apcd air pollution control district
SANTA BARBARA COUNTY

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Continued Item: No

Board Agenda Item

TO: Air Pollution Control District Board

FROM: Aeron Arlin Genet, Air Pollution Control Officer

CONTACT: Timothy Mitro, Air Quality Engineer, Planning Division (805) 979-8329

SUBJECT: Determine that Amended Rule 333 - Reciprocating Internal Combustion Engines is No Longer Necessary to Satisfy Assembly Bill 617 Requirements

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RECOMMENDATION:

Consider recommendations as follows:

1. Receive and file a report regarding Best Available Retrofit Control Technology (BARCT) for reciprocating internal combustion engines at Assembly Bill 617 Industrial Facilities;

2. Adopt a resolution determining that amendments to District Rule 333 are no longer necessary to implement BARCT for reciprocating internal combustion engines because the affected Assembly Bill 617 Industrial Facility has requested changes to their District Permit to Operate to directly implement BARCT no later than December 31, 2023.

BACKGROUND:

Assembly Bill (AB) 617, enacted in July 2017, has many requirements to address the disproportionate impacts of air pollution in disadvantaged communities. One of the key components of AB 617 is to reduce air pollutant emissions from facilities that participate in the California Greenhouse Gas (GHG) Cap-and-Trade system. Emissions of criteria pollutants and toxic air contaminants are often associated with large GHG-emitting sources, and these pollutants may impact local communities that are already experiencing a disproportionate burden from air pollution.

In December 2018, as required by AB 617, your Board adopted a Best Available Retrofit Control Technology (BARCT) Rule Development Schedule that included a commitment to evaluate

BARCT for six emission source categories. BARCT is an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts. To meet the BARCT emission limits, a facility may need to install new air pollution controls on their existing unit(s) or replace the unit(s) in part or in whole. The BARCT requirements only affect the following six industrial facilities in Santa Barbara County:

1) Exxon Mobil – Las Flores Canyon,
2) Exxon Mobil – Pacific Offshore Pipeline Company (POPCO),
3) Pacific Coast Energy Company (PCEC) – Orcutt Hill,
4) Cat Canyon Resources, LLC – Cat Canyon West,
5) Imerys Filtrations Minerals, Inc., and
6) Windset Farms.

Since Santa Barbara County is nonattainment for both the state ozone standard[1] and the state PM_{10} standard (particulate matter with a diameter of 10 microns or less), these industrial facilities must implement BARCT by the earliest feasible date, but no later than December 31, 2023.

To date, District staff has completed three of the six BARCT assessments that were on the Rule Development Schedule. The fourth assessment consists of evaluating BARCT for reciprocating internal combustion engines and to potentially incorporate the BARCT provisions into District Rule 333. Although there are a variety of engine configurations and fuel types, this BARCT assessment is focused on prime, spark-ignited engines that have a maximum horsepower of 50 or greater.

DISCUSSION:

Out of the six AB 617 industrial facilities in Santa Barbara County, Pacific Coast Energy Company ("PCEC") – Orcutt Hill is the only facility that currently uses prime, spark-ignited engines. PCEC - Orcutt Hill is an onshore oil and gas production and processing facility that is located approximately 2.5 miles south of Orcutt. Over the past three years, District staff and PCEC representatives have discussed the feasibility of different BARCT emission limits for the 27 large, spark-ignited engines that are used at the Orcutt Hill stationary source. During this period, PCEC conducted trials by installing catalysts and air/fuel ratio controllers on a few of their engines to determine the feasibility of the lower BARCT emission limits for their reciprocating internal combustion engines.

After the trials, District staff completed its analysis and concluded that lower oxides of nitrogen (NOx) standards are achievable for prime, spark-ignited engines at the AB 617 industrial facilities within Santa Barbara County. The BARCT emission standards are based on the requirements included in South Coast Air Quality Management District Rule 1110.2 and San Joaquin Valley Air Pollution Control District Rule 4702, and they're identified as BARCT in the

[1] In January 2023, the California Air Resources Board (CARB) took action at a public hearing to change Santa Barbara County's designation from "nonattainment" to "nonattainment-transitional" for the State ozone standard. The designation change becomes effective after the California Office of Administrative Law (OAL) reviews and approves the CARB rulemaking action.

California Air Resources Board's Technology Clearinghouse.[2] A detailed description of the technical BARCT analysis is included as Attachment A to this letter.

PCEC has also proactively decided to incorporate the BARCT standards directly into their operating permit. PCEC's commitment to perform this work is documented in the Authority to Construct permit, included as Attachment B to this letter. The equipment modifications (catalyst and air-fuel ratio controller installations) at the facility will be fully implemented no later than December 31, 2023. The District's engineering evaluation for PCEC's permit also documents the rationale for including the BARCT standards, thereby preventing the permit conditions from being removed in the future.

The proposed District Board Resolution, included as Attachment C to this letter, concludes that amendments to District Rule 333 are no longer necessary to implement BARCT for reciprocating internal combustion engines. This is because the BARCT requirements are incorporated directly into PCEC's operating permit and no other facilities in the County currently require BARCT for reciprocating internal combustion engines.

This BARCT analysis will continue to apply to PCEC's existing equipment units as well as any new units installed in the future at the site to guarantee that the NOx emissions are effectively controlled. In addition, the BARCT analysis will be forwarded to the California Air Resources Board for inclusion into their AB 617 BARCT webpage (ww2.arb.ca.gov/expedited-barct). Staff worked with District Counsel and concluded that this approach effectively satisfies the AB 617 mandate because it accomplishes the emission reduction goals of the legislation.

IMPACTS TO THE REGULATED COMMUNITY:

The implementation of BARCT will affect reciprocating internal combustion engines at PCEC's oil and gas processing facility. The facility has chosen to retrofit the affected engines with catalytic converters and air-fuel ratio controllers to bring the facility operations up to current control technology standards and to comply with state legislation. The capital costs are estimated to be approximately $60,000 per engine while the ongoing maintenance and monitoring costs are estimated to be $12,000 per engine per year.

By using the emission controls, the facility will reduce their NOx emissions by approximately 73 tons per year, which represents a 6% reduction from the District's stationary source emission inventory for NOx. The cost-effectiveness for this assessment is approximately $6,800 per ton of NOx reduced. This cost-effectiveness value is within the range of previously adopted prohibitory rules, and so this BARCT assessment is considered to be cost-effective.

DISTRICT BUDGET IMPACTS:

The costs for the permitting and compliance activities by District staff are included in the budget approved by your Board. There are no additional fiscal impacts.

[2] https://ww2.arb.ca.gov/current-air-district-rules

PUBLIC REVIEW:

A Community Advisory Council (CAC) meeting was held on February 22, 2023 to present, discuss, and hear comments on the draft BARCT analysis. To inform the public about the meeting, District staff e-mailed a notice to everyone who subscribed to the District's electronic noticing subscription list. Staff also directly notified the six AB 617 Industrial Facilities about the meeting.

In accordance with Assembly Bill 361, the CAC meeting was held virtually. District staff prepared a 15-minute presentation on the key points of the analysis, and a representative from PCEC commented on their experience with the BARCT project. Staff then answered the questions from CAC members, covering topics such as the source testing provisions, the implementation timeline, and the estimated costs for the project. After all questions were answered, the CAC received and filed the draft BARCT analysis.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA):

The proposed action for the Board of Directors is to determine that a rule development proceeding for reciprocating internal combustion engines is no longer necessary to satisfy the AB 617 BARCT requirements. Staff has concluded that this action is not a project subject to CEQA because it will not cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment [Public Resources Code §21065 and State CEQA Guidelines §15378(b)(5)].

ATTACHMENTS:

A. Assembly Bill 617 BARCT Analysis for Reciprocating Internal Combustion Engines.
B. PCEC Authority To Construct Permit #15974.
C. District Board Resolution for Assembly Bill 617 – Reciprocating Internal Combustion Engines.

ATTACHMENT A

Assembly Bill 617 BARCT Analysis for Reciprocating Internal Combustion Engines

March 16, 2023

Santa Barbara County Air Pollution Control District
Board of Directors

260 San Antonio Road, Suite A
Santa Barbara, California 93110

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT

Assembly Bill 617 –
BARCT Analysis for Reciprocating Internal Combustion Engines

Date: March 8, 2023

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Our Mission

Our mission is to protect the people and the environment of Santa Barbara County from the effects of air pollution.

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1. BACKGROUND

1.1 Ozone and Health

Ground level ozone is a secondary pollutant formed from photochemical reactions of the precursor pollutants oxides of nitrogen (NOx) and reactive organic compounds (ROC) in the presence of heat and sunlight. Both short-term and long-term exposure to ozone can cause a number of health effects in broad segments of the population. Ozone can damage the respiratory system, causing inflammation and irritation, or symptoms such as coughing and wheezing. High levels of ozone are especially harmful for children, the elderly, and people with asthma or other respiratory problems. Ground-level ozone also impacts the economy by increasing hospital visits and medical expenses, loss of work time due to illness, and by damaging agricultural crops. Santa Barbara County is currently designated as nonattainment for the state ozone standards.

1.2 Reciprocating Internal Combustion Engines

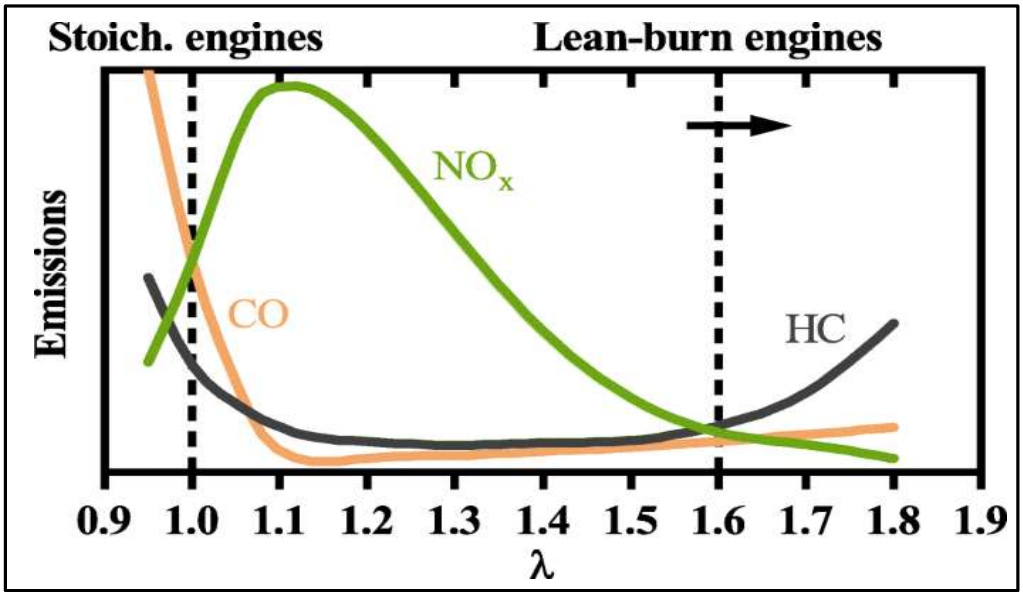
Reciprocating internal combustion engines are engines that utilize the combustion of an air/fuel mixture inside enclosed cylinders in order to produce mechanical power. These engines are used for various functions such as generating electricity, operating water pumps, pumping oil from wells, and compressing gas. Depending on the fuel burned and the combustion method, the engines can be categorized as either compression ignition (CI) or spark-ignition (SI) engines. Compression ignition engines are typically fired on diesel fuel, and there are emission and operational limitations for these engines due to the state's Airborne Toxic Control Measures (ATCMs). Spark-ignited internal combustion engines burn fuels such as natural gas, field gas, propane, or landfill gases. An example of a spark-ignited engine at an oil well is shown below in Figure 1.1.

Figure 1.1 – Reciprocating Internal Combustion Engine

For spark-ignited engines, an important distinction is whether it is operating as a rich-burn or a lean-burn engine. Rich-burn engines are operated at or near stoichiometric conditions. On Figure 1.2 below, stoichiometric conditions are represented by a lambda (λ) value of 1.0. At this

lambda value of 1.0, the air/fuel ratio provides exactly enough oxygen for the complete combustion of the fuel. As for lean-burn engines, they are operated with excess air, which typically has a lambda value around 1.6. When lean-burn engines operate with excess air, they can have increased fuel efficiency while reducing the amount of pollution emitted (before taking into account any additional control strategies). The excess air effectively reduces the combustion process temperature, which reduces the formation of NOx.

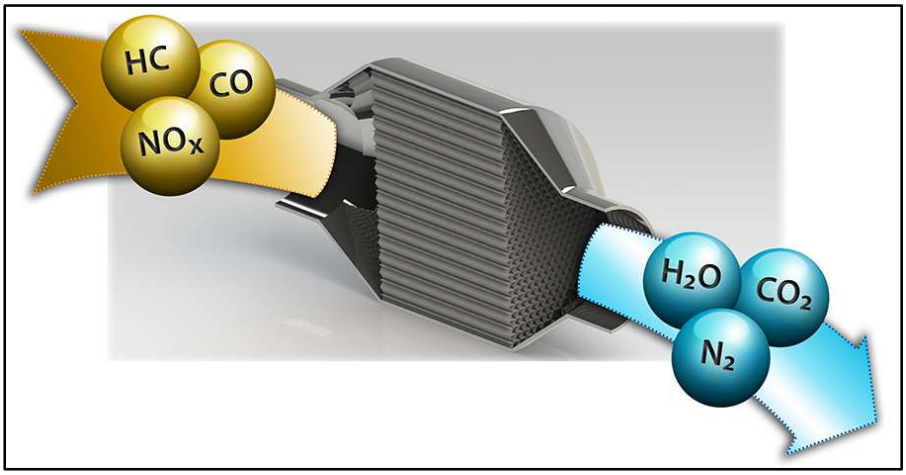
Figure 1.2 – Stoichiometry and the Effect of Air/Fuel Ratio on Pollutants



1.3 Non-Selective Catalytic Reduction (NSCR)

NSCR is a common air pollution control system used to reduce the emissions from rich-burn engines. These systems are referred to as "3-way catalyst" systems because they use precious metal catalyst to convert NOx, carbon monoxide (CO), and hydrocarbons (HC, including ROCs) to nitrogen (N_2), carbon dioxide (CO_2), and water vapor. When an NSCR catalyst is properly installed and maintained, pollutant concentrations can be reduced by more than 90 percent for NOx, 80 percent for CO, and 50 percent for ROC. An example of an NSCR catalyst is shown below in Figure 1.3.

