a) a system handling gas for fuel, sale, or underground injection; or (b) a flare that combusts reactive organic compounds; or (c) a device with an ROC vapor removal efficiency of at least 90-percent by weight. The provisions of this condition shall not apply to wells which are undergoing routine maintenance. *[Re: District Rule 325]*

C.11 **Crude Oil Sampling.** Samples of crude oil shall be obtained from the initial tank, or from an active flow line into the tank, provided that there is an active flow of crude oil into the tank. Samples shall be taken from other tanks if requested in writing by the District.

C.12 **Semi-Annual Monitoring/Compliance Verification Reports.** Sierra Resources shall submit a report to the District every six-months to verify compliance with the emission limits and other requirements of this permit. 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, and shall be in a format approved by the District. All logs and other basic source data not included in the report shall be available to the District upon request. The second report shall also include an annual report for the prior four quarters. The report shall include the following information:

(a) Tank Heater

(i) The volume of gas combusted each month (scf) in the tank heater and the number of days that the tank heater operated
(ii) The quarterly hydrogen sulfide measurements and total sulfur measurements of the fuel gas.
(iii) The high heating value of the fuel gas.

(b) Storage Tanks

(i) The volume of oil produced each month and the number of days that oil was produced.
(ii) The volume of gas produced each month (scf) and the number of days that gas was produced.
(iii) API gravity and TVP of the crude oil.

(c) Production Flare

(i) The volume of gas combusted in the flare (scf) each month and the number of days the flare operated each month.
(ii) The monthly measured hydrogen sulfide content and the annually measured total sulfur content, in units of ppmvd, of the flare gas.
(iii) Flare meter calibration and maintenance records.

(d) VRU Flare

(i) The volume of gas combusted in the flare (scf) each month and the number of days the flare operated each month.
(ii) The monthly measured hydrogen sulfide content and the annually measured total sulfur content, in units of ppmvd, of the flare gas.
(iii) Flare meter calibration and maintenance records.

(e) Rule 331 fugitive hydrocarbon I&M program data:

- inspection summary.
- record of leaking components.
- record of leaks from critical components.
- record of leaks from components that incur five repair actions within a continuous 12-month period.
- record of component repair actions including dates of component re-inspections.

(f) Loading Rack

(i) The dates of oil shipments from the loading rack and the total volume of oil (bbls) shipped on each day listed.

(g) Solvents

On a monthly basis the amount of surface coating/solvent used at the Barham Ranch Stationary Source; the percentage of ROC by weight (as applied); the surface coating/solvent density; the amount of solvent reclaimed; whether the surface coating/solvent is photochemically reactive; and, the resulting emissions of ROC and photochemically reactive surface coatings/solvents to the atmosphere in units of pounds per month.

C.13 **Documents Incorporated by Reference.** The documents listed below and any District approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition of this permit. These documents shall be implemented for the life of the project and shall be made available to District inspection staff upon request.

- *Fugitive Hydrocarbon Inspection and Maintenance Plan (July 2017)*
- *Flare Metering Plan (to be submitted within 45 days of final permit issuance)*

- *Fuel Gas Use Plan (to be submitted within 45 days of final permit issuance)*

C.14 **External Combustion Units - Permits Required.**

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

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

C.15 **Compliance with Rule 346.** Equipment shall not be used to transfer organic liquids into any organic liquid cargo vessel unless the equipment is in full compliance with District Rule 346.

C.16 **Compliance with Rule 359.** The permittee shall comply with the applicable requirements of District Rule 359: *Flares and Thermal Oxidizers* for each flare subject to this permit.

C.17 **Wellhead Leak Control.** Blair Lease wells 14, 15 and 16 shall be equipped with a Huber-Hercules anti-pollution stuffing box adapter or equivalent. This adapter shall contain small stuffing box leaks and shall shut-in the well if a large stuffing box leak occurs. If a well is shut-in due to a stuffing box leak, it shall not be returned to production until the stuffing box is repaired.

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 **Solvent Usage.** The following condition shall apply:

(a) Emission Limits. Mass emissions from the tank heater shall not exceed the emission limits listed in Tables 5.1-3 and 5.1-4. Compliance with this condition shall be based on the monitoring, recordkeeping and reporting conditions in this permit.

(b) Operational Limits: Use of solvents for cleaning/degreasing shall conform to the requirements of District Rules 317, 322, 323 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit and facility inspections.

(i) *Containers.* Vessels or containers used for storing materials containing organic solvents shall be kept closed unless adding to or removing material from the vessel or container.

(ii) *Materials.* All materials that have been soaked with cleanup solvents shall be stored, when not in use, in closed containers that are equipped with tight seals.

(iii) *Solvent Leaks.* Solvent leaks shall be minimized to the maximum extent feasible or the solvent shall be removed to a sealed container and the equipment taken out of

service until repaired. A solvent leak is defined as either the flow of three liquid drops per minute or a discernible continuous flow of solvent.

(iv) *Reclamation Plan.* Sierra Resources may submit a Plan to the District for the disposal of any reclaimed solvent. If the Plan is approved by the District, all solvent disposed of pursuant to the Plan will not be assumed to have evaporated as emissions into the air and, therefore, will not be counted as emissions from the source. Sierra Resources shall obtain District approval of the procedures used for such a disposal Plan. The Plan shall detail all procedures used for collecting, storing and transporting the reclaimed solvent. Further, the ultimate fate of these reclaimed solvents must be stated in the Plan.

(c) Monitoring. none

(d) Recordkeeping. Sierra Resources shall record in a log the following on a monthly basis for each solvent used: amount used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed for District-approved disposal; whether the solvent is photochemically reactive; and, the resulting emissions to the atmosphere in units of pounds per month and pounds per day. Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a manner readily accessible to District inspection.

