air pollution control district
SANTA BARBARA COUNTY

DRAFT

PERMIT TO OPERATE 11405-R5

and

Part 70 RENEWAL OPERATING PERMIT 11405

PACIFIC COAST ENERGY COMPANY LP
ORCUTT HILL STATIONARY SOURCE

ORCUTT HILL STEAM GENERATOR

ORCUTT HILL OILFIELD
SANTA BARBARA COUNTY, CALIFORNIA

OPERATOR

Pacific Coast Energy Company LP

OWNERSHIP

Pacific Coast Energy Company LP

Santa Barbara County
Air Pollution Control District

June 2021

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ABBREVIATIONS/ACRONYMS

AP-42	USEPA's *Compilation of Emission Factors*
District	Santa Barbara County Air Pollution Control District
API	American Petroleum Institute
ASTM	American Society for Testing Materials
BACT	Best Available Control Technology
bpd	barrels per day (1 barrel = 42 gallons)
CAM	compliance assurance monitoring
CEMS	continuous emissions monitoring
dscf	dry standard cubic foot
EU	emission unit
°F	degree Fahrenheit
gal	gallon
gr	grain
HAP	hazardous air pollutant (as defined by CAAA, Section 112(b))
H_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	thousand
MACT	Maximum Achievable Control Technology
MM	million
MW	molecular weight
NG	natural gas
NSPS	New Source Performance Standards
O_2	oxygen
PM	particulate matter
PM_{10}	particulate matter less than 10 µm in size
$PM_{2.5}$	particulate matter less than 2.5 µm in size
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 which affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 61, 63, 68, 70 and 82. The State regulations may be found in the California Health & Safety Code, Division 26, Section 39000 et seq. The applicable local regulations can be found in the District's Rules and Regulations. This is a combined permitting action that covers both the Federal Part 70 permit (renewal of *Part 70 Operating Permit 11405*) as well as the State Operating Permit (reevaluation of *Permit to Operate 11405*). Santa Barbara County is designated as a non-attainment area for the state PM_{10} ambient air quality standard. As of July 1, 2020, the County achieved attainment status for the ozone state ambient air quality standards.

Part 70 Permitting. The initial Part 70 permit for this facility was issued on March 29, 2006 in accordance with the requirements of the District's Part 70 operating permit program. This is the fifth renewal of the Part 70 permit, and may include additional applicable requirements and associated compliance assurance conditions. The Orcutt Hill Steam Generator is a part of the Pacific Coast Energy Orcutt Hill Stationary Source, which is a major source for VOC[1], NO_X and CO. Conditions listed in this permit are based on federal, state or local rules and requirements. Sections 9.A, 9.B and 9.C of this permit are enforceable by the District, the USEPA and the public since these sections are federally-enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally-enforceable. Conditions listed in Section 9.D are "District-only" enforceable.

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

This reevaluation incorporates greenhouse gas emission calculations for the stationary source. On January 20, 2011, the District revised Rule 1301 to include greenhouse gases (GHGs) that are "subject to regulation" in the definition of "Regulated Air Pollutants". District Part 70 operating permits incorporate the revised definition.

1.2. Facility Overview

1.2.1 General Overview: The Orcutt Hill steam generator is located in the Diatomite Steam Generator area west of the Orcutt Hill Field Office on the stationary source which is approximately 2.5 miles south of the city of Orcutt. Several transfers of ownership/operator have since taken place and are listed below. The most recent change was a name change only from Breitburn Energy to Pacific Coast Energy Company (PCEC) which occurred in December 2011. For District

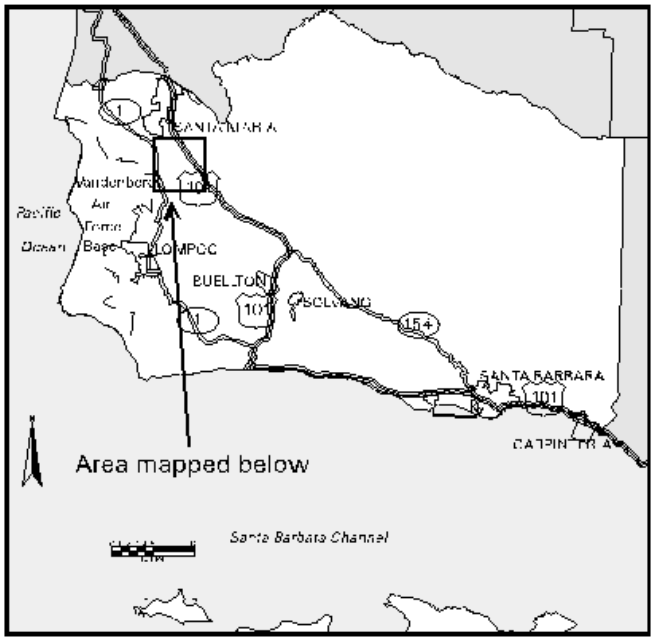
[1] VOC as defined in Regulation XIII has the same meaning as reactive organic compounds as defined in Rule 102. The term ROC shall be used throughout the remainder of this document, but where used in the context of the Part 70 regulation, the reader shall interpret the term as VOC.

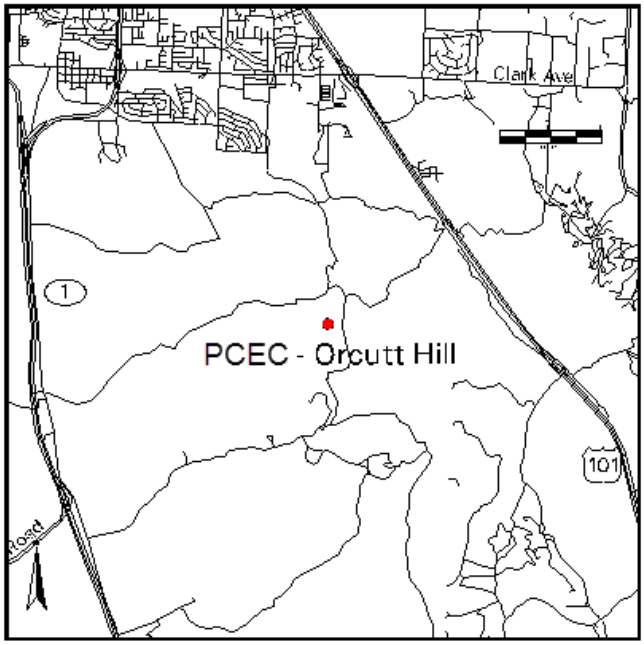
regulatory purposes, the facility is located in the Northern Zone of Santa Barbara County[2]. Figure 1.1 shows the relative location of the facility within the county.

Date of Transfer	New Owner	New Operator
April 9, 1996	Nuevo Energy Company	Torch Operating Company
February 27, 2001	Nuevo Energy Company	Nuevo Energy Company
September 30, 2003	ERG Operating Company	ERG Operating Company
November 5, 2004	BreitBurn Energy	BreitBurn Energy
December 2011	Pacific Coast Energy	Pacific Coast Energy

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

Figure 1-1 Location Map for the Orcutt Hill Steam Generators





The *Pacific Coast Energy Orcutt Hill Stationary Source* (SSID 2667), which was originally developed in the 1920s by Union Oil Company, consists of the following facilities:

- California Coast Lease (FID 3206)
- Fox Lease (FID 3313)
- Dome Lease (FID 3314)
- Folsom Lease (FID 3316)
- Graciosa Lease (FID 3318)
- Hartnell Lease (FID 3319)
- Hobbs Lease (FID 3320)
- Newlove Lease (FID 3321)
- Pinal Lease (FID 3322)
- Rice Ranch Lease (FID 3323)
- Squires Lease (FID 3324)
- Getty-Hobbs Lease (FID 3495)
- Orcutt Hill Compressor Plant (FID 4104)
- Orcutt Hill Internal Combustion Engines (FID 4214)
- Orcutt Hill Steam Generators (FID 10482)
- Orcutt Hill Filed (MVFF) (FID 1904)

The Orcutt Hill steam generator consists of the following system:

- One (1) 23.000 MMBtu/Hour controlled, steam generator.

The steam generator may be fired on field gas and may be relocated at various locations throughout the stationary source. The steam generator is used to thermally enhance oil production at various wells.

1.2.2 Facility New Source Review Overview (NSR): Since the issuance of the initial operating permit on March 18, 2005 there have been two NSR permit actions. Table 1-1 provides a summary of the New Source Review history for this facility.

Table 1-1 New Source Review Overview

Permit Number	Issuance Date	Permitted Modification
ATC 11405	3/18/2005	This permit authorized the installation of a portable steam generator for use on the Dome and Newlove leases within the Pacific Coast Energy Company - Orcutt Hill stationary source.
ATC 11405 Mod-01	5/16/2005	This permit authorized the steam generator identified in ATC 11405 at the yard west of the Orcutt Hill Field Office, to be installed and fired on propane or natural gas fuel as defined in the SCDP. The steam generator is permitted to operate temporarily as defined in the SCDP condition on the Dome and Newlove leases within the Pacific Coast Energy – Orcutt Hill stationary source.

Permit Number	Issuance Date	Permitted Modification
Part 70 Minor Revision (ATC/PTO 11405)	3/29/2006	This permit authorized the operation of the steam generator identified in ATC 11405 at the yard west of the Orcutt Hill Field Office, fired on natural gas fuel. This permit also authorized an increase in the rated heat input and potential to emit of the steam generator, as discovered during source testing completed for ATC 11405 Mod-01 and confirmed by the manufacturer. The steam generator is permitted to operate on the Dome and Newlove leases within the Pacific Coast Energy - Orcutt Hill stationary source.
ATC/PTO 11405 Mod-02	8/27/2007	Modification to reduce NOx emission limits to 9 ppm and 0.0113 lb/MMBTU on the steam generator for thermal enhanced recovery on Dome and Newlove lease wells.

1.3. Emission Sources

The emissions from this facility are entirely due to combustion of field gas in the steam generator. Section 4 of the permit provides the District's engineering analysis of this emission source. Section 5 of the permit describes the steam generator and the allowable emissions from.

1.4. Emission Control Overview

The emission controls for the steam generator include the use of a North American Low-NO_x burner and Flue-Gas Recirculation (FGR). The FGR system is installed external to the burner on the steam generator. The combustion air and the flue gas enter the burner at the discharge of the blower.

1.5. Offsets/Emission Reduction Credit Overview

The Pacific Coast Energy Company - Orcutt Hill stationary source triggers offsets for NO_x and ROC emissions. See section 7.3 for details.

1.6. Part 70 Operating Permit Overview

1.6.1 Federally-enforceable Requirements: All federally-enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under "applicable requirements". These include all SIP-approved District Rules, all conditions in the District-issued Authority to Construct permits, and all conditions applicable to major sources under federally promulgated rules and regulations. All these requirements are enforceable by the public under CAAA. (*see Tables 3.1 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 must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to 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 70.2. The federal PTE does include all emissions from any insignificant emissions units. None of the equipment at this facility is subject to a federal NSPS/NESHAP requirement, nor is it included in the 29-category list, therefore the federal PTE does not include fugitive emissions. (*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. The permittee 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. The permittee 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 whose name and address is listed prominently in the Part 70 permit signs each certification. (*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 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. (*see Sections 4.7 and 5.6)*

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

Phil Brown
Vice President of Operations
Pacific Coast Energy Company
1555 Orcutt Hill Rd.
Orcutt, CA 93455

2.0 Process Description

2.1. Process Summary

One steam generator fired on PUC quality gas used to thermally enhance oil production.