Figure 1.3 – NSCR Catalyst



For an NSCR system to effectively control all 3 pollutants, the catalyst must operate in a narrow air/fuel ratio band that is close to stoichiometric conditions. Hence, NSCR is not effective on lean-burn engines that operate with excess air and oxygen. To consistently achieve the proper combustion levels on rich-burn engines, an automatic air/fuel ratio controller (AFRC) is typically used to regulate the fuel mixture. The AFRC makes operational adjustments based on input signals from an oxygen sensor located upstream from the catalyst bed. The controller ensures that the oxygen content of the engine exhaust remains near or below 0.5%, which allows the NSCR catalyst to achieve optimal conversion efficiencies.

To maintain high conversion efficiencies, the operating temperature in an NSCR catalyst must also be in the appropriate range. The ideal operating temperatures for NSCR systems range from approximately 750 to 1,250°F. Operating above the maximum temperature may damage the catalyst while operating below the minimum temperature will result in low conversion efficiencies. For many engines, this temperature requirement is met at all times except during startup and idling.

To prevent damage to NSCR catalysts (such as masking and chemical poisoning), care must be taken to ensure that the sulfur content of the fuel is not excessive. The sulfur content of pipeline-quality natural gas is very low, but some oil field gases can contain high concentrations. For this reason, oil field gases often need to be scrubbed before they can be combusted in an engine.

1.4 District Rule 333 and CARB's 2001 BARCT Analysis

District Rule 333, *Control of Emissions from Reciprocating Internal Combustion Engines,* was initially adopted in 1991, and it set NOx, CO, and ROC emission standards for engines with a maximum rated break horsepower of 50 or higher. The rule does not apply to compression ignition engines used in emergency applications or engines that are operated less than 200 hours per calendar year ("low-use" engines). The rule also does not apply to engines that have been derated to less than 50 brake horsepower.

In 2008, Rule 333 was amended to incorporate some of the recommended changes from CARB's 2001 Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for Stationary Spark-Ignited Internal Combustion Engines. Based on the District's attainment status for the federal ozone standard, the District was only required to adopt the RACT standard for these engines, and so Rule 333 does not reflect the 2001 BARCT emission standards. A summary of the current Rule 333 emission standards is presented below in Table 1.1.

Table 1.1 – District Rule 333 Emission Limits (Amended June 2008)

Engine Type		Parts per Million by Volume (ppmv) corrected to 15% Oxygen [1]		
		NOx	ROC	CO
Rich-burn, SI	Non-cyclical	50	250	4,500
	Cyclical	300		
Lean-burn, SI	50 to 100 hp	200	750	
	100 hp and greater	125		
CI	All	700		

For rich-burn engines, a distinction is made between cyclical and non-cyclical engines. "Non-cyclical" engines are engines that are designed to operate continuously under a constant power load, shutting down only when there is a breakdown, or when maintenance or repair work is required. Whereas "cyclical" engines have rapid fluctuations in power output and spend significant periods of time at idle. In the 2001 CARB RACT/BARCT determination, cyclical engines were allowed to have higher emission limits since they have additional challenges in using NSCR catalysts. These challenges are discussed further in Section 2.4 of this analysis.

1.5 The AB 617 BARCT Rule Development Schedule

Assembly Bill (AB) 617, enacted in July 2017, has many requirements to address the disproportionate impacts of air pollution in disadvantaged communities. One of the key components of AB 617 is to reduce air pollutant emissions from facilities that participate in the California Greenhouse Gas (GHG) Cap-and-Trade system. Cap-and-Trade is designed to limit GHG emissions and allows facilities to comply by either reducing GHG emissions at the source or by purchasing GHG emission allowances. Emissions of criteria pollutants and toxic air contaminants are often associated with large GHG-emitting sources, and these pollutants may impact local communities that are already experiencing a disproportionate burden from air pollution.

AB 617 helps alleviate the pollution burden near these communities by requiring each air district to adopt an expedited rule development schedule for BARCT by January 1, 2019. The District's AB 617 BARCT schedule was adopted at the December 2018 Board Hearing, and Rule 333 was included on the list of measures that needed to be evaluated for BARCT.[2] BARCT is an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts. To meet the BARCT emission limits, a facility may need to install new air pollution controls on their existing unit(s) or replace the unit(s) in part or in whole. The BARCT requirements apply to the following six facilities within the District boundaries since they are industrial sources subject to the California Cap-and-Trade requirements:

[1] All references to ppmv within this document are corrected to a 15% oxygen content level.
[2] Additional information on the AB 617 BARCT Rule Development Schedule is available on the District's website at www.ourair.org/community-air.

1) Exxon Mobil – Las Flores Canyon,
2) Exxon Mobil – Pacific Offshore Pipeline Company (POPCO),
3) Pacific Coast Energy Company (PCEC) – Orcutt Hill,
4) Cat Canyon Resources, LLC – Cat Canyon West[1],
5) Imerys Filtrations Minerals, Inc., and
6) Windset Farms.

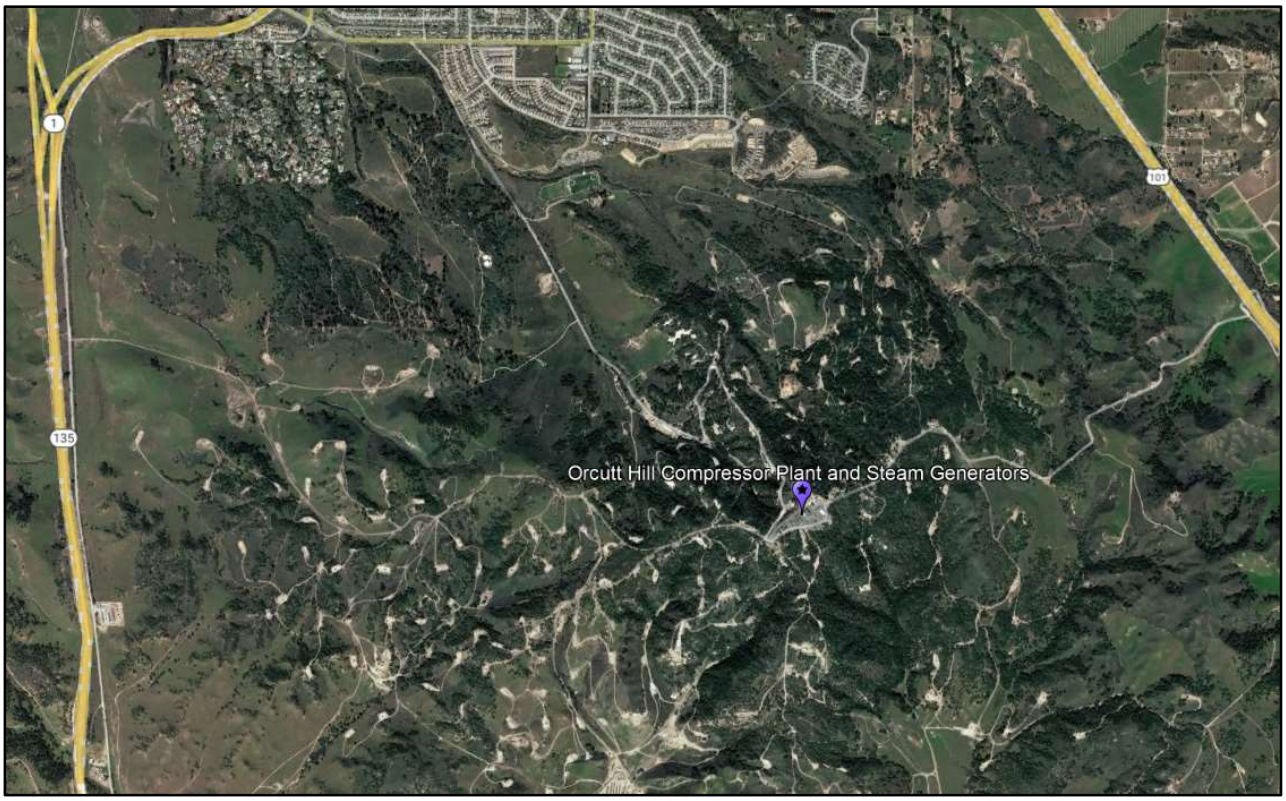
During the initial BARCT assessment in 2018, the District reviewed the permitted engines at the AB 617 industrial sources to see if additional controls would be feasible. The evaluation focused on those engines with a maximum rated brake horsepower of 50 or higher, which is the same applicability threshold established by District Rule 333. After reviewing the engines at these six facilities, the District showed that it may be feasible and cost-effective to establish new BARCT standards for prime, spark-ignited engines within Santa Barbara County, including those engines that were previously derated to less than 50 brake horsepower.

1.6 Pacific Coast Energy Company (PCEC) – Orcutt Hill

Pacific Coast Energy Company ("PCEC") – Orcutt Hill is an onshore oil and gas production and processing facility that is located approximately 2.5 miles south of the community of Orcutt. The facility was originally developed by the Union Oil Company in the 1920s, and PCEC (and its predecessor BreitBurn Energy) has been the owner/operator of the field since 2004. The Orcutt Hill field is comprised of approximately 200 conventional oil and gas wells and 90 cyclic steam injection wells.[2] The extracted crude oil, gas, and water emulsion from the wells is separated by using tank batteries. After they're separated, the crude oil is shipped offsite via pipeline, the produced water is reinjected into the producing formation, and the produced gas is piped to the Orcutt Hill Compressor Plant. At the compressor plant, the produced gas is scrubbed to remove condensates and hydrogen sulfide (H_2S). The gas is then used as the primary fuel for the combustion equipment at the stationary source, such as the steam generators and the reciprocating internal combustion engines. A satellite image of the Orcutt Hill production field is shown below in Figure 1.4.

[1] Facility was previously operated by ERG Operating Company and has since been transferred to Cat Canyon Resources, LLC.
[2] www.conservation.ca.gov/calgem/Online_Data

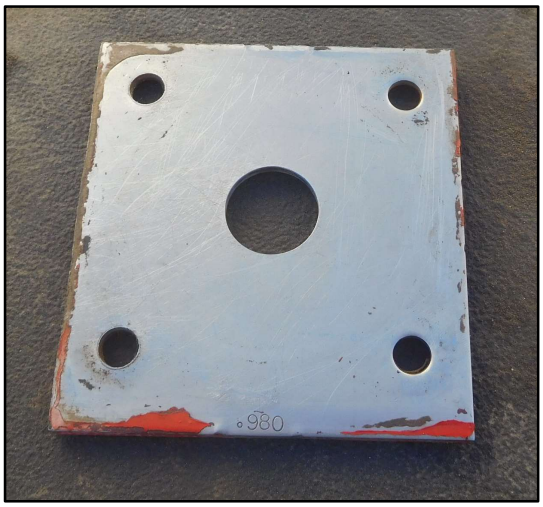
Figure 1.4 – Orcutt Hill Production Field



The majority of the engines that are being operated at PCEC were originally manufactured in the 1970s and 1980s, and each engine has a maximum rated horsepower between 130 to 200, depending on the specific engine model. After Rule 333 was initially adopted in 1991, Unocal (the field operator at the time) complied with the rule by derating each engine to less than 50 horsepower using orifice plates.

An orifice plate, as shown in Figure 1.5, is a steel plate with a sharp-edged circular hole that is installed between the engine's carburetor and intake manifold. The orifice plate prevents the engine from operating at its maximum horsepower by restricting fuel to the engine. The derated horsepower for each engine model and orifice plate pairing was established through dynamometer testing performed by a third-party technician, and the results were approved by the District. To ensure that the orifice plates do not corrode or degrade over time, the facility's permit requires the orifice plates to be inspected on an annual basis.

Figure 1.5 – Orifice Plate



2. PROPOSED BARCT ANALYSIS FOR SPARK-IGNITED ENGINES

2.1 Overview of Proposed Analysis

Although there are a variety of engine configurations and fuel types, this BARCT analysis is focused on prime, rich-burn engines using natural gas or field gas since those are the engines currently being used at the AB 617 industrial sources. This BARCT analysis does not address lean-burn engines, compression-ignition engines, emergency and low-use engines, or engines fired on other fuels such as digester gas or landfill gas. The following major requirements are needed to satisfy the BARCT provisions for AB 617:

- All prime engines that have a maximum rated horsepower greater than 50 shall comply with the BARCT standards, regardless of any previous deratings;
- Non-cyclic rich-burn engines shall meet the 11 ppmv NOx BARCT standard; and
- Cyclical rich-burn engines that have been derated to less than 50 horsepower shall meet the 25 ppmv NOx BARCT standard.

These standards are based on the more recent BARCT determinations adopted by the South Coast Air Quality Management District under Rule 1110.2 and the San Joaquin Valley Air Pollution Control District under Rule 4702. All of the requirements to meet BARCT are described in further detail in their corresponding sections below, and an evaluation of the costs and impacts of the new requirements are listed in Section 5 of this report.

2.2 Requirement – Removal of Derated Engine Exemption

During the initial adoption of Rule 333 in 1991, an exemption was included to allow operators to derate their equipment to less than 50 brake horsepower instead of demonstrating compliance with the emission standards in the rule. In reviewing the more recent internal combustion engine rules adopted by other air districts within California, most districts do not allow for engine derating as a control strategy. Based on the District's assessment, derated engines can still be feasibly and cost-effectively controlled. Hence, for this BARCT analysis, all prime engines that have a maximum rated horsepower greater than 50 need to comply with the BARCT standards, regardless of any previous deratings.

2.3 Requirement – Non-cyclical, Rich-burn Engines

Reciprocating engines can be used in several operational modes. In many cases, they are used continuously under a constant power load, shutting down only when there is a breakdown, or when maintenance or repair work is required. These engines are termed "non-cyclical" engines, and the current NOx emission limit for these engines in Rule 333 is 50 ppmv. The 50 ppmv NOx standard is typically achieved by using a NSCR catalyst.