(e) Reporting. On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. *[Re: 40 CFR 70.6, District Rules 317, 322,323, 324]*

D.2 **Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.** The equipment permitted herein shall be operated in compliance with the California Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities regulation (CCR Title 17, Section 95665 *et. Seq.*).

D.3 **CARB GHG Regulation Recordkeeping.** The permittee shall maintain at least 5 years of records that document the following:

i. The number of crude oil or natural gas wells at the facility.

ii. A list identifying all pressure vessels, tanks, separators, sumps, and ponds at the facility, including the size of each tank and separator in units of barrels.

iii. The annual crude oil, natural gas, and produced water throughput of the facility.

iv. A list identifying all reciprocating and centrifugal natural gas compressors at the facility.

v. A count of all natural gas powered pneumatic devices and pumps at the facility.

vi. A copy of the *Best Practices Management Plan* designed to limit methane emissions from circulation tanks, if applicable.

D.4 **CARB GHG Regulation Reporting**. The permittee shall report all throughput data and any updates to the information recorded pursuant to the *CARB GHG Regulation Recordkeeping* Condition above using District Annual Report Form ENF-108.

Air Pollution Control Officer

AUG 31 2018

Date

NOTES:

(a) This permit supersedes all previous District PTO permits issued for the Blair Lease

(b) Permit Reevaluation Due Date: August 2021

\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 04632 Pt. Pedernales-Lompoc Oil Fields\FID 03069 Blair Lease\Reevals\PT70 7126 R7\Final PTO 7126-R7 12-17-15.doc

10.0 Attachments

- 10.1 Emission Calculation Documentation
- 10.2 Emission Calculation Spreadsheets
- 10.3 IDS Database Emission Tables
- 10.4 Equipment List
- 10.5 Well List
- 10.6 Insignificant Activities
- 10.7 Fee Statement
- 10.8 Comments on Draft Permit/District Responses

10.1 Emission Calculation Documentation
Sierra Resources Blair 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. Detailed calculation spreadsheets are attached as Attachment 10.2.

Reference A - External Combustion Equipment

- The maximum operating schedule is in units of hours
- All heat input ratings based on burner nameplate and manufacturer data (HHV based)
- All emission calculations based on heat input rating (HHV based)
- PM_{10} to PM ratio = 1.0 (ref: USEPA AP-42, Table 1.4-1)
- The emission factors for all the pollutants (except SO2) are based on USEPA AP-42, Section 1.4, Fifth Edition, November 1995.
  Emission factors for SO_2 are based on mass balance:
  SO_x (as SO_2) = (0.169) × (ppmv S) ÷ (HHV) [units = lb/MMBtu]
- Emission calculations are based upon operations at maximum load.

Reference B - Petroleum Storage Tanks

- The hourly/daily/annual emissions for the petroleum storage tanks is based on USEPA AP-42 Chapter 7, Liquid Storage Tanks (5^{th} Edition, 2/96)

Reference C - Wastewater Tanks

- The maximum operating schedule is in units of hours
- Emission calculation methodology based on the CARB/KVB report *Emission Characteristics of Crude Oil Production Operations in California (1/83)*
- Calculations are based on surface area of emissions noted in the inspector's report
- The THC Speciation is based on CARB profiles # 529, 530, 531, 532; the ROC/TOC ratio is based on the District's guideline *"VOC/ROC Emission Factors and Reactivities for Common Source Types"* Table dated 07/13/98 (version 1.1).

Reference D - Components Emitting Fugitive ROCs

- Emission factors for clps associated with PTO 14856 are based on the *District P&P 6100.061* guidelines. Emissions from all other clps are included in the CARB/KVB report *Emission Characteristics of Crude Oil Production Operations in California (1/83)* emissions calculation spreadsheet. *(See Reference C above)*
- An 80% reduction in fugitive emissions was assumed due to the implementation of a fugitive inspection and maintenance plan pursuant to Rule 331.

Reference E - Production Flare

- NO_x and CO emission factors based on USEPA AP-42, Table 11.5-1 (9/91)
- ROC emission factor based on the District 2016 Flare Study
- PM emission factor based on District Flare Study - Phase I Report, Table 3.1.1 (7/91)
- SO_x emissions based on mass balance

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

Reference F - Vapor Recovery Flare

- NO_x and CO emission factors based on USEPA AP-42, Table 11.5-1 (9/91)
- ROC emission factor based on the District 2016 Flare Study
- PM emission factor based on District Flare Study - Phase I Report, Table 3.1.1 (7/91)
- SO_x emissions based on mass balance

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

Reference G - Loading Rack

- Calculations based on District Loading Rack Emission Calculation Spreadsheet (ver3.0).

Reference H - Solvents

- All solvents not used to thin surface coatings are included in this equipment category
- Annual emission rates per pt70 permit application
- Daily and hourly emissions based on the Rule 317

Reference I - Greenhouse Gases

- GHG emissions from combustion sources are calculated using emission factors found in Tables C-1 and C-2 of 40 CFR Part 98 and global warming potentials found in Table A-1 of 40 CFR Part 98. CO2 equivalent emission factors are calculated for CO2, CH4, and N2O individually then summed to calculate a total CO2e emission factor. Annual CO2e emission totals are presented in short tons.