2.2. Support Systems

There are no additional support systems for the Orcutt Hill steam generators.

2.3. Maintenance/Degreasing Activities

2.3.1 Paints and Coatings: The use of paints and coatings at the Pacific Coast Energy Company - Orcutt Hill Stationary Source is discussed in the permits for individual Orcutt Hill leases and for the compressor plant.

2.3.2 Solvent Usage: The use of solvents at the Pacific Coast Energy Company - Orcutt Hill Stationary Source is discussed in the permits for individual Orcutt Hill leases and for the compressor plant.

2.4. Other Processes

2.4.1 Unplanned Activities/Emissions: The permittee does not anticipate or foresee any circumstances that would require special equipment use and result in excess emissions.

2.5. 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 Orcutt Hill steam generator.

3.1. Rule Exemptions Claimed

📖 The following exemptions apply to this facility. An exemption from permit, however, does not necessarily grant relief from any applicable prohibitory rule.

- **Section D.6 De Minimis Exemptions**: This section requires Pacific Coast Energy to maintain a record of each *de minimis* change, which shall include emission calculations demonstrating that each physical change meets the criteria listed in the Rule. This exemption applies to a project in the broadest sense. Such records shall be made available to the District upon request. As of June 2020 the de minimis total at the Pacific Coast Energy Company - Orcutt Hill Stationary Source is 20.94 lbs ROC/day. This total does not include the previously claimed emissions from the Sx Sands project (ATC 13140).

- **Section D.8 Routine Repair and Maintenance**: A permit shall not be required for routine repair or maintenance of permitted equipment, not involving structural changes.

- **Section D.14 Architectural Coatings**: Application of architectural coating in the repair and maintenance of a stationary structure is exempt from permit requirements.

- **Section U.2 Degreasing Equipment**: Single pieces of degreasing equipment, which use unheated solvent, and which: a) have a liquid surface area of less than 1.0 square foot unless the aggregate

liquid surface area of all degreasers at a stationary source, covered by this exemption is greater than 10 square feet; and b) use only organic solvents with an initial boiling point of 302^{O} F or greater; or c) use materials with a volatile organic compound content of two-percent or less by weight as determined by EPA Method 24.

- **Section U.3 Wipe Cleaning**: Equipment used in wipe cleaning operations provided that the solvents used do not exceed 55 gallons per year. The permittee shall maintain records of the amount of solvents used for each calendar year. These records shall be kept for a minimum of 3 years and be made available to the District on request.

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*)}: The Orcutt Hill steam generator is subject to these regulations. All modifications are subject to the District's New Source Review regulation. Compliance with the District regulation assures compliance with 40 CFR 51/52.

3.2.2 40 CFR Part 60 {*New Source Performance Standards)*: This facility is not currently subject to any NSPS. See permits of the individual Orcutt Hill leases and the compressor plant for NSPS applicability of those facilities.

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, National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. This facility currently is not subject to the provisions of this Subpart. The steam generator listed in this permit may be located at various locations throughout the stationary source. Each lease qualifies for an exemption from Subpart HH, National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage. Exemptions are documented for each facility (lease).

3.2.5 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998. Compliance with this rule is required during the first permit renewal or the next significant permit revision for sources that had initial Part 70 applications deemed complete before April 22, 1998. This rule affects emission units at the source subject to a federally-enforceable emission limit or standard that uses a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds. 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 40 CFR Part 70 {*Operating Permits*}: This Subpart is applicable to the Orcutt Hill steam generators. Table 3.1 lists the federally-enforceable District promulgated rules that are "generic" and apply to the Orcutt Hill steam generators. Table 3.2 lists the federally-enforceable District promulgated rules that are "unit-specific" that apply to the Orcutt Hill steam generator. These tables are based on data available from the District's administrative files and from the permittee's Part 70 Operating Permit renewal application. Table 3.4 includes the adoption dates of these rules.

In its Part 70 permit application, the permittee certified compliance with all existing District rules and permit conditions. This certification is also required of the permittee semi-annually.

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 Orcutt Hill steam generators 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. 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: Tables 3.1 and 3.2 list the federally enforceable District rules that apply to the facility. Table 3.3 lists the non-federally-enforceable District rules that apply to the facility. Table 3.4 lists the adoption date of all rules that apply to the facility.

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

Rule 201 - Permits Required: This rule applies to any person who builds, erects, alters, replaces, operates or uses any article, machine, equipment, or other contrivance that may cause the issuance of air contaminants. The equipment included in this permit is listed in Attachment 10.5. An Authority to Construct is required to return any de-permitted equipment to service and may be subject to New Source Review.

Rule 210 - Fees: Pursuant to Rule 201.G, District permits are reevaluated every three years. This includes the re-issuance of the underlying permit to operate. 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). Attachment 10.3 presents the fee calculations for the reevaluated permit.

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

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 mimimal.

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. It is highly unlikely that gas fired engines will exceed these particulate matter standards.

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. It is highly unlikely that the gas fired steam generator will exceed these standards.

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.

Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted in the Orcutt Hill steam generators to 0.5 percent (by weight) for liquids fuels and 50 gr/100 scf (calculated as H_2S) {or 796 ppmvd} for gaseous fuels. The steam generator, fired on PUC quality gas, is expected to be in compliance with the fuel limit as determined by fuel analysis documentation.

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

Rule 321 - Solvent Cleaning Operations: This rule was revised on September 20, 2010 to fulfill the commitment in the 2001 and 2004 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 proposed provisions apply to solvent cleaning machines and wipe cleaning.

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

Rule 323.1 - Architectural Coatings: This rule sets the standards for any architectural coating that is supplied, sold, offered for sale, or manufactured for use within the District.

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

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

Rule 342 - Control of Oxides of Nitrogen from Boilers, Steam Generators, and Process Heaters: This rule sets emission standards for external combustion units with a rated heat input greater than 5.0 MMBtu/hr. The steam generator is subject to Rule 342 D.1 emission standards, and is subject to biennial source testing. Per the engineering analysis below, the permitted emission factors are lower than required per Rule 342.

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

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

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

a. Is not the result of neglect or disregard of any air pollution control law or rule or regulation;

b. Is not the result of an intentional or negligent act or omission on the part of the owner or operator;

c. Is not the result of improper maintenance;

d. Does not constitute a nuisance as defined in Section 41700 of the Health and Safety Code;

e. Is not a recurrent breakdown of the same equipment.

Rule 810 - Federal Prevention of Significant Deterioration: This rule incorporates 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 were conducted on June 4, 2019 and May 13, 2020 since issuance of the previous permit renewal. The reports for these inspections were reviewed as part of the current permit renewal process. The reports indicate that there were no compliance issues resulting from these inspections.

3.5.2 Variances: No variances have been applied for or granted since the previous permit renewal.

3.5.3 Violations. There have been no enforcement actions issued to this facility since the previous permit renewal.

Table 3-1 Generic Federally-Enforceable District Rules

Generic Requirements	Affected Emission Units	Basis for Applicability
RULE 101: Compliance by Existing Installations	All emission units	Emission of pollutants
RULE 102: Definitions	All emission units	Emission of pollutants
RULE 103: Severability	All emission units	Emission of pollutants
RULE 201: Permits Required	All emission units	Emission of pollutants
RULE 202: Exemptions to Rule 201	Applicable emission units, as listed in form 1302-H of the Part 70 application.	Insignificant activities/emissions, per size/rating/function.
RULE 203: Transfer	All emission units	Change of ownership
RULE 204: Applications	All emission units	Addition of new equipment of modification to existing equipment.
RULE 205: Standards for Granting Permits	All emission units	Emission of pollutants
RULE 206: Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
RULE 207: Denial of Applications	All emission units	Applicability of relevant Rules
RULE 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.
RULE 212: Emission Statements	All emission units	Administrative
RULE 301: Circumvention	All emission units	Any pollutant emission
RULE 302: Visible Emissions	All emission units	Particulate matter emissions

Generic Requirements	Affected Emission Units	Basis for Applicability
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.
RULE 304: Particulate matter – Northern Zone	Each PM Source	Emission of PM in effluent gas
RULE 309: Specific Contaminants	All emission units	Combust. Contaminant emissions
RULE 311: Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur
RULE 317: Organic Solvents	Emission units using solvents	Solvent used in process operations.
RULE 321: Solvent Cleaning Operations	Emission units using solvents	Solvent used in process operations.
RULE 322: Metal Surface Coating Thinner and Reducer	Emission units using solvents	Solvent used in process operations.
RULE 323.I: Architectural Coatings	Paints used in maintenance and surface coating activities.	Application of architectural coatings.
RULE 324: Disposal and Evaporation of Solvents	Emission units using solvents	Solvent used in process operations.
RULE 353: Adhesives and Sealants	Emission units using adhesives and solvents.	Adhesives and sealants used in process operations.
RULE 505.A, B1, D: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
RULE 603: Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	The stationary source is a major source.
RULE 901: New Source Performance Standards (NSPS)	All emission units	Applicability standards are specified in each NSPS.
RULE 1001: National Emission Standards for Hazardous Air Pollutants (NESHAPS)	All emission units	Applicability standards are specified in each NESHAPS.
REGULATION VIII: New Source Review	All emission units	Addition of new equipment or modification to existing equipment. Applications to generate ERC Certificates.
REGULATION XIII (RULES 1301-1305): Part 70 Operating Permits	All emission units	The stationary source is a major source.

Table 3-2 Unit-Specific Federally-Enforceable District Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
RULE 342: Control of Oxides of Nitrogen (NOx) from Boilers, Steam Generators and Process Heaters	District Device No 104992	Boilers, steam generators, and process heaters with rated heat inputs greater than or equal to 5 million Btu per hour.
RULE 360: Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr).	Any new small boiler installed at the facility.	New units rated from 75,000 Btu/hr to 2.000 MMBtu/hr.