In recent years, other air districts have demonstrated that greater NOx control efficiencies are possible. Both the South Coast AQMD and San Joaquin Valley APCD have adopted an 11 ppmv NOx standard for non-cyclical, rich-burn engines, which represents approximately 98% control compared to the uncontrolled baseline of 500 ppmv. This 11 ppmv standard has been feasibly implemented in these larger air districts for over 10 years, and it can be met through the use of a more precise AFRC or by using a larger catalyst module. To consistently reach this low level of emissions, additional maintenance and recalibration may be needed on the emission control

system to make sure that the various components don't fail or drift over time. Nevertheless, the 11 ppmv NOx standard is achievable on the spark-ignited engines that are currently installed within Santa Barbara County, and it represents BARCT for non-cyclical, rich-burn engines.

2.4 Requirement – Cyclical, Rich-burn Engines

Reciprocating engines can also operate cyclically, which means that the engine changes its power output on a regular, frequent schedule. As defined in Rule 333, "*Cyclically-loaded engine* means an engine that under normal operating conditions has an external load that varies by 40 percent or more of rated brake horsepower during any load cycle or is used to power a well reciprocating pump including beam-balanced or crank-balanced pumps. Engines powering air-balanced pumps are noncyclically-loaded engines."

The cyclical definition is important because on an oil well pump, the engine operates at load for a time period varying from several seconds to about 20 seconds, followed by an equal amount of time operating at idle. Since the cyclical engine has rapid fluctuations in power output and spends significant periods of time at idle, it is more difficult to maintain the proper air/fuel ratio and exhaust gas temperatures. Due to the challenges, the current Rule 333 emission limit for cyclical engines is 300 ppmv NOx. Operators can meet the existing emission limits for cyclical engines by making sure that the engine is properly maintained and tuned, or by leaning the air/fuel mixture.

In reviewing the recent BARCT assessments made by other California air districts, both the South Coast AQMD and the San Joaquin Valley APCD have addressed cyclical engines. They found that many cyclically-loaded engines can still be equipped with NSCR catalysts if the catalyst system is designed with materials that achieve high efficiencies at lower temperatures or if the exhaust pipe and catalyst are thermally insulated to prevent heat loss. These methods would allow the engine to achieve high control efficiencies when the exhaust temperature is approximately 750 to 850°F. The South Coast AQMD determination for cyclical engines has been in effect since 2011, but the San Joaquin Valley APCD only recently adopted the cyclical determination in 2021 with the 11 ppmv NOx standard going into effect on December 31, 2023.

Based on the District's assessment, the BARCT emission standard for cyclically-loaded engines in Santa Barbara County is 11 ppmv NOx. However, additional consideration needs to be given to derated engines. An engine that has been derated to less than 50 horsepower will be combusting less fuel compared to an engine that is always operating above 50 horsepower. This means that the derated engine may have a more difficult time to consistently reach the necessary operating temperature to achieve high control efficiencies. Hence, a separate BARCT determination is needed for derated engines. Based on the District's assessment, the BARCT emission standard for cyclically-loaded engines that have been derated to less than 50 horsepower is 25 ppmv NOx.

2.5 Requirement – ROC and CO Emission Limits

Controls on reciprocating internal combustion engines are typically focused on reducing NOx emissions, but there are technologies (such as the NSCR catalyst) that can greatly reduce ROC and CO emissions at the same time. The current emission limits for rich-burn engines in Rule 333 are 250 ppmv ROC and 4,500 ppmv CO. These emission limits are mainly used as a

backstop to prevent any increases in ROC and CO emissions, as certain NOx control techniques have the potential to greatly increase the ROC and CO emissions.

Based on our review of the CARB Technology Clearinghouse, District staff believes that it is appropriate to lower the CO emission limit to 2,000 ppmv and to retain the existing ROC limits in Rule 333 for the purposes of this BARCT evaluation. Although lower ROC and CO emission limits have been established in the South Coast AQMD and San Joaquin Valley, the engines subject to this BARCT assessment are older, derated engines that operate on field gas, which can be challenging to control using NSCR technology. Hence, using the 250 ppmv ROC limit and 2,000 ppmv CO limit, which is representative of BARCT for most other air districts, allows the emission control system to have the much-needed flexibility to achieve the lower NOx emissions under varying field conditions.

2.6 Requirement – Testing and Monitoring Conditions

As previously discussed in this assessment, there are a variety of operating parameters that lead to the successful implementation of an emission control system on reciprocating internal combustion engines. The equipment may be initially calibrated to maintain the emission limits, but the electronic sensors may drift over time and need to be recalibrated or replaced. Hence, a testing and monitoring program is necessary to ensure that the engines remain adjusted and operate in compliance with the emission standards in the BARCT analysis. This BARCT analysis will incorporate the existing testing and monitoring program prescribed in Rule 333, which includes the following:

1) Each engine shall be source tested every two years at the engine's actual peak load or under the engine's typical duty cycle;
2) Each engine shall be monitored every three months using a portable NOx analyzer; and
3) For facilities with more than 20 engines, the Control Officer may, on a case-by-base basis, approve a source's written request to exclude one or more engines from the on-going biennial testing.

Portable NOx analyzers are fairly accurate monitoring tools that are useful to periodically check the emissions of an engine. Despite their usefulness, portable analyzers do not meet all of the rigorous procedures prescribed under the EPA and CARB test methods. Under the current Rule 333 language, a portable analyzer reading in excess of the permitted emission standards shall not be considered a violation so long as the engine is brought into compliance and a follow-up inspection is conducted within 15 days of the initial out-of-compliance reading. NOx analyzer tests shall then be performed on a monthly basis until the engine tests below the emission standards for three consecutive months.

This monitoring program strikes the appropriate balance between using the verifiable EPA source test methods and using a portable NOx analyzer to demonstrate compliance. It will ensure that the emission control system for each engine is properly tuned and calibrated, and that the lower NOx limits prescribed in this BARCT assessment are achieved.

3. COMPARISON TO OTHER CALIFORNIA AIR DISTRICTS

In considering what benchmarks to use for BARCT, it is important to evaluate other emission limits that have been imposed on the same categories of equipment. Most California air districts have based their internal combustion engine rules on the California Air Resources Board's RACT and BARCT determination for stationary spark-ignited engines, which established the 2001 BARCT standards. However, a few districts, such as the South Coast AQMD and the San Joaquin Valley APCD have established more stringent requirements for certain subcategories of engines. Table 3.1 presents a comparison of these determinations to the key requirements in the District's BARCT analysis.

Table 3.1 – Comparison to Air District Rules

ANALYSIS DESCRIPTION		Santa Barbara APCD BARCT IC Engines (Proposed)	South Coast AQMD Rule 1110.2 (2008)	San Joaquin Valley APCD Rule 4702 (2021)	San Diego APCD Rule 69.4.1 (2020)	Ventura APCD Rule 74.9 (2005)
Applicability		50+ horsepower	50+ horsepower	25+ horsepower *[Emission limits do not apply to 25-49 hp]*	50+ horsepower	50+ horsepower
		Stationary & Portable	Stationary & Portable	Stationary	Stationary	Stationary
Exemptions		< 200 hours/yr	Emergency with < 200 hrs/yr total	< 200 hours/yr	< 200 hours/yr	< 200 hours/yr
		--		Emergency with <100 hrs/yr M&T	Emergency with <100 hrs/yr M&T	Emergency with <50 hrs/yr M&T
		--	--	Engines derated before 2004	--	--
Rich-burn Engines	NOx Limit	*All Non-cyclical:* 11 ppmv *Non-derated, Cyc:* 11 ppmv *Derated, Cyc:* 25 ppmv	11 ppmv	11 ppmv	*New:* 11 ppmv *Existing:* 25 ppmv	25 ppmv
	ROC Limit	250 ppmv	30 ppmv	90 ppmv	*New:* 60 ppmv *Existing:* 250 ppmv	250 ppmv
	CO Limit	2,000 ppmv	250 ppmv	2,000 ppmv	*New:* 70 ppmv *Existing:* 2,000 ppmv	*New:* 2,000 ppmv *Existing:* 4,500 ppmv
Testing Frequency	NOx Analyzer	Quarterly	Weekly	Quarterly	Quarterly	Quarterly
	Source Test	Biennial	Biennial	Biennial	Biennial	Biennial

4. APPLICABILITY OF FEDERAL PROHIBITORY REGULATIONS

4.1 NSPS Subpart JJJJ (40 CFR Part 60)

New Source Performance Standard (NSPS) Subpart JJJJ requires manufacturers of stationary spark-ignition engines to certify that the engines they produce comply with the applicable emission standards and requires owners and operators of stationary spark-ignition engines to install and operate the engines in accordance with the emission standards. NSPS Subpart JJJJ was initially promulgated in 2008, and the emission limits do not apply to existing engines that were manufactured before the applicable compliance date.

District staff evaluated the requirements of NSPS Subpart JJJJ and determined that none of the existing engines that are addressed in this evaluation are subject to the Subpart JJJJ requirements based on the date of their installation. For newly installed engines, the proposed BARCT requirements do not conflict with or create inconsistencies with this federal regulation.

4.2 NESHAP Subpart ZZZZ (40 CFR Part 63)

National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ establishes emission and operating limitations for hazardous air pollutants (HAPs) emitted from stationary reciprocating internal combustion engines located at major and area sources of HAP emissions. As defined in Subpart ZZZZ, a major source of HAP emissions is a facility that has the potential to emit 10 or more tons per year of any single HAP, or 25 tons per year or more of any combination of HAPs. An area source of HAPs is any facility that is not considered a major source of HAPs.

In general, new or reconstructed stationary reciprocating internal combustion engines comply with NESHAP Subpart ZZZZ by complying with the applicable NSPS Subpart JJJJ requirements. As for existing engines, they must comply with the applicable emission requirements and/or management practices specified in NESHAP Subpart ZZZZ. The existing engines addressed in this evaluation are considered non-emergency, four-stroke, rich-burn spark-ignition engines rated at less than 500 break horsepower at an area source of HAP emissions. The operator of these engines is required to comply with the following:

1) Change the oil and filter on each engine every 1,440 hours of operation or annually, whichever comes first;
2) Inspect the spark plugs on each engine every 1,440 hours of operation or annually, whichever comes first; and
3) Inspect all hoses and belts on each engine every 1,440 hours of operation or annually, whichever comes first.

The proposed BARCT requirements do not conflict with or create inconsistencies with the requirements listed in this federal regulation.

5. IMPACTS OF THE PROPOSED ANALYSIS

5.1 Emission Impacts

The BARCT analysis will affect all new and existing reciprocating internal combustion engines at the AB 617 industrial sources. The only facility that is expected to be impacted by this analysis is PCEC – Orcutt Hill. PCEC currently uses 27 different derated spark-ignition engines at its facility to extract oil and inject the produced water back into the underground formations. A listing of those engines is shown below in Table 5.1.

Table 5.1 – Existing Engines at PCEC - Orcutt Hill

#	Device	Engine Make & Model	Original Horsepower	Derated Horsepower	Cyclic/ Non-cyclic
1	Oil Well Pump	Waukesha 145	131	49.5	Cyclic
2	Oil Well Pump	Waukesha 145	131	49.5	Cyclic
3	Oil Well Pump	Waukesha 145	131	49.5	Cyclic
4	Oil Well Pump	Waukesha 145	131	49.5	Cyclic
5	Oil Well Pump	Waukesha 145	131	49.5	Cyclic
6	Oil Well Pump	Waukesha 1197	195	49.9	Cyclic
7	Oil Well Pump	Waukesha 1197	195	49.9	Cyclic
8	Oil Well Pump	Minneapolis Moline 800	175	48	Cyclic
9	Oil Well Pump	Minneapolis Moline 800	175	48	Cyclic
10	Oil Well Pump	Minneapolis Moline 800	175	48	Cyclic
11	Oil Well Pump	Minneapolis Moline 800	175	48	Cyclic
12	Oil Well Pump	Minneapolis Moline 800	175	48	Non-Cyclic
13	Oil Well Pump	Minneapolis Moline 800	175	48	Non-Cyclic
14	Oil Well Pump	Waukesha 145	131	49.5	Non-Cyclic
15	Oil Well Pump	Waukesha 145	131	49.5	Non-Cyclic
16	Oil Well Pump	Waukesha 145	131	49.5	Non-Cyclic
17	Oil Well Pump	Waukesha 145	131	49.5	Non-Cyclic
18	Oil Well Pump	Waukesha 145	131	49.5	Non-Cyclic
19	Oil Well Pump	Waukesha 817	131	49.5	Non-Cyclic
20	Oil Well Pump	Waukesha 817	131	49.5	Non-Cyclic
21	Oil Well Pump	Waukesha 1197	195	49.5	Non-Cyclic
22	Water Injection Pump	Waukesha 145	131	49.5	Non-Cyclic
23	Water Injection Pump	Waukesha 145	131	49.5	Non-Cyclic
24	Water Injection Pump	Waukesha 145	131	49.5	Non-Cyclic
25	Water Injection Pump	Waukesha 145	131	49.5	Non-Cyclic
26	Water Injection Pump	Waukesha 145	131	49.5	Non-Cyclic
27	Compressor Plant Pump	Waukesha 195	195	42	Non-Cyclic

These derated engines do not have any emission controls, but they could be retrofitted with NSCR control systems and air/fuel ratio controllers to reduce their emissions of criteria pollutants and toxic air contaminants. To evaluate the estimated emission impacts of these engines complying with the BARCT requirements, the historical operating records of the engines were reviewed and an average operating capacity factor was determined. The estimated emission reductions for this project are shown below in Table 5.2.