For natural gas combustion the emission factor is:
(53.06 kg CO2/MMbtu) (2.2046 lb/kg) = 116.97 lb CO2/MMBtu
(0.001 kg CH4/MMBtu) (2.2046 lb/kg)(25 lb CO2e/lb CH4) = 0.055 lb CO2e/MMBtu
(0.0001 kg N2O/MMBtu) (2.2046 lb/kg)(298 lb CO2e/lb N2O) = 0.066 lb CO2e/MMBtu
Total CO2e/MMBtu = 116.89 + 0.046 + 0.068 = 117.10 lb CO2e/MMBtu

10.2 Emission Calculation Spreadsheets

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

Basic Input Data	
liquid {1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6} =	4
liquid TVP =	1.5
if TVP is entered, enter TVP temperature (°F) =	64
tank heated {yes, no} =	yes
if tank is heated, enter temp (°F) =	100
vapor recovery system present? {yes, no} =	yes
is this a wash tank? {yes, no} =	yes
will flashing losses occur in this tank? {yes, no} =	no
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: A-1
Permit: PTO 15000
Date: 07/10/17
Tank: Wash Tank
Name: Blair Lease
Filename:
District: Santa Barbara
Version: Tank-2b.xls

PRINT

Tank Data		
diameter (feet) =		10
capacity (enter barrels in first col, gals will compute) =	300	12,600
conical or dome roof? {c, d} =		c
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
upstream pressure (psig) (def = 0 when no flashing occurs):		0

Liquid Data	A	B
maximum daily throughput (bopd) =		3,000
Ann thruput (gal): (enter value in Column A if not max PTE)		4.599E+07
RVP (psia):		2.90288
°API gravity =		27

Paint Factor Matrix	paint condition	
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

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

Computed Values		
roof outage [1] (feet):		0.3
vapor space volume [2] (cubic feet):		102
turnovers [3]:		3650
turnover factor [4]:		0.17
paint factor [5]:		0.68
surface temperatures (°R, °F)		
average [6]:	560	100
maximum [7]:	561.25	101.25
minimum [8]:	558.75	98.75
product factor [9]:		0.75
diurnal vapor ranges		
temperature [10] (fahrenheit degrees):		5
vapor pressure [11] (psia):		0.148284
molecular weight [12] (lb/lb-mol):		50
TVP [13] (psia) [adjusted for ave liquid surface temp]:		3.11827
vapor density [14] (lb/cubic foot):		0.025945
vapor expansion factor [15]:		0.017
vapor saturation factor [16]:		0.823148
vented vapor volume (scf/bbl):		8
fraction ROG - flashing losses:		0.308
fraction ROG - evaporative losses:		0.885

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	12.5
gas rvp 10	7.2
gas rvp 7	5.9
crude oil	3.11827
JP -4	2.5
jet kerosene	0.0185
fuel oil 2	0.019
fuel oil 6	0.00008

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	2.902882
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] =	0.00	0.03	0.01	0.00	0.00	0.00
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 =	**0.00**	**0.03**	**0.01**	**0.00**	**0.00**	**0.00**

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

Basic Input Data	
liquid {1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6} =	4
liquid TVP =	1.5
if TVP is entered, enter TVP temperature (°F) =	64
tank heated {yes, no} =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? {yes, no} =	yes
is this a wash tank? {yes, no} =	no
will flashing losses occur in this tank? {yes, no} =	no
breather vent pressure setting range (psi) {def = 0.06}:	0.06

Attachment: A-2
Permit: PTO 15000
Date: 07/10/17
Tank: Crude Tank
Name: Blair Lease
Filename:
District: Santa Barbara
Version: Tank-2b.xls

PRINT

Tank Data		
diameter (feet) =		21.5
capacity (enter barrels in first col, gals will compute) =	1,000	42,000
conical or dome roof? {c, d} =		c
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
upstream pressure (psig) (def = 0 when no flashing occurs):		0

Liquid Data	A	B
maximum daily throughput (bopd) =		1,000
Ann thruput (gal): (enter value in Column A if not max PTE)		1.533E+07
RVP (psia):		2.90288
°API gravity =		27

Computed Values		
roof outage [1] (feet):		0.3
vapor space volume [2] (cubic feet):		3,013
turnovers [3]:		365
turnover factor [4]:		0.25
paint factor [5]:		0.68
surface temperatures (°R, °F)		
average [6]:	527.2	67.2
maximum [7]:	539	79
minimum [8]:	515.4	55.4
product factor [9]:		0.75
diurnal vapor ranges		
temperature [10] (fahrenheit degrees):		47.2
vapor pressure [11] (psia):		0.814102
molecular weight [12] (lb/lb-mol):		50
TVP [13] (psia) [adjusted for ave liquid surface temp]:		1.60731
vapor density [14] (lb/cubic foot):		0.014205
vapor expansion factor [15]:		0.147
vapor saturation factor [16]:		0.585804
vented vapor volume (scf/bbl):		8
fraction ROG - flashing losses:		0.308
fraction ROG - evaporative losses:		0.885

Paint Factor Matrix	paint condition	
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

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	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	1.60731
JP -4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	2.9028822
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] =	0.14	3.26	0.60	0.01	0.16	0.03
working loss [18] =	0.56	13.34	2.43	0.03	0.67	0.12
flashing loss [19] =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	**0.69**	**16.60**	**3.03**	**0.03**	**0.83**	**0.15**

NOTES: see attachment for explanation of notes (1 through 19)

CRUDE OIL LOADING RACK EMISSION CALCULATIONS (Ver. 4.2)

Attachment: A-3
Permit Number: PTO 15000
Facility: Blair Lease

Rack Information

Rack Type	*Enter X Where Appropriate*	*S Factor*
Submerged Loading of a Clean Cargo Tank		0.50
Submerged Loading: Dedicated Normal Service	X	0.60
Submerged Loading: Dedicated Vapor Balance Service		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

Input data	*Value*	*Reference*
Saturation Factor	0.60	Previous Input, AP-42 Table 4.4-1
Molecular Weight	50	SBCAPCD Default for Crude Oil
True Vapor Pressure (psia)	2.900	Permit Application
Liquid Temperature (°F)	100	Permit Application
Loading Rate (bbl/hr)	160.00	Permit Application
Storage Capacity (bbl)	3,000	Permit Application
Daily Production (bbl)	3,000	Permit Application
Annual Production (bbl)	1,095,000	Permit Application
Vapor Recovery Efficiency	0.95	SBCAPCD
ROC/THC Reactivity	0.885	SBCAPCD Default for Crude Oil