Table 3-3 Non-Federally-Enforceable District Rules

Requirement	Affected Emission Units	Basis for Applicability
RULE 210: Fees	All emission units	Administrative
RULE 352: Natural Gas-Fired Fan-Type Central Furnaces and Small Water Heaters	New water heaters and furnaces	Upon installation
RULES 501-504: Variance Rules	All emission units	Administrative
RULE 505.B2, B3, C, E, F, G: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
RULES 506-519: Variance Rules	All emission units	Administrative

Table 3-4 Adoption Dates of District Rules Applicable at Issuance of Permit

Rule No.	Rule Name	Adoption Date
Rule 101	Compliance by Existing Installations: Conflicts	June 1981
Rule 102	Definitions	August 25, 2016
Rule 103	Severability	October 23, 1978
Rule 201	Permits Required	June 21, 2012
Rule 202	Exemptions to Rule 201	August 25, 2016
Rule 203	Transfer	April 17, 1997
Rule 204	Applications	April 17, 1997
Rule 205	Standards for Granting Permits	April 17, 1997
Rule 206	Conditional Approval of Authority to Construct or Permit to Operate	October 15, 1991
Rule 208	Action on Applications - Time Limits	April 17, 1997

Rule No.	Rule Name	Adoption Date
Rule 212	Emission Statements	October 20, 1992
Rule 301	Circumvention	October 23, 1978
Rule 302	Visible Emissions	June 1981
Rule 303	Nuisance	June 1981
Rule 304	Particulate Matter – Northern Zone	October 23, 1978
Rule 309	Specific Contaminants	October 23, 1978
Rule 311	Sulfur Content of Fuels	October 23, 1978
Rule 317	Organic Solvents	October 23, 1978
Rule 321	Solvent Cleaning Operations	June 12, 2012
Rule 322	Metal Surface Coating Thinner and Reducer	October 23, 1978
Rule 323	Architectural Coatings	November 15, 2001
Rule 323.I	Architectural Coatings	June 19, 2014
Rule 324	Disposal and Evaporation of Solvents	October 23, 1978
Rule 325	Crude Oil Production and Separation	July 19, 2001
Rule 326	Storage of Reactive Organic Compound Liquids	January 18, 2001
Rule 328	Continuous Emissions Monitoring	October 23, 1978
Rule 330	Surface Coating of Metal Parts and Products	June 12, 2012
Rule 331	Fugitive Emissions Inspection and Maintenance	December 10, 1991
Rule 333	Control of Emissions from Reciprocating Internal Combustion Engines	June 19, 2008
Rule 342	Control of Oxides of Nitrogen (NOx) from Boilers, Steam Generators, and Process Heaters	June 20, 2019
Rule 352	Natural Gas-Fired Fan-Type Central Furnaces and Small Water Heaters	October 20, 2011
Rule 353	Adhesives and Sealants	June 21, 2012
Rule 360	Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr)	June 20, 2019
Rule 361	Small Boilers, Steam Generators and Process Heaters	January 17, 2008
Rule 505	Breakdown Conditions (Section A, B1 and D)	October 23, 1978
Rule 603	Emergency Episode Plans	June 15, 1981
Rule 801	New Source Review	August 25, 2016

Rule No.	Rule Name	Adoption Date
Rule 802	Nonattainment Review	August 25, 2016
Rule 803	Prevention of Significant Deterioration	August 25, 2016
Rule 804	Emission Offsets	August 25, 2016
Rule 805	Air Quality Impact and Modeling	August 25, 2016
Rule 806	Emission Reduction Credits	August 25, 2016
Rule 810	Federal Prevention of Significant Deterioration (PSD)	June 20, 2012
Rule 901	New Source Performance Standards (NSPS)	September 20, 2010
Rule 1001	National Emission Standards for Hazardous Air Pollutants (NESHAPS)	October 23, 1993
Rule 1301	General Information	August 25, 2016
Rule 1302	Permit Application	November 9, 1993
Rule 1303	Permits	November 9, 1993
Rule 1304	Issuance, Renewal, Modification and Reopening	November 9, 1993
Rule 1305	Enforcement	November 9, 1993

4.0 Engineering Analysis

4.1. General

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

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

Unless noted otherwise, default ROC/THC reactivity profiles from the 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. Stationary External Combustion Units

4.2.1 General: The stationary combustion sources associated with the Orcutt Hill Steam Generators consist of a 23 MMBtu/hr field gas fired steam generator. The steam generator is used to thermally enhance oil production at two idle wells and one producing well on the Dome and Newlove leases. The steam generator may be operated on any lease within the Orcutt Hill stationary source (SSID 2667). The steam generator is fired on PUC quality gas fuel.

4.2.2 Emission Factors: The emission factors for the 23 MMBtu/hr Smithmoon Steel steam generator are shown in Table 5.1-2. The NOx, CO, and ROC emission factors are based on burner manufacturer guarantees for the North American Mfg Co. Model 4211-LE Low-NO_x burner equipped with FGR which meets the Rule 342 requirements for NOx and CO. The PM/PM_{10}/ $PM_{2.5}$ emission factors are based on EPA AP-42. The SO_x emission factor is based on mass balance using a total sulfur content of 23 ppmv for natural gas. This sulfur content was approved by the District for use on the Diatomite Project based on sulfur analysis results of Southern California Gas Company utility grade natural gas.

4.2.3 Emission Controls: The emission controls for the steam generator includes the use of a North American Low-NO_x burner and Exhaust-Gas Recirculation. The FGR system is installed external to the burner on the steam generator. The combustion air and the flue gas enter the burner at the discharge of the blower.

4.3. Fugitive Hydrocarbon Sources

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

The number of component leak paths was determined by the operator and these data were verified by District staff by checking a representative number of P&IDs and by site checks. A total of 388 gas/gas-liquid component-leak paths exist due to the installation of the steam generator. The calculation methodology for the fugitive emissions is:

Where: ER = emission rate (lb/period)

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

EF = ROC emission factor (lb/clp-day)
CLP = component-leak path (clp)
CE = control efficiency
HPP = operating hours per time period (hrs/period)

Differing emission control efficiencies are credited to all components that are safe to monitor (as defined per Rule 331) due to the implementation of a District-approved Inspection and Maintenance program for leak detection and repair consistent with Rule 331 requirements. The control efficiencies vary based on component design, monitoring frequency, and leak detection threshold. This facility operates accessible valves and flanges/connections (80% control) and pressure relief devices (100% control). Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

4.4. BACT/NSPS/NESHAP/MACT

The modifications authorized in ATC/PTO 11405-01 required the 23 MMBTU/hr steam generator to comply with the NOx and ROC BACT level of control required for the 62.5 MMBTU/hr steam generators permitted under ATC 12084 for the Diatomite Project. The generator burner manufacturer's guarantee of 9 ppmv @ 3% O_2 NO_x and 8.5 ppmv @ 3% O_2

ROC meets the District approved BACT level of control for these steam generators. These BACT limits are specified in permit condition C.1. Compliance of the 23 MMBTU/hr steam generator with these NO_x and ROC BACT limits was confirmed during source testing conducted on February 23, 2007 with the generator fired on PUC quality natural gas and the burner combustion controlled by FGR. Generator burner NO_x emissions complied with 9 ppmv @ 3% O_2 when burner windbox oxygen readings were maintained at or below 18.8%. Test results reported negligible ROC and CO emissions. To date, this facility has not triggered New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP) or Maximum Available Control Technology (MACT).

4.5. CEMS/Process Monitoring/CAM

4.5.1 CEMS: There are no CEMS at this facility.

4.5.2 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: hour meters, fuel usage meters, and hydrogen sulfide analyzers. Once these process monitors are in place, it is important that they be well maintained and calibrated to ensure that the required accuracy and precision of the devices are within specifications. At a minimum the following process monitors will be required to be in good working order:

→ Fuel meter (totalizer) to measure total scf delivered to the steam generator.

4.5.3 CAM: The Pacific Coast Energy Company - Orcutt Hill Stationary Source is a major source that is subject to the USEPA's Compliance Assurance Monitoring (CAM) rule (40 CFR 64). Any emissions unit at the facility with uncontrolled emissions potential exceeding major source emission thresholds for any pollutant is subject to CAM provisions. It was determined that CAM was not applicable to any equipment units at this facility.

4.6. Source Testing/Sampling

Source testing and sampling are required in order to ensure compliance with permitted emission limits, Rule 342 emission standards, and the assumptions that form the basis of this operating permit. Fugitive hydrocarbon components are not source tested. See permit condition 9.C.1 for specific source test requirements.

All sampling and analyses are required to be performed according to District approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. It is important that all sampling and analysis be traceable by chain of custody procedures.

4.7. Part 70 Engineering Review: Hazardous Air Pollutants

Total emissions of hazardous air pollutants (HAP) are computed for each emissions unit. HAP emission factors and references are listed in Table 5.4. Potential HAP emissions from the facility, based on the worst-case operational scenario, are computed and listed in Table 5.5. The stationary source HAP emission totals are summarized in Table 5.6. HAP emissions have been included in the Part 70 permit solely for the purpose of any future MACT applicability determination. They do not constitute any emissions or operations limit.

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).

Section 5.2 details the permitted emissions for each emissions unit. Section 5.3 details the overall permitted emissions for the facility based on reasonable worst-case scenarios using the potential-to-emit for each emissions unit. Section 5.4 provides the federal potential to emit calculation using the definition of potential to emit in Rule 1301. Section 5.5 provides the basis of the greenhouse gas emission estimates and Section 5.6 provides the estimated HAP emissions from the facility. Section 5.7 (if applicable) provides the estimated emissions from permit exempt equipment and also serves as the Part 70 list of insignificant emissions. 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) [3]
- ⇒ Reactive Organic Compounds (ROC)
- ⇒ Carbon Monoxide (CO)
- ⇒ Sulfur Oxides (SO_x) [4]
- ⇒ Particulate Matter (PM) [5]
- ⇒ 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 Attachment 10.1. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Tables 5.1-3 and 5.1-4 show the permitted short-term and permitted long-term emissions for each unit or operation. In the table, the last column indicates whether the emission limits are federally-enforceable. Those emissions limits that are federally-enforceable are indicated by the symbol "FE". Those emissions limits that are District-only enforceable are indicated by the symbol "A".

5.3. Permitted Emission Limits - Facility Totals

The total potential-to-emit for all emission units associated with this facility were analyzed. This analysis looked at the reasonable worst-case operating scenarios for each operating period. The

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

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. There has been no change to the permitted emission totals since issuance of the previous permit renewal.

5.4. Part 70: Federal Potential to Emit

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. This facility does not belong to one of the categories listed in 40 CFR 70.2, therefore fugitive emissions do not contribute to the federal PTE.

5.5. Greenhouse Gas Emissions Computations

On January 20, 2011, the District revised Rule 1301 to include greenhouse gases (GHGs) that are "subject to regulation" in the definition of "Regulated Air Pollutants". The facility's potential to emit has been estimated, however the greenhouse gas PTE is not an emission limit. The facility will not become subject to emission limits for GHGs unless a project triggers federal Prevention of Significant Deterioration requirements under Rule 810.

GHG emissions from combustion sources are calculated using emission factors found in Tables C-1 and C-2 of 40 CFR Part 09 and global warming potentials found in Table A-1 of 40 CFR Part 98. CO_2 equivalent emission factors are calculated for CO_2, CH_4, and N_2O individually, then summed to calculate a total CO_{2e} emission factor. Annual CO_{2e} emission totals are presented in short tons.

For natural gas combustion the emission factor is:
(53.02 kg CO_2/MMbtu) (2.2046 lb/kg) = 116.89 lb CO_2/MMBtu
(0.001 kg CH_4/MMBtu) (2.2046 lb/kg)(21 lb CO_2e/lb CH4) = 0.046 lb CO_2e/MMBtu
(0.0001 kg N_2O/MMBtu) (2.2046 lb/kg)(310 lb CO_2e/lb N_2O) = 0.068 lb CO_2e/MMBtu
Total CO2e/MMBtu = 116.89 + 0.046 + 0.068 = 117.00 lb CO_2e/MMBtu

5.6. Part 70: Hazardous Air Pollutant Emissions for the Facility

Hazardous air pollutants (HAP) emission factors, for each type of emissions unit, are listed in Tables 5.4 and 5.5. HAP emission totals for the stationary source are are shown in Table 5.6. HAPs emission totals have been revised since issuance of the previous permit renewal based on revised HAPs emission factors.