Table 5.2 – Estimated Emission Reductions

Description	**Maximum Heat Input** (MMBtu/hr)	**Initial NOx EF** (lbs/MMscf)	**Final NOx EF** (lbs/MMscf)	**Average Capacity Factor**	**Number of engines**	**Total NOx Reductions** (tons/yr)
Cyclical Engine	0.48	2,000	98.7	0.70	11	**73**
Non-Cyclical Engine	0.48	2,000	43.4	0.70	16	

Where:

- Maximum Heat Input represents an engine derated to approximately 48 hp.
- Initial NOx Emission Factor (EF) = approximately 500 ppmv NOx
  - Based on a 1990 District Hearing Board decision for uncontrolled SI engines.
- Final NOx Emission Factor
  - Derated, Cyclical: equivalent to 25 ppmv NOx
  - Non-cyclical: equivalent to 11 ppmv NOx
- Avg. Capacity Factor = (Normal Annual Fuel Use) / (Max Potential Annual Fuel Use)

- NOx Reductions = (Max Heat Input) * (Δ Emission Factor) * (Avg. Capacity Factor) * (8,760 hours/year) * (Number of Engines) / (2,000 lbs/ton) / (1,050 Btu/scf)

Based on the equation above, the implementation of BARCT may reduce approximately 2.6 to 2.7 tons of NOx per year for each engine controlled, or a collective 73 tons of NOx per year for all 27 engines. District staff acknowledges that alternative methodologies could be used to estimate the emission reductions. However, the method prescribed above is consistent with the cost-effectiveness methodology that is used for rule projects and BARCT analyses.

5.2 Cost-Effectiveness

For cost-effectiveness calculations, the District uses the Levelized Cash Flow (LCF) method. In the LCF method, a capital recovery factor (CRF) is used to transform any capital costs into an equivalent annual cost. The CRF is necessary because the one-time capital expenditures reduce emissions over the entire duration of the project life. Hence, the CRF is a function of the real interest rate and equipment life.

Staff evaluated a scenario where a derated engine would be retrofitted with a NSCR catalyst and an AFRC to comply with the BARCT standards. It is anticipated that the same type of controls

would be used for both the cyclical and non-cyclical engines, and so no modifications are made to the analysis to reflect the costs between 11 ppmv and 25 ppmv NOx. On-going costs for the additional maintenance requirements on the catalyst and the monitoring requirements on the engine (quarterly NOx analyzer tests and biennial source testing) were also incorporated into the calculations. Since the facility already cleans up the field gas by removing the moisture and sulfur prior to combustion, no additional costs are included to account for the scrubbing process. The estimated cost-effectiveness for this project is shown below in Table 5.3.

Table 5.3 – Estimated Cost-Effectiveness for BARCT Analysis

	Costs		Cost-Effectiveness		
Description	**Capital and Install Costs** (per engine)	**Annual Operation and Testing Costs** (per engine)	**CRF**	**Annualized Cost** (per engine)	**Cost-Effectiveness** ($/ton)
Cyclical Engine	$60,000	$12,000	0.103	$18,180	**$6,800**
Non-Cyclical Engine	$60,000	$12,000	0.103	$18,180	**$6,600**

Where:

- Cost-Effectiveness = (Annualized Cost) / (Emission Reductions)
- Annualized Cost = (Capital Costs * CRF) + (Annual Operational Costs)
- CRF = $\frac{i * (1 + i)^n}{(1 + i)^n - 1} = \frac{0.06 * (1 + 0.06)^{15}}{(1 + 0.06)^{15} - 1} = 0.103$

  i = Real Interest Rate (6%)
  n = Project Life (15 years)

The cost-effectiveness values shown in Table 5.3 are within the acceptable range of previously adopted prohibitory rules, and so the BARCT requirement to reach 11 or 25 ppmv, depending on the type of engine, is considered to be cost-effective. These costs are incurred in the interest of bringing the facility operations up to current control technology standards and complying with state legislation.

Electrification or Engine Replacement

Another method of reducing NOx is to replace an existing IC engine with an electric motor or a new engine designed to emit very low NOx emissions. Although there may be minor increases in power plant emissions to supply the electricity, an electric motor essentially eliminates all on-site NOx emissions associated with the removed engine. Replacing an older, uncontrolled engine with a new engine that has emission controls built into its design can also reduce NOx by a substantial amount. These alternatives typically cost more than retrofitting the existing equipment, but the alternatives may be viable and cost-effective depending on the location of the well site and the associated equipment coupled to the engine or motor.

5.3 Trial Period and Implementation Timeline

Over the course of the last three years, PCEC conducted various trials by installing different combinations of catalysts and air/fuel ratio controllers on a select number of cyclical and non-cyclical engines operating oil well and water injection pumps. These trials were conducted to determine if the BARCT standards are feasible on PCEC's derated engines. Throughout the trials, a portable NOx analyzer was used to determine the effectiveness of the controls and to evaluate if any adjustments needed to be made to the engines over time. Afterwards, PCEC concluded that they were encouraged by the resultant low NOx values from using the emission control equipment, and PCEC decided to pursue this control strategy on their derated engines to comply with the BARCT analysis.

In October 2022, PCEC submitted an Authority to Construct permit application to modify the engines at its facility to comply with the BARCT analysis for Internal Combustion Engines. The equipment modifications included in the permit application are required to be implemented no later than December 31, 2023, in accordance with AB 617. Any device that fails to implement BARCT will need to be shut down on December 31, 2023 and may only be operated once the necessary modifications are complete.

6. REFERENCES

1) California Air Resources Board – *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Stationary Spark-Ignited Internal Combustion Engines,* November 2001.
2) South Coast Air Quality Management District – *Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines,* Amended November 1, 2019.
3) San Joaquin Valley Unified Air Pollution Control District – *Rule 4702, Internal Combustion Engines,* Amended August 19, 2021.
4) Ventura County Air Pollution Control District – *Rule 74.9, Stationary Internal Combustion Engines,* Amended November 8, 2005.
5) Bay Area Air Quality Management District – *Regulation 9, Rule 8, Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines,* Amended July 25, 2007.
6) San Diego County Air Pollution Control District – *Rule 69.4.1, Stationary Internal Combustion Engines,* Amended July 8, 2020.
7) Feather River Air Quality Management District – *Rule 3.22, Stationary Internal Combustion Engines,* Amended August 3, 2020.
8) Yolo-Solano Air Quality Management District – *Addendum to Expedited BARCT Schedule for Industrial Facilities Subject to Cap and Trade,* October 14, 2020.
9) Santa Barbara County Air Pollution Control District – *Assembly Bill 617 Best Available Retrofit Control Technology Rule Development Schedule,* Adopted December 20, 2018.
10) U.S. Environmental Protection Agency – *Alternative Control Techniques Document – NOx Emissions from Stationary Reciprocating Internal Combustion Engines (EPA-453/R-93-032)*, July 1993.
11) U.S. Environmental Protection Agency – *Code of Federal Regulations Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*.
12) U.S. Environmental Protection Agency – *Code of Federal Regulations Part 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*.

7. ATTACHMENTS

7.1 Attachment #1. Industry Comments and Responses

ATTACHMENT #1

Industry Comments and Responses

#	Section	Comment	District Response
1)	1.2	Is there a scale for the Y axis? *[In regard to Figure 1.2 – Stoichiometry and the Effect of Air/Fuel Ratio on Pollutants]*	Figure 1.2 does not have a specific scale that addresses all 3 pollutants (NOx, CO, and total hydrocarbons). The Y-axis is used to show the approximate change in emission concentration for each of the pollutants as a 4-stroke natural gas engine operates between stoichiometric and lean-burn conditions.
2)	1.5	Are you saying there are no prime NG engines in SB?	Out of the six AB 617 Industrial Sources, PCEC is the only affected facility with prime natural gas engines. There are other prime natural gas engines within Santa Barbara County, but those engines are not covered by this analysis. The referenced paragraph in the analysis has been restructured to clarify the applicability to the six AB 617 Industrial Sources.
3)	1.6	PCEC owned and operated the field since 2012 - prior operator was BreitBurn Energy.	The text in the analysis has been updated to clarify that: "PCEC (and its predecessor BreitBurn Energy) has been the owner/operator of the field since 2004." Based on the District's records and the operating permits for the source, the change in December 2011 from BreitBurn Energy to PCEC was a name change only.
4)	2.4	This [cyclical definition] should be defined in Section 2.1 in the overview.	Your comment has been noted.
5)	2.6	PCEC has discussed with the District that after the first round of testing, a percentage of engines are tested every two years - not every engine. It will take 15 days of testing if the world is perfect and nearly $90,000 to complete this testing requirement.	This BARCT analysis incorporates the existing testing and monitoring program prescribed in Rule 333. Specifically, Section I of Rule 333 allows the Control Officer to, on a case-by-case basis, approve a facility's written request to exclude one or more engines from the on-going biennial testing. This provision only applies if the facility has more than 20 engines subject to the source testing requirements. Additional text has been added to Section 2.6 to clarify this provision.
6)	3.0	Do CI engines belong in this table? *[Table 3.1]*	The reference to "CI engines" has been removed from Table 3.1 since the BARCT analysis is primarily focused on rich-burn spark-ignited engines using natural gas or field gas.
7)	4.2	PCEC has a successful program and is in compliance with ZZZZ.	Your comment has been noted.

#	Section	Comment	District Response
8)	5.1	PCEC has not tested for TAC reductions nor have we sourced control equipment to guarantee any toxic emission control efficiency. I am not comfortable making this statement to the board. *Language in the draft analysis – For Reference: "These derated engines do not have any emission controls, but they could be retrofitted with non-selective catalytic control systems and air/fuel ratio controllers to reduce their emissions of criteria pollutants and toxic air contaminants."*	Even though there are no Toxic Air Contaminant (TAC) emission standards or TAC source testing requirements in the BARCT analysis, the District is comfortable in making a general statement that the use of NSCR will reduce toxic air contaminants. There is sufficient EPA, CARB, and catalyst manufacturer information that discuss the VOC and TAC/HAP reduction capabilities of NSCR catalysts. Some of the toxic pollutants controlled include formaldehyde, acrolein, methanol, and acetaldehyde.
9)	5.1	Should ROC and CO reductions be included in this table? *[Table 5.2 – Estimated Emission Reductions]* Be consistent - either include all three pollutants or only discuss NOx. There is a real inconsistency throughout the document	For stationary internal combustion engines, the primary pollutant of concern is NOx. NOx emission control strategies can lead to a reduction in ROC and CO emissions [e.g. using an NSCR catalyst], but some control strategies may lead to slight increases in ROC and CO emissions [e.g. combustion modifications]. The purpose of the ROC and CO emission limits in the BARCT analysis is to prevent the NOx control strategies from causing excessive increases in ROC and CO emissions. Since PCEC is anticipating to use NSCR catalysts to comply with the BARCT standards, the District could tailor the evaluation to show the anticipated ROC and CO emission reductions. However, according to guidance provided by the California Air Resources Board, the emission reduction and cost-effectiveness calculations should only be conducted for those pollutants that pertain to the standard or objective to be met. Hence, the District will continue to focus on NOx, the primary pollutant of concern from these engines.
10)	5.2	Did you add the cost for catalyst bed replacement and new O_2 Sensors? The cost of the catalysts should be included. The costs have doubled in the couple of years we have been working on this project.	The annual operation costs listed in "Table 5.3 – Estimated Cost-Effectiveness for BARCT Analysis" initially allocated $2,500 per year for the on-going catalyst and oxygen sensor replacements. This value was based on assumptions used by the South Coast AQMD, such as the catalyst being replaced every 3 years and the oxygen sensor being replaced every quarter. After further review, the estimated cost for these replacements has been increased to $4,000 per year to provide for a more conservative estimate that also accounts for the recent impacts from inflation.

#	Section	Comment	District Response
11)	5.3	This is not a realistic time schedule. Even if we receive a permit in the first quarter of 2023, there are still supply chain issues that could interfere with the schedule. PCEC will not accept the shutdown clause, we have worked closely with the APCD throughout this process. Also it is unclear if all testing needs to be complete by 12-31-23, this is a very aggressive and unrealistic schedule. If AB 617 will allow for a longer period to achieve compliance, please make this deadline a minimum of June 2024. This will also help with the staggered source test request.	Assembly Bill 617 requires the implementation of BARCT at the affected industrial sources no later than December 31, 2023.[1] Given the purposes of AB 617, its directive language, and legislative history, the District understands this requirement to mean that the full installation of the BARCT controls must be performed by December 31, 2023.[2] Hence, the engines must be modified to include the NSCR catalysts and air/fuel ratio controllers to operate on or after January 1, 2024, and District staff cannot grant an extension for this requirement. As for the initial source testing of the engines, please work with the District's Engineering Division to incorporate a reasonable timeline into the affected permit. For the purpose of this analysis, we will not require all engines to be source tested to be considered "implemented."

[1] Codified under California Health and Safety Code §40920.6.
[2] Informational CARB webpage on Expedited BARCT: https://ww2.arb.ca.gov/Permitting-Questions [*accessed January 12, 2023]*

ATTACHMENT B

PCEC Authority To Construct Permit #15974

March 16, 2023

Santa Barbara County Air Pollution Control District
Board of Directors

260 San Antonio Road, Suite A
Santa Barbara, California 93110

air pollution control district
SANTA BARBARA COUNTY

Authority to Construct 15974

EQUIPMENT OWNER:

Pacific Coast Energy Company LP

EQUIPMENT OPERATOR:

Pacific Coast Energy Company LP

EQUIPMENT LOCATION:

Orcutt Hill

STATIONARY SOURCE/FACILITY:

Pacific Coast Energy Company - Orcutt Hill	SSID: 02667
Orcutt Hill IC Engines	FID: 04214

AUTHORIZED MODIFICATION:

This permit authorizes Pacific Coast Energy Company (PCEC) to install three-way non-selective catalytic reduction catalysts and air-fuel ratio controllers on the existing de-rated engines at their Orcutt Hill facility. Under District Authority to Construct Nos. 15372 and 15789, these control devices were tested and determined to comply with the Best Available Retrofit Control Technology (BARCT) requirements of the AB 617 *Community Air Protection Program*. The de-rated engines are permitted to operate at various locations at the Orcutt Hill facility, and the BARCT requirements differ based on the type of process (i.e., cyclical vs. non-cyclical).

EQUIPMENT DESCRIPTION:

The equipment subject to this permit is listed in the table at the end of this permit.