Loading Rate Calculations

Calculated Information	*Value*	*Reference*
Daily Hours Loading (hours)	18.75	Calculated Value
Annual Hours Loading (hours)	6,843.75	Calculated Value
Loading Loss (lb / 1,000 gals)	1.9358	Calculated Value

Crude Oil Loading Rack ROC Potential to Emit

Controlled Potential to Emit	
lb/day	**10.79**
TPY	**1.97**

Processed By: JJM Date: 07/18/2018

Attachment: A-4

BOILER / STEAM GENERATOR CALCULATION WORKSHEET (ver. 6.0)

DATA

Permit No.	15000	
Owner/Operator	Purisima Hills	
Facility/Lease	Blair Lease	
Boiler Type	Firetube	
Boiler Mfg.	Petrotherm	
Boiler Model No.	GWC-B-1.20	
Boiler Serial/ID No.	no data	
Boiler Horsepower	no data	Bhp
Burner Type	Gas	
Burner Mfg.	no data	
Burner Model No.	no data	
Max. Firing Rate of Burner	1.200	MMBtu/hr
Max. Annual Heat Input	10,512.000	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	150.00	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	0.0980	lb/MMBtu
SO_x Emission Factor	0.0257	lb/MMBtu
CO Emission Factor	0.0824	lb/MMBtu
ROC Emission Factor	0.0054	lb/MMBtu

RESULTS

	lb/hr	lb/day	TPY
Nitrogen Oxides (as NO_2)	0.12	2.82	0.52
Sulfur Oxides (as SO_2)	0.03	0.74	0.13
PM_{10}	0.01	0.22	0.04
Total Suspended Particulate (PM)	0.01	0.22	0.04
Carbon Monoxide	0.10	2.37	0.43
Reactive Organic Compounds (ROC)	0.01	0.16	0.03

Hourly Heat Release	1.200	MMBtu/hr
Daily Heat Release	28.800	MMBtu/day
Annual Heat Release	10,512.000	MMBtu/yr
Rule 342 Applicability	10.5	Billion Btu/yr

Attachment A-5
Permit to Operate 15000
Purisima Hills Blair Lease
Production Flare Emission Calculations

			Reference
Flare Throughput	2.100	MMScf/day	Permit Application
Gas Btu Content	1,050	Btu/scf	Permit Application
Sulfur Content	150	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	0.0257	Mass Balance Calculation
CO	0.3700	AP-42, Table 13.5-1
PM	0.0200	APCD
PM10	0.0200	APCD

Btu Throughput		**Reference**
91.875	MMBtu/hour	Daily divided by 24 hr/day
2,205.000	MMBtu/day	Permit Application
804,825.000	MMBtu/year	Daily times 365 days/yr

Emissions

	NOx	**ROC**	**SOx**	**CO**	**PM**	**PM10**
lb/hour	6.25	18.38	2.36	33.99	1.84	1.84
lb/day	149.94	441.00	56.56	815.85	44.10	44.10
ton/year	27.36	80.48	10.32	148.89	8.05	8.05

Attachment A-6
Permit to Operate 15000
Purisima Hills Blair Lease
Vapor Recovery Flare Emission Calculations

		Reference
Flare Throughput	0.004 MMScf/day	Permit Application
Gas Btu Content	1,050 Btu/scf	Permit Application
Sulfur Content	150 ppmv as H2S	Permit Application

Emission Factors	lb/MMBtu	Reference
NOx	0.0680	AP-42, Table 13.5-1
ROC	0.2000	AP-42, Tables 13.5-1 & 13.5-2/APCD
SOx	0.0257	Mass Balance Calculation
CO	0.3700	AP-42, Table 13.5-1
PM	0.0200	APCD
PM10	0.0200	APCD

Btu Throughput	Reference
0.155 MMBtu/hour	Daily divided by 24 hr/day
3.730 MMBtu/day	Permit Application
1,361.3 MMBtu/year	Daily times 365 days/yr

Emissions

	NOx	ROC	SOx	CO	PM	PM10
lb/hour	0.01	0.03	0.00	0.06	0.00	0.00
lb/day	0.25	0.75	0.10	1.38	0.07	0.07
ton/year	0.05	0.14	0.02	0.25	0.01	0.01

FUGITIVE HYDROCARBON CALCULATIONS - CARB/KVB METHOD

ADMINISTRATIVE INFORMATION
Attachment: A-7
Company: Purisima Hills LLC
Facility: Blair Lease
Processed by: JJM
July 10, 2017
Path & File Name:
\\sbcapcd.org\shares\Groups\ENGR\WPO\&Gas\GSD\SSID 02636 - Purisima Hills LLC - Blair Lease\02637 Purisima Hills Blair Lease\Pt70 PTO 15000\[pt70 PTO 15000 Emission Calcs.xls]FHC CAL

Version: fhc-kvb5.xls
Date: 24-Oct-00

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

Data	Value	Units
Number of Active Wells at Facility	15	wells
Facility Gas Production	2,100,000	scf/day
Facility Dry Oil Production	3000	bbls/day
Facility Gas to Oil Ratio (if > 500 then default to 501)	700	scf/bbl
API Gravity	27	degrees API
Facility Model Number	5	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	2.8053	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]	0.35	8.42	1.54
Sumps, Wastewater Tanks and Well Cellars[b]	0.50	12.10	2.21
Oil/Water Separators [b]	0.00	0.00	0.00
Pumps/Compressors/Well Heads[a]	0.01	0.24	0.04
Enhanced Oil Recovery Fields	0.00	0.00	0.00
Total Facility FHC Emissions (ROC)	**0.87**	**20.76**	**3.79**