5.7. Exempt Emission Sources/Part 70 Insignificant Sources

Equipment/activities exempt pursuant to Rule 202 include maintenance operations involving surface coating. Under the District's Part 70 regulation, equipment/activities that are exempt under Rule 202 are considered insignificant units emissions. In addition, *insignificant activities* such as maintenance operations using paints and coatings, contribute to the facility emissions. There are no exempt or insignificant equipment/activities identified at this facility.

Table 5.1-1: Operating Equipment Description
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

Equipment Item	Description	DeviceNo	Device Specifications				Usage Data			Maximum Operating Schedul			
			Fuel/Feed	%S	Size	Units	Capacity	Units	Load	hr	day	qtr	year
Fugitive Hydrocarbon Components - CLP Method													
Gas/Condensate Service													
Valve	Accessible	105074	--	--	42	comp-lp	--	--	--	1.0	24	2190	8760
Connection	Accessible	105075	--	--	346	comp-lp	--	--	--	1.0	24	2190	8760
	SubTotal:				388	comp-lp							
Combustion - External	Steam Generator	104992	FG	0.0023	23	MMBtu/hr	201,480	MMBtu/yr	--	1.0	24	2190	8760

Table 5.1-2: Equipment Emission Factors
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

Equipment Item	Description	DeviceNo	Emission Factors							
			NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG	Units
Fugitive Hydrocarbon Components - CLP Method										
Gas/Condensate Service										
Valve	Accessible	105074	--	0.0183	--	--	--	--	--	lb/day-clp
Connection	Accessible	105075	--	0.0043	--	--	--	--	--	lb/day-clp
Combustion - External	Steam Generator	104992	0.011	0.004	0.019	0.004	0.006	0.006	117.000	lb/MMBtu

Table 5.1-3: Hourly and Daily Emissions
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

Equipment Item	Description	DeviceNo	NOx		ROC		CO		SOx		PM		$PM_{2.5/10}$		GHG		Federal
			lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	Enforceability
Fugitive Hydrocarbon Components - CLP Method																	
Gas/Condensate Service																	
Valve	Accessible	105074	--	--	0.03	0.77	--	--	--	--	--	--	--	--	--	--	A
Connection	Accessible	105075	--	--	0.06	1.50	--	--	--	--	--	--	--	--	--	--	A
	SubTotal:				0.09	2.27											FE
Combustion - External	Steam Generator	104992	0.25	6.05	0.08	1.99	0.44	10.49	0.09	2.04	0.14	3.31	0.14	3.31	2,691	64,584	FE

Table 5.1-4: Quarterly and Annual Emissions
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

Equipment Category	Description	DeviceNo	NOx		ROC		CO		SOx		PM		$PM_{2.5/10}$		GHG		Federal
			TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	Enforceability
Fugitive Hydrocarbon Components - CLP Method																	
Gas/Condensate Service																	
Valve	Accessible	105074	--	--	0.04	0.14	--	--	--	--	--	--	--	--	--	--	A
Connection	Accessible	105075	--	--	0.07	0.27	--	--	--	--	--	--	--	--	--	--	A
	SubTotal:				0.10	0.41											FE
Combustion - External	Steam Generator	104992	0.28	1.10	0.09	0.36	0.48	1.91	0.09	0.37	0.15	0.60	0.15	0.60	2,947	11,787	FE

Table 5.2: Total Permitted Facility Emissions
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

A. Hourly

Equipment Category	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
Combustion - External	0.25	0.08	0.44	0.09	0.14	0.14	2,691.00
Fugitive Components	--	0.09	--	--	--	--	--
Totals (lb/hr)	**0.25**	**0.18**	**0.44**	**0.09**	**0.14**	**0.14**	**2,691.00**

B. Daily

Equipment Category	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
Combustion - External	6.05	1.99	10.49	2.04	3.31	3.31	64,584.00
Fugitive Components	--	2.27	--	--	--	--	--
Totals (lb/day)	**6.05**	**4.26**	**10.49**	**2.04**	**3.31**	**3.31**	**64,584.00**

C. Quarterly

Equipment Category	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
Combustion - External	0.28	0.09	0.48	0.09	0.15	0.15	2,946.65
Fugitive Components	--	0.10	--	--	--	--	--
Totals (TPQ)	**0.28**	**0.19**	**0.48**	**0.09**	**0.15**	**0.15**	**2,946.65**

D. Annual

Equipment Category	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
Combustion - External	1.10	0.36	1.91	0.37	0.60	0.60	11,786.58
Fugitive Components	--	0.41	--	--	--	--	--
Totals (TPY)	**1.10**	**0.78**	**1.91**	**0.37**	**0.60**	**0.60**	**11,786.58**

Table 5.3: Federal Potential to Emit
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

A. Hourly

Equipment Category	NOx	ROC	CO	SOx	PM	$PM_{2.5/10}$	GHG
Combustion - External	0.25	0.08	0.44	0.09	0.14	0.14	2,691.00
Exempt Surface Coating	--	0.010	--	--	--	--	--
Totals (lb/hr)	**0.25**	**0.09**	**0.44**	**0.09**	**0.14**	**0.14**	**2,691.00**

B. Daily

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
Combustion - External	6.05	1.99	10.49	2.04	3.31	3.31	64,584.00
Exempt Surface Coating	--	0.010	--	--	--	--	--
Totals (lb/day)	**6.05**	**2.00**	**10.49**	**2.04**	**3.31**	**3.31**	**64,584.00**

C. Quarterly

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
Combustion - External	0.28	0.09	0.48	0.09	0.15	0.15	2,946.65
Exempt Surface Coating	--	0.010	--	--	--	--	--
Totals (TPQ)	**0.28**	**0.10**	**0.48**	**0.09**	**0.15**	**0.15**	**2,946.65**

D. Annual

Equipment Category	NOx	ROC	CO	SOx	PM	PM10	GHG
Combustion - External	1.10	0.36	1.91	0.37	0.60	0.60	11,786.58
Exempt Surface Coating	--	0.010	--	--	--	--	--
Totals (TPY)	**1.10**	**0.37**	**1.91**	**0.37**	**0.60**	**0.60**	**11,786.58**

Table 5.4 HAP Emission Factors
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R5

Equipment Item	Description	Device No	Emission Factors: Formaldehyde	Hexane	Acetaldehyde	Benzene	Toluene	PAHs	Naphthalene	Acrolein	Xylene	Ethyl benzene	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Manganese	Mercury	Nickel	Selenium	Iso-Octane	Units
Fugitive Hydrocarbon Components - CLP Method[1]																							
Gas/Condensate Service																							
Valve	Accessible	105074	–	0.1677	–	0.0052	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1494	lb/lb-ROC
Connection	Accessible	105075	–	0.1677	–	0.0052	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1494	lb/lb-ROC
Combustion - External[2,3]	Steam Generato	104992	1.23E-02	4.60E-03	3.10E-03	5.80E-03	2.65E-02	4.00E-04	1.00E-04	2.70E-03	1.97E-02	6.90E-03	2.00E-04	1.20E-05	1.10E-03	1.40E-03	8.40E-05	1.80E-04	2.60E-04	2.10E-03	2.40E-05	–	lb/MMcf
Exempt Surface Coating[4]	Surface Coating (estd.)		–	–	–	5.00E-02	5.00E-02	–	–	–	5.00E-02	–	–	–	–	–	–	–	–	–	–	–	lb/lb-ROC

References:

[1] Component emission factors, originally in units of lb/lb-TOC, were converted to lb/lb-ROC using an ROC/TOC fraction of 0.31 from Table 2 of the District's P&P 6100.061.
[2] Ventura County Air Pollution Control District. May 2001. AB 2588 Combustion Emission Factors Natural Gas Fired External Combustion Equipment Table.
[3] USEPA. July 1998. AP-42 Chapter 1.4 Table 1.4-4: Emission Factors for Metals from Natural Gas Combustion.
[4] Solvents assumed to contain 5% benzene, 5% toluene, 5% xylene.

Table 5.5 HAP Emissions
Pacific Coast Energy Orcutt Hill Steam Generator
Permit to Operate 11405-R5

Equipment Item	Description	Device No	HAP Emissions (tpy)																			
			Formaldehyde	Hexane	Acetaldehyde	Benzene	Toluene	PAHs	Naphthalene	Acrolein	Xylene	Ethylbenzene	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Manganese	Mercury	Nickel	Selenium	Iso-Octane
Fugitive Hydrocarbon Components - CLP Melford Gas Condensate Service																						
Valve	Accessible	105074	–	2.35E-02	–	4.55E-04	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.00E-02
Connector	Accessible	105075	–	4.60E-02	–	8.90E-04	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.00E-02
Combustion - External	Steam Generator	104992	1.18E-03	6.41E-04	2.97E-04	5.56E-04	2.54E-03	3.84E-05	2.88E-05	2.59E-04	1.89E-03	6.62E-04	1.92E-05	1.15E-06	1.06E-04	1.34E-04	8.06E-06	3.65E-05	2.49E-05	2.01E-04	2.30E-06	–
Exempt Surface Coating	Surface Coating (mtd.)		–	–	–	5.00E-04	5.00E-04	–	–	–	5.00E-04	–	–	–	–	–	–	–	–	–	–	–
		Total HAPS (TPY):	1.18E-03	6.99E-02	2.97E-04	2.40E-03	3.04E-03	3.84E-05	2.88E-05	2.59E-04	2.39E-03	6.62E-04	1.92E-05	1.15E-06	1.06E-04	1.34E-04	8.06E-06	3.65E-05	2.49E-05	2.01E-04	2.30E-06	6.19E-02

Table 5-6 HAP Emissions
Pacific Coast Energy Company - Orcutt Hill
Stationary Source Hazardous Air Pollutant Emissions (TPY)