PROJECT/PROCESS DESCRIPTION:

The Orcutt Hill internal combustion engines are located on various leases on the stationary source, which is approximately 2.5 miles south of Orcutt. The internal combustion engines are fired on field gas and used to drive pumping units, water pumps, compressors and other oil and gas production equipment.

CONDITIONS:

1. **Emission Limitations.** The mass emissions from the equipment permitted herein shall not exceed the values listed in Table 1. Compliance shall be based on the operational, monitoring, recordkeeping, reporting and source testing conditions of this permit.

   a. *Cyclical Operation Emission Limits.* By December 31, 2023, emissions from derated engines used for cyclical processes as identified in the most recent District-approved *AB 617 Compliance Plan* shall not exceed the following limits: 25 ppmv NO_X @ 15% O_2, 80 ppmv ROC (as methane) @ 15% O_2 and 1,450 ppmv CO @ 15% O_2.

   b. *Non-Cyclical Engine Emission Limits.* By December 31, 2023, emissions from derated engines used for non-cyclical processes as identified in the most recent District-approved *AB 617 Compliance Plan* shall not exceed the following limits: 11 ppmv NO_X @ 15% O_2, 80 ppmv ROC (as methane) @ 15% O_2 and 1,450 ppmv CO @ 15% O_2.

   Compliance with the NO_X, ROC and CO emission limits shall be based on portable analyzer monitoring as required per Condition 3.d, and source testing as required by Condition 8 of this permit.

2. **Operational Restrictions.** The equipment permitted herein is subject to the following operational restrictions.

   a. *Orifice Plates.* The orifice plate on each derated engine shall not have an orifice greater than the diameter listed below. Each orifice plate shall be made from 10 gauge mild steel stock with a sharp edge circular orifice. Each orifice plate shall be located between the engine carburetor and the intake manifold. Orifice plates shall be in place at all times the engines under this permit operate.

Device Name	Device ID	Orifice Plate Diameter
IC Engine: (#9553)	004359	0.922”
IC Engine: (#9818)	101256	0.922”
IC Engine: (#10215)	008184	0.922”
IC Engine: (#10939)	004307	0.98”
IC Engine: (#11010)	008762	0.98”
IC Engine: (#11033)	008763	0.98”
IC Engine: (#11143)	004331	0.922”
IC Engine: (#11480)	004338	0.922”
IC Engine: (#11484)	004336	0.922”
IC Engine: (#11489)	004367	0.922”
IC Engine: (#11499)	008764	0.922”
IC Engine: (#11505)	004355	0.922”
IC Engine: (#11511)	004372	0.922”
IC Engine: (#11513)	004342	0.922”
IC Engine: (#11523)	004351	0.85”
IC Engine: (#11615)	004402	0.922”
IC Engine: (#11667)	004344	0.85”
IC Engine: (#11763)	004315	1.65”
IC Engine: (#11830)	008783	1.30”
IC Engine: (#11975)	008766	0.922”
IC Engine: (#11983)	004324	0.922”
IC Engine: (#12066)	008767	0.98”
IC Engine: (#12145)	008784	0.85”
IC Engine: (#12151)	004356	0.85”
IC Engine: (#12155)	004371	0.85”
IC Engine: (#12159)	004345	0.85”
IC Engine: (#12161)	004353	0.85”
IC Engine: (#12168)	005306	0.98”

b. *Control Equipment.* By December 31, 2023, all operational[1] derated engines at this facility shall be equipped with a District-approved three-way catalyst and air-fuel ratio controller at all times during engine operations.

c. *Locations*. The locations of the engines, three-way catalysts and air-fuel ratio controllers shall comply with the most recent District-approved *AB 617 Compliance Plan*.

d. *Catalysts and Air-Fuel Ratio Controllers*. The thee-way catalysts and air-fuel ratio controllers shall be maintained and operated in accordance with the manufacturer’s specifications and recommendations.

[1] Engines are considered “operational” unless they are disconnected from gas and visually tagged as out of service, or disconnected from gas and located in the storage yard.

e. *Catalyst and Air-Fuel Ratio Controller Maintenance and Replacement.* The three-way catalysts and air-fuel ratio controllers shall be maintained in accordance with the manufacturers' specifications and recommendations. The control equipment may be replaced as needed and the replacement shall comply with the following requirements:

   i. For the replacement with identical control equipment, the permittee shall notify the District within 7 calendar days after replacing any catalyst and/or air-fuel ratio controller (engr@sbcapcd.org). The notification shall include the Device ID of the catalyst and/or air-fuel ratio controller that was replaced, Device ID of the engine fitted with the replacement controls, and the date the replacement occurred. Additionally, the permittee shall conduct portable analyzer monitoring in accordance with Condition 3.d within 7 calendar days after initial operations of any engine that has been equipped with a replacement catalyst and/or air fuel ratio controller to verify that the replacement control equipment is operating properly.

   ii. For replacements with a different make or model of catalyst and/or air-fuel ratio controller, the permittee shall notify the District and obtain approval prior to replacing any catalyst and/or air-fuel ratio controller (engr@sbcapcd.org). The notification shall include the Device ID of the catalyst and/or air-fuel ratio controller to be replaced, Device ID of the engine to be fitted with the replacement controls, whether the engine is operating in a cyclical or non-cyclical process, the make and model of the proposed new catalyst and/or air-fuel ratio controller, and the manufacturer's guarantee of the proposed catalyst (if applicable). Additionally, the permittee shall conduct portable analyzer monitoring in accordance with Condition 3.d within 7 calendar days after initial operations of any engine that has been equipped with a replacement catalyst and/or air fuel ratio controller to verify that the replacement control equipment is operating properly. If any of the portable analyzer results are higher than 80% of the emission standards in Condition 1 of this permit, the engine equipped with the replacement control equipment shall be source tested in accordance with Condition 8 within 60 days of the portable analyzer monitoring date.

f. *Air-Fuel Ratio Controller Set Points.* The set-point ranges for the air/fuel ratio controller shall be maintained throughout the year at values determined via the biennial (or most recent) compliance source test.

g. *Fuel Gas Sulfur Content.* The total sulfur content (calculated as H_2S at standard conditions, 60º F and 14.7 psia) of the gaseous fuel burned at the facility shall not exceed 50 grains per 100 cubic feet (796 ppmv).

3. **Monitoring.** The equipment permitted herein is subject to the following monitoring requirements:

   a. *Fuel Usage.* PCEC shall comply with the *Fuel Use Monitoring Plan* (dated June 3, 2019 and any District-approved updates thereof) for the engines listed on this permit. The Plan may be modified only upon written approval from the District and shall be maintained on-site and made available to District personnel upon request.

   b. *Air-Fuel Ratio Controller Set Points Log.* The permittee shall monitor the air-fuel ratio controller millivolt set points during each source test.

   c. *Fuel Gas Sulfur Content.* The operator shall measure the total sulfur content annually in accordance with ASTM-D1072 or a District approved equivalent method. The H_2S content shall be measured quarterly using colorimetric gas detection tubes or equivalent.

   d. *Portable Analyzer Monitoring.* The permittee shall perform portable analyzer NO_X and CO monitoring each calendar quarter in which a source test is not performed and the engine is operated in excess of 20 hours. The compliance procedures outlined in Section F.3 of Rule 333 shall be followed for the portable analyzer monitoring. Portable analyzer instrument readings shall not exceed the limits specified in Table 2 of this permit.

   e. *Engine Inspection and Maintenance Plan.* The permittee shall implement the District-approved *Engine Inspection and Maintenance Plan*.

   f. *Catalysts.* The three-way catalysts shall be monitored to ensure compliance with Condition 2.d of this permit.

   g. *Source Testing.* Source testing shall be performed biennially to demonstrate compliance with the limits of Condition 1. The compliance procedures outlined in Table 4 and Condition 8 of this permit shall be followed for each source test.

   h. *Orifice Plates.* The operator shall inspect approximately one quarter of the orifice plates each calendar quarter and document the results of each inspection. Each orifice plate must be inspected at least once every twelve months, and different orifice plates shall be inspected each quarter until all the orifice plates have been inspected. In addition, the operator shall assist District personnel in the measurement and/or inspection of an orifice plate upon request. The operator shall replace an orifice plate within thirty (30) calendar days after any inspection if it shows corrosion or degradation that enlarges the specified hole diameter, or if there is any other indication the plate is not properly restricting fuel flow to the engine. The District shall be notified in writing each time an orifice plate is replaced. The quarterly orifice plate inspection results and the date of replacement shall be recorded in a log.

4. **Recordkeeping.** The permittee shall record and maintain the information listed below. This data shall be maintained for a minimum of five (5) years from the date of each entry and made available to the District upon request.

   a. *Fuel Usage.* Fuel usage shall be recorded in accordance with the *Fuel Use Monitoring Plan* (dated June 3, 2019 and any District-approved updates thereof).

   b. *Fuel Gas Sulfur Content.* Measurements of the annual total sulfur content and quarterly H_2S content.

   c. *Portable Analyzer Monitoring Results.* Results of the portable analyzer monitoring required by Condition 3.d. including any portable analyzer monitoring conducted after the replacement of any 3-way catalyst and/or air-fuel ratio controllers.

   d. *Source Test Reports.* Source test reports for all District-required stack emission tests.

   e. *Engine Inspection and Maintenance Logs.* Engine inspection and maintenance logs shall be maintained, including quarterly inspection results, consistent with the District-approved *Engine Inspection and Maintenance Plan*.

5. **Semi-Annual Monitoring/Compliance Verification Reports.** The permittee shall submit a report to the District (Attn: *Annual Report Coordinator*) 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 (i.e., 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 reports shall include the information required by Condition 4.a – e.

6. **Source Compliance Demonstration Period.** Equipment permitted herein is allowed to operate temporarily during a 365-day SCDP. Initial operations of the permitted equipment (defined as the commencement of any activities applied for and authorized by this permit) define the start of the SCDP. During the SCDP, the permittee shall comply with all operational, monitoring, recordkeeping and reporting requirements as specified in this permit.

   Prior to the SCDP, the permittee shall:

   a. Submit an *Engine Inspection and Maintenance Plan*. The plan shall be prepared in accordance with the District's Rule 333 Engine Inspection and Maintenance Plan Guidelines, available here: https://www.ourair.org/wp-content/uploads/333Guidelines.pdf.

b. Submit an *AB 617 Compliance Plan*. The plan shall include a table that lists the locations of all engines, three-way catalysts and air-fuel ratio controllers permitted herein. The engine and control equipment configurations must comply with Condition 1.a - b of this permit to ensure compliance with Assembly Bill 617.

Following initial operations, the permittee shall:

c. Begin recordkeeping as specified in the Recordkeeping condition of this permit.

d. Within 14 days of the start of the SCDP, the permittee shall provide the District written notification of the initial operations start date using the attached yellow Startup Notification card or by e-mail to enfr@sbcapcd.org.

e. Arrange for District inspection no later than 30 calendar days (or other mutually agreed upon time period) after the SCDP begins. An inspection can be arranged by calling the District's Compliance Division at (805) 979-8050 or via e-mail to enfr@sbcapcd.org. A minimum of three calendar days advance notice shall be given to the District. The Compliance Division may waive this inspection requirement if an initial inspection is deemed unnecessary to verify that the modifications authorized by this permit are in compliance with District rules and permit conditions.

f. Conduct initial testing of each operational derated engine after the installation of the control equipment in accordance with the following schedule and requirements during the SCDP period:

i. At least 50% of the operational derated engines shall have initial source testing conducted in accordance with Condition 8 within 60 days of the installation of the control equipment on the engines.

ii. For the remaining operational derated engines not source tested in accordance with Condition 6.f.i, initial portable analyzer testing shall be conducted in accordance with Condition 3.d within 7 days of the installation of the control equipment. If the results of the initial portable analyzer testing (and follow-up testing, if performed within 15 days of the initial testing) exceed the emission limits for NO_x or CO listed in Condition 1, initial source testing for the engine shall be conducted within 60 days of the first portable analyzer reading.

iii. Complete initial source testing of all operational derated engines within 365 days of the first source test conducted pursuant to Condition 6.f.i. All source testing shall meet the requirements of Condition 8.

iv. The District may approve an alternative initial testing schedule than those listed in Condition 6.f.i and 6.f.ii upon written request and demonstration of good cause by the permittee.

g. Submit a Permit to Operate (PTO) application and the appropriate filing fee not more than 335 calendar days after the SCDP begins pursuant to District Rule 201.E.2. Upon the District's determination that the permit application is complete, the permittee may continue temporary operations under the SCDP until such time the PTO is issued final or one year from the date of PTO application completeness, whichever occurs earlier. Failure to submit the PTO application within the specified time period shall constitute a violation of this permit.

SCDP extensions of up to 30 days may be granted by the District for good cause. Such extensions may be subject to conditions. When good cause cannot be demonstrated, no administrative extension is available and the permittee shall cease operations. Alternatively, the permittee may submit an application to revise the ATC permit and upon the District finding the application complete the SCDP can be extended. A written request to extend the SCDP shall be made by the permittee at least seven days prior to the SCDP expiration date.

7. **AB 617 Compliance Plan.** Within 14 days after moving any engines or control equipment permitted herein, PCEC shall submit to the District an updated table that lists the locations of all engines and control equipment as an attachment to the *AB 617 Compliance Plan*.

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

a. Source testing shall be performed initially as required by the SCDP condition and biennially thereafter. The permittee shall conduct source testing of air emissions and process parameters listed in Table 4 of this permit. More frequent source testing may be required if the equipment does not comply with permitted limitations or if other compliance problems, as determined by the District, occur. Notwithstanding the above, any non-operational derated engine is not required to be source tested. Source testing shall be conducted within 45 days of any non-operational derated engine resuming operation.

b. The permittee 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). The permittee shall obtain written District approval of the source test plan 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.

c. 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 the permittee's compliance status with mass emission rates in Table 1 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 the permittee as provided for by District Rule 210.

d. Each source test for the engine 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 engine on the scheduled test day. 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. 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. 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.

The timelines in a, b, c and d 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.

9. **Notification of Non-Compliance.** Owners or operators who have determined that they are operating their stationary internal combustion engine in violation of the requirements specified in this permit shall notify the District immediately upon detection of the violation and shall be subject to District enforcement action.