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	15	wells
Wellhead emissions	0.1455	ROC (lb/well-day)
FHC from Pumps	0.0585	ROC (lb/well-day)
FHC from Compressors	1.0185	ROC (lb/well-day)
Total:	1.2225	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)

Surface Area and Type (emissions in lbs/day)

Description/Name	Number	Area (ft^2)	Primary	Secondary	Tertiary
Well Cellars[a]	15	424	11.97		
				0.00	
					0.00
(a) A 70% reduction is applied for implementation of Rule 344 (*Sumps, Pits, and Well Cellars*).			11.97	0.00	0.00

Covered Wastewater Tanks

Efficiency Factor: 85%

Surface Area and Type (emissions in lbs/day)

Description/Name	Number	Area (ft^2)	Primary	Secondary	Tertiary
				0.00	
				0.00	
					0.00
			0.00	0.00	0.00

Covered Wastewater Tanks Equipped with Vapor Recovery

Efficiency Factor: 95%

Surface Area and Type (emissions in lbs/day)

Description/Name	Number	Area (ft^2)	Primary	Secondary	Tertiary
			0.00		
Wastewater Tank	1	50.27		0.03	
Wastewater Tank	1	351			0.10
			0.00	0.03	0.10

Oil/Water Separators

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

Emissions Factor: 560 (lb ROC/MM Gal)

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

Santa Barbara County APCD Fugitive ROC Emissions Calculation - CLP Method

ADMINISTRATIVE INFORMATION	
Attachment: A-8	
Company: Sierra Resources	
Facility: Blair Lease	
Processed by: JJM	
Date: 8/15/2016	
Path & File Name:	\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\GSD\SSID 02638 - Purisima Hills LLC - Blair Lease\02637 Purisima Hills Blair Lease\Pt70 PTO 15000\[PTO 15000 FHC Calcs - CLP Method (ver 3.0).xls]CMPFUG

Facility Type: (Choose *one* facility type by marking the box to the right of the facility type with an "x")

Production Field	x	Gas Processing Plant		Refinery		Offshore Platform	

Component:	Count	THC[1] Emission Factor (lb/day-clp)	ROC/THC Ratio	Uncontrolled ROC Emission (lb/day)	Control[2,3] Efficiency	Controlled ROC Emission (lb/hr)	Controlled ROC Emission (lb/day)	Controlled ROC Emission (Tons/Qtr)	Controlled ROC Emission (Tons/Yr)
Gas Condensate Service									
Valves - Accessible/Inaccessible	2	0.295	0.31	0.18	0.80	0.00	0.04	0.00	0.01
Valves - Unsafe		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Bellows		0.295	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Bellows / Background ppmv		0.295	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Category A		0.295	0.31	0.00	0.84	0.00	0.00	0.00	0.00
Valves - Category B		0.295	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Valves - Category C		0.295	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category D		0.295	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category E		0.295	0.31	0.00	0.88	0.00	0.00	0.00	0.00
Valves - Category F		0.295	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Category G		0.295	0.31	0.00	0.92	0.00	0.00	0.00	0.00
Flanges/Connections - Accessible/Inaccessible	43	0.070	0.31	0.93	0.80	0.01	0.19	0.01	0.03
Flanges/Connections - Unsafe		0.070	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Flanges/Connections - Category A		0.070	0.31	0.00	0.84	0.00	0.00	0.00	0.00
Flanges/Connections - Category B		0.070	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Flanges/Connections - Category C		0.070	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category D		0.070	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category E		0.070	0.31	0.00	0.88	0.00	0.00	0.00	0.00
Flanges/Connections - Category F		0.070	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Flanges/Connections - Category G		0.070	0.31	0.00	0.92	0.00	0.00	0.00	0.00
Compressor Seals - To Atm		2.143	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Compressor Seals - To VRS		2.143	0.31	0.00	1.00	0.00	0.00	0.00	0.00
PSV - To Atm/Flare	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
Pump Seals - Single		1.123	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - Dual/Tandem		1.123	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Sub Total	46			3.18		0.027	0.637	0.029	0.116
Oil Service									
Valves - Accessible/Inaccessible	18	0.0041	0.56	0.04	0.80	0.00	0.01	0.00	0.00
Valves - Unsafe		0.0041	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Bellows		0.0041	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Bellows / Background ppmv		0.0041	0.56	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Category A		0.0041	0.56	0.00	0.84	0.00	0.00	0.00	0.00
Valves - Category B		0.0041	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Valves - Category C		0.0041	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category D		0.0041	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category E		0.0041	0.56	0.00	0.88	0.00	0.00	0.00	0.00
Valves - Category F		0.0041	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Category G		0.0041	0.56	0.00	0.92	0.00	0.00	0.00	0.00
Flanges/Connections - Accessible/Inaccessible	39	0.002	0.56	0.04	0.80	0.00	0.01	0.00	0.00
Flanges/Connections - Unsafe		0.002	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Flanges/Connections - Category A		0.002	0.56	0.00	0.84	0.00	0.00	0.00	0.00
Flanges/Connections - Category B		0.002	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Flanges/Connections - Category C		0.002	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category D		0.002	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category E		0.002	0.56	0.00	0.88	0.00	0.00	0.00	0.00
Flanges/Connections - Category F		0.002	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Flanges/Connections - Category G		0.002	0.56	0.00	0.92	0.00	0.00	0.00	0.00
PSV - To Atm/Flare		0.267	0.56	0.00	0.80	0.00	0.00	0.00	0.00
PSV - To VRS		0.267	0.56	0.00	1.00	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 - Dual/Tandem		0.0039	0.56	0.00	1.00	0.00	0.00	0.00	0.00
Sub Total	57			0.09		0.001	0.017	0.001	0.003
Total	**103**			**3.27**		**0.03**	**0.65**	**0.03**	**0.12**