Facility	Permit #	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Hexane	Hydrochloric Acid	Naphthalene	PAH	Toluene	Xylene	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Manganese	Mercury	Nickel	Selenium	Biphenyl	1,3-Butadiene	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,3-Dichloropropene	Carbon Tetrachloride	Chlorobenzene	Chloroform	Ethylene Dichloride	Hydrazine, anh	Lead	Methylene Chloride	Methanol	Phenol	Styrene	Vinyl Chloride	Total - All HAPs
4214 - Orcutt Hill IC Engines	PTO 8639-R5	5.16E-01	4.53E-01	3.37E-01	8.88E-01	3.02E+00	7.80E-03	2.23E-02	4.09E-02	2.56E-02	9.09E-02	3.79E-02	6.81E-04	--	1.64E-04	6.57E-05	--	3.39E-04	2.19E-04	4.27E-04	2.41E-04	2.57E-06	1.11E-01	4.33E-03	2.63E-03	2.18E-03	3.04E-03	2.27E-03	2.65E-03	4.44E-03	2.09E-02	1.15E-03	5.46E-03	4.01E-01	2.32E-03	2.91E-03	1.23E-03	5.925
4104 - Orcutt Hill Compressor Plant	PTO 8174 - R7	0.97E-06	5.63E-06	9.63E-03	1.98E-05	3.05E-05	5.22E-01	--	6.26E-07	8.34E-07	3.78E-04	5.57E-04	4.17E-07	2.50E-08	2.29E-05	2.92E-06	1.75E-07	7.93E-07	5.42E-07	6.38E-06	3.01E-06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.532
3206 - Cal Coast Lease (Orcutt Hill)	PTO 8226-R10	--	--	4.53	--	--	8.37	0.25	--	--	4.58	4.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16.123
16682 - Orcutt Hill - Steam Generators	PTO 11405-R3	2.57E-04	2.59E-04	2.48E-03	6.62E-04	1.18E-03	7.84E-02	6.19E-02	3.84E-05	2.88E-05	3.04E-03	2.29E-03	1.92E-05	1.15E-06	1.89E-04	1.34E-04	8.86E-06	3.65E-05	2.49E-05	2.81E-04	2.39E-06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.143
3322 - Pinal Lease	PTO 8582-R8	--	--	8.77E-02	--	--	3.57E-01	3.73E-01	--	--	5.05E-02	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.079
3324 - Squires Lease	PTO 8223 -R5	--	--	8.34E-02	--	--	8.72E-01	4.78E-01	--	--	4.64E-02	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.281
3315 - Hartnell Lease	PTO 9029-R7	--	--	3.45E-02	--	--	4.84E-01	3.68E-01	--	--	1.68E-02	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.884
3323 - Rice Ranch Lease (Orcutt Hill)	PTO 9035-R7	--	--	1.28E-03	--	--	4.16E-02	3.68E-02	--	--	5.68E-04	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.081
3316 - Folsom Lease	PTO 9026-R7	--	--	3.06E-02	--	--	3.40E-01	2.62E-01	--	--	1.68E-02	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.648
3326 - Hobbs Lease	PTO 9027-R7	--	--	3.44E-02	--	--	3.80E-01	2.26E-01	--	--	1.68E-02	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.587
3314 - Dome Lease	PTO 9089-R7	--	--	2.57E-02	--	--	2.99E-01	2.28E-01	--	--	1.58E-02	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.564
3405 - Getty Hobbs Lease (Orcutt Hill)	PTO 9031-R7	--	--	1.29E-03	--	--	4.19E-02	3.68E-02	--	--	5.68E-04	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.081
3313 - Fox Lease	PTO 8554-R5	--	--	3.67E-03	--	--	1.80E-01	1.47E-01	--	--	5.68E-04	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.317
3318 - Gracious Lease	PTO 9028-R7	--	--	7.77E-03	--	--	1.34E-01	1.11E-01	--	--	3.04E-03	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.257
1904 - Orcutt Hill Field (MVFF)	PTO 11668-R3	--	--	6.08E-04	5.60E-04	--	--	--	--	--	3.28E-03	9.00E-04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.065
3321 - Newlove Lease	PTO 8240-R6	2.42E-03	2.11E-03	2.64E-01	5.40E-03	9.62E-03	3.63E+00	2.90E+00	2.35E-04	3.13E-04	1.42E-01	1.09E-02	1.66E-04	9.39E-06	8.60E-04	1.18E-03	6.57E-05	2.67E-04	2.03E-04	1.54E-03	1.88E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.969
Total Stationary Source - By Pollutant		0.52	0.46	5.45	0.01	3.03	7.63	5.49	4.12E-02	2.59E-02	4.51	4.53	8.57E-04	1.04E-05	1.13E-03	1.34E-03	1.39E-05	6.74E-04	4.48E-04	2.20E-03	2.62E-04	2.57E-06	0.11	4.33E-03	2.63E-03	2.18E-03	3.04E-03	2.27E-03	2.65E-03	4.44E-03	2.09E-02	1.15E-03	5.46E-03	0.40	2.32E-05	2.65E-03	1.23E-03	33.48

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 Analysis

6.1. Modeling

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

6.2. Increments

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

6.3. Monitoring

Air quality monitoring is not required for this stationary source.

6.4. Health Risk Assessment

The Pacific Coast Energy Company - Orcutt Hill Stationary Source is subject to the Air Toxics "Hot Spots" Program (AB 2588). A health risk assessment (HRA) for the Orcutt Hill facilities was prepared by the District on September 28, 1993 under the requirements of the AB 2588 program. The HRA is based on 1991 toxic emissions inventory data submitted to the District by Luft Environmental Consulting on behalf of the Unocal Corporation, the previous owners of the Orcutt Hill stationary source.

Based on the 1991 toxic emissions inventory, a cancer risk of about 5 per million at the property boundary was estimated for the stationary source. This risk is primarily due to benzene emitted from storage tanks at the site. Additionally, chronic and acute non-carcinogenic risks of 0.3 and 0.2 have been estimated by the District and are mainly due to acrolein emissions from internal combustion engines. Approximately 3,663 pounds of benzene and about 317 pounds of acrolein were emitted from the entire stationary source in 1991. The cancer and noncancer risk projections are less than the District's AB 2588 significance thresholds of 10 in a million and 1.0, respectively.

A second health risk assessment (HRA), based on the 2005 toxics emissions inventory, was prepared for the Orcutt Hill facilities in conjunction with the Diatomite Project permit process located on the Newlove Lease at the stationary source. This HRA was revised in January 2009, to reflect the current status of electrification of injection pump engines and engine locations. The results of this HRA are provided below:

Pathway	Health Impact Type	HARP Receptor Number	HARP Receptor Type	UTM Easting (NAD83, m)	UTM Northing (NAD83, m)	Heath Risk	Significant Risk Level
Inhalation Only	Cancer	12024	Boundary	735210	3858241	8.73	≥ 10
	Chronic	12024	Boundary	735210	3858241	0.0175	≥ 1
	Acute	11936	Boundary	735998	3859372	0.823	≥ 1
Multi Pathway	Cancer	12024	Boundary	735210	3858241	9.80	≥ 10
	Chronic	12024	Boundary	735210	3858241	0.0175	≥ 1
	Acute	11936	Boundary	735998	3859372	0.823	≥ 1

7.0 CAP Consistency, Offset Requirements, and ERCs

7.1 General

Santa Barbara County has not attained the state PM_{10} air quality standards. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with progress toward attainment of federal and state ambient air quality standards. Under District regulations, any modifications at the source that result in an emission increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Increases above offset thresholds will trigger offsets at the source or elsewhere so that there is a net air quality benefit for Santa Barbara County. These offset threshold levels are 240 lbs/day for all attainment pollutants and precursors (except carbon monoxide and $PM_{2.5}$) and 25 tons/year for all non-attainment pollutants and precursors (except carbon monoxide and $PM_{2.5}$).

On July 1, 2020, Santa Barbara County achieved attainment for the State ozone standards. This change was initiated by the California Air Resources Board (CARB) at their December 2019 public hearing and it was later approved by the Office of Administrative Law.

7.2 Clean Air Plan

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

In December 2019 the District Board adopted the 2019 Ozone Plan. The 2019 Plan provides a three-year update to the 2010 Clean Air Plan. As Santa Barbara County has only recently attained the state eight-hour ozone standard, the 2019 Clean Air Plan demonstrates how the District plans to maintain that standard. The 2019 Clean Air Plan therefore satisfies all state triennial planning requirements.

7.3 Offset Requirements

The Pacific Coast Energy Company - Orcutt Hill Stationary Source triggers emission offsets for NOx and ROCs. Tables 7.3-1, 7.3-2 and 7.3-3 summarize the emissions and offset totals for this stationary source.

TABLE 7.3-1
NOx Emissions and ERCs Used
Pacific Coast Energy Orcutt Hill

PROJECT/ PERMIT	Issuance Date	NOx TPY	ERC Certificate
I.C. Engines From Previous Permits (P8039-R6)	29-Mar-09	0.239	249 [(a)(b)]
Newlove Thermal Oxidizer (A13000)	17-Jul-09	1.670	249 [(a)(b)]
Newlove Diatomite Project (A12084-03)	5-Nov-10	6.020	249 [(a)(b)]
Steam Generator Modifications (A11405-01, A11405-02, & ATC/PTO 11405)	15-Jun-12	1.090	249 [(a)(b)]
Newlove Diatomite Project (A12084-04)	21-Feb-13	2.338	249 [(a)(b)]
		11.357	

	Emission Reduction Credits Used TPY	Distance Factor	Emission Liability TPY
NOx ERCs	13.628	1.2	11.357
TOTAL	**13.628**		**11.357**

Notes:

(a) ERCs are used to offset NOx emissions with a 1.2 distance factor.
(b) ERCs generated from the electrification of seventeen gas fired engines at the Orcutt Hill Stationary Source.
(c) Emission units: TPY = tons per year.
(d) ERCs from ATC 13000 are still is use despite the cancellation of the permit due to Rule 806.

Table 7.3-2
Pre-2016 ROC Emissions and ERCs Used
Pacific Coast Energy Orcutt Hill

PROJECT/PERMIT	Issuance Date	ROC TPY	ERC Certificate
Pinal Replace 3,000 Bbl Wash Tank (P10752)	2-Jan-02	0.010	172 [(a)(b)]
Cal Coast Replace 2000 bbl Crude Tank (P10934)	10-Jun-03	0.120	172 [(a)(b)]
Cal Coast 750 Bbl Wash Tank (P10833)	25-Jun-03	0.070	172 [(a)(b)]
Cal Coast 750 Bbl Wastewater Tank (P11191)	12-Jul-04	0.140	172 [(a)(b)]
Compressor Plant Convert Inlet Scrubber to Sulfur Scrubber (P11580)	25-Jul-05	0.090	172 [(a)(b)]
Orcutt MVFF (A11666)	27-Jul-05	0.040	172 [(a)(b)]
Steam Generator Modifications (A11405-01, A11405-02, & ATC/PTO 11405)	29-Mar-06	0.770	172 [(a)(b)]
I.C. Engines NEI From Previous Permits (P8039-R6)	29-Mar-06	0.010	172 [(a)(b)]
Compressor Plant Convert Inlet Scrubber to a Sulfur Scrubber (A12032)	5-Jun-07	0.010	172 [(a)(b)]
Compressor Plant New VRU & Component Update (A12767)	8-Aug-08	1.100	172 [(a)(b)]
Newlove Four New Wells (A13141)	16-Apr-09	0.040	172 [(a)(b)]
Newlove Throughput Increase (A13134)	15-Jun-09	0.170	172 [(a)(b)]
Newlove Thermal Oxidizer (A13000)	17-Jul-09	0.235	172 [(a)(b)(c)]
Compressor Plant Replaced Road Oil Tank with a Wastewater Tank (A13161)	18-Aug-09	0.110	172 [(a)(b)]
Squires Convert Liquid Knockout to a Sulfur Scrubber (A13296)	20-Nov-09	0.160	172 [(a)(b)]
Newlove Twenty-nine New Sx Sand Wells (A13140)	2-Dec-09	2.240	172 [(a)(b)]
Newlove Five Sx Wells (P13230)	29-Dec-09	0.405	172 [(a)(b)(d)]
Newlove New Sulfur Scrubber (A13397)	16-Jun-10	0.180	172 [(a)(b)]
Newlove Loading Rack (A13513)	4-Nov-10	0.095	172 [(a)(b)]
Cal Coast Loading Rack & Throughput Increase (A13514)	4-Nov-10	0.129	172 [(a)(b)]
Pinal Loading Rack & Throughput Increase (A13539)	4-Nov-10	0.023	172 [(a)(b)]
Newlove Diatomite Project (A12084-03)	15-Nov-10	5.290	172 [(a)(b)]
I.C. Engines New 80 bhp Backup Generator for the Field Office (A13592)	3-Feb-11	0.001	237 [(a)(b)]
Hartnell New H2S Scrubber at K7 (A13408)	3-May-11	0.230	172 [(a)(b)]
Newlove Vacuum Truck Washout Station (A13368)	10-Nov-11	0.889	172 [(a)(b)]
Newlove Replace 3,000 Bbl Wash Tank (A13948)	27-Sep-12	0.000	172 [(a)(b)]
Orcutt Compressor Plant H2S Scrubber Replacement (A13902)	7-Dec-12	0.170	270 [(a)(b)]
Newlove Diatomite Project (A12084-04)	21-Feb-13	3.753	270 [(a)(b)]
Newlove Lease Backup Vapor Recovery Unit (A14019)	15-Apr-13	0.179	270 [(a)(b)]
Cal Coast Lease Vapor Recovery Compressors (A14179-01)	11-Dec-14	0.018	296 [(a)(b)]
Pinal Lease Vapor Recovery Compressors (A14180-01)	11-Dec-14	0.073	296 [(a)(b)]
Orcutt Hill Compressor Plant H2S Scrubber Fugitives (AM 13902-01)	7-Mar-14	0.240	269 [(a)(b)]
Orcutt Hill Compressor Plant H2S Scrubber Fugitives (AM 13902-01)	7-Mar-14	0.043	296 [(a)]
Orcutt Hill Compressor Plant H2S Scrubber Fugitives (AM 13902-01)	7-Mar-14	0.167	270 [(a)]
Orcutt Hill Compressor Plant Pressure Vessel Replacement (A14343)	10-Mar-14	0.176	288 [(a)]
Newlove Lease Tank, Separators, and Heat Exchangers (A14385)	14-Oct-14	0.790	345 [(a)(b)]
Orcuttt Hill Compressor Plant Pressure Vessek Replacement (AM 14343-01)	28-Oct-14	0.081	329 [(a)(b)]
Cal Coast Lease Replacement Crude Oil Tank (AM 14223-01)	13-Jan-15	0.100	269 [(a)(b)]
		18.347	