10. **Notification of Loss of Exemption.** Owners or operators of in-use stationary internal combustion engines who are exempt from all or part of the requirements of Rule 333 shall notify the District within five days after they become aware that the exemption no longer applies and shall demonstrate compliance within 180 days after the date the exemption no longer applies.

11. **Documents Incorporated by Reference.** The documents listed below, including any District-approved updates thereof, is incorporated herein by reference and shall have the full force and effect of a permit condition of this permit. This document shall be implemented for the life of the Project and shall be made available to District inspection staff upon request.

    a. *Engine Inspection and Maintenance Plan* (to be submitted).

    b. *AB 617 Compliance Plan* (to be submitted).

    c. *Fuel Use Monitoring Plan* (dated June 3, 2019 and any District-approved updates thereof).

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

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

14. **Compliance.** Nothing contained within this permit shall be construed as allowing the violation of any local, state or federal rules, regulations, air quality standards or increments.

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

16. **Conflict Between Permits.** The requirements or limits that are more protective of air quality shall apply if any conflict arises between the requirements and limits of this permit and any other permitting actions associated with the equipment permitted herein.

17. **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the District or its agents, the permittee shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A.

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

19. **Emission Factor Revisions.** The District may update the emission factors for any calculation based on USEPA AP-42 or District emission factors at the next permit modification or permit reevaluation to account for USEPA and/or District revisions to the underlying emission factors.

20. **Nuisance.** Except as otherwise provided in Section 41705 of the California H&SC, no person shall discharge from any source whatsoever such quantities of air contaminants or other material 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 of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

21. **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit or any Rule, Order, or Regulation may constitute grounds for revocation pursuant to California Health & Safety Code Section 42307 *et seq*.

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

AIR POLLUTION CONTROL OFFICER

March 8, 2023

DATE

Attachments:

- Table 1 – Mass Emission Limits
- Table 2 – Emission Standards
- Table 3 – Emission Factors
- Table 4 – Source Test Requirements
- Permit Equipment List(s)
- Permit Evaluation for Authority to Construct 15974

Notes:

- Stationary sources are subject to an annual emission fee (see Fee Schedule B-3 of Rule 210).
- Annual reports are due by March 1st of each year.
- This permit is valid for one year from the date stamped above if unused.
- This permit supersedes ATC 15372 and ATC 15789.

TABLE 1. MASS EMISSION LIMITS

Device ID	Process Type	NOx		ROC		CO		SOx		PM		PM_{10}		$PM_{2.5}$	
		lb/day	tpy	lb/day	tpy	lb/day	tpy	lb/day	tpy	lb/day	tpy	lb/day	tpy	lb/day	tpy
004359	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
101256	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
008184	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004307	Cyclical	1.00	0.18	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
	Non-cyclical	0.44	0.08	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
008762	Cyclical	1.00	0.18	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
	Non-cyclical	0.44	0.08	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
008763	Cyclical	1.00	0.18	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
	Non-cyclical	0.44	0.08	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
004331	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004338	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004336	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004367	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
008764	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004355	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004372	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004342	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004351	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
004402	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004344	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
004315	Cyclical	0.84	0.15	0.94	0.17	29.76	5.43	0.91	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.37	0.07	0.94	0.17	29.76	5.43	0.91	0.17	0.09	0.02	0.09	0.02	0.09	0.02
008783	Cyclical	0.86	0.16	0.96	0.17	30.28	5.53	0.93	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.96	0.17	30.28	5.53	0.93	0.17	0.09	0.02	0.09	0.02	0.09	0.02
008766	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
004324	Cyclical	1.10	0.20	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
	Non-cyclical	0.48	0.09	1.22	0.22	38.73	7.07	1.18	0.22	0.12	0.02	0.12	0.02	0.12	0.02
008767	Cyclical	1.00	0.18	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
	Non-cyclical	0.44	0.08	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
008784	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
004356	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
004371	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
004345	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
004353	Cyclical	0.87	0.16	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
	Non-cyclical	0.38	0.07	0.97	0.18	30.61	5.59	0.94	0.17	0.09	0.02	0.09	0.02	0.09	0.02
005306	Cyclical	1.00	0.18	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
	Non-cyclical	0.44	0.08	1.12	0.20	35.31	6.44	1.08	0.20	0.11	0.02	0.11	0.02	0.11	0.02
Worst-case totals:		**26.45**	**4.83**	**29.48**	**5.38**	**933.03**	**170.28**	**28.52**	**5.20**	**2.86**	**0.52**	**2.86**	**0.52**	**2.86**	**0.52**

Table Notes:

(a) Of the 28 total engines, two are spares. Only 26 catalysts and air-fuel ratio controllers are permitted; therefore, up to 26 engines may operate at a time. Furthermore, NOx emissions from each engine were calculated for both cyclical and non-cyclical processes because engines may be moved and used for either type of process. The NOx standard for cyclical processes is higher than the NOx standard for non-cyclical processes. For these reasons, the worst-case totals in Table 1 are sums for the 26 engines with the highest emissions, using the NOx standard for cyclical processes.

TABLE 2. EMISSION STANDARDS

Process Type	NO_x	ROC	CO	Units	Basis
Cyclical	25	80 (as methane)	1,450	ppmvd @ 15% O_2	BARCT
Non-cyclical	11	80 (as methane)	1,450	ppmvd @ 15% O_2	BARCT

TABLE 3. EMISSION FACTORS (lb/MMBtu)

Process Type	NO_X	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
Cyclical	0.0924	0.103	3.26	0.100	0.010	0. 010	0. 010
Non-cyclical	0.0406	0.103	3.26	0.100	0.010	0. 010	0. 010

Table Notes:

(a) Mass emission limits based on operations 24 hours/day and 8,760 hours/year.

(b) NO_X as NO_2. SO_X as SO_2.

(c) Device ID # from permit equipment list.

(d) lb/day = pounds per day. tpy = tons per year

(e) NO_X, ROC and CO emission factors are based off of the calculations shown in Attachment A.

(f) SO_X emission factor is based on 796 ppmv fuel sulfur content, 0.169 lb SO2/scf H2S, and field gas higher heating value of 1,350 Btu/scf.

(g) $PM/PM_{10}/PM_{2.5}$ emission factor from Table 3.6-3 of SBCAPCD Permit Guideline Document on *Reciprocating Gas-Fired Internal Combustion Engines*.

TABLE 4. SOURCE TEST REQUIREMENTS

Emission & Limit Test Points	Pollutant	Parameters [b]	Test Methods [c], [d]	Limit	
				Concentration (ppmvd @ 15% O_2)	Mass Emissions
IC Engine Exhaust [a]	NO_X (cyclical processes)	ppmv, lb/hr	EPA Method 7E, ARB 1-100	25	See Table 1
	NO_X (non-cyclical processes)	ppmv, lb/hr	EPA Method 7E, ARB 1-100	11	See Table 1
	ROC	ppmv, lb/hr	EPA Method 18	80	See Table 1
	CO	ppmv, lb/hr	EPA Method 10, ARB 1-100	1,450	See Table 1
	Sampling Point Det.		EPA Method 1		
	Stack Gas Flow Rate		EPA Method 2 or 19		
	O_2	Dry, Mol. Wt	EPA Method 3A, ARB 1-100		
	Moisture Content		EPA Method 4		
Fuel	Flow Rate		Fuel Gas Meter [e]		
	Higher Heating Value	Btu/scf	ASTM D 1826-88		
	Total Sulfur Content [f]		ASTM D 1072		

Table Notes:

(a) Source testing shall be performed for the engine in an "as found" condition operating at a representative, District-approved, IC engine load (gal/hr).

(b) The emission rates shall be based on EPA Methods 2 and 4, or Method 19 along with the heat input rate.

(c) Alternative methods may be acceptable on a case-by-case basis.

(d) For NO_x, ROC, CO and O_2, a minimum of three 30-minute runs shall be obtained during each test.

(e) Fuel meter only required if Method 19 is used to calculate the stack gas flow rate, in which case the fuel meter must meet the manufacturer's and Method 19 calibration requirements prior to testing. If Method 1-4 is used, no fuel meter is required.

(f) 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.

PERMIT EQUIPMENT LIST - TABLE A

ATC 15974 / FID: 04214 Orcutt Hill IC Engines / SSID: 02667

A PERMITTED EQUIPMENT

1 IC Engine: (#10939)

Device ID #	**004307**	***Device Name***	**IC Engine: (#10939)**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.60 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	10939
Model	WAK	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.98" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

2 IC Engine: (#11763)

Device ID #	**004315**	***Device Name***	**IC Engine: (#11763)**
Rated Heat Input	0.380 MMBtu/Hour	*Physical Size*	41.80 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11763
Model	195	*Serial Number*	
Location Note	Historical location: Jacket Water Pump 3. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 1.65" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

3 IC Engine: (#11983)

Device ID #	**004324**	***Device Name***	**IC Engine: (#11983)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11983
Model	145	*Serial Number*	
Location Note	Historical location: Hobbs #18. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

4 IC Engine: (#11143)

Device ID #	**004331**	***Device Name***	**IC Engine: (#11143)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11143
Model	817	*Serial Number*	
Location Note	Historical location: Newlove Injection #10E. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

5 IC Engine: (#11484)

Device ID #	**004336**	***Device Name***	**IC Engine: (#11484)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11484
Model	145	*Serial Number*	
Location Note	Historical location: Dome #15. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

6 IC Engine: (#11480)

Device ID #	**004338**	***Device Name***	**IC Engine: (#11480)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11480
Model	145	*Serial Number*	
Location Note	Historical location: Newlove Injection #4. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

7 IC Engine: (#11513)

Device ID #	**004342**	***Device Name***	**IC Engine: (#11513)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11513
Model	145	*Serial Number*	
Location Note	Historical location: Folsom #6. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

8 IC Engine: (#11667)

Device ID #	**004344**	***Device Name***	**IC Engine: (#11667)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	11667
Model	800	*Serial Number*	
Location Note	Historical location: Newlove #57. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

9 IC Engine: (#12159)

Device ID #	**004345**	***Device Name***	**IC Engine: (#12159)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	12159
Model	800	*Serial Number*	
Location Note	Historical location: Dome #7. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

10 IC Engine: (#11523)

Device ID #	**004351**	***Device Name***	**IC Engine: (#11523)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	11523
Model	800	*Serial Number*	
Location Note	Historical location: Newlove #52. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

11 IC Engine: (#12161)

Device ID #	**004353**	***Device Name***	**IC Engine: (#12161)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	12161
Model	800	*Serial Number*	
Location Note	Historical location: Cal Coast #21. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

12 IC Engine: (#11505)

Device ID #	**004355**	***Device Name***	**IC Engine: (#11505)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11505
Model	145	*Serial Number*	
Location Note	Historical location: Newlove Injection #7B. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

13 IC Engine: (#12151)

Device ID #	**004356**	***Device Name***	**IC Engine: (#12151)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	12151
Model	800	*Serial Number*	
Location Note	Historical location: Newlove #69. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

14 IC Engine: (#9553)

Device ID #	**004359**	***Device Name***	**IC Engine: (#9553)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	9553
Model	145	*Serial Number*	
Location Note	Historical location: Squires #38. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922"		

15 IC Engine: (#11489)

Device ID #	**004367**	***Device Name***	**IC Engine: (#11489)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11489
Model	145	*Serial Number*	
Location Note	Historical location: Squires #23. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

16 IC Engine: (#12155)

Device ID #	**004371**	***Device Name***	**IC Engine: (#12155)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	12155
Model	800	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

17 IC Engine: (#11511)

Device ID #	**004372**	***Device Name***	**IC Engine: (#11511)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11511
Model	817	*Serial Number*	
Location Note	Historical location: Cal Coast #4. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

18 IC Engine: (#11615)

Device ID #	**004402**	***Device Name***	**IC Engine: (#11615)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11615
Model	145	*Serial Number*	
Location Note	Historical location: Newlove #58. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

19 IC Engine: (#12168)

Device ID #	**005306**	***Device Name***	**IC Engine: (#12168)**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.60 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	12168
Model	WAK	*Serial Number*	
Location Note	Historical location: Cal Coast Inj. #3. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.98" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

20 IC Engine: (#10215)

Device ID #	**008184**	***Device Name***	**IC Engine: (#10215)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	10215
Model	145	*Serial Number*	
Location Note	Historical location: Cal Coast Inj #8. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922"		

21 IC Engine: (#11010)

Device ID #	**008762**	***Device Name***	**IC Engine: (#11010)**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.60 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11010
Model	WAK	*Serial Number*	
Location Note	Historical location: Cal Coast Injection #3. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.98" Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

22 IC Engine: (#11033)

Device ID #	**008763**	***Device Name***	**IC Engine: (#11033)**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.60 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11033
Model	WAK	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.98" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

23 IC Engine: (#11499)

Device ID #	**008764**	***Device Name***	**IC Engine: (#11499)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11499
Model	145	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

24 IC Engine: (#11975)

Device ID #	**008766**	***Device Name***	**IC Engine: (#11975)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	11975
Model	817	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

25 IC Engine: (#12066)

Device ID #	**008767**	***Device Name***	**IC Engine: (#12066)**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.60 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	12066
Model	WAK	*Serial Number*	
Location Note	Historical location: Cal Coast Injection #2. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.98" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

26 IC Engine: (#11830)

Device ID #	**008783**	***Device Name***	**IC Engine: (#11830)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	46.30 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	11830
Model	336	*Serial Number*	
Location Note	Historical location: Pinal #31. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 1.30" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

27 IC Engine: (#12145)

Device ID #	**008784**	***Device Name***	**IC Engine: (#12145)**
Rated Heat Input	0.390 MMBtu/Hour	*Physical Size*	48.00 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	12145
Model	800	*Serial Number*	
Location Note	Historical location: Newlove #69. See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.85" On line: 8,760 hr/yr Fuel parameters: Fuel HHV: 1,350 Btu/scf for NG, sulfur: % by vol: 0.0796		

28 IC Engine: (#9818)

Device ID #	**101256**	***Device Name***	**IC Engine: (#9818)**
Rated Heat Input	0.500 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	9818
Model	145	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Capacity limits: Orifice Plate @ 0.922"		

29 MINE-X DCL 47 Three-Way NSCR Catalysts

Device ID #	**397881**	***Device Name***	**MINE-X DCL 47 Three-Way NSCR Catalysts**
Rated Heat Input		*Physical Size*	
Manufacturer	DCL International Inc.	*Operator ID*	
Model	MINE-X DCL 47	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Or District-approved equivalent. Twenty (20) catalysts total. Flexible placement on any of the de-rated Orcutt Hill IC engines.		