Notes:

1 APCD P&P # 6100.061.1998.

2 A 80% efficiency is assigned to fugitive components Rule 331 implementation.

3 Emission Control efficiencies for the "category x" components are identified in "FHC Control Factors (ver 2.0)"

10.3 IDS Database Emission Tables

Table 1
Permitted Potential to Emit (PPTE)

	NO_X	ROC	CO	SO_X	TSP	$PM_{2.5/10}$
PTO 15000 - Blair Lease						
lb/day	153.01	476.66	819.56	44.40	44.40	44.40
tons/year	27.92	87.70	149.57	10.49	8.10	8.10

Table 2
Facility Potential to Emit (FPTE)

	NO_X	ROC	CO	SO_X	TSP	$PM_{2.5/10}$
PTO 15000 - Blair Lease						
lbs/day	153.01	476.66	819.56	44.40	44.40	44.40
tons/year	27.92	87.70	149.57	10.49	8.10	8.10

Table 3
Federal PT-70 Facility Potential to Emit (PT 70 FPTE)

	NO_X	ROC	CO	SO_X	TSP	PM_{10}
PTO 15000 - Blair Lease						
lbs/day	20.64	32.00	33.95	71.65	1.57	1.57
tons/year	3.76	5.85	6.20	13.08	0.29	0.29

Table 4
Stationary Source Total Potential to Emit

	NO_X	ROC	CO	SO_X	TSP	$PM_{2.5/10}$
PTO 15000 - Blair Lease						
lbs/day	376.00	755.64	1113.11	77.85	54.63	54.63
tons/year	68.62	139.03	203.15	14.21	9.97	9.79

10.4 Equipment List

Santa Barbara County Air Pollution Control District – Equipment List

PT-70 15000 / FID: 02637 Blair Lease - Barham Ranch / SSID: 02638

A PERMITTED EQUIPMENT

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

1.1 Oil and Gas Wellheads

Device ID #	**001430**	*Device Name*	**Oil and Gas Wellheads**
Rated Heat Input		*Physical Size*	15.00 Total Wells
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	15 Total Oil and gas wells: Blair Lease wells # 1, 8, 9, 10, 11, 12, 13, 14, 15, and 16; WPC Blair Lease wells #2, 3, 4, 6, 7. Each well is equipped with a well cellar.		

1.2 Well Cellars

Device ID #	**001442**	*Device Name*	**Well Cellars**
Rated Heat Input		*Physical Size*	424.00 Square Feet Surface Area
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Well cellars (15), each 6' diam. (28.27 SF each).		

1.3 Valves & Fittings

Device ID #	**103656**	***Device Name***	**Valves & Fittings**
Rated Heat Input		*Physical Size*	15.00 Active Wells
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		

1.4 Fugitive Hydrocarbon Components

Device ID #	**389140**	***Device Name***	**Fugitive Hydrocarbon Components**
Rated Heat Input		*Physical Size*	clps in gas service: 46
Manufacturer		*Operator ID*	clps in oil service: 57
Model		*Serial Number*	
Location Note			
Device Description	Fugitive Hydrocarbon Components associated with PTO 14856.		

2 Storage Tanks

2.1 Wash Tank

Device ID #	**001410**	***Device Name***	**Wash Tank**
Rated Heat Input		*Physical Size*	300.00 BBL
Manufacturer		*Operator ID*	0001
Model		*Serial Number*	
Location Note			
Device Description	Heated, 10' diam. x 24' h, connected to the vapor recovery system.		

2.2 Crude Oil Storage Tank

Device ID #	**001411**	***Device Name***	**Crude Oil Storage Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer		*Operator ID*	Stock Tank #1
Model		*Serial Number*	
Location Note			
Device Description	Unheated, 21.5' dia. x 16' h, connected to the vapor recovery system (95%).		

2.3 Crude Oil Storage Tank

Device ID #	**001444**	***Device Name***	**Crude Oil Storage Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer		*Operator ID*	Stock Tank #2
Model		*Serial Number*	
Location Note			
Device Description	Unheated, 21.5' dia. x 16' h, connected to the vapor recovery system (95%).		

2.4 Crude Oil Storage Tank

Device ID #	**389139**	***Device Name***	**Crude Oil Storage Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer		*Operator ID*	Crude Oil Storage Tank #3
Model		*Serial Number*	
Location Note			
Device Description	21.5' dia. x 16.0 ' ht. bolted tank connected to vapor recovery.		

2.5 Wastewater Tank

Device ID #	**001446**	***Device Name***	**Wastewater Tank**
Rated Heat Input		*Physical Size*	120.00 BBL
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	8' diam. x 16' h, connected to the vapor recovery system (95%).		

2.6 500 bbl Waste Water Tank

Device ID #	**390232**	*Device Name*	**500 bbl Waste Water Tank**
Rated Heat Input		*Physical Size*	500.00 BBL
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	500 bbl Waste Water Tank 21' dia. x 8' ht.		

3 Production Flare

Device ID #	**001412**	*Device Name*	**Production Flare**
Rated Heat Input	91.880 MMBtu/Hour	*Physical Size*	
Manufacturer	Kaldair	*Operator ID*	
Model	Indair I-6	*Serial Number*	
Location Note			
Device Description	Continuous service production flare; the flare combusts produced gas.		

4 Vapor Recovery Flare

Device ID #	**001413**	*Device Name*	**Vapor Recovery Flare**
Rated Heat Input	0.150 MMBtu/Hour	*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Continuous service vapor recovery flare, custom-made, 2 inch tip. The flare combusts gas collected by the vapor recovery system.		