	TPY	Distance Factor	Emission Liability TPY
ROC ERCs[(a)]	3.304	1.2	2.753
NOx ERCs[(a)(b)]	18.713	1.2	15.594
TOTAL	**22.016**		**18.347**

Notes:

(a) ERCs are used to offset ROC emissions with a 1.2 distance factor.
(b) Interpollutant trade. NOx ERCs used to offset ROC emissions with a 1.0 interpollutant trade factor.
(c) ERCs from ATC 13000 are still is use despite the cancellation of the permit due to Rule 806.
(d) This value also corrects an error in the ATC 13230 offset table which reflects offsets only for components in gas service. Emissions from components in oil service should have also been offset.

Table 7.3-3
PCEC Orcutt Hill Stationary Source ROC Emissions and ERCs Used After August 25, 2016

REACTIVE ORGANIC COMPOUNDS (ROC)					
PROJECT	Issuance Date	ROC TPY	Distance Factor	ERC Liability	ERC Certificate
ATC 14921 (Wash Tank Replacement)	9-Mar-17	0.440	1.1	0.484	301[1]
ATC/PTO 15256 (MVFF Throughput Increase)	30-Nov-18	0.013	1.1	0.015	462
ATC 15506 (Wash Tank Replacement)	30-Jul-20	0.270	1.1	0.296	507
	TOTAL	**0.453**		**0.499**	

[1] NOx for ROC Interpollutant trade.

7.4 Emission Reduction Credits

The Orcutt Hill steam generators do not generate emission reduction credits. The Pacific Coast Energy Company - Orcutt Hill Stationary Source has generated emission reduction credits as documented in the Orcutt Hill internal combustion engine permit (Part 70/PTO 8039).

8.0 Lead Agency, Permit Consistency

To the best of the District's knowledge, no other governmental agency's permit requires air quality mitigation.

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9.0 Permit Conditions

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

9.A Standard Administrative Conditions

Section A lists the applicable standard administrative conditions for all equipment in this permit. Conditions listed in this section are enforceable by the USEPA, the District, the State of California and the public. Where any reference contained in this section 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.

A.1 **Compliance with Permit Conditions.**

(a) The permittee shall comply with all permit conditions in Sections 9.A, 9.B and 9.C.

(b) This permit does not convey property rights or exclusive privilege of any sort.

(c) Any permit noncompliance 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.2 **Emergency Provisions.** The permittee shall comply with the requirements of the District, Rule 505 (Upset/Breakdown rule) and/or District Rule 1303.F, whichever is applicable to the emergency situation. In order to maintain an affirmative defense under Rule 1303.F, the permittee shall provide the District, in writing, a "notice of emergency" within 2 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.3 **Compliance Plan.**

(a) The permittee shall comply with all federally-enforceable requirements that become applicable during the permit term, in a timely manner, as identified in the Compliance Plan.

(b) For all applicable equipment, the permittee shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards. [*Re: District Rule 1302.D.2*]

A.4 **Right of Entry.** The Regional Administrator of USEPA, the Control Officer, or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises where a Part 70 Source is located or where records must be kept:

(a) To inspect the stationary source, including monitoring and control equipment, work practices, operations, and emission-related activity;

(b) To inspect and duplicate, at reasonable times, records required by this Permit to Operate;

(c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times. Monitoring of emissions can include source testing. [*Re: District Rule 1303.D.2*]

A.5 **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 not later than 6-months before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. [*Re: District Rule 1304.D.1*]

A.6 **Payment of Fees.** The permittee shall reimburse the District for all its Part 70 permit processing and compliance expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the District and the USEPA pursuant to section 502(a) of the Clean Air Act. [*Re: District Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6*]

A.7 **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.8 **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. These reports shall be submitted by September 1 and March 1, respectively, each year. Supporting monitoring data shall be submitted in accordance with the "Semi-Annual Monitoring/Compliance Verification Report" condition in section 9.C. The permittee shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [*Re: District Rules 1303.D.1, 1302.D.3, 1303.2.c*]

A.9 **Federally-Enforceable Conditions.** Each federally-enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the 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.10 **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; and
(f) The operating conditions as existing at the time of sampling or measurement;

The records (electronic or hard copy), as well as all supporting information including calibration and maintenance records, shall be maintained for a minimum of five (5) years from date of initial entry by Pacific Coast Energy and shall be made available to the District upon request. [*Re: District Rule 1303.D.1.f, 40CFR70.6(a)(3)(ii)(A)*]

A.11 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:

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

(b) Inaccurate Permit Provisions: If the 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.12 **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit or any Rule, Order, or Regulation may constitute grounds for the APCO to petition for permit revocation pursuant to California Health & Safety Code Section 42307 *et seq*.

A.13 **Severability.** In the event that any condition herein is determined to be invalid, all other conditions shall remain in force.

9.B. Generic Conditions

Section B lists the applicable 'generic' permit conditions, including emission standards for all equipment in this permit. Conditions listed in this section are enforceable by the USEPA, the District, the State of California and the public. Where any reference contained in this section 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 wor
ding 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).** PCEC shall not discharge into the atmosphere from any single source of emission or air contaminants for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

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

B.3 **Nuisance (Rule 303).** No pollutant emissions from equipment subject to this permit 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).** PCEC 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 **Sulfur Content of Fuels (Rule 311).** PCEC shall not burn fuels with a sulfur content in excess of 796 ppmvd or 50 gr/100 scf (calculated as H_2S) for gaseous fuel. Compliance with this condition shall be based on quarterly measurements of the fuel gas using colorimetric gas detection tubes, ASTM, or other District-approved methods. [*Reference: District Rule 311.B*]

9.C Requirements and Equipment Specific Conditions

Section C lists conditions affecting specific equipment in this permit. Conditions listed in this section are enforceable by the USEPA, the District, the State of California, and the public. Where any reference contained in this section 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.

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

Table C.1-1 External Combustion Equipment List

District Device No.	Device Name
Steam Generator	
104992	Smithmoon Steel Company Generator/North American Burners (23 MMBtu/hr)

(a) Emission Limits. Mass emissions from the steam generator shall not exceed the "Steam Generator Total" listed in Tables 5-3 and 5-4 of this permit. Compliance shall be based on the operational, monitoring, recordkeeping and reporting conditions of this permit as well as through source testing, fuel usage, and the total sulfur content analysis of the field gas.

(i) *Oxides of Nitrogen (NO_X) Concentration Emissions Limits*. Emissions of NO_X (as NO_2) from the steam generator subject to this permit shall not exceed a NO_X stack concentration of 9 ppmvd at 3% O_2 or a NO_X stack emission rate of 0.011 lb/MMBtu when fired on PUC quality natural gas. Compliance with this condition and Rule 342.D.1 shall be based on source testing and the monitoring condition of this permit.

(ii) *Reactive Organic Compound (ROC) Concentration Emissions Limits*. Emissions of ROC (as CH_4) from the steam generator subject to this permit shall not exceed a ROC stack concentration of 8.5 ppmvd at 3% O_2 or an ROC stack emission rate of 0.004 lb/MMBtu when fired on PUC quality natural gas. Compliance with this condition and Rule 342 .D.1 shall be based on source testing and the monitoring condition of this permit.

(iii) *Carbon Monoxide (CO) Concentration Emissions Limits*. Emissions of CO from the steam generator subject to this permit shall not exceed a 26 ppmvd at 3% O_2 or a CO stack emission rate of 0.019 lb/MMBTU when fired on PUC quality natural gas. Compliance with this condition and Rule 342.D.1 shall be based on source testing and the monitoring condition of this permit.

(b) Operational Limits: The equipment listed in the Table C.1-1 must be properly maintained in accordance with the equipment manufacturer's/operator's maintenance manual to minimize combustion emissions. The following additional operational limits apply:

(i) *Gaseous Fuel Sulfur Limit.* The steam generator listed in Table C.1-1 shall be fired on PUC quality gas. The concentration of sulfur compounds (calculated as H_2S at standard conditions, 60°F and 14.7 psia) in the natural gas fuel burned in this unit shall not exceed 1.36 grains per 100 cubic feet (23 ppmvd).

(ii) *Heat Input Limits.* The hourly, daily and annual heat input limits to the steam generator shall not exceed the values listed in Table C.1-2 below. These limits are based on the design rating of the units and the annual heat input value as listed in the permit application. Unless otherwise designated by the Control Officer, the fuel heat content of natural gas for determining compliance equals 1,050 Btu/scf.

Table C.1-2 Heat Input Limits

Combustion Unit	MMBtu/hr	MMBtu/day	MMBtu/yr
Steam Generator (Device No 104992)	23	552	201,480

(iii) *FGR Operation.* The oxygen (O_2) concentration of the combustion air mix to the steam generator burner shall not exceed 18.8% when the steam generator is operating.

(iv) *Plate Restrictor*. The combustion air intake restrictor plate shall remain bolted in place (per photo in project Administrative File) at all times during steam generator operation.