30 MINE-X DCL 4835 SLIP Three-Way NSCR Catalysts

Device ID #	**397901**	***Device Name***	**MINE-X DCL 4835 SLIP Three-Way NSCR Catalysts**
Rated Heat Input		*Physical Size*	
Manufacturer	DCL International Inc.	*Operator ID*	
Model	MINE-X DCL 4835 SLIP	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Or District-approved equivalent. Six (6) catalysts total. Flexible placement on any of the de-rated Orcutt Hill IC engines.		

31 Air-Fuel Ratio Controllers

Device ID #	**397907**	***Device Name***	**Air-Fuel Ratio Controllers**
Rated Heat Input		*Physical Size*	
Manufacturer	Altronic	*Operator ID*	
Model	EPC-50/50e	*Serial Number*	
Location Note	See AB 617 Compliance Plan.		
Device Description	Twenty-six (26) AFRCs total. Used with three-way catalyst to maximize control efficiency. Flexible placement on any of the de-rated Orcutt Hill IC engines.		

B EXEMPT EQUIPMENT

1 IC Engine

Device ID #	**397935**	***Device Name***	**IC Engine**
Rated Heat Input	MMBtu/Hour	*Physical Size*	19.00 Brake Horsepower
Manufacturer	Arrow	*Operator ID*	
Model	C-96	*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.F.1.f. Spark ignition piston-type ICEs < = 50 bhp /Gas Turbines <= 3 MMBtu/hr	
Location Note			
Device Description	19 bhp or smaller		

2 IC Engine

Device ID #	**397936**	***Device Name***	**IC Engine**
Rated Heat Input	MMBtu/Hour	*Physical Size*	19.00 Brake Horsepower
Manufacturer	Arrow	*Operator ID*	
Model	C-96	*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.F.1.f. Spark ignition piston-type ICEs < = 50 bhp /Gas Turbines <= 3 MMBtu/hr	
Location Note			
Device Description	19 bhp or smaller		

air pollution control district
SANTA BARBARA COUNTY

PERMIT EVALUATION FOR AUTHORITY TO CONSTRUCT 15974

1.0 BACKGROUND

1.1 General: Pursuant to California Assembly Bill (AB) 617, the District adopted a new Best Available Retrofit Control Technology (BARCT) schedule, and Rule 333 was included on the list of measures that needed to be evaluated for BARCT. The de-rated engines at the PCEC Orcutt Hill stationary source are required to comply with the BARCT emission limits because this source is subject to the California Cap-and-Trade requirements. PCEC temporarily operated catalysts and air-fuel ratio controllers under ATCs 15372 and 15789 to test the viability of these control technologies to comply with the AB 617 BARCT requirements. By submitting the application for ATC 15974, PCEC elected to modify their permit to implement BARCT requirements, and the District determined rulemaking to revise Rule 333 was unnecessary. The application for ATC 15974 was submitted on October 4, 2022 and deemed complete on November 10, 2022. PCEC is required to implement BARCT no later than December 31, 2023, in accordance with AB 617.

The applicable BARCT emission limits are 11 ppmv NO_X @ 15% O_2 for derated engines used for non-cyclical processes, 25 ppmv NO_X @ 15% O_2 for derated engines used for cyclical processes, 250 ppmv ROC (as methane) @ 15% O_2, and 2,000 ppmv CO @15% O_2. The emission limits listed in Table 2 of this permit comply with the BARCT standards. The ROC emission factor used for these engines in the existing Part 70 permit is 0.103 lb/MMBtu, equal to 80 ppmv ROC (as methane) @15% O_2. In order to avoid an increase in permitted ROC emissions, PCEC proposed to use the same limit in ATC 15974. The CO emission factor used for these engines in the existing Part 70 permit is 1.600 lb/MMBtu, equal to 711 ppmv CO @15% O_2. Due to concern about complying with this low CO limit, PCEC proposed to use a CO limit of 1,450 ppmv @ 15% O_2, which complies with BARCT requirements and avoids triggering additional NSR and PSD permitting requirements.

1.2 Permit History:

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC 15372	7/24/2019	Temporary permit to test control devices on the de-rated engines that power pumping units and the water injection facility at Orcutt Hill.
ATC Mod 15372 01	12/23/2019	Request for additional time to continue to test the ICE catalyst control.
ATC Mod 15372 02	06/03/2020	Request for additional time to continue to test the ICE catalyst control.
ATC Mod 15372 03	12/17/2020	Request for additional time to continue to test the ICE catalyst control.

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
PT-70/Reeval 08039 R11	06/15/2021	Permit Reevaluation
ATC 15789	11/16/2021	Temporary permit to test control devices on the de-rated engines that power pumping units at the water injection facility.
ATC Mod 15789 01	05/05/2022	Extend the time allowed to test emission controls on de-rated ICE's.
ATC Mod 15789 02	08/18/2022	Extend the time allowed to test emission controls on de-rated ICE's.

1.3 Compliance History: The permitted equipment has no compliance history.

2.0 ENGINEERING ANALYSIS

2.1 Equipment/Processes: The internal combustion engines are fired on field gas and used to drive pumping units, water pumps, compressors and other oil and gas production equipment. These rich-burn engines are derated to between 41.8 and 49.6 bhp using orifice plates. The three-way catalysts and air-fuel ratio controllers are used to control emissions from these engines to comply with BARCT standards.

2.2 Emission Controls: The three-way catalysts are used to control NO_X, CO and ROC emissions from the de-rated engines. The air-fuel ratio controllers are used in conjunction with the catalysts and are designed to optimize reductions in NO_X, CO and ROC emissions.

2.3 Emission Factors: Emission factors for the engines are documented in Attachment A. The NO_X emission factors are based on the BARCT standards. The ROC and CO emission factors were proposed by the applicant and comply with BARCT. The SO_X emission factor is based on 796 ppmv fuel sulfur content, 0.169 lb SO_2/scf H_2S, and field gas higher heating value of 1,350 Btu/scf. The $PM/PM_{10}/PM_{2.5}$ emission factor is based on Table 3.6-3 of SBCAPCD Permit Guideline Document on *Reciprocating Gas-Fired Internal Combustion Engines*.

2.4 Reasonable Worst Case Emission Scenario: The worst-case emission scenario is engine operation at its derated brake-horsepower for 24 hours/day, 8760 hours/year.

2.5 Emission Calculations: Emission rates were calculated using the formula below:

$$ER = EF \times HI$$

Where:

ER = Emission rate (lb pollutant/period)
EF = Pollutant emission factor (lb pollutant/MMBtu)
HI = Fuel heat input per operating period (MMBtu/period)

2.6 Special Calculations: The SO_X emission factor was calculated using the formula below:

$$EF_{SO2} = 1/(HHV/10^6) \times ppmv\ S/10^6 \times 1/MV \times MR \times MW_{SO2}$$

Where:

EF_{SO2}	=	Emission factor for oxides of sulfur (lb SO_2/MMBtu)
$HHV/10^6$	=	Fuel higher heating value ([Btu/ft^3]/10^6 = MMBtu/std ft^3 fuel)
ppmv S	=	Parts per million sulfur by volume (ft^3 S/10^6 std ft^3 fuel)
MV	=	Molar volume (379.7 ft^3 S/lb-mol S – assumes std temp of 60°F)
MR	=	Molar ratio (S + O_2 => SO_2 – i.e., MR = 1 lb-mol SO_2/lb-mol S)
MW_{SO2}	=	Molecular weight of sulfur dioxide (64.07 lb SO_2/lb-mol SO_2)

Dimensional Analysis:

[lb SO_2/MMBtu] = [std ft^3 fuel/MMBtu] [ft^3 S/10^6 std ft^3 fuel] × [lb-mol S/ft^3 S] [lb-mol SO_2/lb-mol S] [lb SO_2/lb-mol SO_2]

NO_X, ROC and CO emission factor calculations may be found in Attachment A. These emission factors were calculated using the formula below:

$$ER = F_D \times CF \times ppmv/10^6 \times 1/MV \times MW$$

Where:

ER	=	Emission rate of pollutant (lb/MMBtu)
F_D	=	F-factor (8,608 std ft^3/MMBtu)
CF	=	Conversion factor from 0% O_2 to 15% O_2 (20.9/[20.9-15] – dimensionless)
ppmv	=	Parts per million of the pollutant by volume (ft^3 pollutant/10^6 std ft^3 fuel)
MV	=	Molar volume (379.7 ft^3/lb-mol – assumes std temp of 60°F)
MW	=	Molecular weight of pollutant (lb/lb-mol)

Dimensional Analysis:

[lb pollutant/MMBtu] = [std ft^3 fuel/MMBtu] [ft^3 pollutant/10^6 std ft^3 fuel] × [lb-mol pollutant/ft^3 pollutant] [lb pollutant/lb-mol pollutant]

2.7 BACT Analyses: Best Available Control Technology was not required for this project.

2.8 Enforceable Operational Limits: The permit has enforceable operating conditions that ensure the equipment is operated properly.

2.9 Monitoring Requirements: Monitoring of the equipment's operational limits are required to ensure that these are enforceable.

2.10 Recordkeeping and Reporting Requirements: The permit requires that the data which is monitored be recorded and reported to the District.

3.0 REEVALUATION REVIEW (not applicable)

4.0 REGULATORY REVIEW

4.1 Partial List of Applicable Rules:

Rule 201.	Permits Required
Rule 202.	Exemptions to Rule 201
Rule 205.	Standards for Granting Permits
Rule 301.	Circumvention
Rule 302.	Visible Emissions
Rule 303.	Nuisance
Rule 311.	Sulfur Content of Fuels
Rule 333.	Control of Emissions from Reciprocating Internal Combustion Engines
Rule 801.	New Source Review – Definitions and General Requirements
Rule 802.	New Source Review
Rule 809.	Federal Minor Source New Source Review
Rule 810.	Federal Prevention of Significant Deterioration

4.2 Rules Requiring Review:

4.2.1 *Rule 311 – Sulfur Content of Fuels*: Condition 2.g of this permit specifies that the sulfur content shall not exceed 796 ppmv as H_2S.

4.2.2 *Rule 333 – Control of Emissions from Reciprocating Internal Combustion Engines:* Pursuant to Section B.1.c, the engines included in this permit are exempt from the requirements of Rule 333.

5.0 AQIA

The project is not subject to the Air Quality Impact Analysis requirements of Regulation VIII.

6.0 OFFSETS/ERCs

6.1 Offsets: The Pacific Coast Energy Company Orcutt Hill stationary source exceeds the emission offsets threshold of Regulation VIII for NO_X and ROC. However, this project does not require the surrender of offsets because there is no increase to NO_X and ROC emissions as a result of this project.

6.2 ERCs: This source does not generate emission reduction credits.

7.0 AIR TOXICS

An air toxics health risk assessment was not performed for this permitting action.

8.0 CEQA / LEAD AGENCY

The District is the lead agency under CEQA for this project. This project is exempt from CEQA pursuant to the Environmental Review Guidelines for the Santa Barbara County APCD (revised April 30, 2015). Appendix A (*APCD Projects Exempt from CEQA* and *Equipment or Operations Exempt from CEQA*) provides an exemption specifically for: Projects to install air pollution control or abatement equipment. No further action is necessary.

9.0 SCHOOL NOTIFICATION

A school notice pursuant to the requirements of Health and Safety Code §42301.6 was not required.

10.0 PUBLIC and AGENCY NOTFICATION PROCESS/COMMENTS ON DRAFT PERMIT

10.1 This project was not subject to public notice.

10.2 The permittee's comments on the draft permit and the District's responses may be found in Attachment D.

11.0 FEE DETERMINATION

Fees for the District's work efforts are assessed on a fee basis. The Project Code is *500000* (*Oil and Gas Facilities*). See Attachment C for the fee calculations.

12.0 RECOMMENDATION

It is recommended that this permit be granted with the conditions as specified in the permit.

Charlotte Mountain	2/8/2023		3/8/2023
AQ Engineer/Technician	Date	Supervisor	Date

13.0 ATTACHMENT(S)

A. Emission Calculations
B. IDS Tables
C. Fee Statement
D. Permittee Draft Comments and District Responses

ATTACHMENT A
Emission Calculations

CONVERT PPMV TO LB/MMBTU (Ver. 1.0)

Attachment: A
Permit Number: ATC 15974
Facility: Orcutt Hill IC Engines

Equation

$$\frac{lb}{MMBtu} = ppm * 10^{-6} * \frac{1}{molar\ volume} * Molar\ Weight * F_d * \frac{20.9}{(20.9 - \%O_2)}$$

PPMV Values to Convert

Pollutant	*PPMV Value*	*Reference*
NO_x	25	BARCT standard for cyclical processes
NO_x	11	BARCT standard for non-cyclical processes
ROC	80	proposed by applicant, complies with BARCT
CO	1450	proposed by applicant, complies with BARCT

Pollutant Properties

Pollutant	*Molar Weight*	*Units*	*Notes*
NO_x	46.01	g/mol	As NO_2
ROC	16.04	g/mol	As Methane (CH_4)
CO	28.01	g/mol	N/A

Gas Properties

Input	*Value*	*Units/References*
Molar Volume	379.7	dscf/lb-mol at 1 atm and 60 °F
F_d Factor	8608	dscf/MMBtu (for 1,050 Btu/scf Natural Gas at 60 °F)
Corrected Oxygen	15	percent

Calculated lb/MMBtu Values

Pollutant	*lb/MMBtu Value*
NO_x (cyclical)	**0.0924**
NO_x (non-cyclical)	**0.0406**
ROC	**0.1030**
CO	**3.2614**

Processed By: CIM Date: 2/22/2023

Authority to Construct 15974

ATTACHMENT B
IDS Tables

PERMIT POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
lb/day	26.45	29.48	933.03	28.52	2.86	2.86	2.86
lb/hr							
TPQ							
TPY	4.83	5.38	170.28	5.20	0.52	0.52	0.52

FACILITY POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
lb/day	1,155.59	144.43	2,376.93	95.44	14.18	14.18	14.18
lb/hr							
TPQ							
TPY	134.48	12.62	281.25	12.02	1.23	1.23	1.23

STATIONARY SOURCE POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
lb/day	1,208.63	3,590.50	2,473.91	113.77	44.58	44.58	44.58
lb/hr							
TPQ							
TPY	144.15	168.76	298.94	15.73	6.78	6.78	6.78

Notes:
(1) Emissions in these tables are from IDS.
(2) Because of rounding, values in these tables shown as 0.00 are less than 0.005, but greater than zero.