5 Tank Heater

Device ID #	**001443**	***Device Name***	**Tank Heater**
Rated Heat Input	1.200 MMBtu/Hour	*Physical Size*	
Manufacturer	Petrotherm	*Operator ID*	
Model	GWC-B-1.20	*Serial Number*	
Location Note			
Device Description			

6 Crude Oil Loading Rack

Device ID #	**001414**	***Device Name***	**Crude Oil Loading Rack**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	For loading unheated crude from the storage tanks, connected to the vapor recovery system (95%).		

7 Vapor Recovery System

Device ID #	**103699**	***Device Name***	**Vapor Recovery System**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Compressor assisted vapor recovery system with a vapor recovery of 95% by weight. The vapor recovery system is equipped with a compressor, manufactured by Ingersol-Rand, model 67-WG, driven by a 15 hp electric motor. The collected vapors are sent to the vapor recovery flare.		

8 Wastewater Loading Rack

Device ID #	**104947**	***Device Name***	**Wastewater Loading Rack**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Single spout, bottom fill, serving the 120 bbl wastewater tank.		

9 Gas/Oil Separators

9.1 Gas/Oil Separator

Device ID #	**103659**	***Device Name***	**Gas/Oil Separator**
Rated Heat Input		*Physical Size*	70.68 Cubic Feet
Manufacturer	Parkersburg	*Operator ID*	2
Model		*Serial Number*	
Location Note			
Device Description	Welded construction, vertical, 3' diam. x 10' h.		

9.2 Gas/Oil Separator

Device ID #	**103658**	***Device Name***	**Gas/Oil Separator**
Rated Heat Input		*Physical Size*	125.66 Cubic Feet
Manufacturer	CE Natco	*Operator ID*	1
Model		*Serial Number*	672.C
Location Note			
Device Description	Welded construction, Vertical, 4' diam. x 10' ht.		

Attachment 10.5. Permitted Wells

County:Santa Barbara 083 Field:Barham Ranch Operator Code:S3525 Lease:Blair

District	Operator Name	Field Name	API #	Lease Name	Well	Status	WellType	Section	Township	Range	Base Meridian	Area Code	Area Name
3	Sierra Resources, Inc.	Barham Ranch	08321929	Blair	1	A	OG	3	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322157	Blair	8	A	OG	3	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322159	Blair	9	A	OG	3	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322164	Blair	10	A	OG	3	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322167	Blair	11	I	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322168	Blair	12	A	OG	3	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322169	Blair	13	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322205	Blair	14	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322217	Blair	15	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322219	Blair	16	A	OG	4	07N	32W	SB	03	La Laguna

County:Santa Barbara 083 Field:Barham Ranch Operator Code:S3525 Lease:WPC-blair

District	Operator Name	Field Name	API #	Lease Name	Well	Status	WellType	Section	Township	Range	Base Meridian	Area Code	Area Name
3	Sierra Resources, Inc.	Barham Ranch	08322003	WPC-blair	2	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322045	WPC-blair	3	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322096	WPC-blair	4	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322136	WPC-blair	6	A	OG	4	07N	32W	SB	03	La Laguna
3	Sierra Resources, Inc.	Barham Ranch	08322145	WPC-blair	7	A	OG	4	07N	32W	SB	03	La Laguna

10.6 Insignificant Activities (Stationary Source Totals)

1. Abrasive Blasting (0.05 TPY $PM/PM_{2.5/10}$)
2. Lubricating Oil Storage (0.01 TPY ROC)
3. Various Oils Storage (0.01 TPY)
4. Solvents and Coatings (0.73 TPY ROC)

10.7 Fee Statement

FEE STATEMENT

PT-70 No. 15000

FID: 02637 Blair Lease - Barham Ranch / SSID: 02638

Santa Barbara County
Air Pollution Control District

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
001430	Oil and Gas Wellheads	A1.a	15.000	70.99	Per equipment	No	1	1.000	1,064.85	0.00	0.00	1,064.85
103656	Valves & Fittings	A1.a	1.000	70.99	Per equipment	No	1	1.000	70.99	0.00	0.00	70.99
389140	Fugitive Hydrocarbon Components	A1.a	1.000	70.99	Per equipment	No	1	1.000	70.99	0.00	0.00	70.99
001410	Wash Tank	A6	12.600	4.07	Per 1000 gallons	Min	1	1.000	70.53	0.00	0.00	70.53
001411	Crude Oil Storage Tank	A6	42.000	4.07	Per 1000 gal	No	1	1.000	170.94	0.00	0.00	170.94
001444	Crude Oil Storage Tank	A6	42.000	4.07	Per 1000 gal	No	1	1.000	170.94	0.00	0.00	170.94
389139	Crude Oil Storage Tank	A6	42.000	4.07	Per 1000 gal	No	1	1.000	170.94	0.00	0.00	170.94
001446	Wastewater Tank	A6	5.040	4.07	Per 1000 gal	Min	1	1.000	70.53	0.00	0.00	70.53
390232	500 bbl Waste Water Tank	A6	21.000	4.07	Per 1000 gal	No	1	1.000	85.47	0.00	0.00	85.47
001412	Production Flare	A3	91.880	532.55	Per 1 million Btu input	Max	1	1.000	7,125.75	0.00	0.00	7,125.75
001413	Vapor Recovery Flare	A3	0.150	532.55	Per 1 million Btu input	No	1	1.000	79.88	0.00	0.00	79.88
001443	Tank Heater	A3	1.200	532.55	Per 1 million Btu input	No	1	1.000	639.06	0.00	0.00	639.06
001414	Crude Oil Loading Rack	A1.a	1.000	70.99	Per equipment	No	1	1.000	70.99	0.00	0.00	70.99
103699	Vapor Recovery System	A2	15.000	36.80	Per total rated hp	No	1	1.000	552.00	0.00	0.00	552.00
104947	Wastewater Loading Rack	A1.a	1.000	70.99	Per equipment	No	1	1.000	70.99	0.00	0.00	70.99
103659	Gas/Oil Separator	A1.a	1.000	70.99	Per equipment	No	1	1.000	70.99	0.00	0.00	70.99
103658	Gas/Oil Separator	A1.a	1.000	70.99	Per equipment	No	1	1.000	70.99	0.00	0.00	70.99
	Device Fee Sub-Totals =								**$10,626.83**	**$0.00**	**$0.00**	
	Device Fee Total =											**$10,626.83**