(c) Monitoring: The following source testing and periodic monitoring conditions apply to the steam generator:

(i) *Fuel Meter*. The steam generator shall be equipped with a dedicated District-approved fuel meter that is non-resettable and pressure-corrected to measure the total cubic feet (scf) delivered to the combustion unit. The fuel meter shall be accurate to within five percent (5%) of the full scale reading. The fuel meter/gauge shall be calibrated annually in accordance with the fuel meter manufacturer's procedures. Fuel monitoring components, manufacturer's specifications, calibration specifications and the procedures for maintaining fuel use records required by condition d (ii) below shall be included in the *Fuel Use Monitoring Plan for the Diatomite Project Plan*.

(ii) *FGR Operating Limit Monitoring.* The steam generator burner windbox shall be equipped with an oxygen monitor. The burner windbox operating O_2 shall be

continuously monitored and the O_2% value displayed when the steam generator is operating.

(iii) *Source Testing.* PCEC shall source test the steam generator annually, in accordance with Table 4.1 of this permit for compliance with applicable emission limits. The source test anniversary shall be February or other date if requested by the permittee and approved by the District to consolidate the testing of this steam generator with the steam generators that are part of the Diatomite Project. The source testing provisions listed below shall apply:

(1) PCEC shall submit a written source test plan to the District for approval at least thirty (30) days prior to initiation of each source test. The source test plan shall be prepared consistent with the District's Source Test Procedures Manual (revised May 1990 and any subsequent revisions). District approval of the source test plan shall be obtained prior to commencement of source testing. The District shall be notified at least ten (10) calendar days prior to the start of source testing activity to arrange for a mutually agreeable source test date when District personnel may observe the test.

(2) Source test results shall be submitted to the District within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results shall document compliance status with mass emission rates in Section 5 and applicable permit conditions and rules. All District costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by PCEC as provided for by District Rule 210.

(3) A source test for an item of equipment shall be performed on the scheduled day of testing (the test day mutually agreed to) unless circumstances beyond the control of the operator prevent completion of the test on the scheduled day. Such circumstances include mechanical malfunction of the equipment to be tested, malfunction of the source test equipment, delays in source test contractor arrival and/or set-up, or unsafe conditions on site. Except in cases of an emergency, the operator shall seek and obtain District approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. Once the sample probe has been inserted into the exhaust stream of the equipment unit to be tested (or extraction of the sample has begun), the test shall proceed in accordance with the approved source test plan. In no case shall a test run be aborted except in the case of an emergency or unless approval is first obtained from the District. If the test cannot be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the District. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without District's authorization shall constitute a violation of this permit. If a test is postponed due to an emergency, written documentation of the emergency event shall be submitted to the District by the close of the business day following the scheduled test day.

(4) The timelines in (1), (2), and (3) above may be extended for good cause provided a written request is submitted to the District at least three (3) days in advance of the deadline, and approval for the extension is granted by the District.

Table C.1-3: Source Test Parameters
Pacific Coast Energy: Orcutt Hill Steam Generator
Permit to Operate 11405-R4

Emission & Test Points	Pollutants/Parameters [b], [e]	Test Methods [a] [c]
Steam Generator Stack [b]	NO_x - ppmv & lb/hr	EPA Method 7E
	ROC - ppmv & lb/hr	EPA Method 18
	CO - ppmv & lb/hr	EPA Method 10
	Stack Gas Flow Rate	EPA Method 2
	O_2, CO_2, Dry Mole Wt	EPA Method 3
	Moisture Content	EPA Method 4
Stream Generator Fuel Gas	Fuel Gas Flow Rate	Plant gas meter
	Higher Heating Value	ASTM D 1826-88
	Total Sulfur Content [d]	ASTM D 5504
Burner Windbox	O_2	Record O_2% values off display

Site Specific Requirements

a) Alternative methods may be acceptable on a case-by-case basis.
b) The emission rates shall be based on EPA Methods 2 and 4, or Method 19 along with the heat input rate.
c) For NOx, CO, and O2 a minimum of three 40-minute runs shall be obtained during each test.
d) Total sulfur content fuel samples shall be obtained using EPA Method 18 with Tedlar Bags (or equivalent) equipped with Teflon tubing and fittings. Turnaround time for laboratory analysis of these samples shall be no more than 24 hours from sampling in the field.
e) Source testing shall be performed annualy for the steam generator in an "as found" condition.

(iv) The permittee shall monitor and record the Steam Generator stack concentration of NO_x, CO, and O_2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month.

A portable analyzer reading in excess of the permitted NO_x and CO concentrations shall not be considered a violation of this permit, so long as one of the following actions are taken:

(1) the unit is shut down within 72 hours of the initial out-of-compliance reading, or,

(2) the unit is brought into compliance and a follow-up portable analyzer inspection is conducted within 72 hours of the initial out-of-compliance reading.

All alternate monitoring parameter emission readings shall be taken with the unit operating at conditions representative of normal operations. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the District. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period.

No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after an unscheduled shutdown of the unit.

(d) Recordkeeping: The steam generator is subject to the recordkeeping requirements listed in Rule 342.I. All records shall be maintained by PCEC for a minimum of five (5) years. The following records (electronic or hard copy) shall be maintained by the permittee and shall be made available to the District upon request:

(i) *Sulfur Content* - The annual measured total sulfur content, in units of ppmvd, of the purchased PUC quality natural gas burned in the steam generator burner.

(ii) *Natural Gas Fuel Use* - The volume of: (1) PUC natural gas (including Orcutt Hill Field produced gas when blended) and, (2) Diatomite project produced gas combusted each month (scf) in the steam generator and the number of days per month that the steam generator operated.

(iii) *Maintenance Logs* - Maintenance logs for the steam generator, emission control systems and fuel flow meters.

(iv) *FGR Operating Limit Monitoring* - Daily windbox O_2% readings shall be maintained in a log and provided to the District upon request.

(v) *Steam Generator Monitoring Records:*

(1) the date and time of NO_x, CO, and O_2 measurements,
(2) the O_2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O_2
(3) make and model of exhaust gas analyzer
(4) exhaust gas analyzer calibration records
(5) a description of any corrective action taken to maintain the emissions within the acceptable range.

(e) Reporting: The equipment listed in this section is subject to all the reporting requirements listed in District Rule 342.J. 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 *Compliance Verification Reports* condition of this permit.

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

Device Type	Device Subtype	APCD DeviceNo[1]
Fugitive Components - Gas/Condensate		
Valve	Accessible	105074
Connection	Accessible	105075

Notes:
[1]Each APCD DeviceNo is unique, representing a specific piece of equipment (device) identified on permit. In the case of fugitive hydrocarbon components, each APCD DeviceNo represents all permitted fugitive components of a specific "Device Subtype" or fugitive component

(a) Emission Limits: Mass emissions from the gas/condensate and oil service (sub-total) components listed above shall not exceed the limits listed in Tables 5-3 and 5-4. Compliance with this condition shall be based on actual component-leak path counts as documented through monitoring, recordkeeping, and reporting conditions 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, PCEC shall meet the following requirements:

(i) *I&M Program:* The District-approved I&M Plan for the Orcutt Hill Compressor Plant shall be implemented for the life of the project. 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.

(ii) *Leak path Count*: The total component-leak path count listed in PCEC's most recent I&M component-leak path inventory shall not exceed the total component-leak path count listed in Table 5-1 by more than five percent. This five percent range is to allow for minor differences due to component counting methods and does not constitute allowable emissions growth due to the addition of new equipment.

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

(d) Recordkeeping: The equipment listed in this section is subject to all the recordkeeping requirements listed in District Rule 331.G. In addition, PCEC shall:

(i) *I&M Log:* PCEC shall record in a log the following: a record of leaking components found (including name, location, type of component, date of leak detection, the ppmv or drop-per-minute reading, date of repair attempts, method of detection, date of re-inspection and ppmv or drop-per-minute reading following repair); a record of the total components inspected and the total number and percentage found leaking by component type; a record of leaks from critical components; a record of leaks from components that incur five repair actions within a continuous 12-month period; and, a record of component repair actions including dates of component re-inspections. For the purpose of this paragraph, a leaking component is any component which exceeds the applicable limit:

(1) greater than or equal to 1,000 ppmv for minor leaks under Rule 331 (includes Accessible/Inaccessible components and Category A components);

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

C.3 **Fuel Gas Sulfur Limit.** The total sulfur content (calculated as H_2S at standard conditions, 60° F and 14.7 psia) of the purchased PUC quality natural gas fuel burned at the facility shall not exceed 1.36 grains per 100 cubic feet (23 ppmvd). PCEC shall measure the total sulfur content annually at a location downstream of the facility purchased gas meter in accordance with ASTM-D1072 or a District approved equivalent method. Records shall be kept on site and made available for inspection by the District upon request.

C.4 **Compliance Verification Reports.** The permittee 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. These reports shall be submitted by September 1 and March 1, respectively, each year, and shall be in a format approved by the District, with one hard copy and one PDF copy. 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) *External Combustion Units - Steam Generator*.

(i) The quarterly measured sulfur concentration of the fuel gas calculated as H_2S.

(ii) The annually analyzed total sulfur content of fuel gas.

(iii) The volume of PUC gas (including Orcutt Hill Field produced gas when blended) and Diatomite project produced gas combusted each month (scf) in the steam generator and the number of days per month the steam generator operated.

(iv) The date and burner windbox oxygen readings in excess of the operational limit.

(v) The windbox oxygen set-point.

(vi) The results of steam generator monitoring, including measured concentrations of NOx, CO, and O_2, as well as records of exhaust gas analyzer calibration.

(b) *Fugitive Hydrocarbons.* Rule 331 fugitive hydrocarbon I&M program data (on a quarterly basis:

(i) Inspection summary.

(ii) Record of leaking components.

(iii) Record of leaks from critical components.

(iv) Record of leaks from components that incur five repair actions within a continuous 12-month period.

(v) Record of component repair actions including dates of component re-inspections.

(vi) An updated FHC I&M inventory due to change in component list or diagrams.

(vii) Listing of components installed as BACT under District Rule 331 and Rule 802 as approved by the District.

C.5 **Emission Offsets**. PCEC shall offset all oxides of nitrogen (NO_x) and reactive organic compound (ROC) emissions pursuant to Tables 7.3-1, 7.3-2 and 7.3-3 of this permit. Emission reduction credits (ERCs) sufficient to offset the permitted quarterly NO_x and ROC emissions shall be in place for the life of the project.

C.6 **Documents Incorporated by Reference.** PCEC shall implement, and operate in accordance with, the plan listed below. This plan, including any District-approved updates thereof, is incorporated herein and shall have the full force and effect of a permit condition for this operating permit. This plan shall be implemented for the life of the project.

- *Fugitive Emissions Inspection and Maintenance Plan (approved September 27, 2005)*

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 **Condition Acceptance.** Acceptance of this operating permit by the permittee shall be considered as acceptance of all terms, conditions, and limits of this permit.

D.2 **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 with the District's analyses under which this permit is issued as documented in the Permit Analyses prepared for and issued with the permit.

D.3 **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.

D.4 **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.5 **CARB GHG Regulation Recordkeeping.** The permittee shall maintain at least 5 years of records that document the following:

(a) The number of crude oil or natural gas wells at the facility.

(b) 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.

(c) The annual crude oil, natural gas, and produced water throughput of the facility.

(d) A list identifying all reciprocating and centrifugal natural gas compressors at the facility.