ATTACHMENT C
Fee Statement

air pollution control district
SANTA BARBARA COUNTY

FEE STATEMENT
ATC No. 15974
FID: 04214 Orcutt Hill IC Engines / 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
397881	MINE-X DCL 47 Three-Way NSCR Catalysts	A1.a	1.000	79.76	Per equipment	No	20	1.000	1,595.20	0.00	0.00	1,595.20
397901	MINE-X DCL 4835 SLIP Three-Way NSCR Catalysts	A1.a	1.000	79.76	Per equipment	No	6	1.000	478.56	0.00	0.00	478.56
397907	Air-Fuel Ratio Controllers	A1.a	1.000	79.76	Per equipment	No	26	1.000	2,073.76	0.00	0.00	2,073.76
	Device Fee Sub-Totals =								$4,147.52	$0.00	$0.00	
	Device Fee Total =											$4,147.52

Permit Fee

Fee Based on Devices **$4147.52**

Fee Statement Grand Total = $4,147

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.

Authority to Construct 15974

ATTACHMENT D
Permittee Draft Comments and District Responses

Pacific Coast Energy Company submitted the following comments on draft ATC 15974:

1. Authorized Modification. The last sentence references 2 de-rated engines being "removed", and listed in the permit as de-permitted. These two engines are intended to act as "spare" engines not spare parts. Please do not de-permit them. There has been a total of 14 engines that have already been de-permitted since the start of the ICE BARCT testing and permitting process.

   Response: The final permit includes these two engines, Device IDs 004367 and 008783.

2. Based on catalyst availability and cost, PCEC would like to request a condition that allows approval of other makes and models. If this request is approved, please revise conditions 2.c. and 2.d. to include language that references "other approved catalysts".

   Response: Conditions 2.b and 2.f of the final permit reflect this change.

3. Permit Condition 2.e. As allowed by District rule and PCEC's PTO 8039-R11, ICEs can be moved anywhere in Orcutt Hill Field, PCEC does not want to loose the ability to move the location of any engine. The AB 617 Compliance Plan mandates the location and Permit Condition 7 requires District approval prior to moving an engine it severely limits PCECs operations and PCEC does not want to lose operational flexibility.

   If the intent of the condition and the plan is to enforce what catalysts are operating on what engine, the only concern should be that the non-cyclic engines operating at the Cal Coast water injection plant will operate with the larger of the two catalyst models. Perhaps instead of a plan and a reporting requirement, a permit condition could be added that requires the larger catalyst to be operating on any engine at the water injection plant. It really does not matter what catalyst is operating on the engines operating the pumping units cyclic or non-cyclic. The larger catalyst model at the water injection plant can be confirmed during quarterly NOx box testing and during District inspections.

   Response: Condition 7 has been revised to require notification after equipment has been moved, rather than District approval prior to moving equipment.

4. Permit Condition 2.g. This permit condition requires a NOx Box test within 3 days of replacing a catalyst or an AFRC, due to the availability of technicians. PCEC is requesting that 3 days is extended to 7 days.

   Response: This change is reflected in the final permit.

ATTACHMENT D
Permittee Draft Comments and District Responses

5. Condition 3.a. PCEC cannot install non-resettable hour meters on any of these engines. Not only have hour meters proved unreliable historically, but, the entire District approved Fuel Meter Plan does not include the requirement for hour meters. If necessary PCEC can review the fuel system at Orcutt Hill with the District. The hours of operation for the internal combustion engines are determined from CalGem downtime reports. All wells at Orcutt Hill Field are checked twice daily by the operators. To determine the operating hours for the field ICEs, all the daily operator logs from the entire Orcutt Hill Stationary Source are reviewed and the engine on time is recorded and maintained in a database that is used to determine fuel use and ultimately reporting.

   Response: The condition requiring hour meters was removed.

6. Condition 3.b. The most recent approved FUMP was in June 2019. This modification was made to remove the 4 non-resettable hour meters from the four 200 hour engines. The elements have proved too harsh for the longevity of the hour meters. Breakdowns were called in every time one malfunctions or were replaced.

   Response: The Fuel Use Monitoring Plan date has been updated in the final permit.

7. Condition 4.a. and Condition 5. The request to log and ultimately report daily operating hours and fuel is excessive and not in character with the PTO 8039. PCEC is requesting that the semi-annual reporting for these engines not be modified by this permit.

   Response: The condition requiring logs of daily operating hours was removed.

8. Permit Condition 6. Due to the nature of this project, an SCDP condition that is project specific should be written. All the control devices will be installed, NOx Box testing will be conducted and half of the engines will be source tested. An application for a permit to operate can be submitted within 180 days. PCEC and the District have discussed staggered source testing, all engines will not be tested by the end of December 2023. If AB 617 requires that the project has a PTO applied for or issued by December 31, 2023, then a negotiated SCDP condition should be written.

   Response: The SCDP condition length and requirements have been revised to require that at least 50% of the operational derated engines have source testing conducted within 60 days after the installation of control equipment and allow staggered source testing for the remaining operational derated engines over the course of one year.

ATTACHMENT D
Permittee Draft Comments and District Responses

9. Condition 7. The requirement to receive approval from the District to move an engine is not a realistic operating scenario for PCEC. If necessary, the AB 617 Compliance Plan will list all wells on Orcutt Hill that are ICE driven as sites for these engines. Please refer to comment number 3.

   Response: Condition 7 has been revised to require notification after equipment has been moved, rather than District approval prior to moving equipment.

10. Permit Condition 9. Does permit condition 9 deny PCEC Rule 505 Breakdown protection? And is it applicable since these engines are not subject to Rule 333.

    Response: Condition 9 has been revised to reference this permit rather than Rule 333. This condition does not preclude PCEC from notifying the District of a breakdown pursuant to Rule 505.

11. Table 4. PCEC would like to request that an option to use Method EPA 1 -4 for determining fuel volume during source testing.

    Response: Table 4 has been updated to reflect this change.

12. Permitted Equipment List: Please remove the location requirement from the equipment list.

    Response: The location notes refer to the AB 617 Compliance Plan, which will be updated within 14 days after equipment has been moved, per Condition 7.

13. De-Permitted Equipment. Please add these engines back to the list of permitted equipment, they will be in storage and used as spare engines.

    Response: The final permit includes these two engines, Device IDs 004367 and 008783.

apcd air pollution control district
SANTA BARBARA COUNTY

March 8, 2023

Certified Mail 9171 9690 0935 0291 5715 83
Return Receipt Requested

Phillip Brown
Pacific Coast Energy Company LP
1555 Orcutt Hill Road
Orcutt, CA 93455

FID: 04214
Permit: A 15974
SSID: 02667

Re: Notice of Final Authority to Construct 15974 Issuance
Fee Due: $ 4,147

Dear Phillip Brown:

Enclosed is the final Authority to Construct (ATC) No. 15974 to install emissions control devices on derated internal combustion engines at the Orcutt Hill facility.

THIS IS NOT YOUR PERMIT TO OPERATE. PLEASE READ ALL PERMIT CONDITIONS CAREFULLY.

Please carefully review the enclosed documents to ensure that they accurately describe your facility and that the conditions are acceptable to you.

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

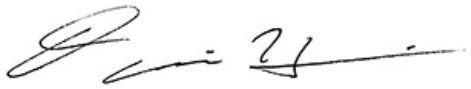
This permit requires you to:

- Pay a **fee** of $4,147, which is due immediately and is considered late after 30 calendar days from the date stamped on the permit. Pursuant to District Rule 210.IV.B, no appeal shall be heard unless all fees have been paid. See the attached invoice for more information.
- Follow the conditions listed on your permit. Pay careful attention to the recordkeeping and reporting requirements.
- Mail us the enclosed Start-up Notification postcard once you have completed construction of the permitted equipment and are ready to operate it.
- Apply for and obtain a Permit to Operate prior to commencing routine equipment operation.
- Ensure that a copy of the enclosed permit is posted or kept readily available near the permitted equipment.
- Promptly report changes in ownership, operator, or your mailing address to the District.

If you are not satisfied with the conditions of this permit, **you have thirty (30) calendar days from the date of this permit issuance notice to appeal this permit to the Air Pollution Control District Hearing Board** (ref: California Health and Safety Code, §42302.1). Any contact, discussions, or meetings with District staff regarding the terms of this permit during or after permit issuance do not constitute an appeal under Rule 209 or the California H&SC and will not stop or alter the 30-day appeal period. Only a formal application to the Hearing Board can initiate an appeal. You may contact the Clerk of the Hearing Board for specific information concerning appeal initiation and procedures. If you accept the permit by commencing construction or operation of the newly permitted equipment, you forfeit any right to pursue an appeal of this permit action.

Please include the facility identification (FID) and permit numbers as shown at the top of this letter on all correspondence regarding this permit. If you have any questions, please contact Charlotte Mountain of my staff at (805) 979-8314.

Sincerely,



David Harris, Division Manager
Engineering Division

enc: Final ATC 15974
Final Permit Evaluation
Invoice # A 15974
Start-up Notification Postcard

cc: Orcutt Hill IC Engines 04214 Project File
Marianne Strange
Engr Chron File
Accounting (Invoice only)
Charlotte Mountain (Cover letter only)

\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 02667 Pacific Coast Energy Orcutt Hill\04214 IC Engines\ATCs\ATC 15974\ATC 15974 - Final Letter - 3-8-2023.docx

air pollution control district
SANTA BARBARA COUNTY

260 N. San Antonio Rd, Suite A
Santa Barbara, CA 93110-1315

Invoice: A 15974
Date: 03/08/2023
Terms: Net 30 Days

500000/6600/3280

INVOICE

BILL TO:	FACILITY:
Phillip Brown Pacific Coast Energy Company LP (103494) 1555 Orcutt Hill Road Orcutt, CA 93455	Orcutt Hill IC Engines 04214

Permit: Authority to Construct (ATC) No. 15974

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

Amount Due: $ 4,147

REMIT PAYMENTS TO THE ABOVE ADDRESS
Please indicate the invoice number A 15974
on your remittance.

IF YOU HAVE ANY QUESTIONS REGARDING YOUR INVOICE PLEASE CONTACT
OUR ADMINISTRATION DIVISION AT (805) 979-8050

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

ATTACHMENT C

District Board Resolution for Assembly Bill 617 – Reciprocating Internal Combustion Engines

March 16, 2023

Santa Barbara County Air Pollution Control District
Board of Directors

260 San Antonio Road, Suite A
Santa Barbara, California 93110

IN THE MATTER OF ASSEMBLY BILL 617 – RECIPROCATING INTERNAL COMBUSTION ENGINES	APCD RESOLUTION NO. _____

RECITALS

WHEREAS, Santa Barbara County is designated nonattainment for the state ozone standard and the state standard for particulate matter less than 10 microns in diameter (PM_{10}).

WHEREAS, California Health and Safety Code Section 40920.6, as amended by California Assembly Bill 617 (2017), requires each California air district that is nonattainment for one or more air pollutants to adopt an expedited schedule for the implementation of Best Available Retrofit Control Technology (BARCT) on or before January 1, 2019, and the schedule must provide for the implementation of BARCT by the earliest feasible date, but in any event, not later than December 31, 2023; and

WHEREAS, the Assembly Bill 617 BARCT Rule Development Schedule, as adopted by the Board on December 20, 2018, included a commitment to conduct rulemaking procedures in order to evaluate and implement BARCT at the six industrial facilities in Santa Barbara County that were subject to the California Greenhouse Gas Cap-and-Trade Regulation as of January 1, 2017.

WHEREAS, amended Rule 333 – Reciprocating Internal Combustion Engines was included as a measure to be evaluated on the Assembly Bill 617 BARCT Rule Development Schedule.

WHEREAS, only one facility within the District's jurisdiction currently has equipment that would be subject to amended Rule 333 – Reciprocating Internal Combustion Engines.

WHEREAS, District staff performed a detailed analysis of available engine control technologies and the expected costs to fully meet all BARCT requirements being evaluated under amended Rule 333.

WHEREAS, the affected Assembly Bill 617 Industrial Facility that would be subject to amended Rule 333 has voluntarily submitted an Authority to Construct application to incorporate all BARCT standards for Reciprocating Internal Combustion Engines into its Permit to Operate for the applicable existing equipment, resulting in enforceable conditions that implement BARCT for Reciprocating Internal Combustion Engines no later than December 31, 2023.

NOW, THEREFORE, IT IS HEREBY RESOLVED, as follows:

1. Based on the information recited above, amendments to District Rule 333 are no longer necessary to satisfy the AB 617 BARCT requirements.
2. This action is exempt from the California Environmental Quality Act (CEQA) because it is not a project pursuant to CEQA Guidelines section 15378(b)(5).

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PASSED, APPROVED AND ADOPTED by the Air Pollution Control District Board of the Santa Barbara County, State of California, this ___ day of _____, _____, by the following vote:

Ayes:

Noes:

Abstain:

Absent:

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT

By _____
Chair

Date _____

ATTEST:

AERON ARLIN GENET
Clerk of the Board

By _____
Deputy

APPROVED AS TO FORM:

RACHEL VAN MULLEM
Santa Barbara County Counsel

By _____
Jennifer Richardson (Mar 1, 2023 13:04 PST)
District Counsel