Permit Fee

Fee Based on Devices **$10,626.83**

Fee Statement Grand Total = $10,626

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.

10.8 Comments on Draft Permit/District Responses

District Responses to Comments on Draft Pt70 PTO 15000

Comment Number	Comment	District Response
1.	Page 3, Section 1.2.1. There are 15 oil and gas wells including 1 that is idle.	The permit language states 15 wells. Please note that District permitting of wells does not distinguish between active and idle wells since both are subject to permit and since active wells may become idle at any time or idle wells active.
2.	Page 3, Section 1.2.1. Not all wells are driven by ICES, there are electric wells in the field as well. Please revise the project description to include the electric wells.	The Project Description has been revised accordingly.
3.	Page 3, Section 1.2.1. Produced gas is either burned in flare or ICEs or heater. This revision should be made on Page 6, Section 2.1.2 and Page 17, Section 4.3	These sections have been revised accordingly.
4.	Page 12, Section 3.4.2. This section references Rule 810 1-20-2011, per Table 3.1 Rule 810 was amended 6/20/2013. Please confirm if the Rule 8-10-11 date is correctly referenced.	This reference was changed to the 6/20/2013 rule revision date.
5.	Page 19, Section 4.8. Although rule limits require 90% control efficiency, Sierra achieves 95% vapor recovery system control efficiency.	The vapor recovery system control efficiency was revised to 95% control efficiency.
6.	Page 19, Section 4.10.2. Currently Sierra Resources meters the produced oil, water and gas that is sent to the flare. The fuel to the remaining equipment (ICES and heater) is calculated using the default method assuming worst-case variables. This method has always been acceptable a conservative method. Sierra is requesting that this method remain in use. The ICEs are fueled directly from casing gas line, there are no meters that could be used and remain operable considering the liquids and heavy ends that are present in the casing gas. Sierra is requesting a discussion with the District either in a meeting or a phone call to discuss the extent of required fuel metering required before the final issuance of this permit.	The requirement to meter fuel gas has been replaced with more general language stating that fuel use shall be determined in accordance with a Fuel Use Monitoring Plan to be approved by the District. Plan submittal is required within 60-days of the issuance of the final permit per condition 9C.1(c)(i).
7.	Page 31, Condition 9.A.3. Sierra Resources objects to being responsible to defend at its sole expense any action brought against the District including court and attorney fees.	This condition was deleted.

Comment Number	Comment	District Response
8.	Page 38 Permit Condition C.1(c)(i). Please refer to Sierra comment number 6. Sierra is requesting a discussion with the District either in a meeting or a phone call to discuss the extent of required fuel metering required before the final issuance of this permit.	See District response to comment 6 above.
9.	Page 41 Permit Condition C.3(c)(i). This condition requires annual calibration of a meter that has not even been specked out by Sierra yet alone approved by the District. Sierra is requesting that that the calibration frequency be mandated by manufacturer recommendations.	This permit condition has been revised to require calibration procedures and frequency in accordance with manufacturer recommendations.
10.	Page 41 Permit Condition C.3(c)(i). This condition is requiring a flare meter that is electronic and District approved. Sierra Resources is requesting that this requirement has an effective date of January 1, 2019.	This permit condition has been revised to require submittal of a Flare Metering Plan for District approval within 60-days of final permit issuance and installation of the meter within 60-days of plan approval.
11.	Page 41 Permit Condition C.3(c)(i). Flare Gas Metering Plan is required within 45 days of issuance of the final permit. Sierra is requesting that this plan be submitted within 45 days of the District's approval of the electronic meter.	See response to comment number 10 above.
12.	Page 43 Permit Condition 4(c)(i) Requires the VRU Flare meter requires that the pressure corrected meter be calibrated annually, Sierra is requesting that the meter calibration frequency be based on manufacturer recommendations.	This permit condition has been revised to require calibration procedures and frequency in accordance with manufacturer recommendations.
13.	Page 47 Condition C.11. Based on the issuance date of these permits, Sierra is requesting that the first report that contains all of the required data be submitted as part of the annual/semi - annual report for 2018.	Based on the issuance date of the final permit, the initial semi-annual report will be due September 2018.
14.	Page 48. References Lompoc Oil Field please revise to Blair-Barham Stationary Source.	The language was revised to reference the Barham Ranch Stationary Source.
15.	Page 49. Condition 9.C.17. This permit condition refers to well head leak control using huber-hercules anti-pollution stuffing box adapters on wells 14, 15, and 16. This equipment has never been referenced in any permit that Sierra Resources has operated under. When	This requirement was deleted.

Comment Number	Comment	District Response
	Sierra purchased the lease from Texaco, the equipment was not on the wellhead. Please delete this requirement.	
16.	Page 50. Condition 9.C.3.vi. This condition requires a Best Practices Management Plan for the use of circulation tanks, Sierra does not use circulation tanks.	This is standard District permit language which includes a qualifier, i.e., 'if applicable', for facilities at which it does not apply. No change made.