(e) A count of all natural gas powered pneumatic devices and pumps at the facility.

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

D.6 **CARB GHG Regulation Reporting.** On an annual basis, 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. This report shall be submitted by March 1 of each year detailing the previous year's activities.

Air Pollution Control Officer

Date

NOTES:
(a) This permit supersedes PTO 11405-R4
(b) Permit Reevaluation Due Date: June 2, 2024

10.0 Attachments

10.1 Emission Calculation Spreadsheets
10.2 Fee Calculation
10.3 IDS Tables
10.4 Equipment List

10.1 Emission Calculation Spreadsheets

BOILER AND STEAM GENERATOR EMISSION CALCULATIONS (Ver. 7.0)

Attachment: 10.1-1
Permit Number: PTO 11405-R5
Facility: Steam Generators

Heater Input Data

Information	*Value*	*Units*	*Reference*
Maximum Hourly Heat Input	23.000	MMBtu/hr	Permit Application
Daily Operating Schedule	24	hrs/day	Permit Application
Maximum Daily Heat Input	552.000	MMBtu/day	Calculated value
Yearly Load Factor (%)	100	%	Permit Application
Maximum Annual Heat Input	201,480.000	MMBtu/yr	Calculated value

Fuel Information

Information	*Value*	*Units*	*Reference*
Fuel	PUC N.G.	N/A	Permit Application
High Heating Value	1,050	Btu/scf	Permit Application
Sulfur Content of Fuel	80.00	ppmvd as H_2S	Permit Application

Emission Factors

Pollutant	*Value*	*Units*	*Reference*
NO_x Emission Factor	0.0110	lb/MMBtu	District Rule 360 (20 ppmvd @ 3% O_2)
ROC Emission Factor	0.0040	lb/MMBtu	AP-42, Section 1.4
CO Emission Factor	0.0190	lb/MMBtu	District Rule 360 (400 ppmvd @ 3% O_2)
SO_x Emission Factor	0.0037	lb/MMBtu	Mass Balance Calculation
PM Emission Factor	0.0060	lb/MMBtu	AP-42, Section 1.4
PM_{10} Emission Factor	0.0060	lb/MMBtu	AP-42, Section 1.4
$PM_{2.5}$ Emission Factor	0.0060	lb/MMBtu	AP-42, Section 1.4

Boiler/Steam Generator Potential to Emit

Pollutant	lb/day	TPY
NO_x	6.07	1.11
ROC	2.21	0.40
CO	10.49	1.91
SO_x	2.04	0.37
PM	3.31	0.60
PM_{10}	3.31	0.60
$PM_{2.5}$	3.31	0.60

Processed By: JJ

Date: June 2021

FUGITIVE HYDROCARBON EMISSION CALCULATIONS - CLP METHOD (Ver. 3.0)

Attachment 15.1-2
Permit Number: PTO 11405-R5
Facility: Steam Generators

Facility Information

Facility Type (Enter X Where Appropriate)
Production Field: X Gas Processing Plant: Refinery: Offshore Platform:

Gas/Condensate Service Component

Component Type	Component Count	THC Emission Factor (lb/day-c/p)[a]	ROC/THC Ratio	Uncontrolled ROC Emission (lb/day)	Control Efficiency[b,c]	Controlled ROC Emission (lb/hr)	Controlled ROC Emission (lb/day)	Controlled ROC Emission (Tons/Qtr)	Controlled ROC Emission (Tons/Yr)
Valves - Accessible/Inaccessible	42	0.298	0.31	3.84	0.80	0.03	0.77	0.04	0.14
Valves - Unsafe	0	0.298	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Bellows	0	0.298	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Bellows / Background ppmv	0	0.298	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Category A	0	0.298	0.31	0.00	0.84	0.00	0.00	0.00	0.00
Valves - Category B	0	0.298	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Valves - Category C	0	0.298	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category D	0	0.298	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category E	0	0.298	0.31	0.00	0.88	0.00	0.00	0.00	0.00
Valves - Category F	0	0.298	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Category G	0	0.298	0.31	0.00	0.92	0.00	0.00	0.00	0.00
Flanges/Connections - Accessible/Inaccessible	346	0.070	0.31	7.51	0.80	0.06	1.80	0.07	0.27
Flanges/Connections - Unsafe	0	0.070	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Flanges/Connections - Category A	0	0.070	0.31	0.00	0.84	0.00	0.00	0.00	0.00
Flanges/Connections - Category B	0	0.070	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Flanges/Connections - Category C	0	0.070	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category D	0	0.070	0.31	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category E	0	0.070	0.31	0.00	0.88	0.00	0.00	0.00	0.00
Flanges/Connections - Category F	0	0.070	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Flanges/Connections - Category G	0	0.070	0.31	0.00	0.92	0.00	0.00	0.00	0.00
Compressor Seals - To Atm	0	2.143	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Compressor Seals - To VRS	0	2.143	0.31	0.00	1.00	0.00	0.00	0.00	0.00
PSV - To Atm/Flare	0	6.670	0.31	0.00	0.80	0.00	0.00	0.00	0.00
PSV - To VRS	0	6.670	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Pump Seals - Single	0	1.123	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - Dual/Tandem	0	1.123	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Gas Condensate Subtotals	**388**			**11.35**		**0.09**	**2.27**	**0.10**	**0.41**

Oil Service Components

Component Type	Component Count	THC Emission Factor (lb/day-c/p)[a]	ROC/THC Ratio	Uncontrolled ROC Emission (lb/day)	Control Efficiency[b,c]	Controlled ROC Emission (lb/hr)	Controlled ROC Emission (lb/day)	Controlled ROC Emission (Tons/Qtr)	Controlled ROC Emission (Tons/Yr)
Valves - Accessible/Inaccessible	0	0.004	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Valves - Unsafe	0	0.004	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Bellows	0	0.004	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Bellows / Background ppmv	0	0.004	0.56	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Category A	0	0.004	0.56	0.00	0.84	0.00	0.00	0.00	0.00
Valves - Category B	0	0.004	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Valves - Category C	0	0.004	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category D	0	0.004	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Valves - Category E	0	0.004	0.56	0.00	0.88	0.00	0.00	0.00	0.00
Valves - Category F	0	0.004	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Valves - Category G	0	0.004	0.56	0.00	0.92	0.00	0.00	0.00	0.00
Flanges/Connections - Accessible/Inaccessible	0	0.002	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Flanges/Connections - Unsafe	0	0.002	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Flanges/Connections - Category A	0	0.002	0.56	0.00	0.84	0.00	0.00	0.00	0.00
Flanges/Connections - Category B	0	0.002	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Flanges/Connections - Category C	0	0.002	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category D	0	0.002	0.56	0.00	0.87	0.00	0.00	0.00	0.00
Flanges/Connections - Category E	0	0.002	0.56	0.00	0.88	0.00	0.00	0.00	0.00
Flanges/Connections - Category F	0	0.002	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Flanges/Connections - Category G	0	0.002	0.56	0.00	0.92	0.00	0.00	0.00	0.00
PSV - To Atm/Flare	0	0.267	0.56	0.00	0.80	0.00	0.00	0.00	0.00
PSV - To VRS	0	0.267	0.56	0.00	1.00	0.00	0.00	0.00	0.00
Pump Seals - Single	0	0.004	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - Dual/Tandem	0	0.004	0.56	0.00	1.00	0.00	0.00	0.00	0.00
Oil Subtotals	0			0.00		0.00	0.00	0.00	0.00

Total	**388**			**11.35**		**0.09**	**2.27**	**0.10**	**0.41**

Notes:
a. District Policy and Procedure #100 (Rl. 1998)
b. A 80% efficiency is assigned to fugitive components Rule 331 implementation.
c. Emission control efficiencies for each component type are identified in THC Control Factors (Ver. 3.0).

Processed By: JJM Date: June 2021

10.2 Fee Calculation

air pollution control district
SANTA BARBARA COUNTY

FEE STATEMENT

PT-70/Reeval No. 11405 - R5
FID: 10482 Orcutt Hill - Steam Generators / SSID: 02667

Device Fee

Device No.	Device Name	Fee Schedule	Qty of Fee Units	Fee per Unit	Fee Units	Max or Min. Fee Apply?	Number of Same Devices	Pro Rate Factor	Device Fee	Penalty Fee?	Fee Credit	Total Fee per Device
104992	Portable Steam Generator	A3	23.000	551.72	Per 1 million Btu input	Max	1	1.000	7,382.27	0.00	0.00	7,382.27
105074	Valves - Accessible	A1.a	1.000	73.54	Per equipment	No	1	1.000	73.54	0.00	0.00	73.54
	Device Fee Sub-Totals =								**$7,455.81**	**$0.00**	**$0.00**	
	Device Fee Total =											**$7,455.81**

Permit Fee

Fee Based on Devices **$7,455.81**

Fee Statement Grand Total = $7,455

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.

10.3 IDS Tables

Table 1
Permitted Potential to Emit (PPTE)

	NO_X	ROC	CO	SO_X	TSP	$PM_{10/2.5}$
PTO 11405 – ORCUTT STEAM GENERATOR						
lb/day	6.05	4.26	10.49	2.04	3.31	3.31
tons/year	1.10	0.78	1.91	0.37	0.60	0.60

Table 2
Facility Potential to Emit (FPTE)

	NO_X	ROC	CO	SO_X	TSP	$PM_{10/2.5}$
PTO 11405 – ORCUTT STEAM GENERATOR						
lb/day	6.05	4.26	10.49	2.04	3.31	3.31
tons/year	1.10	0.78	1.91	0.37	0.60	0.60

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

	NO_X	ROC	CO	SO_X	TSP	PM_{10}
PTO 11405 – ORCUTT STEAM GENERATOR						
lb/day	6.05	2.00	10.49	2.04	3.31	3.31
tons/year	1.10	0.37	1.91	0.37	0.60	0.60

Table 4
Stationary Source Emissions

	NO_X	ROC	CO	SO_X	TSP	$PM_{10/2.5}$
(b) PCEC Orcutt Hill Stationary Source						
lbs/day	1762.49	3566.82	2028.28	115.60	44.77	44.77
tons/year	245.23	165.97	217.61	16.07	6.82	6.82

10.4 Equipment List

PT-70/Reeval 11405 R5 / FID: 10482 Orcutt Hill - Steam Generators / SSID: 02667

A PERMITTED EQUIPMENT

1 Portable Steam Generator

Device ID #	**104992**	***Device Name***	**Portable Steam Generator**
Rated Heat Input	23.000 MMBtu/Hour	*Physical Size*	201480.00 MMBtu/yr
Manufacturer	Smithmoon Steel Company	*Operator ID*	
Model	14179-65	*Serial Number*	
Location Note			
Device Description	Steam generator is used on the Dome and Newlove Leases and for use on the Diatomite Project. Unit includes North American, model 4211-21-LE low NOx burners and flue gas recirculation.		

2 Valves - Accessible

Device ID #	**105074**	***Device Name***	**Valves - Accessible**
Rated Heat Input		*Physical Size*	42.00 Component Leakpath
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description			

3 Flanges/Connections - Accessible

Device ID #	**105075**	***Device Name***	**Flanges/Connections - Accessible**
Rated Heat Input		*Physical Size*	346.00 Component Leakpath
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description			